United States Department of Agriculture

South Dakota Timber Industry, 2014

Resource Update FS-157

This resource update provides an overview of timber product output (TPO) and use in South Dakota based on questionnaires 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. This study was a cooperative effort between the South Dakota Department of Agriculture, Resource Conservation and Forestry Division (SDRCF) and the Forest Inventory and Analysis (FIA) unit at the Northern Research Station (NRS) of the USDA Forest Service. SDRCF surveyed primary wood-using mills and FIA processed and analyzed the survey responses. This update presents results from the 2014 survey with comparisons to the 2009 survey. 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 (Fig. 1). Additional definitions and a list of the TPO species groups are on pages 4 and 5 of this report. Supplemental data tables can be found at https://doi.org/10.2737/FS-RU-157.

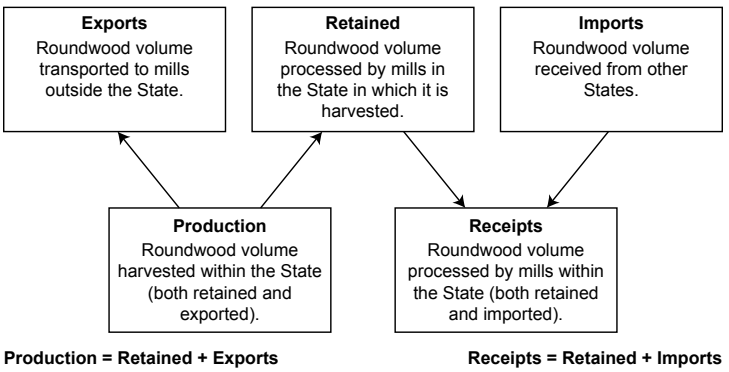

Figure 1.—Diagram of the movement of industrial roundwood.

Overview

In 2014, South Dakota's primary wood-using industry included 12 sawmills, 1 particleboard mill, 2 cabin log mills, and 4 post/pole/piling mills (Fig. 2, Table 1). Receipts at South Dakota primary mills totaled about 20.7 million cubic feet of roundwood—17.6 million cubic feet from South Dakota sources, 2.9 million cubic feet from Wyoming, and roughly 135,000 cubic feet coming from other states. Primary wood-using mills generated about 269,700 green tons of mill residues.

Total production of industrial roundwood from South Dakota forests in 2014 was 22.5 million cubic feet, of which 4.9 million cubic feet was exported to primary wood-using mills in other states, the majority of which went to Wyoming. Saw log harvests accounted for 86 percent of the total production within the state. Industrial roundwood harvests resulted in 8.7 million cubic feet of total harvest residues.

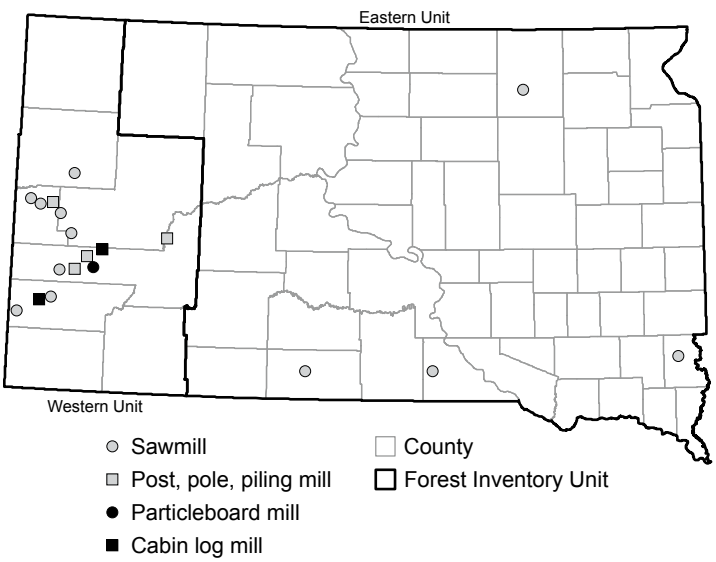

Figure 2.—Primary wood-using mills, South Dakota, 2014.

Forest Service
Northern Research Station
July 2018

Table 1.—Summary of the South Dakota timber industry, 2004, 2009, and 2014

	2004	2009	2014	Change 2009-2014
Number of primary wood-using mills	25	23	19	-17.4%
Industrial roundwood receipts–MMCF[a]	24.9	26.0	20.7	-20.3%
Saw log receipts–MMBF[b]	130.4	141.2	99.3	-29.7%
Industrial roundwood production–MMCF[a]	21.8	24.7	22.5	-8.9%
Saw log production–MMBF[b]	112.2	133.7	110.1	-17.7%
Growing-stock removals from timberland for industrial roundwood–MMCF[a]	21.8	26.0	22.9	-11.9%
Sawtimber removals from timberland for industrial roundwood–MMBF[b]	112.5	133.6	111.9	-16.2%
Total wood material harvested for industrial roundwood–MMCF[a]	30.2	35.1	31.3	-10.9%
Harvest residue generated by industrial roundwood harvesting–MMCF[a]	8.7	10.4	8.8	-15.9%
Residues produced at primary wood-using mills, in thousand green tons	382.7	371.9	269.7	-27.5%

[a] Million cubic feet.

