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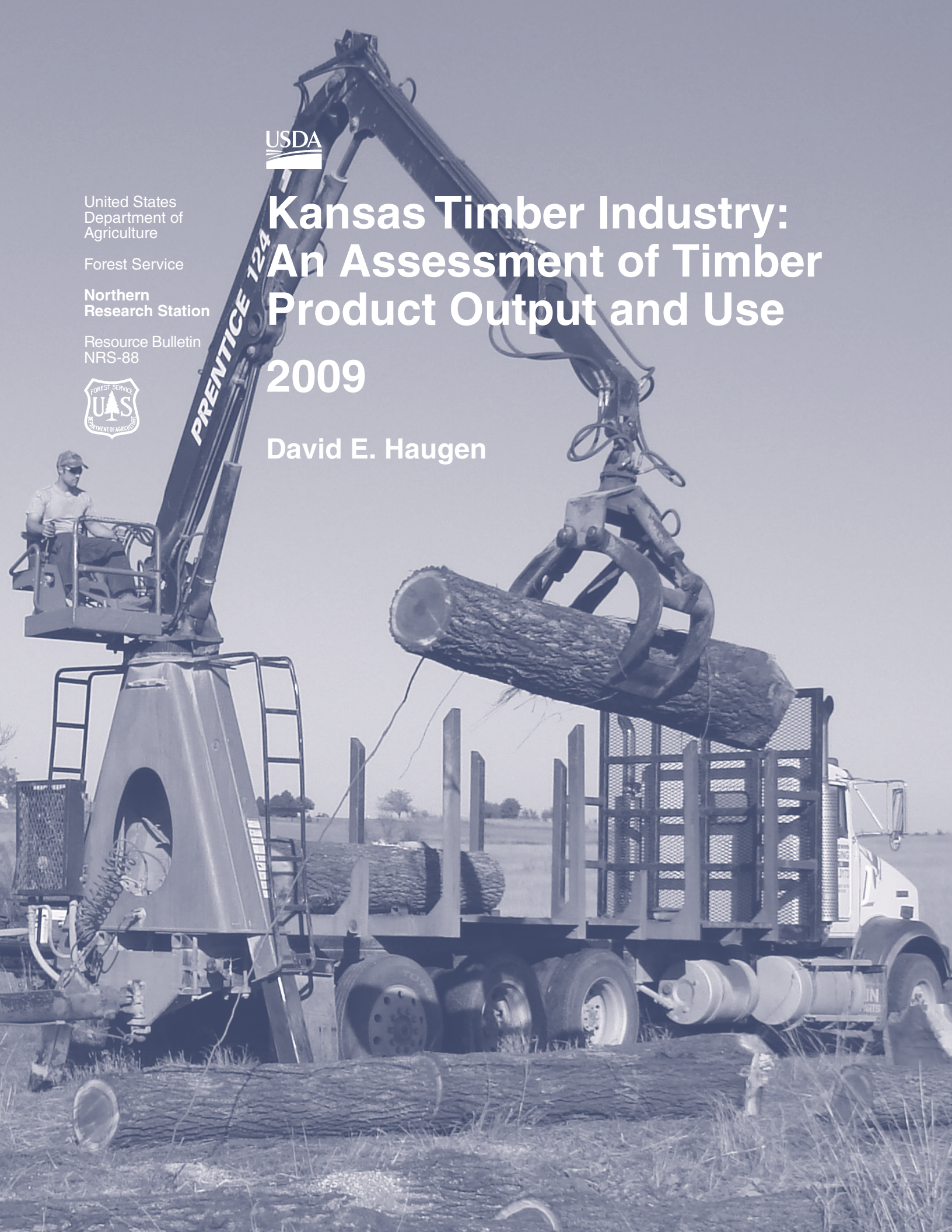
Resource Bulletin
NRS-88



Kansas Timber Industry: An Assessment of Timber Product Output and Use

2009

David E. Haugen



Abstract

In 2009, there were 41 primary wood-processing mills in Kansas, 1 more mill than in 2003. These mills processed 1.05 million cubic feet of industrial roundwood, of which 115,000 cubic feet was harvested from other states. Another 765,000 cubic feet of the industrial roundwood harvested in Kansas was sent to primary wood-processing mills in Missouri, Iowa, Nebraska, and foreign countries including Canada. Saw log harvesting accounted for 98 percent of the total harvest. The harvesting of industrial roundwood products produced 663,700 cubic feet of logging residues. Primary wood-processing mills generated 16,600 green tons of mill residues, with 46 percent of the mill residues used for mulch. Roughly 8.6 percent of the mill residues generated were not used for other products.

Cover Photo

Loading walnut logs after harvesting near Emporia, Kansas. Photo by Kansas Forest Service, used with permission.

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INTRODUCTION

The wood products manufacturing industry in Kansas employs more than 4,900 workers with an output of approximately \$1.06 billion (NAICS 321—wood product manufacturing and NAICS 322—paper manufacturing) (U.S. Census Bureau 2007). Given the economic importance of the State’s wood product industry, the purpose of this bulletin is to analyze recent forest industry trends in Kansas and report the results of a detailed study of the forest product industry, industrial roundwood production, and associated primary mill wood and bark residue production in the State in 2009.

The 2003 Timber Industrial Assessment for Kansas (Reading and Bruton 2007) was used as a primary baseline of comparison for results. As a result of our ongoing efforts to improve the efficiency and reliability of the timber product output (TPO) survey, minor changes in previously published data (e.g., Reading and Bruton 2007) may have occurred due to omissions or correction of errors with the reprocessing of earlier data. Rows and columns of supporting tables in the current report may not sum due to rounding, but data in each table cell are accurately displayed.

Information about the forest land resource of Kansas is available at the Forest Inventory and Analysis Web site at: <http://nrs.fs.fed.us/fia/data-tools/state-reports/KS>.

The Author

DAVID E. HAUGEN is a forester with the Forest Inventory and Analysis Program, U.S. Forest Service, Northern Research Station, St. Paul, MN.

STUDY METHODS

This study was a cooperative effort between the Kansas Forest Service (KS-FS) and the Forest Inventory and Analysis (FIA) Program at the Northern Research Station (NRS) of the U.S. Forest Service. The FIA program is responsible for providing forest resource statistics for all ownerships across the United States, including timber products outputs.

Using questionnaires supplied by NRS (designed to determine the size and composition of the State's primary wood-using industry, its use of roundwood, and its generation and disposition of wood residues), KS-FS surveyed all known primary wood-using mills. Completed questionnaires were sent to NRS to process and analyze. As part of data processing, all industrial roundwood volumes reported on the questionnaires were converted to standard units of measure using regional conversion factors (Table 1). Timber removals by source of material and harvest residues generated during logging were estimated from standard product volumes using factors developed from previous NRS logging utilization studies. Data on industrial roundwood receipts in Kansas along with out-of-State uses of Kansas roundwood were integrated with a regional timber removals database to provide a complete assessment of the State's timber product output.

Certain terms used in this report—retained, export, import, production, and receipts—have specialized meanings and relationships unique to the FIA program that surveys timber product output (TPO) (Fig. 1).

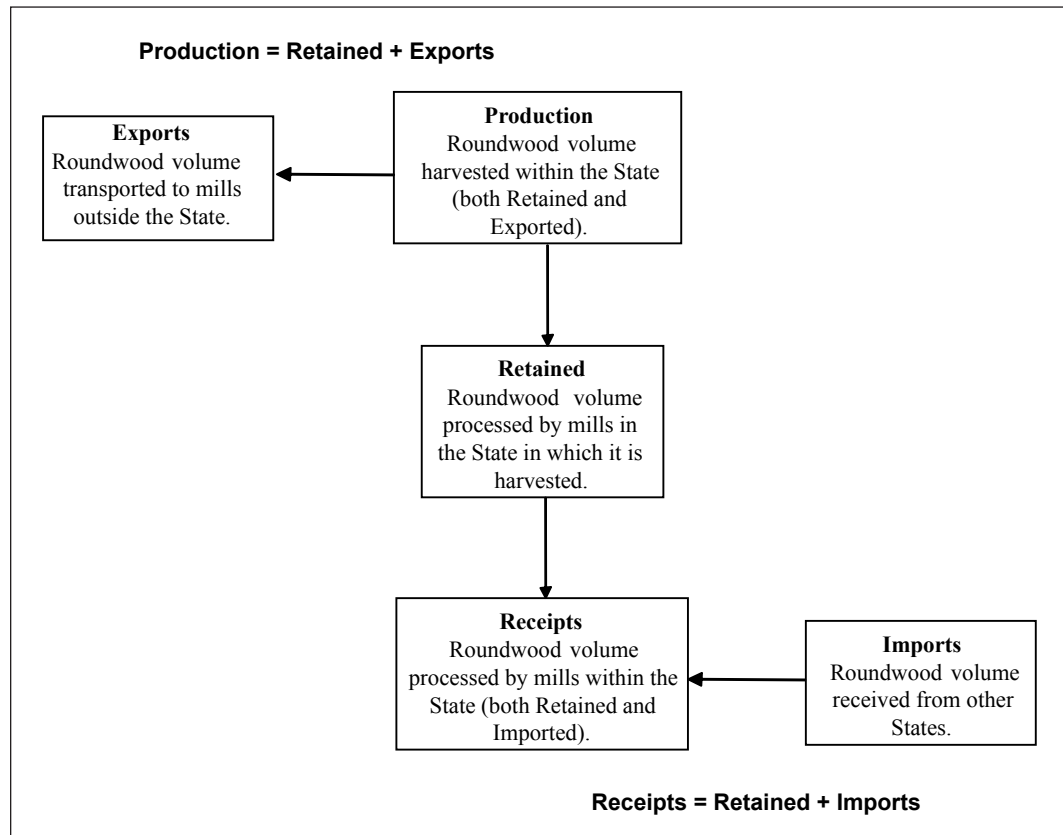


Figure 1.—The movement of industrial roundwood.

Table 1.—Conversion factors from reported unit of measure to standard unit of measure^a

Product (Standard unit of measure)	Reported unit of measure					
	International 1/4-inch rule MBF	Doyle scale MBF	Green tons	Standard cords	Thousand pieces	Thousand cubic feet
Saw logs and handles (MBF International 1/4-inch rule)	1	1.38	0.2174	0.5		.158
Veneer logs and cooperage (MBF International 1/4-inch rule)	1	1.14		0.5		.158
Pulp and composite products, and industrial fuelwood (Standard cords)			0.4167	1		.085
Mine timbers (Thousand cubic feet)		0.2322		0.079	6.7	1
Poles (Pieces)	20		4.348	10	1,000	.0079
Posts (Thousand pieces)	0.2		0.04167	0.1	1	0.79
Cabin logs, excelsior/shavings, and miscellaneous products (Thousand cubic feet)	0.158	0.21804	0.0329193	0.079	7.9	1

^a Reported volume times conversion factor = Standard volume.

PRIMARY TIMBER INDUSTRY IN KANSAS

Industrial Roundwood

- In 2009, the primary wood-using industry in Kansas totaled 41 sawmills, an increase of 1 mill since 2003 (Table 2 and Fig. 2).

