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

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FOREWORD

In this bulletin we discuss recent South Dakota forest industry trends and report the results of a detailed study of the forest industry, industrial roundwood production, and associated primary mill wood and bark residue in South Dakota in 2004. Such detailed information is necessary for intelligent planning and decisionmaking in wood procurement, forest resources management, and forest industry development. Likewise, researchers need current forest industry and industrial roundwood information for planning projects.

Special thanks are given to the primary wood-using firms for supplying information for this study and to the South Dakota Department of Agriculture, Division of Resource Conservation and Forestry, for canvassing the respondents. Their cooperation is greatly appreciated.

All board foot data in this report have been converted to International 1/4-inch scale by applying a multiplier of 1.08 to all saw log volumes reported in Scribner scale by sawmills, a multiplier of 1.38 to all saw log volume reported in Doyle scale by sawmills, and a multiplier of 0.158 to all saw log volume reported in cubic feet.

Tables in the appendix relating to sawtimber volume are presented in both International 1/4-inch rule and cunits (100 cubic feet). The International 1/4-inch rule is the USDA Forest Service standard, while the cunit is a common measure used in South Dakota by forest industries and land management agencies. Because these results are used nationally and consistent comparisons are crucial, the International 1/4-inch rule is used as the unit of measure for sawtimber volume unless cunits are noted in the text. The authors have made an effort to include cunit tables to improve the utility of the inventory results for regional and local users of these results.

Another common unit of measure for sawtimber in South Dakota is the Scribner Decimal C log scale. The Scribner Decimal C scale is different from the Scribner scale in that it rounds the volume to the nearest 10 board feet. For example, 392 on the Scribner scale is equivalent to 390 board feet on the Scribner Decimal C scale. Because sawtimber volumes in this report are reported in thousand board feet International 1/4-inch rule, it is recommended that volumes be converted to Scribner scale and not rounded to the nearest 10. To convert from International 1/4-inch rule to Scribner scale, multiply the volume by 0.724638.

The last published report from a detailed study of all industrial roundwood output in South Dakota was for 1999. Most comparisons in this report are with the 1999 study results. Rows and columns may not sum due to rounding, but data in each table cell are accurately displayed.

When new surveys are completed, errors and omissions from previous surveys are corrected. As a result of our ongoing efforts to improve the survey's efficiency and reliability, changes may have been made to the previous survey's data. All comparisons and analysis in this report are based on the reprocessed data from earlier surveys, which may not match earlier published data.

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

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HIGHLIGHTS

PRIMARY TIMBER INDUSTRY—INDUSTRIAL ROUNDWOOD

- In 2004, South Dakota's primary wood-using industry was comprised of 17 sawmills, 3 post mills, 3 cabin log mills, 1 excelsior/shavings mill, and 1 particleboard mill (table 1).

- Seventeen of the State's primary wood-using mills were located in the Western Forest Survey Unit, which contained the majority of South Dakota's forest resources (fig. 1).

- In the Western Forest Survey Unit, two sawmills, two cabin log mills, and one post mill opened between 1999 and 2004. In the Eastern Unit, three sawmills and one excelsior/shavings mill opened, and one sawmill and one cabin log mill closed between surveys.

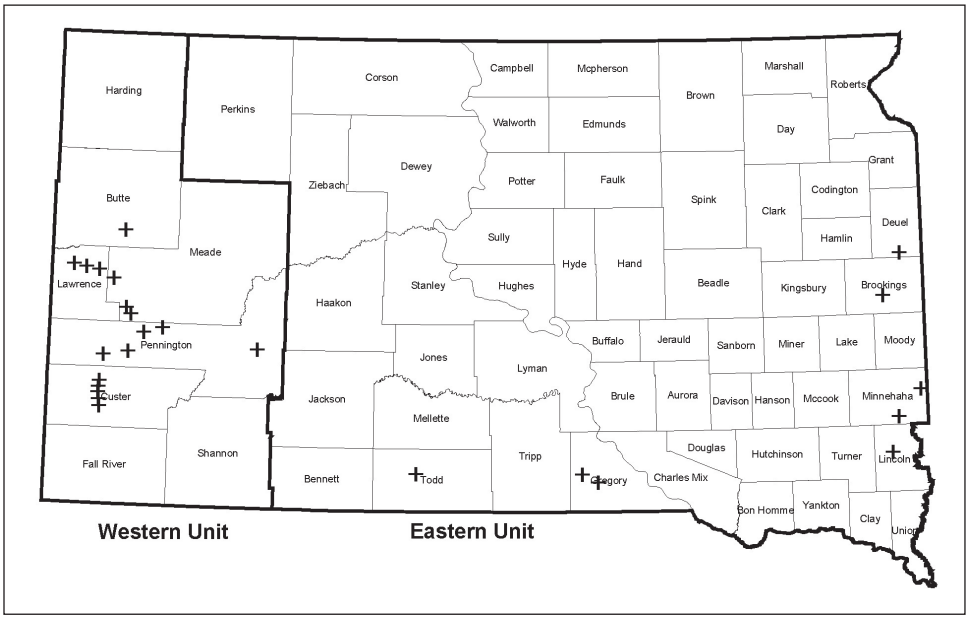

Figure 1.—*Forest Survey Units and location of wood-using mills in South Dakota, 2004.*

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- Less than 1 percent of the roundwood processed in 2004 by the primary wood-using mills in the Western Unit was from hardwood species, while almost 60 percent of the roundwood processed by the Eastern Unit's primary wood-using mills was from hardwood species.

- Industrial roundwood receipts in South Dakota increased from 23 million cubic feet in 1999 to 25 million cubic feet in 2004, an increase of almost 10 percent (table 2).

- Softwoods, mainly ponderosa pine, made up 99 percent of the roundwood processed by the State's primary wood-using industry in 2004.

- In 2004, almost 22 million cubic feet of industrial roundwood were harvested from South Dakota's forests (table 3)—an increase of 2 percent from 1999. Industrial roundwood production of softwoods increased by 3 percent while hardwood production decreased by 60 percent.

- Softwood species accounted for 99 percent of the industrial roundwood produced in 2004 (fig. 2).

- Ponderosa pine, at 20.4 million cubic feet, was the major species harvested in the State in 2004. Spruce was the second most harvested species, at 966 thousand cubic feet. Only 127 thousand cubic feet of hardwoods were harvested from South Dakota's forest land in 2004.

- In 2004, saw logs made up 93 percent of the total industrial roundwood produced in South Dakota (fig. 3).

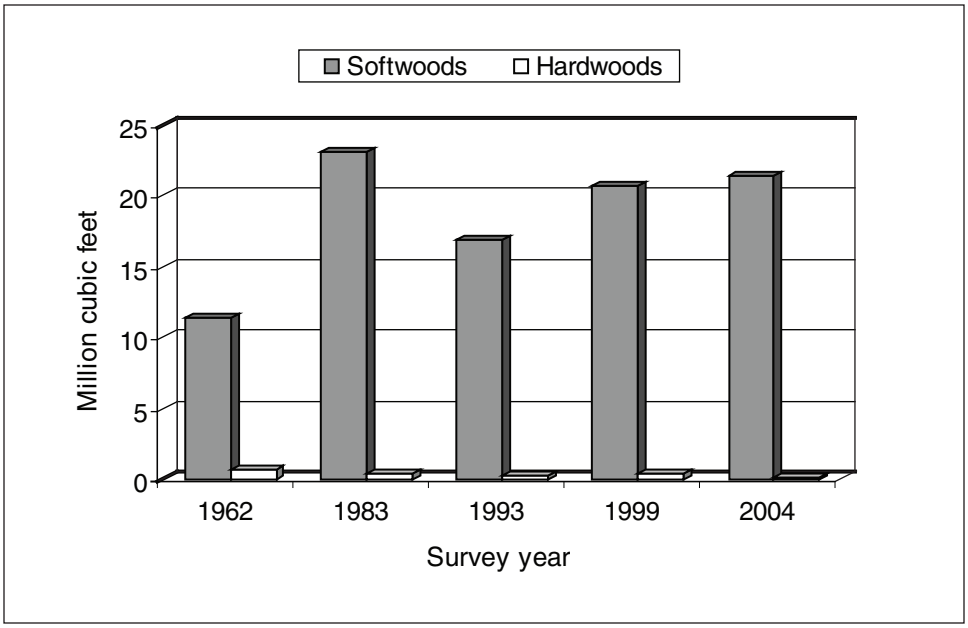

Figure 2.—*Industrial roundwood production by species group, South Dakota, 1962-2004.*