[b] Million board feet, Scribner Rule.

Primary Timber Industry

Industrial Roundwood

Receipts at South Dakota's 19 surveyed primary wood-using mills decreased from 26.0 million cubic feet in 2009 to 20.7 million cubic feet in 2014. Greater than 99 percent of receipts were composed of softwood species. Ponderosa pine alone accounted for roughly 98 percent of the total volume processed.

South Dakota's timber industry saw a decrease in industrial roundwood production by 9 percent in 2014, roughly 2.2 million cubic feet less than what was produced in 2009. Ninety-nine percent of industrial roundwood production was ponderosa pine. Saw log harvests accounted for 86 percent of total production. The decrease in overall production between 2009 and 2014 was mainly due to the decrease in saw log production, as production of posts/poles/pilings and other products increased (Fig. 3).

Saw Logs

Saw logs are by far South Dakota's most important industrial roundwood product, in both production and receipts. Production of saw logs in South Dakota in 2014 decreased by 18 percent from saw log production in 2009, from 133.7 million board feet to 110.1 million board feet (Scribner Rule). Receipts of saw logs at South Dakota sawmills also decreased, from 141.2 million board feet in 2009 to 99.3 million board feet (Scribner Rule) in 2014, a decrease of about 30 percent.

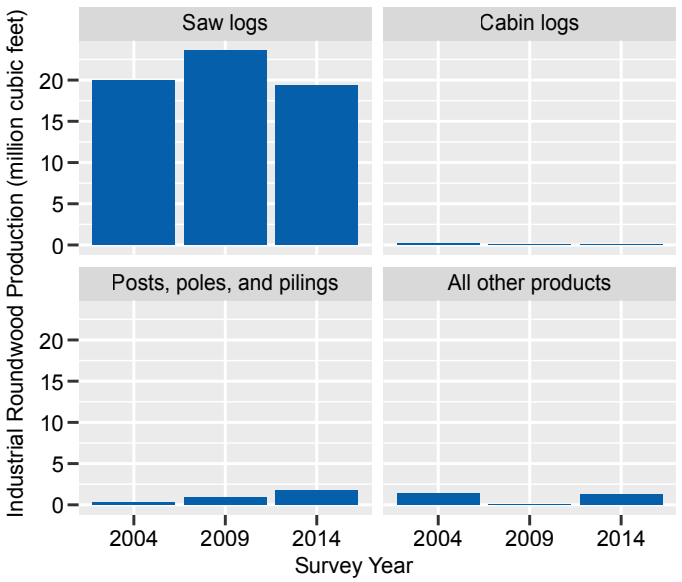

Figure 3.—Industrial roundwood production by product and survey year, South Dakota. All other products include roundwood going to mills that produce particleboard, excelsior/shavings, or other miscellaneous products.

Timber Removals

During the harvest of industrial roundwood from South Dakota's forests in 2014, 21.4 million cubic feet of wood material from growing stock (e.g., sawtimber and poletimber) and 1.1 million cubic feet from non-growing stock (e.g., limbwood, saplings, and cull, dead, or nonforest trees) were used for primary wood products. The unused portion of timber removals amounted to 1.5 million cubic feet of logging residue from growing-stock sources and 7.2 million cubic feet of logging slash from non-growing-stock sources (Fig. 4).

Harvest Intensity

Estimating harvest intensity involves combining the data from this study with forest inventory data from FIA, which is an annual inventory of forests to quantify such metrics as area, number of live trees, net volume, etc. In 2014, there were 1.9 million acres of forest land in South Dakota (Walters 2015). With 31.3 million cubic feet of wood material harvested, South Dakota's statewide harvest intensity was 16.1 cubic feet of wood material removed per acre of forest land. That is a decrease in harvest intensity from 2009, which saw 18.6 cubic feet of removals per acre of forest land. Fifteen of the 66 counties in South Dakota reported industrial roundwood removals in 2014, ranging in harvest intensity from less than 1 cubic foot of wood removed per acre to as high as 41.1 cubic feet per acre (Fig. 5).

Primary Mill Residues

In converting industrial roundwood into products, such as lumber, South Dakota's primary wood-using mills generated 269,700 green tons of coarse wood residue (e.g., slabs or edgings), fine wood residue (e.g., sawdust), and bark residue. Forty-nine percent of mill residues were used for fiber products (Fig. 6). Less than 1 percent of mill residues went unused.

Literature Cited

Walters, B.F. 2015. **Forests of South Dakota, 2014.** Resource Update FS-41. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 4 p.