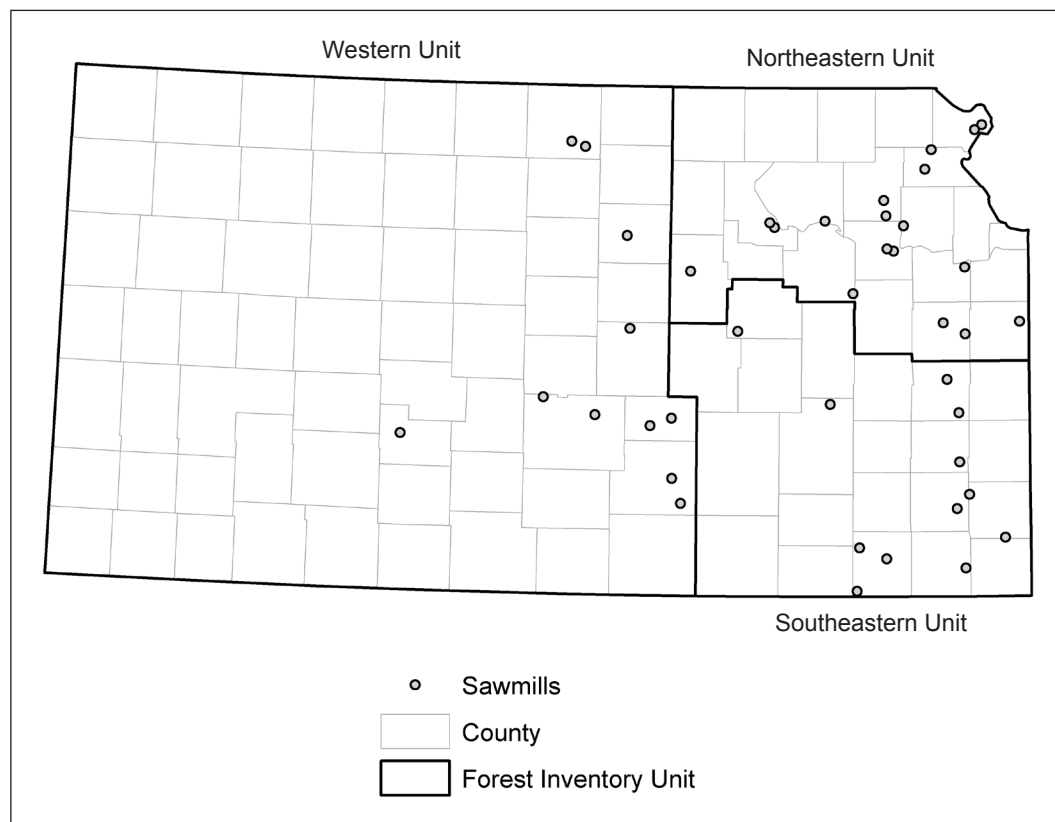


Figure 2.—Primary wood-using mills by region, Kansas, 2009.

- In 2009, the primary wood-using mills in Kansas processed 1.05 million cubic feet of industrial roundwood (Table 3).
- Eighty-nine percent of the industrial roundwood processed by the State’s primary wood-using mills was cut from Kansas forest lands. Missouri and Oklahoma forests supplied the majority of out-of-State wood for the forest products industry in Kansas (Table 4).
- Hardwoods made up 99 percent of the industrial roundwood processed by Kansas primary wood-using mills. Cottonwood alone accounted for 24 percent of the total volume processed. Other species of importance to the forest industry were white oak, soft maple, ash, and red oak.
- Industrial roundwood production decreased by 49 percent, from 3.3 million cubic feet in 2003 to 1.7 million cubic feet in 2009 (Table 5 and Fig. 3).

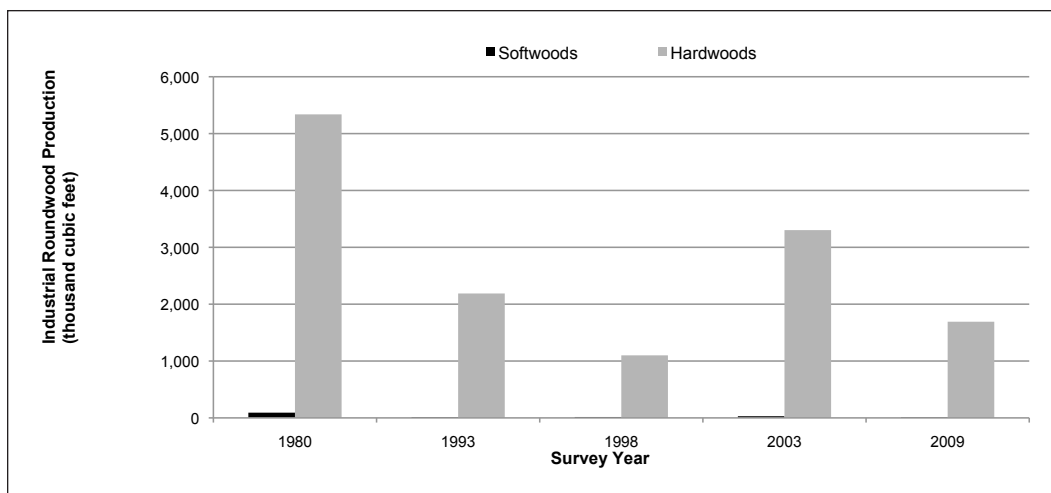


Figure 3.—Industrial roundwood production by softwoods and hardwoods, and survey year, Kansas (Blyth et al. 1984, Hackett and Strickler 1996, Reading and Atchison 2001, Reading and Bruton 2007).

- More than 55 percent of the 1.7 million cubic feet of industrial roundwood harvested in Kansas was processed in the State (Table 6). Primary wood processors in Missouri and Iowa received 42 percent of the industrial roundwood exported out of State.
- In 2009, 1.3 million cubic feet (73 percent) of industrial roundwood was harvested from the Southeastern Forest Inventory Unit (Table 7). Another 405,000 cubic feet (24 percent) of industrial roundwood was harvested from the Northeastern unit. The remaining 49,000 cubic feet of industrial roundwood harvested in Kansas came from the Western Forest Inventory Unit (3 percent).
- The black walnut species accounted for 43 percent of the total industrial roundwood harvested in 2009 (Fig. 4). Other important species harvested were cottonwood, white oak, soft maple, ash, and red oak.

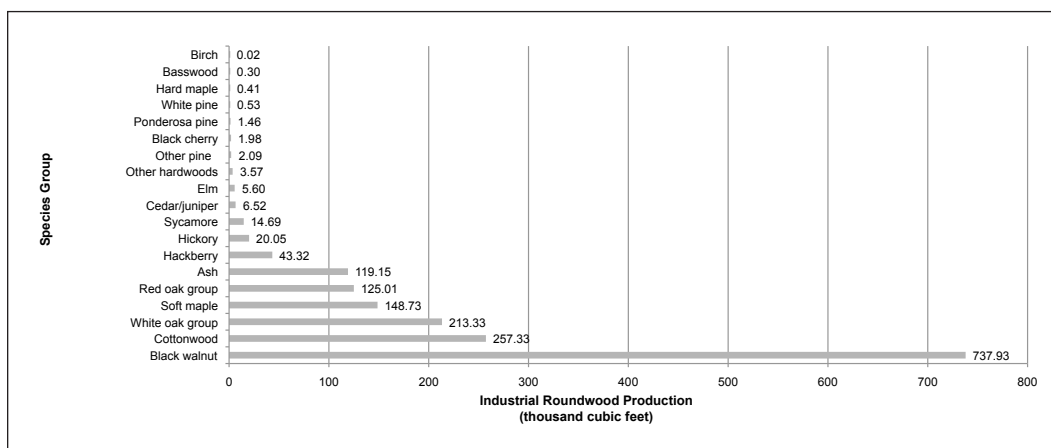


Figure 4.—Industrial roundwood production by species group, Kansas, 2009.

- Saw mills were the largest consumers of Kansas industrial roundwood, using 98 percent of the total production, while veneer mills used roughly 2 percent (Table 8 and Fig. 5).

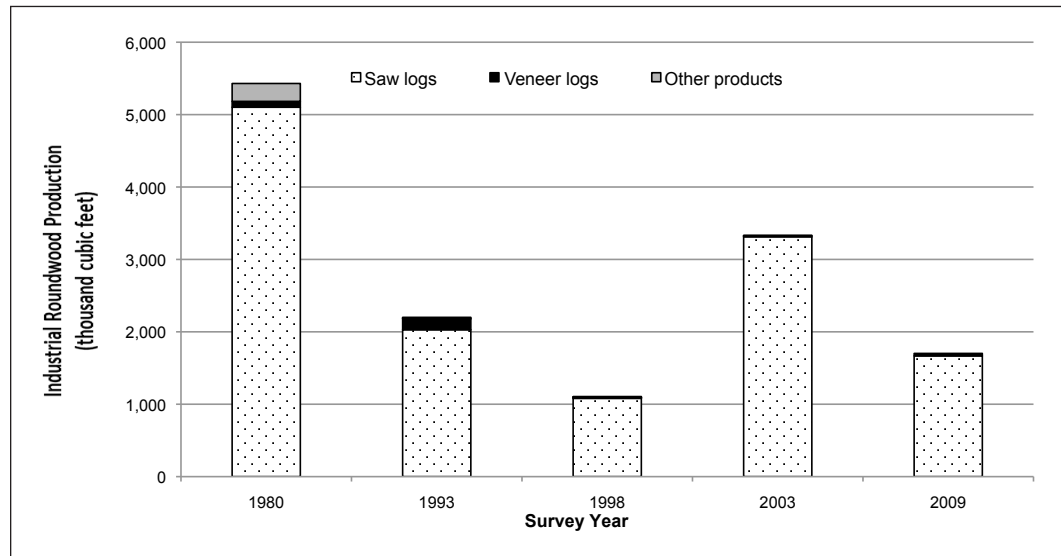


Figure 5.—Industrial roundwood production thousand cubic feet, by product and survey year, Kansas (Blyth et al 1984, Hackett and Strickler 1996, Reading and Atchison 2001, Reading and Bruton 2007).

Saw Logs

- Kansas sawmill receipts totaled 6.38 million board feet in 2009, a decrease of 65 percent from 2003 (Table 9). Softwood saw log receipts were estimated at 56,000 board feet (60 percent decrease), while those of hardwoods equaled 6.33 million board feet (65 percent decrease).
- Between 2003 and 2009, softwood saw log receipts increased for ponderosa pine and other pine, while cedar/juniper receipts declined.
- Between 2003 and 2009, black cherry and hard maple saw log receipts increased while the receipts of many hardwood species (including cottonwood, ash, red oak, white oak, black walnut, soft maple, and basswood) declined.
- Saw log production decreased by 49 percent, from 20.4 million board feet in 2003 to 10.4 million board feet in 2009. Softwood saw log production decreased to 54,000 board feet (61 percent) in 2009, while those of hardwoods decreased by 49 percent to 10.3 million board feet.
- In 2009, black walnut accounted for almost 44 percent of the total harvest of saw logs from Kansas forests. Other important species groups harvested were cottonwood, white oak, soft maple, and ash (Fig. 6).

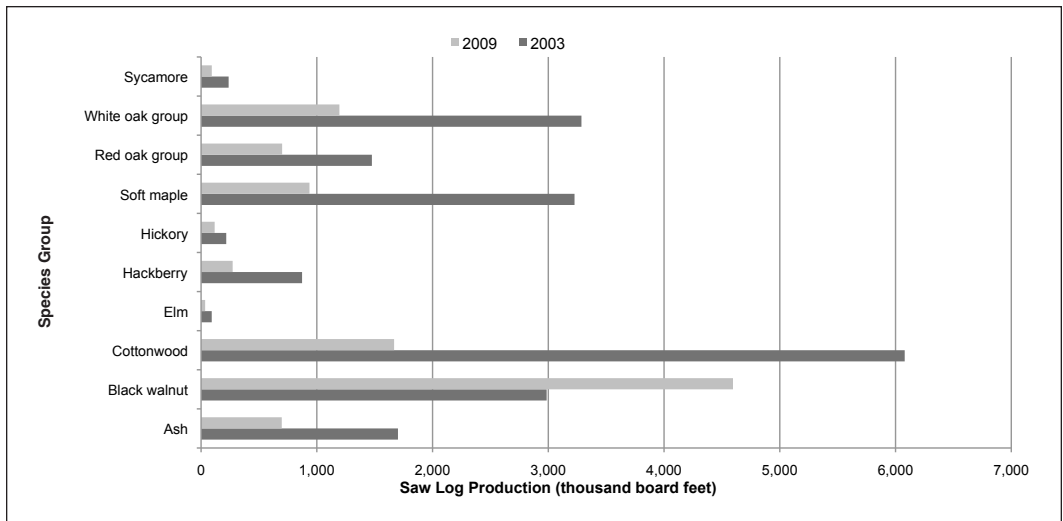


Figure 6.—Hardwood saw log production by top 10 species groups, Kansas, 2003 and 2009.