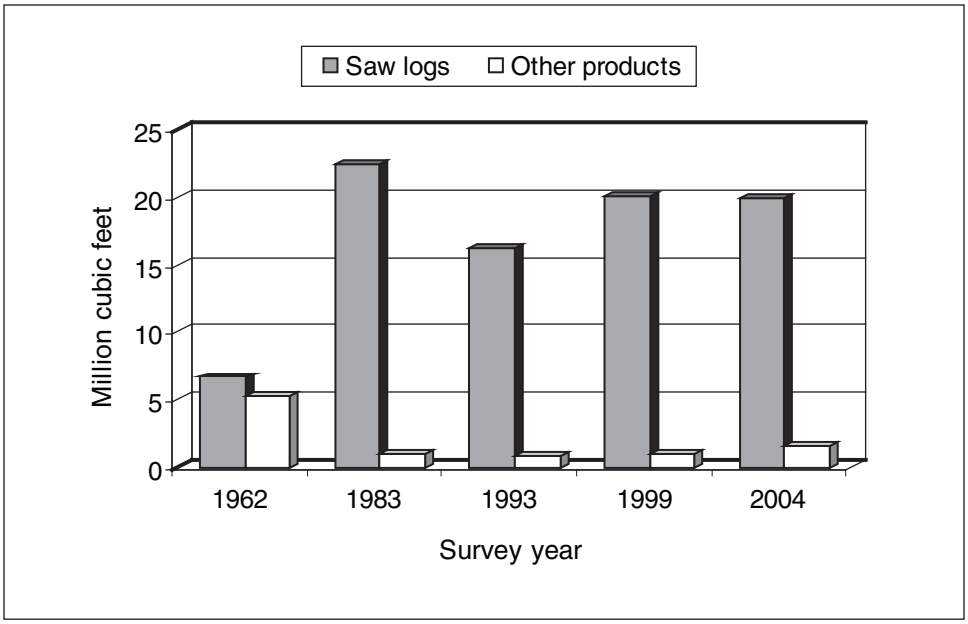

Figure 3.—*Industrial roundwood production by product, South Dakota, 1962-2004.*

- Ninety-nine percent of the State's industrial roundwood production came from the Western Forest Survey Unit.

SAW LOGS

- South Dakota's saw log receipts increased by more than 6 percent in 2004, from 132 million board feet in 1999 to 141 million board feet in 2004.

- In 2004, almost 71 percent of the saw log receipts in South Dakota were harvested from the State. Wyoming supplied another 19 percent of the saw logs processed by South Dakota's sawmills. Montana and Nebraska, combined, supplied another 10 percent of the sawmill receipts. Iowa and Minnesota, combined, supplied the rest or less than 1 percent of the roundwood processed by the State's sawmills (table 4).

- Saw log production in South Dakota decreased by 1 percent in 2004, falling from 123 million board feet in 1999 to 121 million board feet in 2004 (table 5).

- Sawmills within the State processed 82 percent of the saw logs harvested from South Dakota in 2004. Wyoming sawmills imported 17 percent of South Dakota's saw log production. Nebraska and Montana sawmills, combined, received the remaining 1 percent of saw logs harvested from South Dakota in 2004 (table 6).

- The Western Unit supplied 99 percent of the total saw logs produced in South Dakota, but only 1 percent of the hardwood saw logs came from this unit (table 7).

- Production of spruce, cedar, elm, and bur oak saw logs increased between 1999 and 2004, while production of ponderosa pine, cottonwood, ash, and black walnut saw logs decreased.

OTHER PRODUCTS

Due to the limited number of mills producing other products in South Dakota, receipts are not provided to avoid disclosure of individual mills.

- Pulp and particleboard plants consumed 17 thousand cords or 5 percent of South Dakota's industrial roundwood production in 2004.

- More than 470 thousand posts, or 1 percent of the industrial roundwood produced, came from South Dakota's forest land in 2004.

- The production of cabin logs in South Dakota increased from 9 thousand cubic feet in 1999 to 198 thousand cubic feet in 2004.

- In 2004, there was a market for the expanding eastern redcedar resource in South Dakota as excelsior/shaving bolts.

Residential fuelwood is a major nonindustrial product in South Dakota. The results of a residential fuelwood study conducted in 1994 are available in "Residential Fuelwood Consumption and Production in South Dakota, 1994," Resource Bulletin NC-171, by Dennis M. May. This report may be downloaded at: http://ncrs.fs.fed.us/pubs/.

TIMBER REMOVALS

- In the process of harvesting industrial roundwood in 2004, 30 million cubic feet of wood material were removed from South Dakota's forest land, the same as in 1999 (table 8).

- Seventy-one percent of the total wood material harvested from South Dakota's forests in 2004 was used for the production of primary wood products. The remainder was left on the ground as harvest residues (fig. 4).

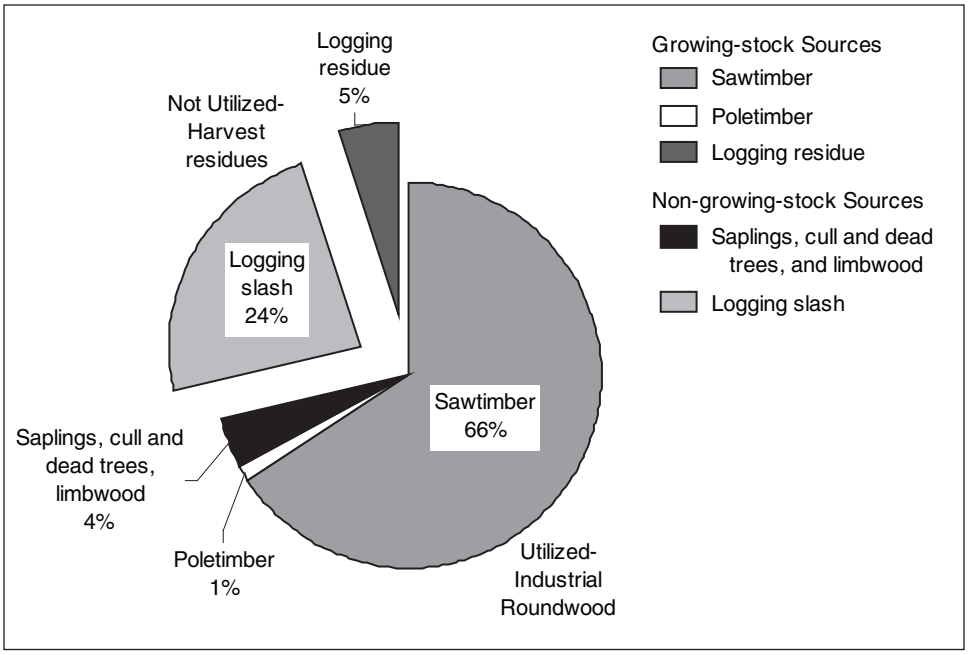

Figure 4.—*Distribution of timber removals for industrial roundwood by source of material, South Dakota, 2004.*

- Almost 22 million cubic feet of South Dakota's growing-stock inventory were removed from timberland, a 2-percent decrease from 1999 (table 8). This decrease in growing-stock removals was due to some mills processing roundwood from dead trees and tree tops.

- Ninety-three percent of the growing stock harvested was used for products and 7 percent was left on the ground as logging residue. Only 14 percent of the non-growing stock that was harvested was used for products, with the rest left as logging slash.

- Ninety-eight percent of the growing-stock removals came from the Western Forest Survey Unit (table 9).

- Limbwood accounted for more than 75 percent of the non-growing-stock sources of roundwood used for the production of primary wood products.

- In 2004, there were more than 121 million board feet of sawtimber removed from South Dakota's timberland, just 1 percent less than in 1999 (table 10).

HARVEST RESIDUES

- In 2004, harvesting of industrial roundwood products left over 8.7 million cubic feet of harvest residues on the ground in South Dakota (table 11), 3 percent less than in 1999.

- Nearly all (99 percent) of the harvest residues produced in 2004 were produced in the Western Forest Survey Unit of South Dakota.

- Because ponderosa pine was the major species harvested in South Dakota in 2004, it makes up the majority (97 percent) of the harvest residue that was generated.

PRIMARY MILL RESIDUES

- In converting industrial roundwood into products such as lumber, particleboard, poles and posts, and cabin logs, South Dakota's primary wood-using industry generated 383 thousand green tons of wood and bark residues, 18 percent more than in 1999 (table 12).

- Fifty percent of the mill residues produced in 2004 were in the form of coarse wood residues, such as slabs and edgings, which are suitable for chipping. Fine residue, which includes sawdust and shavings, made up another 29 percent of the mill residues produced, and bark residue accounted for the remaining 21 percent (fig. 5).

- Nearly all mill residues were used. The production of fiber products, such as pulp and particleboard, consumed 66 percent of the total residues produced by South Dakota's primary wood-using mills in 2004. Miscellaneous uses such as livestock bedding, mulch, small dimension lumber, and specialty products consumed another 21 percent of the mill residues (fig. 6).