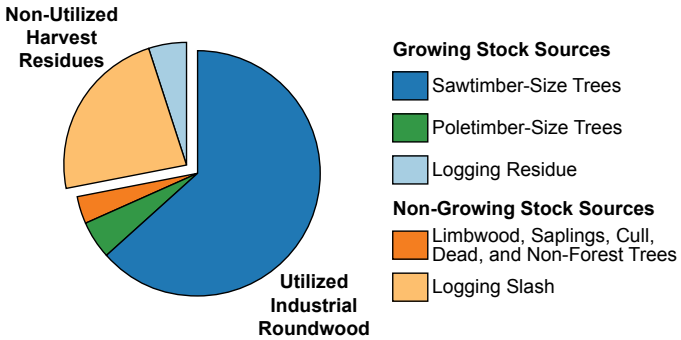

Figure 4.—Distribution of timber removals for industrial roundwood by source of material and utilization, South Dakota, 2014.

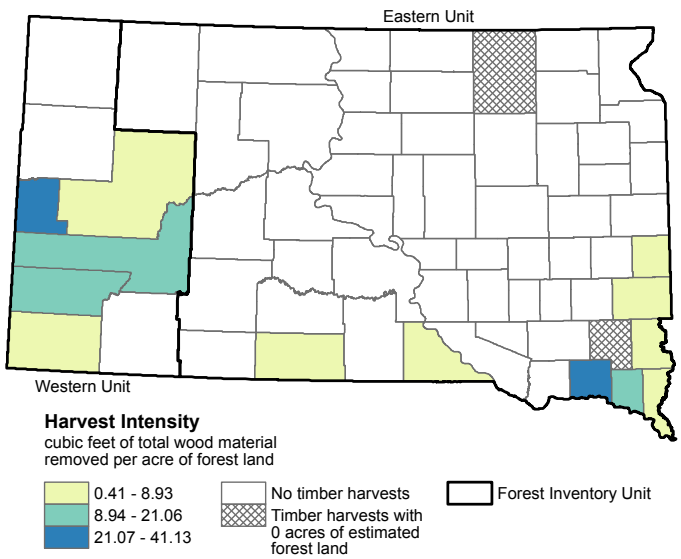

Figure 5.—Harvest intensity of industrial roundwood by county, South Dakota, 2014.

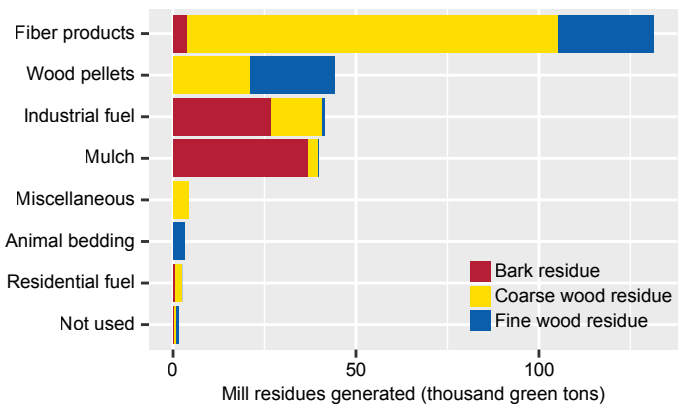

Figure 6.—Distribution of residues generated by primary wood-using mills by method of disposal, South Dakota, 2014.

Common and scientific names of tree species in South Dakota by TPO species group

Softwoods

Cedar/juniper		
	Rocky Mountain juniper	*Juniperus scopulorum*
	Eastern redcedar	*Juniperus virginiana*
Lodgepole pine		
	Lodgepole pine	*Pinus contorta*
Ponderosa pine		
	Ponderosa pine	*Pinus ponderosa*
Red pine		
	Red pine	*Pinus resinosa*
Spruce		
	White spruce	*Picea glauca*

Hardwoods

Ash		
	Green ash	*Fraxinus pennsylvanica*
	Other ash species	*Fraxinus* spp.
White (paper) birch		
	White (paper) birch	*Betula papyrifera*
Black walnut		
	Black walnut	*Juglans nigra*
Cottonwood		
	Eastern cottonwood	*Populus deltoids*
	Plains cottonwood	*Populus deltoides* ssp. *monilifera*
Elm		
	American elm	*Ulmus americana*
	Siberian elm	*Ulmus pumila*
	Slippery elm	*Ulmus rubra*
Hard maple		
	Black maple	*Acer nigrum*
	Sugar maple	*Acer saccharum*
Soft maple		
	Boxelder	*Acer negundo*
	Red maple	*Acer rubrum*
	Silver maple	*Acer saccharinum*
White oak		
	Bur oak	*Quercus macrocarpa*

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Supplemental Tables
Data tables to accompany this report are available at https://doi.org/10.2737/FS-RU-157.