Other Products

- Other industrial roundwood products harvested from Kansas in 2009 were veneer logs. Veneer logs made up only 2 percent of the total volume of industrial roundwood produced.
- Residential fuelwood is not included in this report.

Timber Removals

- During the harvest of industrial roundwood from Kansas forests in 2009, 1.7 million cubic feet of wood material including growing stock (e.g., sawtimber and pole timber) and non-growing stock (e.g., limb wood, saplings, cull trees, dead trees) was used for primary wood products and another 663,700 cubic feet of wood material including growing stock (e.g., logging residue) and non-growing stock (e.g., logging slash) was left on the ground as harvest residues (Table 10 and Fig. 7).

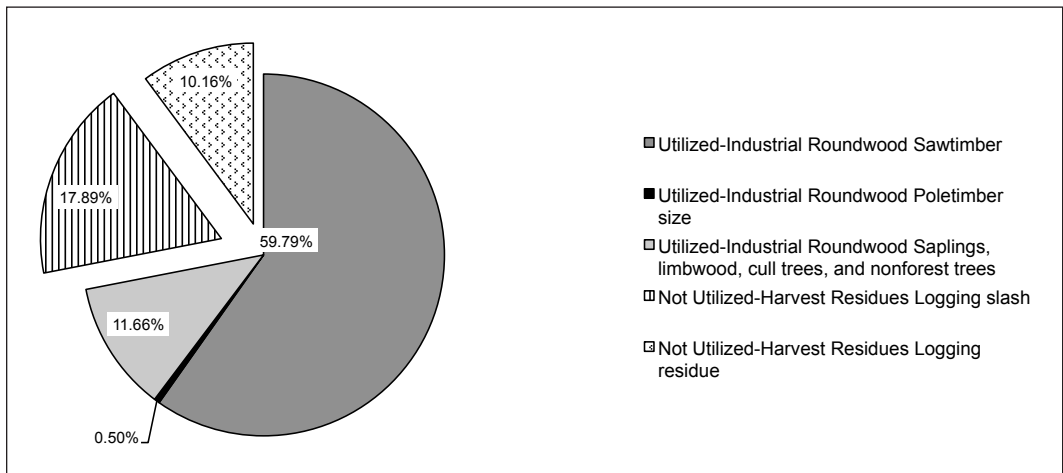


Figure 7.—Distribution of timber removals for industrial roundwood by source of material, Kansas, 2009.

- Growing-stock sources, at 1.6 million cubic feet, were the largest component of removals for industrial roundwood production. Eighty-six percent of the growing stock removed was used for products and 14 percent was left as harvest residue. Sawtimber-size trees accounted for 85 percent of the growing-stock volume that was used for products, and the remainder came from pole-size trees.
- In 2009, 699,000 cubic feet of non-growing-stock wood material was removed in the production of industrial roundwood, but only 39 percent of this material was used for products, and the remainder was left on the ground as logging slash. Fifty-nine percent of the non-growing-stock material used for industrial roundwood came from cull trees, 32 percent came from nonforest trees, and 6 percent came from limbs of growing-stock trees. The rest of the non-growing-stock material used for products came from dead trees.
- In 2009, 72.4 percent of the total growing-stock material removed from Kansas timberland came from the Southeastern Forest Inventory Unit (Table 11), followed by the Northeastern unit with 24.5 percent, and the Western unit with 3.1 percent of the total growing-stock volume removed.
- In 2009, 9.4 million board feet was removed from Kansas sawtimber inventory (Table 12). Black walnut accounted for 46 percent of the total sawtimber volume removed, followed by cottonwood with 19 percent, soft maple at 9 percent, and ash at 8 percent.
- The harvesting of industrial roundwood products from Kansas forests in 2009 left 664,000 cubic feet of harvest residues on the ground (Table 13).

Harvest Intensity

- Statewide in 2009, there was an average of 14.6 cubic feet of average annual net growth (gross growth minus mortality) of growing stock per acre on forest land, and an average of 7.9 cubic feet of harvest-related wood removals per acre of forest land in Kansas (Miles 2011). Only eight counties had more than 20 cubic feet of total wood material removed per acre of forest land (Fig. 8). (For reference, a cord of roundwood contains about 79 cubic feet of wood.)
- In 2009, there were 2.27 million acres of forest land in Kansas (Moser 2010). The net volume in live trees on forest land was 2.95 billion cubic feet. The 2.36 million cubic feet of total wood material removed due to harvesting (Table 10) was less than 1 percent of the total live volume of trees on forest land in Kansas.

Primary Mill Residues

- In converting industrial roundwood into products, such as lumber, primary wood-using industries in Kansas generated more than 16,600 green tons of wood residue (coarse and fine residues) and bark residue (Table 14).

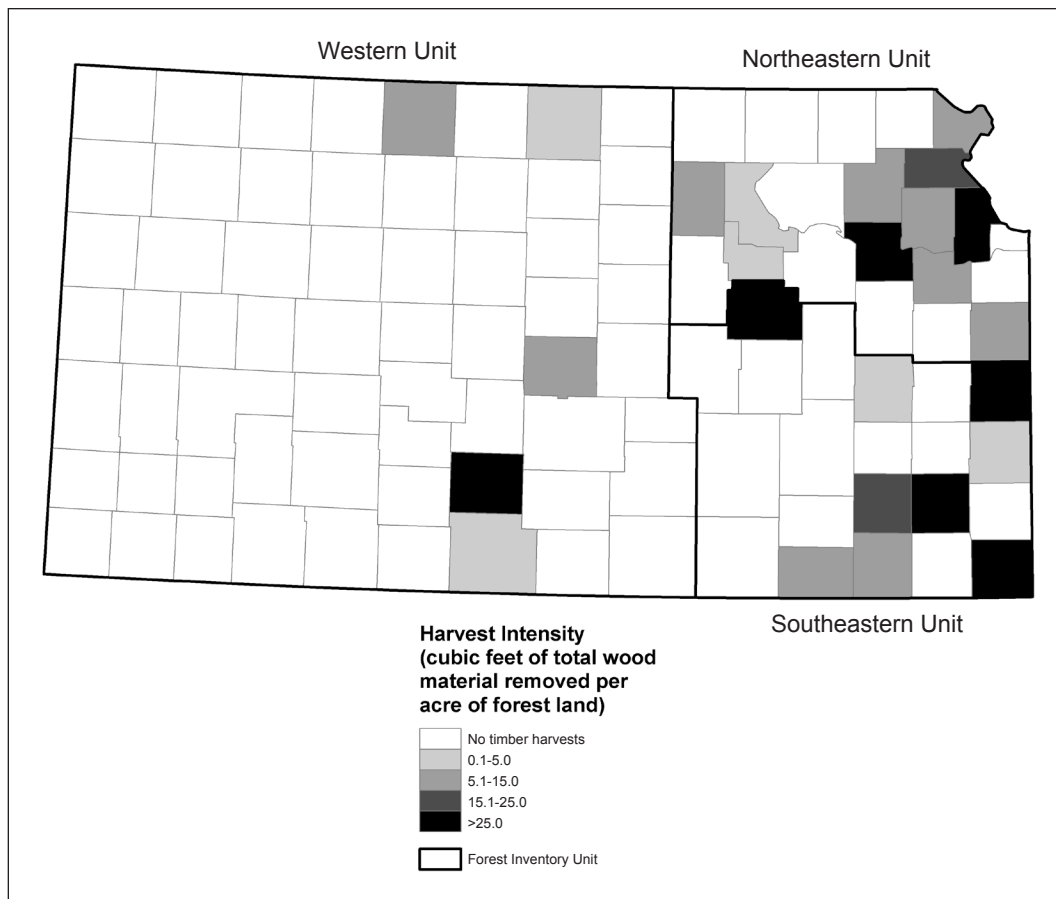


Figure 8.—Harvest intensity for industrial roundwood production, Kansas, 2009.

- Fifty-two percent of the mill residues were in the form of coarse wood residue, such as slabs and edgings residue; fine wood residue, such as sawdust made up another 27 percent of the total mill residues produced; and bark accounted for the remaining 21 percent (Fig. 9).

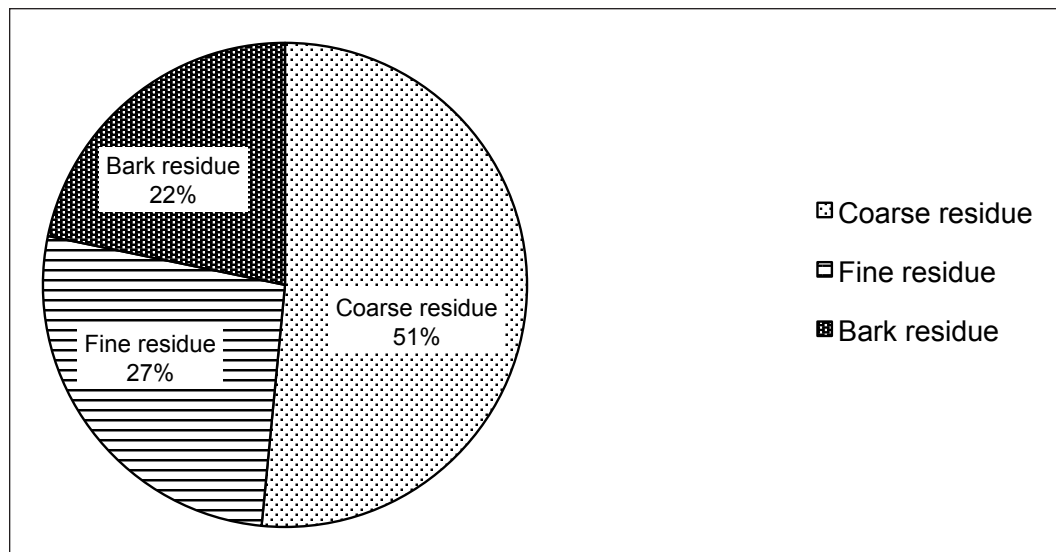


Figure 9.—Distribution of residues generated by primary wood-using mills by type of residue, Kansas, 2009.

- Forty-six percent of the mill residues were used for mulch. Miscellaneous uses totaled 34 percent for small dimension and specialty items, 10 percent for residential fuel, and 1 percent for industrial fuel. Nine percent of the mill residues generated by the primary wood processors of Kansas went unused (Fig. 10).

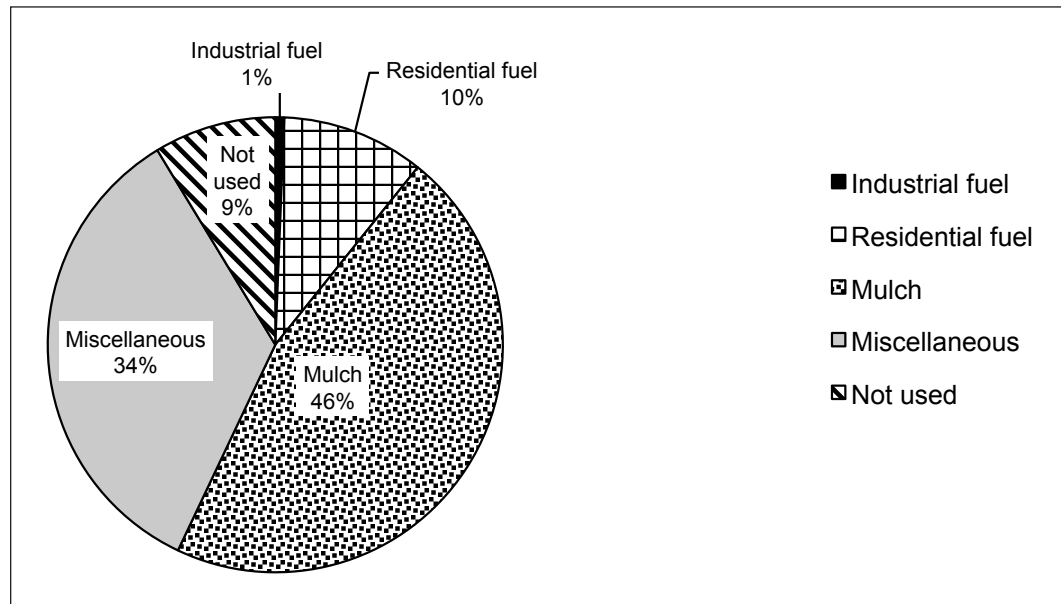


Figure 10.—Distribution of residues generated by primary wood-using mills by method of disposal, Kansas, 2009.

