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.

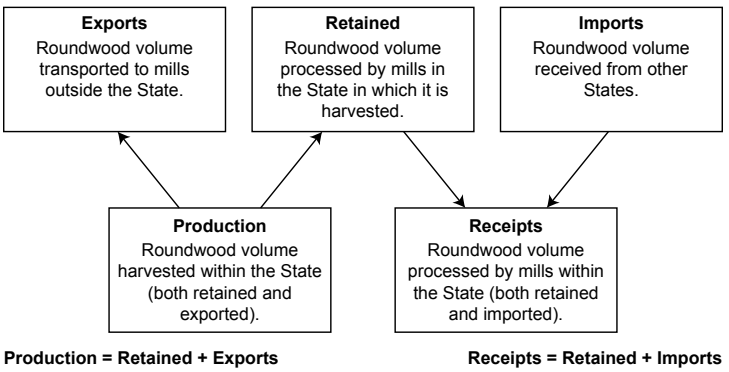

Figure 1.—Diagram of the movement of industrial roundwood.

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.

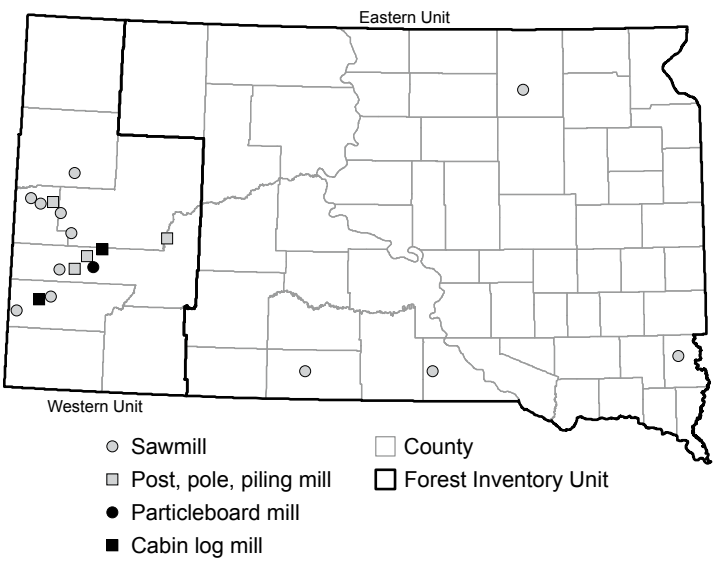

Figure 2.—Primary wood-using mills, South Dakota, 2014.

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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.

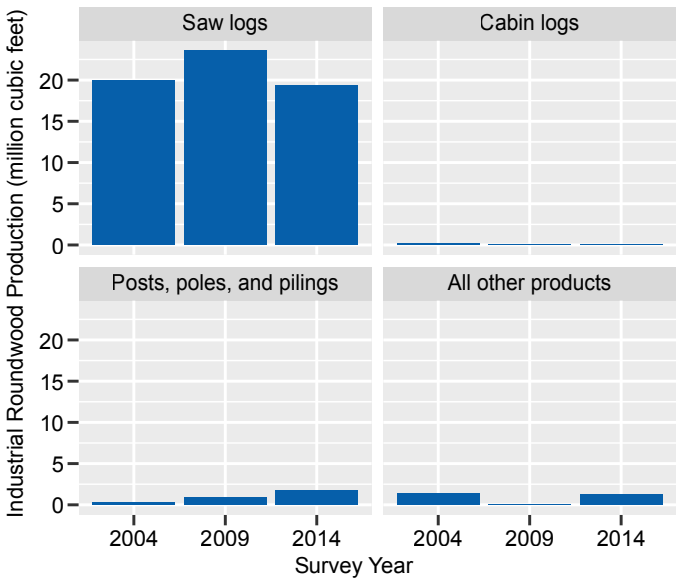

Figure 3.—Industrial roundwood production by product and survey year, South Dakota. All other products include roundwood going to mills that produce particleboard, excelsior/shavings, or other miscellaneous products.

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.

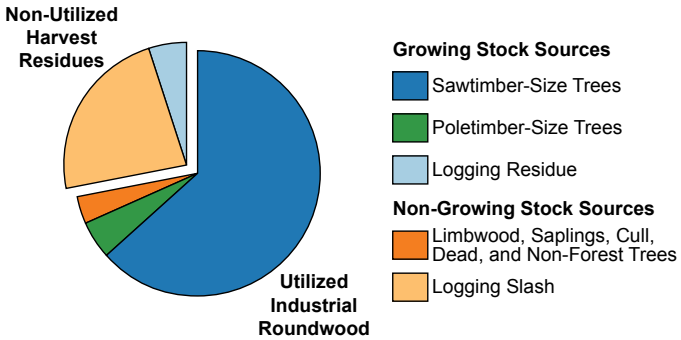

Figure 4.—Distribution of timber removals for industrial roundwood by source of material and utilization, South Dakota, 2014.

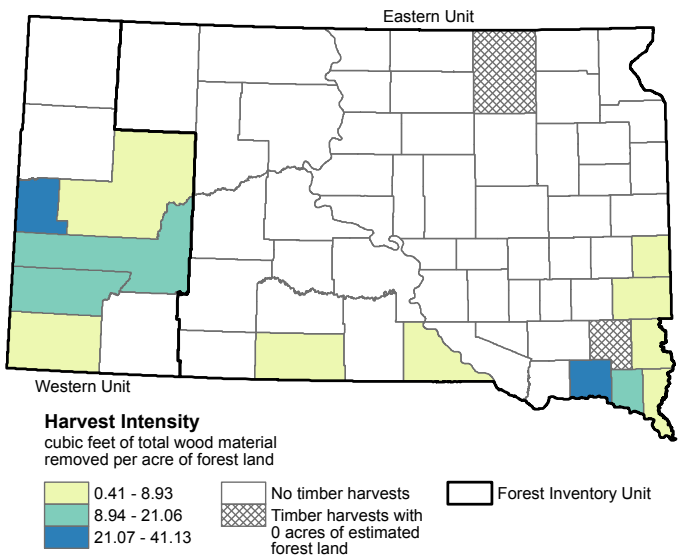

Figure 5.—Harvest intensity of industrial roundwood by county, South Dakota, 2014.

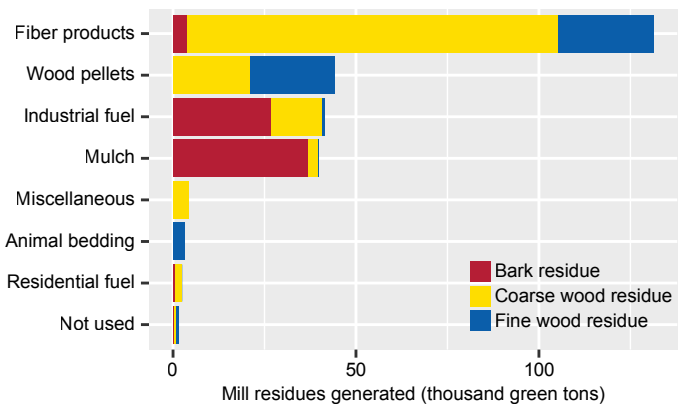

Figure 6.—Distribution of residues generated by primary wood-using mills by method of disposal, South Dakota, 2014.

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.