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Definition of Terms

Growing-stock removals. The growing-stock volume removed from timberland by harvesting industrial roundwood products. 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. 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.

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

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.

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.

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).

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.

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.

Sawtimber removals. As used in supplemental Table 9, sawtimber removals refers to the net volume in the merchantable central stem (includes the saw log and upper stem portions) of sawtimber trees harvested for industrial roundwood products. When referring to the sawtimber volume removed from timberland as in Table 11 in the supplemental files, sawtimber removals refers to the net volume in the saw log portion of sawtimber trees harvested for roundwood products or left on the ground as harvest residue.

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.

Table 1.--Number of active primary wood-using mills by mill type and survey year, South Dakota[1]

Mill type and mill size	Survey year				
	1993	1999	2004	2009	2014
Sawmills[2]					
< 1 MMBF	6	6	12	9	8
1 - 4.9 MMBF	3	3	2	2	--
5 - 9.9 MMBF	1	1	1	--	2
≥ 10 MMBF	2	2	2	2	2
Sawmill total	12	12	17	13	12
Other mills					
Particleboard mills	1	1	1	1	1
Cabin log mills	3	2	3	3	2
Post, pole, piling mills	2	3	3	3	4
Other mills[3]	--	--	1	3	--
Grand Total	18	18	25	23	19

[1] Mills that produce multiple products are only counted for the main product processed.

[2] Sawmills are classified by annual lumber production in million board feet (MMBF), International ¼-inch rule.

[3] Other mills includes excelsior/shavings and other miscellaneous products mills.

Note: All table cells without observations are indicated by -- .

Table 2.--Industrial roundwood receipts, in thousand cubic feet, by mill type, survey year, and softwoods and hardwoods, South Dakota

Mill type and hardwoods and softwoods	Survey year				
	1993	2000	2006	2009	2014
All Species					
Saw logs	17,867	21,491	22,995	24,752	17,408
Post, pole, piling mills	26	195	308	942	1,921
Other mills[1]	995	908	1,605	258	1,352
All species total	18,888	22,594	24,908	25,952	20,680
Softwoods					
Saw logs	17,795	21,247	22,924	24,713	17,334
Post, pole, piling mills	26	195	305	942	1,921
Other mills[1]	995	908	1,605	256	1,351
Softwoods total	18,815	22,350	24,833	25,912	20,606
Hardwoods					
Saw logs	72	244	71	39	74
Post, pole, piling mills	--	--	4	--	0
Other mills[1]	--	--	0	2	0
Hardwoods total	72	244	75	41	74

[1] Other mills includes excelsior/shavings, particleboard mills, cabin log mills, and other miscellaneous products mills.

Note: 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 3.--Industrial roundwood receipts, in thousand cubic feet, by species group and State of origin, South Dakota, 2014

		State of origin					
Speicies group	**Total**	**Minnesota**	**Montana**	**Nebraska**	**South Dakota**	**Wyoming**	**Other States**
Softwoods							
Cedar/juniper	59	--	--	31	27	--	1
Lodgepole pine	152	--	--	--	--	152	--
Ponderosa pine	20,379	--	98	--	17,527	2,754	--
Red pine	2	2	--	--	--	--	--
Spruce	14	--	--	--	14	--	--
Softwoods total	20,606	2	98	31	17,567	2,906	1
Hardwoods							--
Ash	19	--	--	--	18	--	1
White (paper) birch	0	0	--	--	--	--	--
Black walnut	0	--	--	--	--	--	0
Cottonwood	37	--	--	--	37	--	--
White oak group	18	--	--	1	18	--	--
Hardwoods total	74	0	--	1	72	--	1
State total	20,680	3	98	32	17,640	2,906	2

Note: 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 4.--Industrial roundwood production, in thousand cubic feet, by product, hardwoods and softwoods, and survey year, South Dakota

Product and hardwoods and softwoods	Survey year				
	1993	1999	2004	2009	2014
All Species					
Saw logs	16,360	19,742	19,912	23,592	19,401
Cabin logs	--	9	198	91	38
Post, pole, and pilings	21	195	308	891	1,771
Other products[1]	853	810	1,337	114	1,290
All species total	17,234	20,755	21,755	24,689	22,500
Softwoods					
Saw logs	16,172	19,557	19,788	23,541	19,205
Cabin logs	--	9	198	91	38
Post, pole, and pilings	21	195	305	891	1,771
Other products[1]	853	810	1,337	113	1,290
Softwoods total	17,047	20,570	21,628	24,636	22,304
Hardwoods					
Saw logs	188	185	123	52	196
Post, pole, and pilings	--	--	4	--	0
Other products[1]	--	--	--	1	--
Hardwoods total	188	185	127	53	196

[1] Other products includes roundwood going to mills producing excelsior/shavings, particleboard, and other miscellaneous products.