- Forty-eight percent of the bark residue, 47 percent of the coarse residue, and 45 percent of the total fine residue generated were used for mulch.

ACKNOWLEDGMENTS

Special thanks are given to the primary wood-using firms for supplying information for this study and to the Kansas Department of Natural Resources whose cooperation in canvassing survey respondents is greatly appreciated.

Figures 2 and 8 were created by Brian Walters, forester with Forest Inventory and Analysis in St. Paul, MN.

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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 equivalent).

Bolt. A short log no more than 8 feet long to be sawn for lumber, peeled or sliced for veneer, shaved for excelsior, or converted into shingles, cooperage stock, dimension stock, blocks, blanks, or other products.

Central stem. The portion of a tree between a 1-foot stump and the minimum 4.0-inch top diameter outside bark, or 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 but are 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.

Doyle rule. A simple log rule or formula for estimating the board-foot volume of logs based on a 4-inch slabbing allowance to square the log. This rule is used in the Eastern and Southern United States.

Exports. The volume of roundwood utilized by mills outside the state where the timber was harvested.

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

Forest land. Land at least 10 percent stocked with 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, streams or other bodies of water, or clearings in forest areas shall be classified as forest if less than 120 feet wide.

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

Growing-stock tree. A live timberland tree of commercial species that meets specified standards of size, quality, and merchantability. (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 fuelwood. A roundwood product, with or without bark, used to generate energy at manufacturing facilities and schools, correctional institutions, or electric generating plants.

Imports. The volume of roundwood delivered to a mill or group of mills in a specific state but harvested outside that state.

Industrial roundwood exports. The quantity of industrial roundwood harvested in a geographical area and transported to other geographical areas.

Industrial roundwood imports. The quantity of industrial roundwood received from other geographical areas.

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

Industrial roundwood production. The quantity of industrial roundwood harvested in a geographic area plus all industrial roundwood exported to other geographical areas.

Industrial roundwood receipts. The quantity of industrial roundwood received by commercial mills in a geographic area plus all industrial roundwood imported from other geographical areas.

Industrial roundwood retained. The quantity of industrial roundwood harvested from and processed by commercial mills within the same geographical area.

International ¼-inch rule. A log rule or formula for estimating the board-foot volume of logs, allowing ½ inch of taper for each 4-foot length and assuming ¼ inch of kerf. This rule is used as the U.S. Forest Service standard log rule in the Eastern United States.

Limewood 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. The net volume of unused portions of the merchantable central stem of growing-stock trees cut or killed by logging.

Logging slash. The 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. Noncommercial species are listed in the 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. (Note: Includes areas used for crops, active Christmas tree plantations, orchards, nurseries, improved pasture, residential areas, city parks, improved roads of any width and adjoining clearings, powerline clearings of any width, and 1- to 39.9-acre areas of water classified by the Bureau of the Census as land.) If intermingled in forest areas, unimproved 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.

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 such as lumber, veneer, and pulp.

Primary wood-using mill residue. Wood materials (coarse and fine) and bark generated at manufacturing plants that process industrial roundwood into principal products. These residues include wood products obtained incidental to production of principal products and wood materials not utilized for some product.

Production. The quantity of roundwood material harvested in a geographic area plus all roundwood material exported to other geographical areas.

Receipts. The quantity of roundwood material received by commercial mills in a geographic area plus all roundwood material imported from other geographical areas.

Retained. Roundwood volume harvested from and processed by mills within the same state.

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 forks, sweep and crook, and large branches or knots), including 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.

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 diameter outside bark for softwoods and 9.0 inches diameter outside bark for hardwoods.

Sawtimber removals. As used in Table 10, sawtimber removals refers to the net volume in the merchantable central stem of sawtimber-size trees harvested for industrial roundwood products. (Note: includes the saw log and upper stem portions of sawtimber-size trees.) When referring to the sawtimber volume removed from timberland as in Table 12, sawtimber removals refers to the net volume in the saw log portion of sawtimber-size trees harvested for roundwood products or left on the ground as harvest residue, and is usually expressed in thousands of board feet (International ¼-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.

Sawtimber volume. Net volume in the saw log portion of sawtimber trees.

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

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

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.

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 in. (7.6 cm) and a minimum height of 15 ft (4.6 m) at maturity. For FIA, any plant on the tree list in the current field manual is measured as a tree.

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.

Common and Scientific Names of Tree Species by Species Group

Softwoods

Cedar

Eastern redcedar	<i>Juniperus virginiana</i>
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Pine

Eastern white pine	<i>Pinus strobus</i>
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Ponderosa pine	<i>Pinus ponderosa</i>
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Red pine	<i>Pinus resinosa</i>
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Shortleaf pine	<i>Pinus echinata</i>
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Hardwoods

Ash

White ash *Fraxinus americana*

Green ash *Fraxinus pennsylvanica*

Blue ash *Fraxinus quadrangulata*

American basswood *Tilia americana*

Birch

River birch *Betula nigra*

Black cherry *Prunus serotina*

Black walnut *Juglans nigra*

Cottonwood

Eastern cottonwood *Populus deltoides*

Elm

American elm *Ulmus Americana*

Siberian elm *Ulmus pumila*

Slippery elm *Ulmus rubra*

Rock elm *Ulmus thomasi*

Hackberry *Celtis occidentalis*

Hickory

Pecan *Carya illinoensis*

Shellbark hickory *Carya laciniosa*

Shagbark hickory *Carya ovata*

Mockernut hickory *Carya tomentosa*

Bitternut hickory	<i>Carya cordiformis</i>
Black hickory	<i>Carya texana</i>
Bitternut hickory	<i>Carya cordiformis</i>
Pignut hickory	<i>Carya glabra</i>
Shagbark hickory	<i>Carya ovata</i>
Hard maple	
Sugar maple	<i>Acer saccharum</i>
Soft maple	
Red maple	<i>Acer rubrum</i>
Silver maple	<i>Acer saccharinum</i>
Red oak group	
Northern red oak	<i>Quercus rubra</i>
Shumard oak	<i>Quercus shumardii</i>
Blackjack oak	<i>Quercus marilandica</i>
Shingle oak	<i>Quercus imbricaria</i>
Black oak	<i>Quercus velutina</i>
Pin oak	<i>Quercus palustris</i>
White oak group	
White oak	<i>Quercus alba</i>
Bur oak	<i>Quercus macrocarpa</i>
Chinkapin oak	<i>Quercus muehlenbergii</i>
Post oak	<i>Quercus stellata</i>
Overcup oak	<i>Quercus lyrata</i>
Sycamore	<i>Platanus occidentalis</i>

Other Hardwoods

Black locust	<i>Robinia pseudoacacia</i>
Boxelder	<i>Acer negundo</i>
Buckeye	<i>Aesculus spp.</i>
Honeylocust	<i>Gleditsia triacanthos</i>
Kentucky coffeetree	<i>Gymnocladus dioicus</i>
Mulberry	
White mulberry	<i>Morus alba</i>
Red mulberry	<i>Morus rubra</i>
Northern catalpa	<i>Catalpa speciosa</i>
Persimmon	<i>Diospyros virginiana</i>
Sassafras	<i>Sassafras albidum</i>
Sugarberry	<i>Celtis laevigata</i>
Willow	
Black willow	<i>Salix nigra</i>
White willow	<i>Salix alba</i>

Tables

Table 1.—Conversion factors from reported unit of measure to standard unit of measure (This table is in the Study Methods section.)

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Table 5.—Industrial roundwood production, in thousand cubic feet, by product, softwoods and hardwoods, and survey year, Kansas

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Table 13.—Harvest residue generated by industrial roundwood harvesting, in thousand cubic feet, by Forest Inventory Unit, county, and species group, Kansas, 2009

Table 14.—Disposition of residues produced at primary wood-using mills, in green tons, by Forest Inventory Unit, disposition, residue type, and softwoods and hardwoods, Kansas, 2009

Table 2.—Number of active primary wood-using mills by mill type and survey year, Kansas, 2009

Mill type and mill size	Survey year						
	1964	1980	1993	1998	2003	2009	
Sawmills^a							
5,000 mbf or greater	--	--	1	2	1	--	
Between 1,000 and 4,999 mbf	6	11	2	3	3	1	
Less than 1,000 mbf	73	48	32	34	36	40	
Total	79	59	35	39	40	41	
Cooperage mill	10	1	--	--	--	--	
Charcoal plants	1	--	--	--	--	--	
Posts	5	3	--	--	--	--	
All mills	95	63	35	39	40	41	

^a Annual lumber production in thousand board feet (mbf), International 1/4-inch rule.

Table 3.—Industrial roundwood receipts, in thousand cubic feet, by mill type, softwoods and hardwoods, and survey year, Kansas, 2009

Mill type and softwood and hardwood	Survey Year			% change from 2003 - 2009
	1993	1998	2003	
Saw logs				
Softwood	12.3	14.6	29.4	10.8
Hardwood	2,144.9	3,461.5	2,970.4	1,041.8
Total	2,157.2	3,476.1	2,999.8	1,052.6

Columns and rows may not add to their totals due to rounding.

Table 4.—Industrial roundwood receipts, in thousand cubic feet, by species group and state of origin, Kansas, 2009

Species group	Total	State of origin		
		Kansas	Missouri	Oklahoma
Softwoods				
Cedar/juniper	7	7	--	--
Douglas-fir	0	--	--	0
Ponderosa pine	1	1	--	--
White pine	1	1	--	--
Other pine	2	2	--	--
Total	11	11	--	0
Hardwoods				
Ash	140	118	11	11
Basswood	0	0	--	--
Black cherry	2	2	--	--
Black walnut	46	44	1	1
Cottonwood	250	245	2	2
Elm	5	5	--	0
Hackberry	48	43	2	2
Hickory	17	15	1	1
Hard maple	0	0	--	--
Soft maple	177	143	17	16
Red oak group	114	102	6	5
White oak group	227	192	18	16
Sycamore	14	13	1	1
Other hardwoods	3	3	--	--
Total	1,042	927	59	56
State total	1,053	937	59	56

All table cells without observations are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Table 5.—Industrial roundwood production, in thousand cubic feet, by product, softwoods and hardwoods, and survey year, Kansas

Product	Survey year					% change from 2003 - 2009
	1980	1993	1998	2003	2009	
All Species						
Saw logs	5,102.0	2,029.0	1,099.0	3,329.4	1,667.7	-50%
Veneer logs	81.0	161.0	3.0	--	34.3	--
Cooperage	44.0	--	--	--	--	--
Excelsior/shavings	--	10.0	4.0	--	--	--
Posts	203.0	--	--	--	--	--
Other products	--	--	--	2.3	--	--
Total	5,430.0	2,200.0	1,106.0	3,331.7	1,702.0	-49%
Softwoods						
Saw logs	66.0	12.0	15.0	29.4	10.6	-64%
Veneer logs	--	--	--	--	--	--
Cooperage	--	--	--	--	--	--
Excelsior/shavings	--	--	1.0	--	--	--
Posts	26.0	--	--	--	--	--
Other products	--	--	--	--	--	--
Total	92.0	12.0	16.0	29.4	10.6	-64%
Hardwoods						
Saw logs	5,036.0	2,017.0	1,094.0	3,300.0	1,657.1	-50%
Veneer logs	81.0	161.0	3.0	--	34.3	--
Cooperage	44.0	--	--	--	--	--
Excelsior/shavings	--	10.0	3.0	--	--	--
Posts	177.0	--	--	--	--	--
Other products	--	--	--	2.3	--	--
Total	5,338.0	2,188.0	1,100.0	3,302.3	1,691.4	-49%