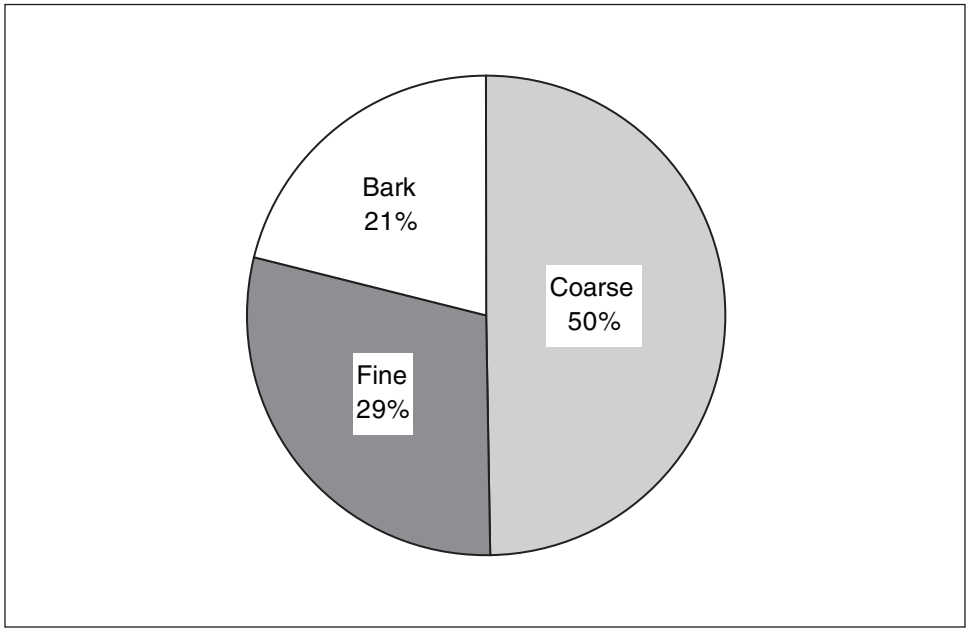

Figure 5.—*Distribution of residues generated by primary wood-using mills by type of residue, South Dakota, 2004.*

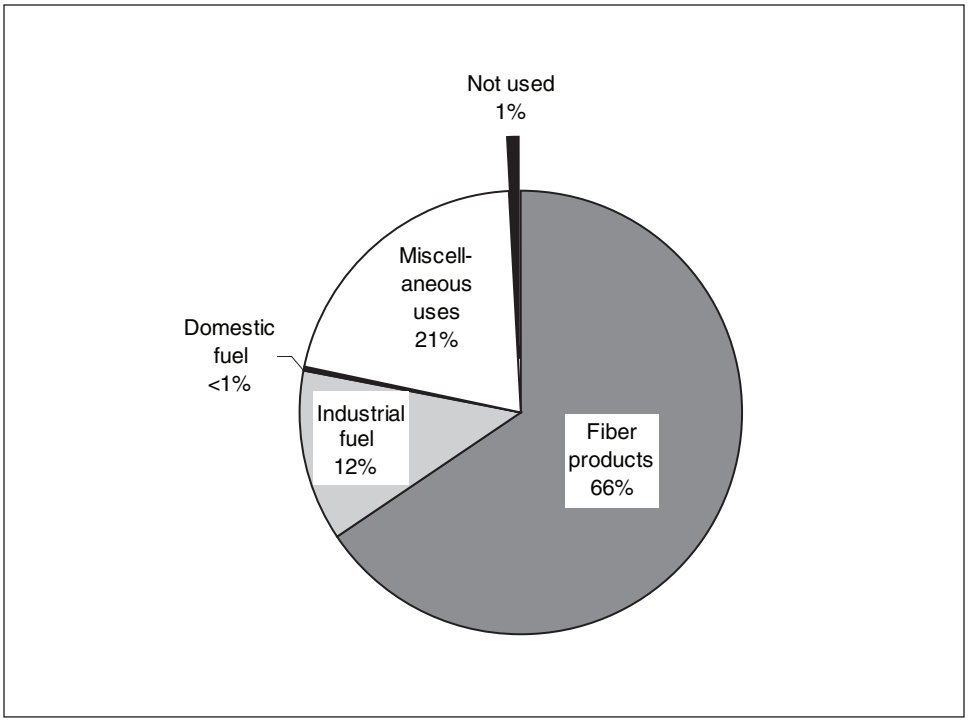

Figure 6.—*Distribution of residues generated by primary wood-using mills by method of disposal, South Dakota, 2004.*

- More than 82 percent of the wood residues were used for pulp or particleboard products. Ninety-eight percent of the coarse wood residues and 56 percent of the fine wood residues were used for pulp or particleboard production.

- Most of the bark (57 percent) was burned as industrial fuel. Miscellaneous uses consumed another 39 percent of the bark residue.

- In 2004, only 1 percent of the mill residues generated by South Dakota's primary wood-using mills remained unused. In 1999, 3 percent of the mill residues went unused.

APPENDIX

STUDY METHODS

This study was a cooperative effort of the South Dakota Department of Agriculture (SDDA) and the North Central Research Station (NCRS). Using mail questionnaires supplied by NCRS and 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, the SDDA canvassed all primary wood-using mills within the State. SDDA made followups to nonresponding mills using additional mailings, telephone calls, and personal contacts until a 100-percent response was achieved. Completed questionnaires were sent to NCRS for editing and processing.

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 previously conducted by NCRS. Mill residue volumes were calculated based on the input volume, product, species, and disposition percents supplied by the mill. Finalized data on South Dakota's industrial roundwood receipts were loaded into a regional timber removals database where they were supplemented with data on out-of-State uses of South Dakota roundwood to provide a complete assessment of South Dakota's timber product output.

DEFINITION OF TERMS

Board foot—Unit of measure applied to roundwood. It relates to lumber that is 1 foot long, I 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, etc.

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 all of which are less than 4.0 inches diameter outside bark.

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.

Cunit—A measurement of volume equal to 100 cubic feet.

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, streams or other bodies of water, or clearings in forest areas shall be classed as forest if less than 120 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 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 over, 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.

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 1/4-inch rule—A log rule or formula for estimating the board foot volume of logs, allowing one-half inch of taper for each 4-foot length. The rule appears in a number of forms that allow for kerf. In this form, one-fourth inch of kerf is assumed. This rule is used as the USDA 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—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—Refers to 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—Tree 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. (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, pulp, etc.

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 (byproducts) obtained incidental to production of principal products and wood materials not utilized for some product.

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 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 8, sawtimber removals refers to the net volume in the merchantable central stem of sawtimber trees harvested for industrial roundwood products. (Note: includes the saw log and upper stem portions of sawtimber trees.) When referring to the sawtimber volume removed from the timberland inventory as in table 10, 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 residues, 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.

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 plant usually having one or more perennial stems, a more or less definitely formed crown of foliage, and a height of at least 12 feet 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.

COMMON AND SCIENTIFIC NAMES OF TREE SPECIES MENTIONED IN THIS REPORT

Softwoods

- Cedar
  - Rocky Mountain juniper . . . . . *Juniperus scopulorum*
  - Eastern redcedar . . . . . *Juniperus virginiana*
- Spruce
  - White spruce . . . . . *Picea glauca*
  - Englemann spruce . . . . . *Picea engelmannii*
  - Black spruce . . . . . *Picea mariana*
- Ponderosa pine . . . . . *Pinus ponderosa*
- Other softwoods
  - Western larch . . . . . *Larix occidentalis*
  - Lodgepole pine . . . . . *Pinus contorta*
  - Red pine . . . . . *Pinus resinosa*
  - Western white pine . . . . . *Pinus monticola*
  - Austrian pine . . . . . *Pinus nigra*
  - Douglas-fir . . . . . *Pseudotsuga menziesii*

Hardwoods

- Hard maple
  - Sugar maple . . . . . *Acer saccharum*
- Soft maple
  - Boxelder . . . . . *Acer negundo*
  - Red maple . . . . . *Acer rubrum*
  - Silver maple . . . . . *Acer saccharinum*
- Northern catalpa . . . . . *Catalpa speciosa*
- Hackberry . . . . . *Celtis occidentalis*
- Ash
  - Black ash . . . . . *Fraxinus nigra*
  - White ash . . . . . *Fraxinus americana*
  - Green ash . . . . . *Fraxinus pennsylvanica*
- Honeylocust . . . . . *Gleditsia triacanthos*
- Black walnut . . . . . *Juglans nigra*
- Osage-orange . . . . . *Maclura pomifera*
- Cottonwood
  - Eastern cottonwood . . . . . *Populus deltoides*
  - Plains cottonwood . . . . . *Populus sargentii*
- Aspen
  - Bigtooth aspen . . . . . *Populus grandidentata*
  - Quaking or trembling aspen . . . . . *Populus tremuloides*
- Bur oak . . . . . *Quercus macrocarpa*
- American basswood . . . . . *Tilia americana*
- Elm
  - American elm . . . . . *Ulmus americana*
  - Slippery elm . . . . . *Ulmus rubra*

TABLE TITLES

TABLES

Table 1.—Number of active primary wood-using mills by mill type, South Dakota, 1993, 1999, and 2004

Kind of mill	1993	1999	2004
Sawmills			
Large[1]	3	3	3
Medium[2]	3	3	2
Small[3]	6	6	12
Total	12	12	17
Other mills			
Particleboard	1	1	1
Other mill types[4]	5	5	7
Total	6	6	8
Total mills	18	18	25

[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 posts and cabin log mills.