Note: 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 species group and State of mill, South Dakota, 2014

Speicies group	Total	State of mill				
		Minnesota	Montana	Nebraska	South Dakota	Wyoming
Softwoods						
Cedar/juniper	27	--	--	0	27	--
Ponderosa pine	22,263	--	163	0	17,527	4,574
Spruce	14	--	--	--	14	--
Softwoods total	22,304	--	163	0	17,567	4,574
Hardwoods						
Ash	19	1	--	--	18	--
Black walnut	1	1	--	--	--	--
Cottonwood	159	2	--	120	37	--
Elm	0	0	--	--	--	--
Soft maple	0	0	--	--	--	--
White oak group	18	--	--	--	18	--
Hardwoods total	196	4	--	120	72	--
State total	22,500	4	163	120	17,640	4,574

Note: 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 6.--Industrial roundwood production, in thousand cubic feet, by Forest Inventory Unit, county, and species group, South Dakota, 2014

Forest Survey Unit and County	All species	Softwoods				Hardwoods						
		Cedar/ juniper	Ponderosa pine	Spruce	Total softwoods	Ash	Black walnut	Cotton-wood	Elm	Soft maple	White oak group	Total hardwoods
Eastern												
Brown	0	--	--	0	0	--	--	--	--	--	--	--
Clay	64	--	--	--	--	--	--	64	--	--	--	64
Gregory	75	24	--	--	24	17	--	18	--	--	17	51
Lincoln	4	--	--	--	--	--	--	4	--	--	--	4
Minnehaha	7	--	--	--	--	1	1	6	0	0	--	7
Moody	3	--	--	--	--	--	--	3	--	--	--	3
Todd	89	2	85	--	87	1	--	--	--	--	1	2
Turner	3	--	--	--	--	--	--	3	--	--	--	3
Union	47	--	--	--	--	--	--	47	--	--	--	47
Yankton	15	--	--	--	--	--	--	15	--	--	--	15
Unit total	307	26	85	0	111	19	1	158	0	0	18	196
Western												
Custer	5,431	--	5,431	--	5,431	--	--	--	--	--	--	--
Fall River	31	--	31	--	31	--	--	--	--	--	--	--
Lawrence	9,501	--	9,494	7	9,501	--	--	--	--	--	--	--
Meade	524	--	518	5	524	--	--	--	--	--	--	--
Pennington	6,708	1	6,705	1	6,707	--	--	0	--	--	--	0
Unit total	22,193	1	22,179	13	22,193	--	--	0	--	--	--	0
State total	22,500	27	22,263	14	22,304	19	1	159	0	0	18	196

Note: 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 by species group, and product, South Dakota, 2014

Species group	All products	Saw logs			Cabin logs	Poles		Posts		Other products[1]
	MCF[2]	MBF[3]	MBF[4]	MCF[2]	MCF[2]	Pieces	MCF[2]	M Pieces[5]	MCF[2]	MCF[2]
Softwoods										
Cedar/juniper	27	137	127	26	--	--	--	2	1	--
Ponderosa pine	22,263	117,579	108,869	19,165	38	1,966	6	2,714	1,764	1,290
Spruce	14	70	65	14	--	--	--	--	--	--
Softwoods total	22,304	117,786	109,061	19,205	38	1,966	6	2,715	1,765	1,290
Hardwoods										
Ash	19	111	102	19	--	--	--	--	--	--
Black walnut	1	4	4	1	--	--	--	--	--	--
Cottonwood	159	899	833	158	--	--	--	1	0	--
Elm	0	0	0	0	--	--	--	--	--	--
Soft maple	0	1	1	0	--	--	--	--	--	--
White oak group	18	105	98	18	--	--	--	--	--	--
Hardwoods total	196	1,121	1,038	196	--	--	--	1	0	--
State total	22,500	118,907	110,099	19,401	38	1,966	6	2,716	1,765	1,290

[1] Other products includes roundwood going to mills producing excelsior/shavings, particleboard, and other miscellaneous products.

[2] Thousand cubic feet

[3] Thousand board feet, International ¼-inch rule

[4] Thousand board feet, Scribner rule

[5] Thousand pieces

Note: All table cells without observations are indicated by -- . Table value of 0 indicates the volume rounds to less than ½ unit of measure. Columns and rows may not add to their totals due to rounding.

Table 8a.--Saw log receipts and production, in thousand board feet (International ¼-inch rule), by species group, South Dakota, 2009 and 2014

Species group	Receipts			Production		
	2009	2014	Percent change	2009	2014	Percent change
Softwoods						
Cedar/juniper	23	285	1137%	13	137	978%
Ponderosa pine	150,811	106,454	-29%	142,492	117,579	-17%
Spruce	1,428	70	-95%	1,624	70	-96%
Softwoods total	152,263	106,810	-30%	144,129	117,786	-18%
Hardwoods						
Ash	14	111	675%	21	111	424%
Black walnut	18	1	-92%	21	4	-80%
Cottonwood	190	208	10%	246	899	265%
Elm	--	--	--	0	0	--
Hard maple	--	--	--	2	--	--
Soft maple	--	--	--	1	1	-15%
White oak group	1	109	9748%	4	105	2816%
Hardwoods total	223	429	92%	296	1,121	279%
State total	152,486	107,239	-30%	144,424	118,907	-18%

Note: 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.