All table cells without observations are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Table 6.—Industrial roundwood production, in thousand cubic feet, by species group and state of destination, Kansas, 2009

Species group	Total	State of destination					Other countries
		Iowa	Kansas	Missouri	Nebraska		
Softwoods							
Cedar/juniper	7	--	7	0	--	--	--
Ponderosa pine	1	--	1	--	--	--	--
White pine	1	--	1	--	--	--	--
Other pine	2	--	2	--	--	--	--
Total	11	--	11	0	--	--	--
Hardwoods							
Ash	119	--	118	2	--	--	--
Basswood	0	--	0	--	--	--	--
Birch	0	--	--	0	--	--	--
Black cherry	2	--	2	0	--	--	--
Black walnut	738	197	44	462	--	--	34
Cottonwood	257	--	245	12	--	--	--
Elm	6	--	5	0	--	--	--
Hackberry	43	--	43	--	--	--	--
Hickory	20	--	15	5	--	--	--
Hard maple	0	--	0	--	--	--	--
Soft maple	149	--	143	5	--	--	--
Red oak group	125	--	102	21	2	--	--
White oak group	213	--	192	16	5	--	--
Sycamore	15	--	13	2	--	--	--
Other hardwoods	4	--	3	1	--	--	--
Total	1,691	197	927	527	7		34
State total	1,702	197	937	527	7		34

All table cells without observations are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Table 7.—Industrial roundwood production, in thousand cubic feet, by Forest Inventory Unit, county, and species group, Kansas, 2009

Forest Inventory Unit and county	All species	Softwoods					Hardwoods				
		Cedar/juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut
Northeastern Unit											
Atchison	42	--	--	--	--	--	1	--	--	0	6
Brown	17	--	--	--	--	--	1	--	--	--	3
Dickinson	1	--	0	--	--	0	--	--	--	--	--
Doniphan	93	--	--	--	--	--	2	--	--	1	11
Douglas	15	0	--	0	--	1	0	--	--	--	12
Franklin	19	--	--	--	--	--	--	--	--	--	18
Jackson	18	--	--	--	--	--	--	0	--	0	0
Jefferson	10	--	--	--	--	--	--	--	--	--	10
Johnson	35	--	--	--	--	--	--	--	--	--	35
Leavenworth	24	--	--	--	--	--	0	--	--	--	24
Marshall	7	--	--	--	--	--	--	--	--	--	--
Miami	14	--	--	--	--	--	--	--	--	0	13
Osage	20	--	--	--	--	--	--	--	--	--	20
Pottawatomie	18	--	--	--	--	--	--	--	--	--	--
Riley	6	0	--	0	0	0	0	--	--	--	2
Shawnee	48	0	--	--	1	1	0	0	--	0	18
Wabaunsee	18	0	--	--	--	0	--	--	--	--	0
Total	405	1	0	0	1	3	5	0	--	2	172

Table 7.—Continued

Forest Inventory Unit and county	All species	Softwoods					Hardwoods					
		Cedar/juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut	
Southeastern Unit												
Allen	46	0	--	--	--	0	2	0	--	0	0	24
Anderson	49	1	--	--	0	1	--	--	--	--	--	22
Bourbon	120	0	--	--	--	0	12	0	--	0	0	53
Butler	4	--	--	--	--	--	--	--	--	--	--	4
Chautauqua	5	--	--	--	--	--	--	--	--	--	--	5
Cherokee	62	--	--	--	--	--	0	--	--	--	--	32
Coffey	4	--	--	--	--	--	--	--	--	--	--	4
Crawford	92	0	--	--	--	0	40	0	--	0	0	26
Elk	3	--	--	--	--	--	--	--	--	--	--	1
Greenwood	3	0	--	--	--	0	0	--	--	--	--	1
Labette	67	--	--	--	--	--	14	--	--	--	--	29
Linn	178	0	--	--	--	0	2	--	0	0	0	143
Lyon	28	--	--	--	--	--	--	--	--	--	--	28
Montgomery	218	--	--	--	--	--	25	--	--	--	--	28
Morris	4	--	--	--	--	--	0	--	--	--	--	3
Neosho	146	0	--	--	--	0	7	0	--	0	0	76
Wilson	151	--	--	--	--	--	4	--	--	--	--	65
Woodson	68	--	--	--	--	--	0	--	--	--	--	20
Total	1,248	3	--	--	0	3	106	0	0	0	0	562

Table 7.—Continued

Forest Inventory Unit and county	All species	Softwoods						Hardwoods					
		Cedar/juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut		
Western Unit													
Edwards	1	--	--	--	--	--	--	--	--	--	1		
Harvey	2	0	--	--	--	0	0	--	--	--	0		
Jewell	2	1	--	--	0	1	0	--	--	--	0		
McPherson	2	1	--	0	--	1	--	--	--	--	0		
Ottawa	33	--	--	--	--	--	7	--	--	--	--		
Reno	4	1	1	--	--	2	0	--	--	--	1		
Rice	1	0	--	--	--	0	--	--	--	--	0		
Scott	1	--	--	--	--	--	--	--	--	--	0		
Sedgwick	3	--	--	--	1	1	--	--	--	--	0		
Total	49	2	1	0	1	5	8	--	--	--	3		
State total	1,702	7	1	1	2	11	119	0	0	2	738		

Forest Inventory Unit and county	Hardwoods Continued											
	Cottonwood	Elm	Hackberry	Hickory	Hard maple	Soft maple	Red oak group	White oak group	Sycamore	Other hardwoods	Total hardwoods	
Northeastern Unit												
Atchison	21	--	1	0	0	4	4	3	--	--	42	
Brown	6	--	3	--	--	3	1	0	1	--	17	
Dickinson	--	--	0	--	--	--	--	0	--	0	1	
Doniphan	53	0	1	0	--	6	8	7	1	0	93	
Douglas	0	0	0	--	0	0	0	--	0	--	15	
Franklin	--	--	--	--	--	0	0	1	--	--	19	

Table 7.—Continued

Forest Inventory Unit and county	Hardwoods Continued											Total hardwoods
	Cottonwood	Elm	Hackberry	Hickory	Hard maple	Soft maple	Red oak group	White oak group	Sycamore	Other hardwoods	Total hardwoods	
Jackson	14	--	1	0	--	--	0	3	--	--	18	
Jefferson	0	--	--	--	--	--	--	0	--	--	10	
Johnson	--	--	--	--	--	--	--	--	--	--	35	
Leavenworth	--	--	--	0	--	--	0	0	--	0	24	
Marshall	--	--	--	--	--	--	2	5	--	--	7	
Miami	--	--	--	--	--	--	--	1	--	--	14	
Osage	--	--	--	--	--	0	0	0	--	--	20	
Pottawatomie	14	--	1	--	--	--	--	3	--	--	18	
Riley	--	--	--	1	--	0	1	1	0	--	5	
Shawnee	16	1	1	0	0	0	6	3	2	0	47	
Wabaunsee	14	--	1	--	--	--	--	3	--	--	18	
Total	140	1	8	2	0	14	23	31	4	1	403	
Southeastern Unit												
Allen	16	0	3	--	--	--	0	0	1	--	46	
Anderson	14	--	--	1	--	2	1	4	3	0	48	
Bourbon	16	1	4	1	--	--	18	13	1	--	120	
Butler	--	--	--	--	--	--	--	--	--	--	4	
Chautauqua	--	--	--	--	--	--	--	--	--	--	5	
Cherokee	12	0	2	0	--	0	12	2	1	--	62	
Coffey	--	--	--	--	--	--	--	--	--	--	4	
Crawford	14	0	3	--	--	--	6	0	2	--	91	
Elk	0	--	--	--	--	0	1	--	1	--	3	
Greenwood	--	0	0	--	--	0	0	--	--	1	2	
Lafayette	3	0	5	1	--	0	14	2	0	--	67	

Table 7.—Continued

Forest Inventory Unit and county	Hardwoods Continued											Total hardwoods
	Cottonwood	Elm	Hackberry	Hickory	Hard maple	Soft maple	Red oak group	White oak group	Sycamore	Other hardwoods	Total hardwoods	
Linn	14	1	--	7	--	0	6	5	0	0	178	
Lyon	--	--	--	--	--	--	--	--	--	--	28	
Montgomery	2	0	6	5	--	84	25	42	0	--	218	
Morris	1	--	--	--	--	--	--	--	--	0	4	
Neosho	3	0	2	2	--	48	3	3	1	--	146	
Wilson	2	0	2	1	--	--	3	74	0	--	151	
Woodson	2	--	--	0	--	--	11	34	0	--	68	
Total	100	4	26	18	--	135	101	179	11	2	1,245	
Western Unit												
Edwards	--	0	--	--	--	--	--	--	--	--	1	
Harvey	1	0	0	--	--	--	--	--	--	0	2	
Jewell	--	--	--	--	--	--	--	1	--	--	1	
McPherson	--	--	0	--	--	--	--	--	--	--	1	
Ottawa	16	--	9	--	--	--	--	1	--	--	33	
Reno	--	0	--	--	--	--	--	0	--	--	2	
Rice	--	--	--	--	--	--	--	--	--	--	0	
Scott	0	--	--	--	--	--	0	0	0	0	1	
Sedgwick	0	0	--	--	--	--	0	0	0	0	2	
Total	17	1	9	--	--	--	1	3	0	1	44	
State total	257	6	43	20	0	149	125	213	15	4	1,691	

All table cells without observations are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Table 8.—Industrial roundwood production by Forest Inventory Unit, species group, and product, Kansas, 2009

Species group	All products		Saw logs		Products	
	MCfB	MBFb	MCfB	MBFb	MCfB	MBFb
ALL UNITS						
Softwood						
Cedar/juniper	7	31	7	--	--	--
Ponderosa pine	1	8	1	--	--	--
White pine	1	3	1	--	--	--
Other pine	2	12	2	--	--	--
Total	11	54	11	--	--	--
Hardwood						
Ash	119	697	119	--	--	--
Basswood	0	2	0	--	--	--
Birch	0	0	0	--	--	--
Black cherry	2	12	2	--	--	--
Black walnut	738	4,596	704	244	34	34
Cottonwood	257	1,668	257	--	--	--
Elm	6	35	6	--	--	--
Hackberry	43	273	43	--	--	--
Hickory	20	117	20	--	--	--
Hard maple	0	2	0	--	--	--
Soft maple	149	937	149	--	--	--
Red oak group	125	700	125	--	--	--
White oak group	213	1,195	213	--	--	--
Sycamore	15	93	15	--	--	--
Other hardwoods	4	22	4	--	--	--
Total	1,691	10,350	1,657	244	34	34
State total	1,702	10,404	1,668	244	34	34

Table 8.—Continued

Species group	All products		Products			
	MCfb		Saw logs		Veneer logs	
			MBFa	MCfb	MBFa	MCfb
NORTHEASTERN UNIT						
Softwood						
Cedar/juniper	1		6	1	--	--
Ponderosa pine	0		1	0	--	--
White pine	0		2	0	--	--
Other pine	1		4	1	--	--
Total	3		14	3	--	--
Hardwood						
Ash	5		27	5	--	--
Basswood	0		0	0	--	--
Birch	--		--	--	--	--
Black cherry	2		10	2	--	--
Black walnut	172		1,060	162	70	10
Cottonwood	140		909	140	--	--
Elm	1		7	1	--	--
Hackberry	8		50	8	--	--
Hickory	2		10	2	--	--
Hard maple	0		2	0	--	--
Soft maple	14		87	14	--	--
Red oak group	23		129	23	--	--
White oak group	31		175	31	--	--
Sycamore	4		23	4	--	--