Table 2.—Industrial roundwood receipts by species group and State of origin, South Dakota, 2004

(In thousand cubic feet)

Species group	Total	State of origin						
		Iowa	Kansas	Minnesota	Montana	Nebraska	South Dakota	Wyoming
Softwoods								
Cedar[1]	16	--	--	--	--	3	13	--
Spruce	935	--	--	--	--	--	935	--
Ponderosa pine	23,563	--	--	--	1,340	1,091	16,915	4,217
Other softwoods	70	--	--	--	40	--	--	31
Total	24,583	--	--	--	1,380	1,094	17,862	4,247
Hardwoods								
Hard maple	0	--	--	--	--	--	0	--
Hackberry	0	--	--	--	--	--	0	--
Ash	3	0	--	0	--	--	2	--
Honeylocust	0	--	--	--	--	--	0	--
Black walnut	2	--	--	1	--	--	1	--
Osage-orange	0	--	0	--	--	--	--	--
Cottonwood	64	3	--	4	--	--	57	--
Aspen	1	--	--	--	--	--	1	--
Bur oak	2	--	--	--	--	--	2	--
Basswood	0	--	--	--	--	--	0	--
Elm	3	0	--	0	--	--	2	--
Total	75	3	0	5	--	--	66	--
State total	24,658	3	0	5	1,380	1,094	17,928	4,247

0 = Less than 500 cubic feet.

[1] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 3.—Industrial roundwood production by Forest Survey Unit, species group, and type of product, South Dakota, 2004

All Units

Species group	All products	Type of product							
		Saw logs		Pulpwood		Posts		Cabin logs	Excelsior/ shaving
	MCF[1]	*MBF*[2]	*MCF*[1]	*Cords*[3]	*MCF*[1]	*M pieces*[4]	*MCF*[1]	*MCF*[1]	*MCF*[1]
Softwoods									
Cedar[5]	13	14	3	--	--	10	6	--	4
Spruce	966	4,962	953	--	--	--	--	13	--
Ponderosa pine	20,388	115,470	18,822	16,878	1,084	459	298	185	--
Other softwoods	12	60	12	--	--	--	--	--	--
Total	21,379	120,506	19,789	16,878	1,084	469	305	198	4
Hardwoods									
Hard maple	0	0	0	--	--	--	--	--	--
Hackberry	0	0	0	--	--	--	--	--	--
Ash	2	13	2	--	--	--	--	--	--
Honeylocust	0	1	0	--	--	--	--	--	--
Black walnut	1	8	1	--	--	--	--	--	--
Cottonwood	118	648	114	--	--	4	4	--	--
Aspen	1	5	1	--	--	--	--	--	--
Bur oak	2	12	2	--	--	--	--	--	--
Basswood	0	0	0	--	--	--	--	--	--
Elm	2	14	2	--	--	--	--	--	--
Total	127	702	123	--	--	4	4	--	--
State total	21,506	121,208	19,912	16,878	1,084	473	308	198	4

Eastern Unit

Softwoods									
Cedar[5]	6	14	3	--	--	--	--	--	4
Spruce	0	2	0	--	--	--	--	--	--
Ponderosa pine	45	276	45	--	--	--	--	--	--
Total	52	292	48	--	--	--	--	--	4
Hardwoods									
Hard maple	0	0	0	--	--	--	--	--	--
Hackberry	0	0	0	--	--	--	--	--	--
Ash	2	13	2	--	--	--	--	--	--
Honeylocust	0	1	0	--	--	--	--	--	--
Black walnut	1	8	1	--	--	--	--	--	--
Cottonwood	114	648	114	--	--	--	--	--	--
Bur oak	2	10	2	--	--	--	--	--	--
Basswood	0	0	0	--	--	--	--	--	--
Elm	2	14	2	--	--	--	--	--	--
Total	122	695	122	--	--	--	--	--	--
Unit total	174	987	170	--	--	--	--	--	4

(Table 3 continued on next page)

(Table 3 continued)

Western Unit

Species group	All products	Type of product							
		Saw logs		Pulpwood		Posts		Cabin logs	Excelsior/ shaving
	MCF[1]	*MBF*[2]	*MCF*[1]	*Cords*[3]	*MCF*[1]	*M pieces*[4]	*MCF*[1]	*MCF*[1]	*MCF*[1]
Softwoods									
Cedar[5]	6	--	--	--	--	10	6	--	--
Spruce	966	4,960	953	--	--	--	--	13	--
Ponderosa pine	20,343	115,194	18,777	16,878	1,084	459	298	185	--
Other softwoods	12	60	12	--	--	--	--	--	--
Total	21,327	120,214	19,741	16,878	1,084	469	305	198	--
Hardwoods									
Cottonwood	4	--	--	--	--	4	4	--	--
Aspen	1	5	1	--	--	--	--	--	--
Bur oak	0	2	0	--	--	--	--	--	--
Total	5	8	1	--	--	4	4	--	--
Unit total	21,332	120,222	19,742	16,878	1,084	473	308	198	--

0 = Less than 1/2 unit of measure.

[1] Thousand cubic feet.

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

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

[4] Thousand pieces.

[5] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 4.—Saw log receipts by Forest Survey Unit, species group, and State of origin, South Dakota, 2004

(In thousand board feet)[1]

All Units

Species group	All States	State of origin					
		Iowa	Minnesota	Montana	Nebraska	South Dakota	Wyoming
Softwoods							
Cedar[2]	30	--	--	--	16	14	--
Spruce	4,796	--	--	--	--	4,796	--
Ponderosa pine	135,613	--	--	8,484	6,280	94,162	26,687
Total	140,439	--	--	8,484	6,296	98,972	26,687
Hardwoods							
Hard maple	0	--	--	--	--	0	--
Hackberry	0	--	--	--	--	0	--
Ash	16	0	3	--	--	13	--
Honeylocust	1	--	--	--	--	1	--
Black walnut	12	--	4	--	--	8	--
Cottonwood	349	23	23	--	--	303	--
Aspen	5	--	--	--	--	5	--
Bur oak	12	--	--	--	--	12	--
Basswood	0	--	--	--	--	0	--
Elm	14	0	0	--	--	14	--
Total	412	24	30	--	--	357	--
State total	140,851	24	30	8,484	6,296	99,329	26,687

Eastern Unit

Softwoods							
Cedar[2]	14	--	--	--	--	14	--
Spruce	2	--	--	--	--	2	--
Ponderosa pine	276	--	--	--	--	276	--
Total	292	--	--	--	--	292	--
Hardwoods							
Hard maple	0	--	--	--	--	0	--
Hackberry	0	--	--	--	--	0	--
Ash	16	0	3	--	--	13	--
Honeylocust	1	--	--	--	--	1	--
Black walnut	12	--	4	--	--	8	--
Cottonwood	349	23	23	--	--	303	--
Bur oak	10	--	--	--	--	10	--
Basswood	0	--	--	--	--	0	--
Elm	14	0	0	--	--	14	--
Total	404	24	30	--	--	350	--
Unit total	696	24	30	--	--	642	--

(Table 4 continued on next page)

(Table 4 continued)

	Western Unit						
Softwoods							
Cedar[2]	16	--	--	--	16	--	--
Spruce	4,794	--	--	--	--	4,794	--
Ponderosa pine	135,337	--	--	8,484	6,280	93,886	26,687
Total	140,147	--	--	8,484	6,296	98,680	26,687
Hardwoods							
Aspen	5	--	--	--	--	5	--
Bur oak	2	--	--	--	--	2	--
Total	8	--	--	--	--	8	--
Unit total	140,155	--	--	8,484	6,296	98,688	26,687

0 = Less than 500 board feet, International 1/4-inch rule.