Table 8b.--Saw log receipts and production, in thousand board feet (Scribner rule), by species group, South Dakota, 2009 and 2014

	Receipts			Production		
Species group	2009	2014	Percent change	2009	2014	Percent change
Softwoods						
Cedar/juniper	21	264	1137%	12	127	978%
Ponderosa pine	139,640	98,569	-29%	131,937	108,869	-17%
Spruce	1,322	65	-95%	1,504	65	-96%
Softwoods total	140,984	98,898	-30%	133,453	109,061	-18%
Hardwoods						
Ash	13	103	675%	20	102	424%
Black walnut	17	1	-92%	19	4	-80%
Cottonwood	176	193	10%	228	833	265%
Elm	--	--	--	0	0	--
Hard maple	--	--	--	2	--	--
Soft maple	--	--	--	1	1	-15%
White oak group	1	101	9748%	3	98	2816%
Hardwoods total	207	397	92%	274	1,038	279%
State total	141,191	99,295	-30%	133,726	110,099	-18%

Note: 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.

Table 9.--Wood material harvested for industrial roundwood in thousand cubic feet, by source of material and species group, South Dakota, 2014[1]

Species group	Source of material: Growing stock: Used for products: Saw-timber	Pole-timber	Logging residue (not used)	Total growing stock	Non-growing stock: Used for products: Limb-wood	Saplings	Cull trees	Dead trees	Non-forest trees	Logging slash (not used)	Total non-growing stock	Total used	Total not used	Total harvested
Softwoods														
Cedar/juniper	24.5	1.4	0.8	26.7	1.0	0.2	0.0	--	--	5.5	6.7	27.3	6.2	33.5
Ponderosa pine	19,600.2	1,543.5	1,499.8	22,643.5	413.5	449.6	34.9	221.6	--	7,142.2	8,261.9	22,263.3	8,642.0	30,905.3
Spruce	12.6	0.4	0.4	13.4	0.5	--	0.0	--	--	2.8	3.3	13.5	3.2	16.7
Softwood total	19,637.3	1,545.4	1,500.9	22,683.6	415.1	449.9	34.9	221.6	--	7,150.5	8,271.9	22,304.1	8,651.4	30,955.5
Hardwoods														
Ash	18.0	0.1	2.6	20.7	0.1	--	0.4	--	--	4.6	5.1	18.6	7.2	25.8
Black walnut	0.7	0.0	0.1	0.8	0.0	--	0.0	--	--	0.3	0.3	0.7	0.4	1.1
Cottonwood	141.8	9.3	30.2	181.3	4.2	0.0	3.1	--	0.2	56.5	64.1	158.7	86.7	245.4
Elm	0.0	0.0	0.0	0.0	0.0	--	0.0	--	--	0.0	0.0	0.0	0.0	0.1
Soft maple	0.2	0.0	0.0	0.2	0.0	--	0.0	--	--	0.1	0.1	0.2	0.1	0.3
White oak group	17.2	0.1	2.5	19.7	0.1	--	0.4	--	--	4.4	4.9	17.7	6.9	24.6
Hardwood total	177.8	9.5	35.5	222.8	4.5	0.0	4.0	0.0	0.2	65.8	74.5	196.0	101.4	297.3
State total	19,815.1	1,554.8	1,536.5	22,906.4	419.6	449.9	38.9	221.6	0.2	7,216.3	8,346.4	22,500.1	8,752.8	31,252.8

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

Note: 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.

Table 10.--Growing-stock removals from timberland for industrial roundwood, in thousand cubic feet, by Forest Inventory Unit, county, and species group, South Dakota, 2014

Forest Survey Unit and County	All species	Softwoods				Hardwoods						
		Cedar/ juniper	Ponderosa pine	Spruce	Total softwoods	Ash	Black walnut	Cotton-wood	Elm	Soft maple	White oak group	Total hardwoods
Eastern												
Brown	0	--	--	0	0	--	--	--	--	--	--	--
Clay	73	--	--	--	--	--	--	73	--	--	--	73
Gregory	81	24	--	--	24	19	--	20	--	--	19	58
Lincoln	4	--	--	--	--	--	--	4	--	--	--	4
Minnehaha	8	--	--	--	--	1	1	6	0	0	--	8
Moody	3	--	--	--	--	--	--	3	--	--	--	3
Todd	94	2	90	--	92	1	--	--	--	--	1	2
Turner	3	--	--	--	--	--	--	3	--	--	--	3
Union	54	--	--	--	--	--	--	54	--	--	--	54
Yankton	17	--	--	--	--	--	--	17	--	--	--	17
Unit total	339	26	90	0	116	21	1	181	0	0	20	223
Western												
Custer	5,293	--	5,293	--	5,293	--	--	--	--	--	--	--
Fall River	33	--	33	--	33	--	--	--	--	--	--	--
Lawrence	9,968	--	9,962	7	9,968	--	--	--	--	--	--	--
Meade	558	--	553	5	558	--	--	--	--	--	--	--
Pennington	6,715	1	6,713	1	6,715	--	--	0	--	--	--	0
Unit total	22,567	1	22,553	13	22,567	--	--	0	--	--	--	0
State total	22,906	27	22,643	13	22,684	21	1	181	0	0	20	223