Table 8.—Continued

Species group	All products		Products			
	MCfb	MBFa	Saw logs	MCfb	Veneer logs	MCfb
Other hardwoods	1	7	1	1	--	--
Total	403	2,496	393	70	10	10
Unit total	405	2,510	395	70	10	10
SOUTHEASTERN UNIT						
Softwood						
Cedar/juniper	3	13	3	--	--	--
Ponderosa pine	--	--	--	--	--	--
White pine	--	--	--	--	--	--
Other pine	0	3	0	--	--	--
Total	3	16	3	--	--	--
Hardwood						
Ash	106	623	106	--	--	--
Basswood	0	1	0	--	--	--
Birch	0	0	0	--	--	--
Black cherry	0	2	0	--	--	--
Black walnut	562	3,514	538	173	24	24
Cottonwood	100	647	100	--	--	--
Elm	4	23	4	--	--	--
Hackberry	26	163	26	--	--	--
Hickory	18	107	18	--	--	--
Hard maple	--	--	--	--	--	--
Soft maple	135	850	135	--	--	--
Red oak group	101	567	101	--	--	--

Table 8.—Continued

Species group	All products		Products			
	MCF ^b		Saw logs		Veneer logs	
			MBF ^a	MCF ^b	MBF ^a	MCF ^b
White oak group	179		1,004	179	--	--
Sycamore	11		67	11	--	--
Other hardwoods	2		10	2	--	--
Total	1,245		7,580	1,220	173	24
Unit total	1,248		7,595	1,224	173	24
WESTERN UNIT						
Softwood						
Cedar/juniper	2		11	2	--	--
Ponderosa pine	1		7	1	--	--
White pine	0		1	0	--	--
Other pine	1		5	1	--	--
Total	5		24	5	--	--
Hardwood						
Ash	8		48	8	--	--
Basswood	--		--	--	--	--
Birch	--		--	--	--	--
Black cherry	--		--	--	--	--
Black walnut	3		22	3	--	--
Cottonwood	17		112	17	--	--
Elm	1		5	1	--	--
Hackberry	9		59	9	--	--
Hickory	--		--	--	--	--

Table 8.—Continued

Species group	All products		Products					
	MCfb		Saw logs		Veneer logs		MCfb	
	MBFa	MCfb	MBFa	MCfb	MBFa	MCfb	MBFa	MCfb
Hard maple	--	--	--	--	--	--	--	--
Soft maple	--	--	--	--	--	--	--	--
Red oak group	1	1	3	1	--	--	--	--
White oak group	3	3	17	3	--	--	--	--
Sycamore	0	0	3	0	--	--	--	--
Other hardwoods	1	1	6	1	--	--	--	--
Total	44	44	274	44	--	--	--	--
Unit total	49	49	298	49	--	--	--	--

All table cells without observations are indicated by --. Table value of 0 indicates the volume rounds to less than 1 unit of measure. Columns and rows may not add to their totals due to rounding.

^a Thousand board feet, International 1/4-inch rule.

^b Thousand cubic feet.

Table 9.—Saw log receipts and production, in thousand board feet, by Forest Inventory Unit and species group, Kansas, 2003 and 2009

Species group	Receipts			Production		
	2003	2009	Percent change	2003	2009	Percent change
Softwoods						
Cedar/juniper	137	30	-78%	137	31	-78%
Douglas fir	--	2	--	--	--	--
Ponderosa pine	1	8	710%	1	8	710%
White pine	--	3	--	--	3	--
Other pine	0	12	11906%	0	12	11906%
Total	138	56	-60%	138	54	-61%
Hardwoods						
Ash	1,710	826	-52%	1,701	697	-59%
Basswood	29	2	-94%	62	2	-97%
Birch	--	--	--	--	0	--
Black cherry	7	12	66%	35	12	-64%
Black walnut	1,269	299	-76%	2,986	4,596	54%
Cottonwood	3,991	1,620	-59%	6,079	1,668	-73%
Elm	92	34	-63%	92	35	-62%
Hackberry	1,056	299	-72%	873	273	-69%
Hickory	488	97	-80%	217	117	-46%
Hard maple	2	2	17%	2	2	17%
Soft maple	2,998	1,108	-63%	3,226	937	-71%
Red oak group	2,128	640	-70%	1,476	700	-53%
White oak group	3,815	1,283	-66%	3,286	1,195	-64%
Sycamore	514	90	-83%	238	93	-61%

Table 9.—Continued

Species group	Receipts			Production		
	2003	2009	Percent change	2003	2009	Percent change
Other hardwoods	49	19	-61%	49	22	-54%
Total	18,149	6,330	-65%	20,322	10,350	-49%
State total	18,287	6,386	-65%	20,460	10,404	-49%

All table cells without observations are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand board feet. Columns and rows may not add to their totals due to rounding.

^a International 1/4-inch rule.

Table 10.—Wood material harvested for industrial roundwood, in thousand cubic feet, by species group and source of material, Kansas, 2009^a

Species group	Source of material												
	Growing stock						Non-growing stock						
	Used for products			Total			Used for products			Logging slash (not used)			
	Saw-timber	Pole-timber	Logging residue (not used)	growing stock	Limb-wood	Cull trees	Dead trees	Nonforest trees	Logging slash (not used)	Total growing stock	Total wood material used	Total wood material not used	Total wood material harvested
Softwoods													
Cedar/juniper	1.5	--	0.2	1.6	--	0.0	--	--	0.4	0.4	1.5	0.6	2.1
Ponderosa pine	6.5	--	0.0	6.5	--	0.0	--	--	2.1	2.1	6.5	2.1	8.6
White pine	0.5	--	0.1	0.6	--	0.0	--	--	0.2	0.2	0.5	0.2	0.7
Other pine	2.1	--	0.2	2.3	--	0.0	--	--	0.6	0.6	2.1	0.9	2.9
Total	10.5	--	0.5	11.0	--	0.1	--	--	3.3	3.4	10.6	3.8	14.4
Hardwoods													
Ash	107.7	--	44.5	152.3	3.1	8.4	--	--	35.7	47.1	119.1	80.2	199.4
Basswood	0.3	--	0.0	0.3	--	0.0	0.0	--	0.1	0.1	0.3	0.1	0.4
Birch	0.0	--	0.0	0.0	--	0.0	0.0	--	0.0	0.0	0.0	0.0	0.0
Black cherry	1.7	--	0.2	1.9	--	0.2	0.1	--	0.5	0.8	2.0	0.7	2.7
Black walnut	617.3	--	58.4	675.7	12.9	18.8	--	88.9	163.8	284.4	737.9	222.2	960.1
Cottonwood	257.3	--	38.9	296.2	--	--	--	--	79.7	79.7	257.3	118.6	375.9
Elm	4.8	--	0.5	5.4	--	0.6	0.2	--	1.5	2.2	5.6	2.0	7.6
Hackberry	37.4	--	4.1	41.5	--	4.7	1.2	--	11.5	17.4	43.3	15.6	58.9
Hickory	18.1	--	7.5	25.6	0.5	1.4	--	--	6.0	7.9	20.1	13.5	33.6
Hard maple	0.4	--	0.2	0.5	0.0	0.0	--	--	0.1	0.2	0.4	0.3	0.7
Soft maple	128.4	--	14.2	142.6	--	16.1	4.2	--	39.4	59.8	148.7	53.7	202.4
Red oak group	79.3	4.3	25.7	109.4	0.1	41.2	--	--	28.4	69.7	125.0	54.1	179.1
White oak group	135.4	7.4	43.9	186.7	0.1	70.4	--	--	48.4	118.9	213.3	92.3	305.6

Table 10.—Continued

Species group	Source of material												
	Growing stock					Non-growing stock						Total wood material harvested	
	Used for products	Pole-timber	Logging residue (not used)	Total growing stock	Limewood	Cull trees	Dead trees	Nonforest trees	Logging slash (not used)	Total non-growing stock	Total wood material used		
Sycamore	12.7	--	1.4	14.1	--	1.6	0.4	--	3.9	5.9	14.7	5.3	20.0
Other hardwoods	3.1	--	0.3	3.4	--	0.4	0.1	--	0.9	1.4	3.6	1.3	4.9
Total	1,404.0	11.8	239.9	1,655.6	16.7	163.9	6.2	88.9	419.9	695.6	1,691.4	659.9	2,351.3
State total	1,414.5	11.8	240.4	1,666.6	16.7	164.0	6.2	88.9	423.3	699.0	1,702.0	663.7	2,365.6

All table cells without observations are indicated by --. Table value of 0 indicates the volume rounds to less than 0.1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

^a Based on factors obtained from regional utilization studies.

Table 11.—Growing-stock removals from timberland for industrial roundwood, in thousand cubic feet, by Forest Inventory Unit, county, and species group, Kansas, 2009

Forest Inventory Unit and county	All species	Softwoods					Hardwoods				
		Cedar/juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut
Northeastern Unit											
Atchison	44	--	--	--	--	--	1	--	--	0	6
Brown	17	--	--	--	--	--	1	--	--	--	2
Dickinson	1	--	0	--	--	0	--	--	--	--	--
Doniphan	98	--	--	--	--	--	3	--	--	1	10
Douglas	14	0	--	0	--	1	1	--	--	--	11
Franklin	18	--	--	--	--	--	--	--	--	--	16
Jackson	20	--	--	--	--	--	--	0	--	0	0
Jefferson	10	--	--	--	--	--	--	--	--	--	9
Johnson	32	--	--	--	--	--	--	--	--	--	32
Leavenworth	22	--	--	--	--	--	0	--	--	--	22
Marshall	6	--	--	--	--	--	--	--	--	--	--
Miami	12	--	--	--	--	--	--	--	--	0	12
Osage	19	--	--	--	--	--	--	--	--	--	18
Pottawatomie	19	--	--	--	--	--	--	--	--	--	--
Riley	5	0	--	0	0	0	0	--	--	--	2
Shawnee	48	0	--	--	1	1	0	0	--	0	17
Wabaunsee	20	0	--	--	--	0	--	--	--	--	0
Total	406	1	0	0	1	3	6	0	--	2	158
Southeastern Unit											
Allen	47	0	--	--	--	0	3	0	--	0	22
Anderson	49	1	--	--	1	1	--	--	--	--	20
Bourbon	118	0	--	--	--	0	16	0	--	0	49

Table 11.—Continued

Forest Inventory Unit and county	All species	Softwoods					Hardwoods				
		Cedar/juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut
Butler	4	--	--	--	--	--	--	--	--	--	4
Chautauqua	5	--	--	--	--	--	--	--	--	--	5
Cherokee	59	--	--	--	--	0	--	--	--	--	30
Coffey	4	--	--	--	--	--	--	--	--	--	4
Crawford	102	0	--	--	--	0	52	0	--	0	24
Elk	3	--	--	--	--	--	--	--	--	--	1
Greenwood	3	0	--	--	--	0	0	--	--	--	1
Labette	67	--	--	--	--	--	18	--	--	--	26
Linn	169	0	--	--	--	0	2	--	0	0	131
Lyon	25	--	--	--	--	--	--	--	--	--	25
Montgomery	212	--	--	--	--	--	32	--	--	--	26
Morris	4	--	--	--	--	--	0	--	--	--	2
Neosho	140	0	--	--	--	0	9	0	--	0	70
Wilson	137	--	--	--	--	--	5	--	--	--	59
Woodson	61	--	--	--	--	--	0	--	--	--	19
Total	1,208	3	--	--	1	3	136	0	0	0	515
Western Unit											
Edwards	1	--	--	--	--	--	--	--	--	--	1
Harvey	3	0	--	--	--	0	1	--	--	--	0
Jewell	2	1	--	--	0	1	1	--	--	--	0
McPherson	2	1	--	0	--	1	--	--	--	--	0
Ottawa	37	--	--	--	--	--	9	--	--	--	--