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

[2] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 4a.—Saw log receipts by Forest Survey Unit, species group, and State of origin, South Dakota, 2004

(In cunits)[1]

All Units

Species group	All States	State of origin					
		Iowa	Minnesota	Montana	Nebraska	South Dakota	Wyoming
Softwoods							
Cedar[2]	61	--	--	--	35	27	--
Spruce	9,214	--	--	--	--	9,214	--
Ponderosa pine	219,962	--	--	13,404	10,908	153,484	42,166
Total	229,237	--	--	13,404	10,942	162,724	42,166
Hardwoods							
Hard maple	1	--	--	--	--	1	--
Hackberry	1	--	--	--	--	1	--
Ash	27	1	4	--	--	22	--
Honeylocust	2	--	--	--	--	2	--
Black walnut	21	--	7	--	--	14	--
Cottonwood	604	33	38	--	--	533	--
Aspen	10	--	--	--	--	10	--
Bur oak	21	--	--	--	--	21	--
Basswood	0	--	--	--	--	0	--
Elm	25	0	0	--	--	24	--
Total	711	34	50	--	--	627	--
State total	229,948	34	50	13,404	10,942	163,351	42,166

Eastern Unit

Softwoods							
Cedar[2]	27	--	--	--	--	27	--
Spruce	4	--	--	--	--	4	--
Ponderosa pine	449	--	--	--	--	449	--
Total	480	--	--	--	--	480	--
Hardwoods							
Hard maple	1	--	--	--	--	1	--
Hackberry	1	--	--	--	--	1	--
Ash	27	1	4	--	--	22	--
Honeylocust	2	--	--	--	--	2	--
Black walnut	21	--	7	--	--	14	--
Cottonwood	604	33	38	--	--	533	--
Bur oak	17	--	--	--	--	17	--
Basswood	0	--	--	--	--	0	--
Elm	25	0	0	--	--	24	--
Total	697	34	50	--	--	614	--
Unit total	1,178	34	50	--	--	1,094	--

(Table 4a continued on next page)

(Table 4a continued)

Western Unit							
Softwoods							
Cedar[2]	35	--	--	--	35	--	--
Spruce	9,209	--	--	--	--	9,209	--
Ponderosa pine	219,513	--	--	13,404	10,908	153,035	42,166
Total	228,757	--	--	13,404	10,942	162,244	42,166
Hardwoods							
Aspen	10	--	--	--	--	10	--
Bur oak	4	--	--	--	--	4	--
Total	14	--	--	--	--	14	--
Unit total	228,770	--	--	13,404	10,942	162,257	42,166

0 = Less than 50 cubic feet.

[1] 100 cubic feet.

[2] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 5.—Saw log production and receipts by species group, South Dakota, 1999 and 2004

(In thousand board feet)[1]

Species group	Production			Receipts		
	1999	2004	Change	1999	2004	Change
Softwoods						
Cedar[2]	1	14	13	1	30	29
Spruce	309	4,962	4,653	94	4,796	4,702
Ponderosa pine	120,615	115,470	-5,145	130,450	135,613	5,163
Other softwoods	--	60	60	0	--	0
Total	120,926	120,506	-420	130,546	140,439	9,893
Hardwoods						
Hard maple	--	0	0	--	0	0
Soft maple	0	--	0	1	--	-1
Catalpa	--	--	--	1	--	-1
Hackberry	1	0	-1	1	0	-1
Ash	31	13	-18	38	16	-22
Honeylocust	1	1	0	1	1	0
Black walnut	18	8	-10	25	12	-13
Cottonwood	1,757	648	-1,109	1,333	349	-984
Aspen	--	5	5	--	5	5
Bur oak	1	12	11	29	12	-17
Basswood	--	0	0	1	0	-1
Elm	2	14	12	3	14	11
Total	1,811	702	-1,109	1,432	412	-1,020
All species	122,736	121,208	-1,528	131,978	140,851	8,873

0 = Less than 500 board feet.

[1] International 1/4-inch rule.

[2] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 6.—Saw log production by Forest Survey Unit, species group, and destination, South Dakota, 2004

(In thousand board feet)[1]

All Units

Species group	Total	Destination			
		Montana	Nebraska	South Dakota	Wyoming
Softwoods					
Cedar[2]	14	--	--	14	--
Spruce	4,962	--	--	4,796	166
Ponderosa pine	115,470	1,000	--	94,162	20,308
Other softwoods	60	--	--	--	60
Total	120,506	1,000	--	98,972	20,534
Hardwoods					
Hard maple	0	--	--	0	--
Hackberry	0	--	--	0	--
Ash	13	--	--	13	--
Honeylocust	1	--	--	1	--
Black walnut	8	--	--	8	--
Cottonwood	648	--	345	303	--
Aspen	5	--	--	5	--
Bur oak	12	--	--	12	--
Basswood	0	--	--	0	--
Elm	14	--	--	14	--
Total	702	--	345	357	--
State total	121,208	1,000	345	99,329	20,534

Eastern Unit

Softwoods					
Cedar[2]	14	--	--	14	--
Spruce	2	--	--	2	--
Ponderosa pine	276	--	--	276	--
Total	292	--	--	292	--
Hardwoods					
Hard maple	0	--	--	0	--
Hackberry	0	--	--	0	--
Ash	13	--	--	13	--
Honeylocust	1	--	--	1	--
Black walnut	8	--	--	8	--
Cottonwood	648	--	345	303	--
Bur oak	10	--	--	10	--
Basswood	0	--	--	0	--
Elm	14	--	--	14	--
Total	695	--	345	350	--
Unit total	987	--	345	642	--

(Table 6 continued on next page)

(Table 6 continued)

	Western Unit				
Softwoods					
Spruce	4,960	--	--	4,794	166
Ponderosa pine	115,194	1,000	--	93,866	20,308
Other softwoods	60	--	--	--	60
Total	120,214	1,000	--	98,680	20,534
Hardwoods					
Aspen	5	--	--	5	--
Bur oak	2	--	--	2	--
Total	8	--	--	8	--
Unit total	120,222	1,000	--	98,688	20,534

0 = Less than 500 board feet, International 1/4-inch rule.

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

[2] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 6a.—Saw log production by Forest Survey Unit, species group, and destination, South Dakota, 2004

(In cunits)[1]

All Units

Species group	Total	Destination			
		Montana	Nebraska	South Dakota	Wyoming
Softwoods					
Cedar[2]	27	--	--	27	--
Spruce	9,532	--	--	9,214	319
Ponderosa pine	188,216	1,630	--	153,484	33,102
Other softwoods	115	--	--	--	115
Total	197,890	1,630	--	162,724	33,536
Hardwoods					
Hard maple	1	--	--	1	--
Hackberry	1	--	--	1	--
Ash	22	--	--	22	--
Honeylocust	2	--	--	2	--
Black walnut	14	--	--	14	--
Cottonwood	1,140	--	607	533	--
Aspen	10	--	--	10	--
Bur oak	21	--	--	21	--
Basswood	0	--	--	0	--
Elm	24	--	--	24	--
Total	1,234	--	607	627	--
State total	199,125	1,630	607	163,351	33,536

Eastern Unit

Softwoods					
Cedar[2]	27	--	--	27	--
Spruce	4	--	--	4	--
Ponderosa pine	449	--	--	449	--
Total	480	--	--	480	--
Hardwoods					
Hard maple	1	--	--	1	--
Hackberry	1	--	--	1	--
Ash	22	--	--	22	--
Honeylocust	2	--	--	2	--
Black walnut	14	--	--	14	--
Cottonwood	1,140	--	607	533	--
Bur oak	17	--	--	17	--
Basswood	0	--	--	0	--
Elm	24	--	--	24	--
Total	1,221	--	607	614	--
Unit total	1,701	--	607	1,094	--

(Table 6a continued on next page)

(Table 6a continued)

	Western Unit				
Softwoods					
Spruce	9,528	--	--	9,209	319
Ponderosa pine	187,767	1,630	--	153,035	33,102
Other softwoods	115	--	--	--	115
Total	197,410	1,630	--	162,244	33,536
Hardwoods					
Aspen	10	--	--	10	--
Bur oak	4	--	--	4	--
Total	14	--	--	14	--
Unit total	197,424	1,630	--	162,257	33,536

0 = Less than 50 cubic feet.

[1] 100 cubic feet.