Note: 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 11a.--Sawtimber removals from timberland for industrial roundwood, in thousand board feet, International ¼-inch rule, by Forest Inventory Unit, county, and species group, South Dakota, 2014

Forest Survey Unit and County	All species	Softwoods				Hardwoods						
		Cedar/ juniper	Ponderosa pine	Spruce	Total softwoods	Ash	Black walnut	Cotton-wood	Elm	Soft maple	White oak group	Total hardwoods
Eastern												
Brown	1	--	--	1	1	--	--	--	--	--	--	--
Clay	365	--	--	--	--	--	--	365	--	--	--	365
Gregory	408	116	--	--	116	96	--	100	--	--	96	293
Lincoln	22	--	--	--	--	--	--	22	--	--	--	22
Minnehaha	42	--	--	--	--	5	4	32	0	1	--	42
Moody	16	--	--	--	--	--	--	16	--	--	--	16
Todd	537	11	516	--	527	5	--	--	--	--	5	10
Turner	16	--	--	--	--	--	--	16	--	--	--	16
Union	267	--	--	--	--	--	--	267	--	--	--	267
Yankton	83	--	--	--	--	--	--	83	--	--	--	83
Unit total	1,758	126	516	1	644	107	4	901	0	1	102	1,115
Western												
Custer	26,728	--	26,728	--	26,728	--	--	--	--	--	--	--
Fall River	186	--	186	--	186	--	--	--	--	--	--	--
Lawrence	55,021	--	54,989	32	55,021	--	--	--	--	--	--	--
Meade	3,185	--	3,160	26	3,185	--	--	--	--	--	--	--
Pennington	33,982	--	33,976	6	33,982	--	--	0	--	--	--	0
Unit total	119,103	--	119,039	64	119,103	--	--	0	--	--	--	0
State total	120,861	126	119,555	65	119,747	107	4	901	0	1	102	1,115

Note: 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.

Table 11b.--Sawtimber removals from timberland for industrial roundwood, in thousand board feet, Scribner rule, by Forest Inventory Unit, county, and species group, South Dakota, 2014

Forest Survey Unit and County	All species	Softwoods				Hardwoods						
		Cedar/ juniper	Ponderosa pine	Spruce	Total softwoods	Ash	Black walnut	Cotton-wood	Elm	Soft maple	White oak group	Total hardwoods
Eastern												
Brown	1	--	--	1	1	--	--	--	--	--	--	--
Clay	338	--	--	--	--	--	--	338	--	--	--	338
Gregory	378	107	--	--	107	89	--	93	--	--	89	271
Lincoln	20	--	--	--	--	--	--	20	--	--	--	20
Minnehaha	39	--	--	--	--	5	4	29	0	1	--	39
Moody	15	--	--	--	--	--	--	15	--	--	--	15
Todd	497	10	478	--	488	5	--	--	--	--	5	10
Turner	15	--	--	--	--	--	--	15	--	--	--	15
Union	247	--	--	--	--	--	--	247	--	--	--	247
Yankton	77	--	--	--	--	--	--	77	--	--	--	77
Unit total	1,628	117	478	1	596	99	4	835	0	1	94	1,032
Western												
Custer	24,748	--	24,748	--	24,748	--	--	--	--	--	--	--
Fall River	172	--	172	--	172	--	--	--	--	--	--	--
Lawrence	50,946	--	50,916	30	50,946	--	--	--	--	--	--	--
Meade	2,950	--	2,926	24	2,950	--	--	--	--	--	--	--
Pennington	31,465	--	31,459	6	31,465	--	--	0	--	--	--	0
Unit total	110,281	--	110,222	59	110,281	--	--	0	--	--	--	0
State total	111,909	117	110,699	60	110,877	99	4	835	0	1	94	1,032

Note: 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.