Table 11.—Continued

Forest Inventory Unit and county	All species	Softwoods						Hardwoods					
		Cedar/juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut		
Reno	4	1	1	--	--	2	0	--	--	--	1		
Rice	0	0	--	--	--	0	--	--	--	--	0		
Scott	1	--	--	--	--	--	--	--	--	--	0		
Sedgwick	3	--	--	--	1	1	--	--	--	--	0		
Total	52	2	1	0	1	5	10	--	--	--	3		
State total	1,667	7	2	1	2	11	152	0	0	2	676		

Forest Inventory Unit and county	Hardwoods Continued										
	Cottonwood	Elm	Hackberry	Hickory	Hard maple	Soft maple	Red oak group	White oak group	Sycamore	Other hardwoods	Total hardwoods
Northeastern Unit											
Atchison	25	--	1	0	0	4	4	3	--	--	44
Brown	7	--	3	--	--	2	1	0	1	--	17
Dickinson	--	--	0	--	--	--	--	0	--	0	1
Doniphan	62	0	1	0	--	6	7	7	1	0	98
Douglas	0	0	0	--	0	0	0	--	0	--	14
Franklin	--	--	--	--	--	0	0	1	--	--	18
Jackson	16	--	1	0	--	--	0	2	--	--	20
Jefferson	0	--	--	--	--	--	--	0	--	--	10
Johnson	--	--	--	--	--	--	--	--	--	--	32
Leavenworth	--	--	--	0	--	--	0	0	--	0	22
Marshall	--	--	--	--	--	--	2	4	--	--	6

Table 11.—Continued

Forest Inventory Unit and county	Hardwoods Continued											Total hardwoods
	Cottonwood	Elm	Hackberry	Hickory	Hard maple	Soft maple	Red oak group	White oak group	Sycamore	Other hardwoods	Total hardwoods	
Miami	--	--	--	--	--	--	--	1	--	--	12	
Osage	--	--	--	--	--	0	0	0	--	--	19	
Pottawatomie	16	--	1	--	--	--	--	2	--	--	19	
Riley	--	--	--	1	--	0	1	1	0	--	5	
Shawnee	18	1	1	0	0	0	5	3	1	0	47	
Wabaunsee	16	--	1	--	--	--	--	2	--	--	20	
Total	161	1	8	2	1	13	20	27	3	1	403	
Southeastern Unit												
Allen	19	0	3	--	--	--	0	0	1	--	47	
Anderson	16	--	--	1	--	2	1	4	3	0	47	
Bourbon	19	1	4	2	--	--	16	11	1	--	117	
Butler	--	--	--	--	--	--	--	--	--	--	4	
Chautauqua	--	--	--	--	--	--	--	--	--	--	5	
Cherokee	14	0	2	0	--	0	11	1	1	--	59	
Coffey	--	--	--	--	--	--	--	--	--	--	4	
Crawford	16	0	3	--	--	--	6	0	1	--	101	
Elk	0	--	--	--	--	0	1	--	1	--	3	
Greenwood	--	0	0	--	--	0	0	--	--	0	2	
Labette	3	0	5	1	--	0	12	2	0	--	67	
Linn	16	1	--	9	--	0	6	4	0	0	169	
Lyon	--	--	--	--	--	--	--	--	--	--	25	
Montgomery	2	0	6	7	--	80	22	37	0	--	212	

Table 11.—Continued

Forest Inventory Unit and county	Hardwoods Continued											Total hardwoods
	Cottonwood	Elm	Hackberry	Hickory	Hard maple	Soft maple	Red oak group	White oak group	Sycamore	Other hardwoods	Total hardwoods	
Morris	1	--	--	--	--	--	--	--	--	--	0	4
Neosho	4	0	2	3	--	46	2	3	1	--	--	140
Wilson	2	0	2	1	--	--	3	64	0	--	--	137
Woodson	2	--	--	0	--	--	10	30	0	--	--	61
Total	115	3	25	23	--	129	89	157	10	2	2	1,205
Western Unit												
Edwards	--	0	--	--	--	--	--	--	--	--	--	1
Harvey	1	0	0	--	--	--	--	--	--	0	0	2
Jewell	--	--	--	--	--	--	--	1	--	--	--	1
McPherson	--	--	0	--	--	--	--	--	--	--	--	1
Ottawa	18	--	8	--	--	--	--	1	--	--	--	37
Reno	--	0	--	--	--	--	--	0	--	--	--	2
Rice	--	--	--	--	--	--	--	--	--	--	--	0
Scott	0	--	--	--	--	--	0	0	0	0	0	1
Sedgwick	0	0	--	--	--	--	0	0	0	0	0	2
Total	20	1	9	--	--	--	1	3	0	1	1	48
State total	296	5	42	26	1	143	109	187	14	3	3	1,656

All table cells without observations are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Table 12.—Sawtimber removals from timberland for industrial roundwood, in thousand board feet, by Forest Inventory Unit, county, and species group, Kansas, 2009

Forest Inventory Unit and county	All species	Softwoods					Hardwoods				
		Cedar/juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut
Northeastern Unit											
Atchison	246	--	--	--	--	--	6	--	--	1	37
Brown	101	--	--	--	--	--	4	--	--	--	15
Dickinson	7	--	1	--	--	1	--	--	--	--	--
Doniphan	552	--	--	--	--	--	14	--	--	6	65
Douglas	87	1	--	1	--	3	3	--	--	--	70
Franklin	110	--	--	--	--	--	--	--	--	--	105
Jackson	112	--	--	--	--	--	--	0	--	1	0
Jefferson	59	--	--	--	--	--	--	--	--	--	57
Johnson	204	--	--	--	--	--	--	--	--	--	204
Leavenworth	136	--	--	--	--	--	0	--	--	--	136
Marshall	22	--	--	--	--	--	--	--	--	--	--
Miami	77	--	--	--	--	--	--	--	--	0	74
Osage	116	--	--	--	--	--	--	--	--	--	114
Pottawatomie	109	--	--	--	--	--	--	--	--	--	--
Riley	27	2	--	0	0	2	0	--	--	--	12
Shawnee	270	2	--	--	4	6	1	0	--	0	103
Wabaunsee	112	1	--	--	--	1	--	--	--	--	1
Total	2,345	6	1	2	5	14	28	0	--	9	993
Southeastern Unit											
Allen	282	2	--	--	--	2	13	0	--	0	137
Anderson	283	4	--	--	3	7	--	--	--	--	127

Table 12.—Continued

Forest Inventory Unit and county	All species	Softwoods					Hardwoods				
		Cedar/ juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut
Bourbon	637	2	--	--	--	2	76	0	--	0	307
Butler	23	--	--	--	--	--	--	--	--	--	23
Chautauqua	29	--	--	--	--	--	--	--	--	--	29
Cherokee	333	--	--	--	--	--	1	--	--	--	185
Coffey	23	--	--	--	--	--	--	--	--	--	23
Crawford	543	2	--	--	--	2	249	0	--	0	150
Elk	18	--	--	--	--	--	--	--	--	--	5
Greenwood	14	2	--	--	--	2	1	--	--	--	5
Labette	356	--	--	--	--	--	85	--	--	--	163
Linn	1,014	0	--	--	--	0	11	--	0	1	819
Lyon	161	--	--	--	--	--	--	--	--	--	161
Montgomery	1,092	--	--	--	--	--	154	--	--	--	160
Morris	23	--	--	--	--	--	1	--	--	--	15
Neosho	829	2	--	--	--	2	42	0	--	0	439
Wilson	686	--	--	--	--	--	22	--	--	--	373
Woodson	288	--	--	--	--	--	1	--	--	--	117
Total	6,633	12	--	--	3	15	657	1	0	2	3,239
Western Unit											
Edwards	6	--	--	--	--	--	--	--	--	--	4
Harvey	14	2	--	--	--	2	3	--	--	--	3
Jewell	9	2	--	--	1	3	3	--	--	--	0
McPherson	9	3	--	1	--	4	--	--	--	--	2

Table 12.—Continued

Forest Inventory Unit and county	All species	Softwoods					Hardwoods				
		Cedar/juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut
Ottawa	205	--	--	--	--	--	44	--	--	--	--
Reno	18	3	7	--	--	10	1	--	--	--	4
Rice	3	1	--	--	--	1	--	--	--	--	2
Scott	7	--	--	--	--	--	--	--	--	--	1
Sedgwick	16	--	--	--	4	4	--	--	--	--	2
Total	287	11	7	1	5	24	50	--	--	--	19
State total	9,266	29	9	3	12	53	736	2	0	11	4,251

Forest Inventory Unit and county	Cottonwood	Elm	Hackberry	Hickory	Hard maple	Soft maple	Red oak group	White oak group	Sycamore	Other hardwoods	Total hardwoods	
												Hardwoods Continued
Northeastern Unit												
Atchison	145	--	7	1	0	24	14	10	--	--	246	
Brown	43	--	15	--	--	15	3	1	5	--	101	
Dickinson	--	--	1	--	--	--	--	2	--	2	5	
Doniphan	363	2	6	2	--	33	28	25	6	2	552	
Douglas	3	1	1	--	1	2	1	--	1	--	84	
Franklin	--	--	--	--	--	1	0	4	--	--	110	
Jackson	97	--	3	0	--	--	0	10	--	--	112	
Jefferson	1	--	--	--	--	--	--	1	--	--	59	
Johnson	--	--	--	--	--	--	--	--	--	--	204	
Leavenworth	--	--	--	0	--	--	0	0	--	0	136	

Table 12.—Continued

Forest Inventory Unit and county	Hardwoods Continued											Total hardwoods
	Cottonwood	Elm	Hackberry	Hickory	Hard maple	Soft maple	Red oak group	White oak group	Sycamore	Other hardwoods	Total hardwoods	
Montgomery	14	2	33	33	--	469	82	140	2	--	1,092	
Morris	5	--	--	--	--	--	--	--	--	2	23	
Neosho	23	3	10	15	--	270	9	11	6	--	827	
Wilson	14	1	11	4	--	--	12	246	2	--	686	
Woodson	14	--	--	1	--	--	38	113	2	--	288	
Total	678	20	145	113	--	756	338	598	59	9	6,617	
Western Unit												
Edwards	--	2	--	--	--	--	--	--	--	--	6	
Harvey	4	0	1	--	--	--	--	--	--	1	13	
Jewell	--	--	--	--	--	--	--	3	--	--	6	
McPherson	--	--	2	--	--	--	--	--	--	--	5	
Ottawa	108	--	49	--	--	--	--	4	--	--	205	
Reno	--	1	--	--	--	--	--	2	--	--	8	
Rice	--	--	--	--	--	--	--	--	--	--	2	
Scott	1	--	--	--	--	--	1	1	1	1	7	
Sedgwick	3	1	--	--	--	--	1	0	1	2	12	
Total	117	5	53	--	--	--	2	10	2	5	263	
State total	1,747	31	243	124	3	833	417	712	82	20	9,212	

All table cells without observations are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

^a International 1/4-inch rule.