[2] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 7.—Saw log production by Forest Survey Unit, county, and species group, South Dakota, 2004

(In thousand board feet)[1]

Forest Survey Unit and county	All species	Species group																
		Softwoods					Hardwoods											
		Cedar[2]	Spruce	Pond-erosa pine	Other soft-woods	Total soft-woods	Hard maple	Hack-berry	Ash	Honey-locust	Black walnut	Cotton-wood	Aspen	Bur oak	Bass-wood	Elm	Total hard-woods
Eastern Unit																		
Bennett	345	--	--	--	--	--	--	--	--	--	--	345	--	--	--	--	345
Brookings	7	1	0	0	--	1	0	--	0	--	0	3	--	0	0	2	6
Brule	6	2	--	--	--	2	--	--	1	--	0	--	--	2	--	0	4
Charles Mix	6	2	--	--	--	2	--	--	1	--	0	--	--	2	--	0	4
Clay	20	--	--	1	--	1	--	--	--	--	--	19	--	--	--	0	19
Codington	4	--	0	--	--	0	--	--	--	--	0	2	--	--	0	2	3
Deuel	4	--	0	--	--	0	--	--	--	--	0	2	--	--	0	2	3
Gregory	7	3	--	--	--	3	--	--	1	--	0	--	--	2	--	0	4
Hamlin	4	--	0	--	--	0	--	--	--	--	0	2	--	--	0	2	3
Kingsbury	4	--	0	--	--	0	--	--	--	--	0	2	--	--	0	2	3
Lake	6	1	0	0	--	1	0	0	1	0	1	1	--	0	--	0	4
Lincoln	38	--	0	1	--	1	--	0	1	0	1	34	--	--	--	1	37
Lyman	6	2	--	--	--	2	--	--	1	--	0	--	--	2	--	0	4
McCook	22	--	0	1	--	1	--	0	1	0	1	19	--	--	--	0	21
Minnehaha	102	--	1	1	--	2	--	0	2	0	1	95	--	--	--	1	100
Moody	22	1	0	0	--	2	0	0	1	0	1	17	--	0	--	0	20
Sanborn	70	--	--	--	--	--	--	--	--	--	--	70	--	--	--	--	70
Todd	270	--	--	270	--	270	--	--	--	--	--	--	--	--	--	--	--
Tripp	6	2	--	--	--	2	--	--	1	--	0	--	--	2	--	0	4
Turner	22	--	0	1	--	1	--	0	1	0	1	19	--	--	--	0	21
Union	20	--	--	1	--	1	--	--	--	--	--	19	--	--	--	0	19
Total	987	14	2	276	--	292	0	0	13	1	8	648	--	10	0	14	695
Western Unit																		
Custer	13,757	--	2,160	11,597	--	13,757	--	--	--	--	--	--	--	--	--	--	--
Fall River	882	--	486	396	--	882	--	--	--	--	--	--	--	--	--	--	--
Harding	2,709	--	--	2,709	--	2,709	--	--	--	--	--	--	--	--	--	--	--
Lawrence	38,949	--	739	38,202	--	38,941	--	--	--	--	--	--	5	2	--	--	8
Meade	11,868	--	--	11,868	--	11,868	--	--	--	--	--	--	--	--	--	--	--
Pennington	52,057	--	1,575	50,422	60	52,057	--	--	--	--	--	--	--	--	--	--	--
Total	120,222	--	4,960	115,194	60	120,214	--	--	--	--	--	--	5	2	--	--	8
State total	121,208	14	4,962	115,470	60	120,506	0	0	13	1	8	648	5	12	0	14	702

0 = Less than 500 board feet, International 1/4-inch rule.

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

[2] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 7a.—Saw log production by Forest Survey Unit, county, and species group, South Dakota, 2004

(In cunits)[1]

Forest Survey Unit and county	All species	Species group															
		Softwoods					Hardwoods										
		Cedar[2]	Spruce	Pond-erosa pine	Other soft-woods	Total soft-woods	Hard maple	Hack-berry	Ash	Honey-locust	Black walnut	Cotton-wood	Aspen	Bur oak	Bass-wood	Elm	Total hard-woods
Eastern Unit																	
Bennett	607	--	--	--	--	--	--	--	--	--	--	607	--	--	--	--	607
Brookings	13	2	0	1	--	3	0	--	1	--	0	5	--	0	0	4	10
Brule	10	4	--	--	--	4	--	--	2	--	1	--	--	3	--	0	6
Charles Mix	10	4	--	--	--	4	--	--	2	--	1	--	--	3	--	0	6
Clay	35	--	--	1	--	1	--	--	--	--	--	33	--	--	--	1	34
Codington	6	--	0	--	--	0	--	--	--	--	0	3	--	--	0	3	6
Deuel	6	--	0	--	--	0	--	--	--	--	0	3	--	--	0	3	6
Gregory	12	5	--	--	--	5	--	--	2	--	1	--	--	4	--	0	6
Hamlin	6	--	0	--	--	0	--	--	--	--	0	3	--	--	0	3	6
Kingsbury	6	--	0	--	--	0	--	--	--	--	0	3	--	--	0	3	6
Lake	10	2	0	1	--	3	0	0	2	0	2	2	--	0	--	1	7
Lincoln	67	--	0	1	--	2	--	0	2	0	2	60	--	--	--	1	65
Lyman	10	4	--	--	--	4	--	--	2	--	1	--	--	3	--	0	6
McCook	39	--	0	1	--	1	--	0	1	0	2	33	--	--	--	1	37
Minnehaha	179	--	2	2	--	4	--	0	4	0	2	167	--	--	--	2	175
Moody	38	2	0	1	--	3	0	0	2	0	2	29	--	0	--	1	35
Sanborn	123	--	--	--	--	--	--	--	--	--	--	123	--	--	--	--	123
Todd	440	--	--	440	--	440	--	--	--	--	--	--	--	--	--	--	--
Tripp	10	4	--	--	--	4	--	--	2	--	1	--	--	3	--	0	6
Turner	39	--	0	1	--	1	--	0	1	0	2	33	--	--	--	1	37
Union	35	--	--	1	--	1	--	--	--	--	--	33	--	--	--	1	34
Total	1,701	27	4	449	--	480	1	1	22	2	14	1,140	--	17	0	24	1,221
Western Unit																	
Custer	23,053	--	4,149	18,903	--	23,053	--	--	--	--	--	--	--	--	--	--	--
Fall River	1,580	--	934	646	--	1,580	--	--	--	--	--	--	--	--	--	--	--
Harding	4,415	--	--	4,415	--	4,415	--	--	--	--	--	--	--	--	--	--	--
Lawrence	63,703	--	1,420	62,269	--	63,689	--	--	--	--	--	--	10	4	--	--	14
Meade	19,345	--	--	19,345	--	19,345	--	--	--	--	--	--	--	--	--	--	--
Pennington	85,328	--	3,025	82,188	115	85,328	--	--	--	--	--	--	--	--	--	--	--
Total	197,424	--	9,528	187,767	115	197,410	--	--	--	--	--	--	10	4	--	--	14
State total	199,125	27	9,532	188,216	115	197,890	1	1	22	2	14	1,140	10	21	0	24	1,234

0 = Less than 50 cubic feet.

[1] 100 cubic feet.

[2] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 8.—Timber removals for industrial roundwood by Forest Survey Unit, species group, and source of material, South Dakota, 2004[1]

(In thousand cubic feet)

All Units

Species group	Growing stock				Non-growing stock						Total material used for products	Harvest residue (total not used)	Total material harvested
	Used for products		Logging residue (not used)	Total growing stock	Used for products				Logging slash (not used)	Total non-growing stock			
	Saw-timber	Pole-timber			Limbwood	Saplings	Cull trees	Dead trees					
Softwoods													
Cedar[2]	4.8	2.7	0.5	8.0	0.1	0.5	0	4.5	0.7	5.9	12.6	1.2	13.8
Spruce	898.5	30.2	27.2	955.8	37.2	--	0.5	--	199.2	236.9	966.4	226.4	1,192.8
Ponderosa pine	18,862.8	378.8	1,462.1	20,703.7	865.8	75.8	6.8	198.2	6,895.1	8,041.7	20,388.2	8,357.3	28,745.4
Other softwoods	10.7	0.4	0.3	11.4	0.4	--	0	--	2.4	2.8	11.5	2.7	14.2
Total	19,776.8	412.1	1,490.1	21,678.9	903.6	76.2	7.3	202.7	7,097.5	8,287.3	21,378.7	8,587.5	29,966.3
Hardwoods													
Hard maple	0	0	0	0.1	0	--	0	--	0	0	0.1	0	0.1
Hackberry	0.1	0	0	0.1	0	--	0	--	0	0	0.1	0	0.1
Ash	2.1	0	0.3	2.4	0	--	0	--	0.5	0.6	2.2	0.9	3.0
Honeylocust	0.2	0	0	0.2	0	--	0	--	0	0	0.2	0.1	0.2
Black walnut	1.3	0.1	0.3	1.6	0	--	0	--	0.5	0.6	1.4	0.8	2.2
Cottonwood	102.1	6.6	21.8	130.4	3.0	--	2.3	3.5	40.7	49.5	117.5	62.4	180.0
Aspen	0.8	0.2	0	1.0	0	--	0	--	0.1	0.1	1.0	0.1	1.1
Bur oak	2.0	0.0	0.3	2.3	0	--	0	--	0.5	0.6	2.1	0.8	2.9
Basswood	0	0	0	0	0	--	0	--	0	0	0	0	0
Elm	2.2	0.1	0.5	2.8	0.1	--	0	--	0.9	1.0	2.4	1.3	3.8
Total	110.8	7.0	23.2	141.0	3.2	--	2.5	3.5	43.3	52.5	127.0	66.5	193.5
State total	19,887.6	419.1	1,513.3	21,819.9	906.8	76.2	9.7	206.3	7,140.8	8,339.8	21,505.7	8,654.0	30,159.8