Table 12.--Harvest residue generated by industrial roundwood harvesting, in thousand cubic feet, by Forest Inventory Unit, county, and species group, South Dakota, 2014

Forest Survey Unit and County	All species	Softwoods				Hardwoods						
		Cedar/ juniper	Ponderosa pine	Spruce	Total softwoods	Ash	Black walnut	Cotton-wood	Elm	Soft maple	White oak group	Total hardwoods
Eastern												
Brown	0	--	--	0	0	--	--	--	--	--	--	--
Clay	35	--	--	--	--	--	--	35	--	--	--	35
Gregory	28	6	--	--	6	7	--	10	--	--	7	23
Lincoln	2	--	--	--	--	--	--	2	--	--	--	2
Minnehaha	4	--	--	--	--	0	0	3	0	0	--	4
Moody	2	--	--	--	--	--	--	2	--	--	--	2
Todd	38	1	37	--	38	0	--	--	--	--	0	1
Turner	2	--	--	--	--	--	--	2	--	--	--	2
Union	26	--	--	--	--	--	--	26	--	--	--	26
Yankton	8	--	--	--	--	--	--	8	--	--	--	8
Unit total	145	6	37	0	43	7	0	87	0	0	7	101
Western												
Custer	1,902	--	1,902	--	1,902	--	--	--	--	--	--	--
Fall River	13	--	13	--	13	--	--	--	--	--	--	--
Lawrence	3,983	--	3,982	2	3,983	--	--	--	--	--	--	--
Meade	229	--	227	1	229	--	--	--	--	--	--	--
Pennington	2,481	0	2,481	0	2,481	--	--	0	--	--	--	0
Unit total	8,608	0	8,605	3	8,608	--	--	0	--	--	--	0
State total	8,753	6	8,642	3	8,651	7	0	87	0	0	7	101

Note: 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 13.--Disposition of residues produced at primary wood-using mills, in thousand green tons, by Forest Inventroy Unit, by Forest Inventroy Unit, disposition, residue type, and softwoods and hardwoods, South Dakota, 2014

Forest Inventory Unit and Disposition	Total all residues			Residue type								
				Bark			Coarse[1]			Fine[2]		
	Softwood	Hardwood	All Species	Softwood	Hardwood	All Species	Softwood	Hardwood	All Species	Softwood	Hardwood	All Species
All Units												
Fiber products	131.9	--	131.9	3.9	--	3.9	101.9	--	101.9	26.1	--	26.1
Industrial fuel	41.3	0.3	41.5	27.1	--	27.1	13.8	0.1	13.9	0.5	0.1	0.6
Residential fuel	1.9	0.6	2.5	0.5	0.2	0.7	1.4	0.5	1.8	0.0	0.0	0.0
Wood pellets	44.4	--	44.4	--	--	--	21.1	--	21.1	23.3	--	23.3
Mulch	39.9	0.0	39.9	37.2	0.0	37.2	2.6	--	2.6	0.1	0.0	0.1
Animal bedding	3.2	0.1	3.3	0.0	--	0.0	--	--	--	3.2	0.1	3.3
Miscellaneous[3]	4.4	--	4.4	--	--	--	4.4	--	4.4	--	--	--
Not used	1.7	0.1	1.7	0.3	0.1	0.4	0.6	--	0.6	0.8	0.0	0.8
State total	268.6	1.1	269.7	69.0	0.2	69.2	145.7	0.6	146.2	54.0	0.2	54.2
Eastern Unit												
Industrial fuel	0.1	0.3	0.4	--	--	--	--	0.1	0.1	0.1	0.1	0.2
Residential fuel	1.4	0.6	2.1	0.4	0.2	0.6	1.1	0.5	1.5	--	--	--
Mulch	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0
Animal bedding	0.0	0.1	0.1	0.0	--	0.0	--	--	--	0.0	0.1	0.1
Not used	0.4	0.1	0.5	--	0.1	0.1	--	--	--	0.4	0.0	0.4
Unit total	2.0	1.0	3.0	0.4	0.2	0.6	1.1	0.6	1.6	0.5	0.2	0.8
Western Unit												
Fiber products	131.9	--	131.9	3.9	--	3.9	101.9	--	101.9	26.1	--	26.1
Industrial fuel	41.2	--	41.2	27.1	--	27.1	13.8	--	13.8	0.3	--	0.3
Residential fuel	0.4	0.0	0.4	0.1	0.0	0.1	0.3	0.0	0.3	0.0	0.0	0.0
Wood pellets	44.4	--	44.4	--	--	--	21.1	--	21.1	23.3	--	23.3
Mulch	39.8	0.0	39.8	37.2	0.0	37.2	2.6	--	2.6	0.1	0.0	0.1
Animal bedding	3.2	--	3.2	--	--	--	--	--	--	3.2	--	3.2
Miscellaneous[3]	4.4	--	4.4	--	--	--	4.4	--	4.4	--	--	--
Not used	1.3	--	1.3	0.3	--	0.3	0.6	--	0.6	0.4	--	0.4
Unit total	266.6	0.0	266.6	68.6	0.0	68.6	144.6	0.0	144.6	53.4	0.0	53.4

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

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

[3] Small dimension, specialty items, and other misceallaneous uses.

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