Table 13.—Harvest residue generated by industrial roundwood harvesting, in thousand cubic feet, by Forest Inventory Unit, county, and species group, Kansas, 2009

Forest Inventory Unit and county	All species	Softwoods					Hardwoods				
		Cedar/juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut
Northeastern Unit											
Atchison	18	--	--	--	--	--	1	--	--	0	2
Brown	7	--	--	--	--	--	0	--	--	--	1
Dickinson	1	--	0	--	--	0	--	--	--	--	--
Doniphan	40	--	--	--	--	--	2	--	--	0	3
Douglas	5	0	--	0	--	0	0	--	--	--	4
Franklin	6	--	--	--	--	--	--	--	--	--	5
Jackson	8	--	--	--	--	--	--	0	--	0	0
Jefferson	3	--	--	--	--	--	--	--	--	--	3
Johnson	11	--	--	--	--	--	--	--	--	--	11
Leavenworth	7	--	--	--	--	--	0	--	--	--	7
Marshall	3	--	--	--	--	--	--	--	--	--	--
Miami	4	--	--	--	--	--	--	--	--	0	4
Osage	6	--	--	--	--	--	--	--	--	--	6
Pottawatomie	8	--	--	--	--	--	--	--	--	--	--
Riley	2	0	--	0	0	0	0	--	--	--	1
Shawnee	19	0	--	--	0	0	0	0	--	0	5
Wabaunsee	8	0	--	--	--	0	--	--	--	--	0
Total	156	0	0	0	0	1	3	0	--	1	52
Southeastern Unit											
Allen	18	0	--	--	--	0	1	0	--	0	7
Anderson	18	0	--	--	0	0	--	--	--	--	7

Table 13.—Continued

Forest Inventory Unit and county	All species	Softwoods					Hardwoods				
		Cedar/juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut
Bourbon	48	0	--	--	--	0	8	0	--	0	16
Butler	1	--	--	--	--	--	--	--	--	--	1
Chautauqua	2	--	--	--	--	--	--	--	--	--	2
Cherokee	23	--	--	--	--	--	0	--	--	--	10
Coffey	1	--	--	--	--	--	--	--	--	--	1
Crawford	46	0	--	--	--	0	27	0	--	0	8
Elk	1	--	--	--	--	--	--	--	--	--	0
Greenwood	1	0	--	--	--	0	0	--	--	--	0
Labette	28	--	--	--	--	--	9	--	--	--	9
Linn	61	0	--	--	--	0	1	--	0	0	43
Lyon	8	--	--	--	--	--	--	--	--	--	8
Montgomery	91	--	--	--	--	--	17	--	--	--	8
Morris	1	--	--	--	--	--	0	--	--	--	1
Neosho	52	0	--	--	--	0	5	0	--	0	23
Wilson	58	--	--	--	--	--	2	--	--	--	19
Woodson	27	--	--	--	--	--	0	--	--	--	6
Total	486	1	--	--	0	1	72	0	0	0	169
Western Unit											
Edwards	0	--	--	--	--	--	--	--	--	--	0
Harvey	1	0	--	--	--	0	0	--	--	--	0
Jewell	1	0	--	--	0	0	0	--	--	--	0
McPherson	1	0	--	0	--	0	--	--	--	--	0

Table 13.—Continued

Forest Inventory Unit and county	All species	Softwoods					Hardwoods				
		Cedar/juniper	Ponderosa pine	White pine	Other pines	Total softwoods	Ash	Basswood	Birch	Black cherry	Black walnut
Ottawa	16	--	--	--	--	--	5	--	--	--	--
Reno	1	0	1	--	--	1	0	--	--	--	0
Rice	0	0	--	--	--	0	--	--	--	--	0
Scott	1	--	--	--	--	--	--	--	--	--	0
Sedgwick	1	--	--	--	0	0	--	--	--	--	0
Total	22	1	1	0	0	2	5	--	--	--	1
State total	664	2	1	0	1	4	80	0	0	1	222

Forest Inventory Unit and county	Cottonwood	Elm	Hackberry	Hickory	Hard maple	Soft maple	Red oak group	White oak group	Sycamore	Other hardwoods	Total hardwoods
Northeastern Unit											
Atchison	10	--	0	0	0	2	2	1	--	--	18
Brown	3	--	1	--	--	1	0	0	0	--	7
Dickinson	--	--	0	--	--	--	--	0	--	0	0
Doniphan	25	0	0	0	--	2	4	3	0	0	40
Douglas	0	0	0	--	0	0	0	--	0	--	5
Franklin	--	--	--	--	--	0	0	1	--	--	6
Jackson	7	--	0	0	--	--	0	1	--	--	8
Jefferson	0	--	--	--	--	--	--	0	--	--	3
Johnson	--	--	--	--	--	--	--	--	--	--	11
Leavenworth	--	--	--	0	--	--	0	0	--	0	7

Table 13.—Continued

Forest Inventory Unit and county	Hardwoods Continued											Total hardwoods
	Cottonwood	Elm	Hackberry	Hickory	Hard maple	Soft maple	Red oak group	White oak group	Sycamore	Other hardwoods	Total hardwoods	
Marshall	--	--	--	--	--	--	1	2	--	--	3	
Miami	--	--	--	--	--	--	--	0	--	--	4	
Osage	--	--	--	--	--	0	0	0	--	--	6	
Pottawatomie	7	--	0	--	--	--	--	1	--	--	8	
Riley	--	--	--	0	--	0	1	0	0	--	2	
Shawnee	7	0	0	0	0	0	3	1	1	0	18	
Wabausee	7	--	0	--	--	--	--	1	--	--	8	
Total	65	0	3	1	0	5	10	13	1	0	155	
Southeastern Unit												
Allen	7	0	1	--	--	--	0	0	0	--	17	
Anderson	6	--	--	0	--	1	1	2	1	0	18	
Bourbon	7	0	1	1	--	--	8	6	0	--	48	
Butler	--	--	--	--	--	--	--	--	--	--	1	
Chautauqua	--	--	--	--	--	--	--	--	--	--	2	
Cherokee	6	0	1	0	--	0	5	1	0	--	23	
Coffey	--	--	--	--	--	--	--	--	--	--	1	
Crawford	6	0	1	--	--	--	3	0	1	--	46	
Elk	0	--	--	--	--	0	0	--	0	--	1	
Greenwood	--	0	0	--	--	0	0	--	--	0	1	
Labette	1	0	2	0	--	0	6	1	0	--	28	
Linn	7	0	--	5	--	0	3	2	0	0	61	
Lyon	--	--	--	--	--	--	--	--	--	--	8	

Table 13.—Continued

Forest Inventory Unit and county	Hardwoods Continued											Total hardwoods
	Cottonwood	Elm	Hackberry	Hickory	Hard maple	Soft maple	Red oak group	White oak group	Sycamore	Other hardwoods	Total hardwoods	
Montgomery	1	0	2	4	--	30	11	18	0	--	91	
Morris	0	--	--	--	--	--	--	--	--	0	1	
Neosho	2	0	1	2	--	17	1	1	0	--	52	
Wilson	1	0	1	0	--	--	1	32	0	--	58	
Woodson	1	--	--	0	--	--	5	15	0	--	27	
Total	46	1	9	12	--	49	44	77	4	1	485	
Western Unit												
Edwards	--	0	--	--	--	--	--	--	--	--	0	
Harvey	0	0	0	--	--	--	--	--	--	0	1	
Jewell	--	--	--	--	--	--	--	0	--	--	1	
McPherson	--	--	0	--	--	--	--	--	--	--	0	
Ottawa	7	--	3	--	--	--	--	1	--	--	16	
Reno	--	0	--	--	--	--	--	0	--	--	1	
Rice	--	--	--	--	--	--	--	--	--	--	0	
Scott	0	--	--	--	--	--	0	0	0	0	1	
Sedgwick	0	0	--	--	--	--	0	0	0	0	1	
Total	8	0	3	--	--	--	0	1	0	0	20	
State total	119	2	16	14	0	54	54	92	5	1	660	

All table cells without observations are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Table 14.—Disposition of residues produced at primary wood-using mills, in green tons, by Forest Inventory Unit, disposition, residue type, and softwoods and hardwoods, Kansas, 2009

Forest Inventory Unit and disposition	Residue type											
	Total all residues ^a						Wood residue					
	Softwood		Hardwood		Total wood residue ^b		Coarse ^c		Fine ^d		Bark	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
All Units												
Industrial fuel	--	104.5	--	75.8	--	75.8	--	75.8	--	--	--	28.6
Residential fuel	83.9	1,599.1	66.7	1,251.3	63.6	1,215.4	63.6	1,215.4	3.1	36.0	--	347.7
Mulch	7.8	7,674.1	4.5	5,942.5	0.6	3,930.9	0.6	3,930.9	4.0	2,011.6	--	1,731.6
Miscellaneous ^e	4.1	5,688.1	4.0	4,514.8	0.4	2,772.5	0.4	2,772.5	3.6	1,742.2	--	1,173.3
Not used	29.3	1,410.8	25.2	1,104.5	9.9	488.0	9.9	488.0	15.3	616.4	--	306.4
Total	125.1	16,476.5	100.5	12,888.9	74.4	8,482.6	74.4	8,482.6	26.0	4,406.2	--	3,587.7
Northeastern Unit												
Industrial fuel	--	8.5	--	8.5	--	8.5	--	8.5	--	--	--	--
Residential fuel	21.7	309.4	19.1	244.5	18.5	237.5	18.5	237.5	0.6	7.0	2.6	64.9
Mulch	7.3	2,116.2	4.0	1,619.4	0.6	1,106.2	0.6	1,106.2	3.4	513.2	--	496.8
Miscellaneous ^e	0.6	108.7	0.6	93.0	--	37.0	--	37.0	0.6	56.0	--	15.7
Not used	6.0	664.0	4.5	519.5	1.8	315.0	1.8	315.0	2.6	204.5	--	144.6
Total	35.6	3,206.9	28.2	2,484.9	20.9	1,704.2	20.9	1,704.2	7.3	780.6	--	722.0
Southeastern Unit												
Industrial fuel	--	95.9	--	67.3	--	67.3	--	67.3	--	--	--	28.6
Residential fuel	20.7	998.1	16.3	739.3	16.3	713.4	16.3	713.4	--	25.8	--	258.8
Mulch	--	5,553.1	--	4,318.3	--	2,824.7	--	2,824.7	--	1,493.6	--	1,234.8
Miscellaneous ^e	0.8	5,561.6	0.8	4,405.4	--	2,732.2	--	2,732.2	0.8	1,673.2	--	1,156.2
Not used	12.3	431.4	10.8	394.6	4.6	86.5	4.6	86.5	6.2	308.1	--	36.8
Total	33.9	12,640.1	27.9	9,924.8	20.9	6,424.1	20.9	6,424.1	7.0	3,500.7	--	2,715.3

Table 13.—Continued

Forest Inventory Unit and disposition	Residue type											
	Total all residues ^a						Wood residue					
	Softwood		Hardwood		Total wood residue ^b		Coarse ^c		Fine ^d		Bark	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Western Unit												
Residential fuel	41.5	291.5	31.3	267.5	28.9	264.4	2.5	3.1	--	10.2	24.0	--
Mulch	0.5	4.8	0.5	4.8	--	--	0.5	4.8	--	--	--	--
Miscellaneous ^e	2.6	17.8	2.6	16.4	0.4	3.3	2.2	13.1	--	0.1	1.4	--
Not used	10.9	315.4	9.9	190.4	3.4	86.5	6.5	103.9	--	1.0	125.0	--
Total	55.7	629.6	44.4	479.2	32.6	354.3	11.7	124.9	--	11.3	150.4	--

Columns and rows may not add to their totals due to rounding.

^a Includes all coarse, fine and bark residues produced at primary wood-using mills.

^b Includes only coarse and fine residues produced at primary wood-using mills.

^c Suitable for chipping such as slabs, edgings, veneer cores, etc.

^d Not suitable for chipping such as sawdust, veneer clippings etc.

^e Livestock bedding, small dimension, specialty items, etc.

Haugen, David E. 2013. **Kansas timber industry: an assessment of timber product output and use, 2009**. Resour. Bull. NRS-88. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 56 p.

Presents recent Kansas forest industry trends; production and receipts of industrial roundwood; and production of saw logs and other products in 2009. Logging residue generated from timber harvest operations is reported, as well as wood and bark residue generated at primary wood-using mills and disposition of mill residues.

KEY WORDS: Industrial roundwood, harvest residue, mill residue, production, saw logs

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