Eastern Unit

Softwoods													
Cedar[2]	4.6	1.5	0.4	6.5	0.1	--	0	--	0.6	0.7	6.2	1.1	7.2
Spruce	0.4	0.0	0.0	0.4	0.0	--	0	--	0.1	0.1	0.4	0.1	0.5
Ponderosa pine	44.0	0.4	3.4	47.9	--	--	--	0.5	16.3	16.7	44.9	19.7	64.7
Total	49.0	1.9	3.9	54.8	0.1	--	0	0.5	17.0	17.6	51.5	20.9	72.4
Hardwoods													
Hard maple	0.0	0	0	0.1	0	--	0	--	0	0	0.1	0	0.1
Hackberry	0.1	0	0	0.1	0	--	0	--	0	0	0.1	0	0.1
Ash	2.1	0	0.3	2.4	0	--	0	--	0.5	0.6	2.2	0.9	3.0
Honeylocust	0.2	0	0	0.2	0	--	0	--	0	0	0.2	0.1	0.2
Black walnut	1.3	0.1	0.3	1.6	0	--	0	--	0.5	0.6	1.4	0.8	2.2
Cottonwood	102.1	6.6	21.8	130.4	3.0	--	2.3	--	40.7	46.0	114.0	62.4	176.4
Bur oak	1.7	0	0.2	1.9	0	--	0	--	0.4	0.5	1.7	0.7	2.4
Basswood	0	0	0	0	0	--	0	--	0	0	0	0	0
Elm	2.2	0.1	0.5	2.8	0.1	--	0	--	0.9	1.0	2.4	1.3	3.8
Total	109.6	6.8	23.1	139.6	3.2	--	2.4	--	43.1	48.7	122.1	66.2	188.3
Unit total	158.6	8.8	27.0	194.4	3.3	--	2.4	0.5	60.1	66.3	173.6	87.1	260.7

(Table 8 continued on next page)

(Table 8 continued)

	Western Unit												
Softwoods													
Cedar[2]	0.2	1.2	0	1.5	--	0.5	--	4.5	0.1	5.1	6.5	0.1	6.6
Spruce	898.1	30.2	27.2	955.4	37.2	--	0.5	--	199.1	236.8	966.0	226.3	1,192.2
Ponderosa pine	18,818.8	378.3	1,458.7	20,655.8	865.8	75.8	6.8	197.7	6,878.9	8,025.0	20,343.2	8,337.6	28,680.8
Other softwoods	10.7	0.4	0.3	11.4	0.4	--	0.0	--	2.4	2.8	11.5	2.7	14.2
Total	19,727.8	410.1	1,486.2	21,624.1	903.5	76.2	7.3	202.3	7,080.5	8,269.8	21,327.2	8,566.7	29,893.9
Hardwoods													
Cottonwood	--	--	--	--	--	--	--	3.5	--	3.5	3.5	--	3.5
Aspen	0.8	0.2	0	1.0	0	--	0	--	0.1	0.1	1.0	0.1	1.1
Bur oak	0.4	0.0	0.1	0.4	0	--	0	--	0.1	0.1	0.4	0.1	0.5
Total	1.1	0.2	0.1	1.4	0	--	0	3.5	0.2	3.8	4.9	0.3	5.2
Unit total	19,728.9	410.3	1,486.3	21,625.5	903.5	76.2	7.3	205.8	7,080.7	8,273.5	21,332.1	8,567.0	29,899.0

0 = Less than 50 cubic feet.

[1] Based on factors obtained from regional utilization studies.

[2] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 9.—Growing-stock removals from timberland for industrial roundwood production by Forest Survey Unit, county, and species group, South Dakota, 2004

(In thousand cubic feet)

Forest Survey Unit and county	All species	Species group															
		Softwoods					Hardwoods										
		Cedar[1]	Spruce	Ponderosa pine	Other softwoods	Total softwoods	Hard maple	Hackberry	Ash	Honeylocust	Black walnut	Cottonwood	Aspen	Bur oak	Basswood	Elm	Total hardwoods
Eastern Unit																	
Bennett	69	--	--	--	--	--	--	--	--	--	--	69	--	--	--	--	69
Brookings	1	0	0	0	--	0	0	--	0	--	0	1	--	0	0	0	1
Brule	1	0	--	--	--	0	--	--	0	--	0	--	--	0	--	0	1
Charles Mix	1	0	--	--	--	0	--	--	0	--	0	--	--	0	--	0	1
Clay	4	--	--	0	--	0	--	--	--	--	--	4	--	--	--	0	4
Codington	1	--	0	--	--	0	--	--	--	--	0	0	--	--	0	0	1
Deuel	1	--	0	--	--	0	--	--	--	--	0	0	--	--	0	0	1
Gregory	5	4	--	--	--	4	--	--	0	--	0	--	--	0	--	0	1
Hamlin	1	--	0	--	--	0	--	--	--	--	0	0	--	--	0	0	1
Kingsbury	1	--	0	--	--	0	--	--	--	--	0	0	--	--	0	0	1
Lake	1	0	0	0	--	0	0	0	0	0	0	0	--	0	--	0	1
Lincoln	8	--	0	0	--	0	--	0	0	0	0	7	--	--	--	0	7
Lyman	1	0	--	--	--	0	--	--	0	--	0	--	--	0	--	0	1
McCook	4	--	0	0	--	0	--	0	0	0	0	4	--	--	--	0	4
Minnehaha	20	--	0	0	--	0	--	0	0	0	0	19	--	--	--	0	20
Moody	4	0	0	0	--	0	0	0	0	0	0	3	--	0	--	0	4
Sanborn	14	--	--	--	--	--	--	--	--	--	--	14	--	--	--	--	14
Todd	47	--	--	47	--	47	--	--	--	--	--	--	--	--	--	--	--
Tripp	1	0	--	--	--	0	--	--	0	--	0	--	--	0	--	0	1
Turner	4	--	0	0	--	0	--	0	0	0	0	4	--	--	--	0	4
Union	4	--	--	0	--	0	--	--	--	--	--	4	--	--	--	0	4
Total	194	6	0	48	--	55	0	0	2	0	2	130	--	2	0	3	140
Western Unit																	
Custer	2,562	--	410	2,152	--	2,562	--	--	--	--	--	--	--	--	--	--	--
Fall River	161	--	92	69	--	161	--	--	--	--	--	--	--	--	--	--	--
Harding	471	--	--	471	--	471	--	--	--	--	--	--	--	--	--	--	--
Lawrence	6,944	--	153	6,789	--	6,943	--	--	--	--	--	--	1	0	--	--	1
Meade	2,129	--	--	2,129	--	2,129	--	--	--	--	--	--	--	--	--	--	--
Pennington	9,358	1	299	9,046	11	9,358	--	--	--	--	--	0	--	--	--	--	0
Total	21,626	1	955	20,656	11	21,624	--	--	--	--	--	0	1	0	--	--	1
State total	21,820	8	956	20,704	11	21,679	0	0	2	0	2	130	1	2	0	3	141

0 = Less than 500 cubic feet.

[1] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 10.—Sawtimber removals from timberland for industrial roundwood production by Forest Survey Unit, county, and species group, South Dakota, 2004

(In thousand board feet)[1]

Forest Survey Unit and county	All species	Species group																
		Softwoods					Hardwoods											
		Cedar[2]	Spruce	Ponderosa pine	Other softwoods	Total softwoods	Hard maple	Hackberry	Ash	Honeylocust	Black walnut	Cottonwood	Aspen	Bur oak	Basswood	Elm	Total hardwoods
Eastern Unit																		
Bennett	346	--	--	--	--	--	--	--	--	--	--	346	--	--	--	--	346
Brookings	7	1	0	0	--	1	0	--	0	--	0	3	--	0	0	2	6
Brule	5	2	--	--	--	2	--	--	1	--	0	--	--	2	--	0	3
Charles Mix	5	2	--	--	--	2	--	--	1	--	0	--	--	2	--	0	3
Clay	20	--	--	1	--	1	--	--	--	--	--	19	--	--	--	0	19
Codington	4	--	0	--	--	0	--	--	--	--	0	2	--	--	0	2	3
Deuel	4	--	0	--	--	0	--	--	--	--	0	2	--	--	0	2	3
Gregory	21	18	--	--	--	18	--	--	1	--	0	--	--	2	--	0	4
Hamlin	4	--	0	--	--	0	--	--	--	--	0	2	--	--	0	2	3
Kingsbury	4	--	0	--	--	0	--	--	--	--	0	2	--	--	0	2	3
Lake	5	1	0	0	--	1	0	0	1	0	1	1	--	0	--	0	4
Lincoln	38	--	0	1	--	1	--	0	1	0	1	34	--	--	--	1	37
Lyman	5	2	--	--	--	2	--	--	1	--	0	--	--	2	--	0	3
McCook	22	--	0	1	--	1	--	0	1	0	1	19	--	--	--	0	21
Minnehaha	102	--	1	1	--	2	--	0	2	0	1	95	--	--	--	1	100
Moody	21	1	0	0	--	2	0	0	1	0	1	17	--	0	--	0	20
Sanborn	70	--	--	--	--	--	--	--	--	--	--	70	--	--	--	--	70
Todd	268	--	--	268	--	268	--	--	--	--	--	--	--	--	--	--	--
Tripp	5	2	--	--	--	2	--	--	1	--	0	--	--	2	--	0	3
Turner	22	--	0	1	--	1	--	0	1	0	1	19	--	--	--	0	21
Union	20	--	--	1	--	1	--	--	--	--	--	19	--	--	--	0	19
Total	999	28	2	274	--	304	0	0	13	1	8	649	--	10	0	14	695
Western Unit																		
Custer	13,947	--	1,996	11,951	--	13,947	--	--	--	--	--	--	--	--	--	--	--
Fall River	843	--	449	394	--	843	--	--	--	--	--	--	--	--	--	--	--
Harding	2,692	--	--	2,692	--	2,692	--	--	--	--	--	--	--	--	--	--	--
Lawrence	39,248	--	747	38,495	--	39,242	--	--	--	--	--	--	4	2	--	--	6
Meade	12,115	--	--	12,115	--	12,115	--	--	--	--	--	--	--	--	--	--	--
Pennington	51,694	--	1,455	50,183	55	51,694	--	--	--	--	--	--	--	--	--	--	--
Total	120,539	--	4,647	115,830	55	120,533	--	--	--	--	--	--	4	2	--	--	6
State total	121,538	28	4,649	116,104	55	120,837	0	0	13	1	8	649	4	12	0	14	701

0 = Less than 500 board feet.

[1] International 1/4-inch rule.

[2] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 11.—Harvest residues generated by industrial roundwood harvesting by Forest Survey Unit, county, and species group, South Dakota, 2004

(In thousand cubic feet)

Forest Survey Unit and county	All species	Species group																
		Softwoods					Hardwoods											
		Cedar[1]	Spruce	Ponderosa pine	Other softwoods	Total softwoods	Hard maple	Hackberry	Ash	Honeylocust	Black walnut	Cottonwood	Aspen	Bur oak	Basswood	Elm	Total hardwoods
Eastern Unit																		
Bennett	33	--	--	--	--	--	--	--	--	--	--	33	--	--	--	--	33
Brookings	1	0	0	0	--	0	0	--	0	--	0	0	--	0	0	0	1
Brule	0	0	--	--	--	0	--	--	0	--	0	--	--	0	--	0	0
Charles Mix	0	0	--	--	--	0	--	--	0	--	0	--	--	0	--	0	0
Clay	2	--	--	0	--	0	--	--	--	--	--	2	--	--	--	0	2
Codington	0	--	0	--	--	0	--	--	--	--	0	0	--	--	0	0	0
Deuel	0	--	0	--	--	0	--	--	--	--	0	0	--	--	0	0	0
Gregory	1	1	--	--	--	1	--	--	0	--	0	--	--	0	--	0	0
Hamlin	0	--	0	--	--	0	--	--	--	--	0	0	--	--	0	0	0
Kingsbury	0	--	0	--	--	0	--	--	--	--	0	0	--	--	0	0	0
Lake	0	0	0	0	--	0	0	0	0	0	0	0	--	0	--	0	0
Lincoln	4	--	0	0	--	0	--	0	0	0	0	3	--	--	--	0	4
Lyman	0	0	--	--	--	0	--	--	0	--	0	--	--	0	--	0	0
McCook	2	--	0	0	--	0	--	0	0	0	0	2	--	--	--	0	2
Minnehaha	10	--	0	0	--	0	--	0	0	0	0	9	--	--	--	0	10
Moody	2	0	0	0	--	0	0	0	0	0	0	2	--	0	--	0	2
Sanborn	7	--	--	--	--	--	--	--	--	--	--	7	--	--	--	--	7
Todd	19	--	--	19	--	19	--	--	--	--	--	--	--	--	--	--	--
Tripp	0	0	--	--	--	0	--	--	0	--	0	--	--	0	--	0	0
Turner	2	--	0	0	--	0	--	0	0	0	0	2	--	--	--	0	2
Union	2	--	--	0	--	0	--	--	--	--	--	2	--	--	--	0	2
Total	87	1	0	20	--	21	0	0	1	0	1	62	--	1	0	1	66
Western Unit																		
Custer	952	--	97	855	--	952	--	--	--	--	--	--	--	--	--	--	--
Fall River	50	--	22	28	--	50	--	--	--	--	--	--	--	--	--	--	--
Harding	194	--	--	194	--	194	--	--	--	--	--	--	--	--	--	--	--
Lawrence	2,801	--	36	2,764	--	2,801	--	--	--	--	--	--	0	0	--	--	0
Meade	873	--	--	873	--	873	--	--	--	--	--	--	--	--	--	--	--
Pennington	3,698	0	71	3,624	3	3,698	--	--	--	--	--	--	--	--	--	--	--
Total	8,567	0	226	8,338	3	8,567	--	--	--	--	--	--	0	0	--	--	0
State total	8,654	1	226	8,357	3	8,588	0	0	1	0	1	62	0	1	0	1	67

0 = Less than 500 cubic feet.

[1] Includes eastern redcedar and Rocky Mountain juniper.

Rows and columns may not sum due to rounding.

Table 12.—Residues produced at primary wood-using mills by Forest Survey Unit, type of use, and residue type, South Dakota, 2004

(In thousand tons, green weight)

Forest Survey Unit and type of use	Total		Residue type					
			Wood residue				Bark	
			Coarse[1]		Fine[2]			
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
All Units								
Fiber products	250.90	--	186.46	--	62.76	--	1.68	--
Industrial fuel used at mill	45.26	0.05	0	0.04	--	--	45.26	0.01
Industrial fuel sold	2.36	--	0.36	--	0.84	--	1.16	--
Domestic fuel	1.19	0.30	0.88	0.29	--	--	0.31	0.01
Miscellaneous[3]	78.65	0.36	0.64	0.10	46.46	0.25	31.55	0.01
Not used	3.24	0.40	0.77	0.12	1.23	0.07	1.24	0.21
Total	381.63	1.11	189.12	0.55	111.30	0.32	81.21	0.24
Eastern Unit								
Industrial fuel used at mill	0	0.05	0	0.04	--	--	0	0.01
Domestic fuel	0.01	0.30	0.01	0.29	--	--	0	0.01
Miscellaneous[3]	0.80	0.36	0.41	0.10	0.22	0.25	0.17	0.01
Not used	0.01	0.39	0	0.12	0.01	0.06	0	0.21
Total	0.82	1.09	0.42	0.54	0.23	0.32	0.17	0.23
Western Unit								
Fiber products	250.90	--	186.46	--	62.76	--	1.68	--
Industrial fuel used at mill	45.26	--	--	--	--	--	45.26	--
Industrial fuel sold	2.36	--	0.36	--	0.84	--	1.16	--
Domestic fuel	1.18	0.01	0.87	0.01	--	--	0.31	--
Miscellaneous[3]	77.87	0	0.24	0	46.24	0	31.39	--
Not used	3.22	0.02	0.77	--	1.22	0.01	1.23	0.01
Total	380.80	0.03	188.69	0.01	111.07	0.01	81.04	0.01

0 = Less than 5 tons.

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

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

[3] Livestock bedding, mulch, small dimension, and speciality products.

Rows and columns may not sum due to rounding.

Piva, Ronald J.; Josten, Gregory J.; Mayko, Richard D.

2006. **South Dakota timber industry—an assessment of timber product output and use, 2004.** Resour. Bull. NC-264. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 36 p.

Discusses recent South Dakota forest industry trends; production and receipts of industrial roundwood; production of saw logs in 2004; and compares 2004 production and receipts with the results of the 1999 timber product output study. Reports on logging residue generated from timber harvest operations. Also reports on wood and bark residue generated at primary wood-using mills and on disposition of mill residues.

KEY WORDS: Industrial roundwood, logging residue, mill residue, production, receipts, saw logs.

The Forest Inventory and Analysis web site is:
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