United States Department of Agriculture

Nebraska Timber Industry, 2014

Resource Update FS-173

This resource update provides an overview of timber product output (TPO) and use in Nebraska 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 Nebraska Forest Service (NFS) and the Forest Inventory and Analysis (FIA) program at the Northern Research Station (NRS) of the USDA Forest Service. The NFS surveyed all known primary wood-using mills and FIA processed and analyzed the survey responses. Mill responses from earlier TPO studies, or other ancillary data, were used for any mills that did not respond to the 2014 TPO survey. This update presents results from the 2014 survey with comparisons to the 2009 survey. Supplemental data tables with additional information can be found at https://doi.org/10.2737/FS-RU-173.

The data were accessed from the FIA database in August 2017. 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).

Overview

Primary Mills

In 2014, Nebraska's primary wood-using industry included 38 sawmills, 1 veneer mill, and 3 mills that produced other products including posts, poles, and excelsior (Fig. 2, Table 1).

Total active mills decreased by 31 percent. The losses included 16 small saw mills that produced less than 1 million board feet; 2 large sawmills mills that produced over 5 million board feet; and 2 post, pole, and piling mills. Most of the State's sawmills were are located in the Eastern Forest Inventory Unit (Fig. 2).

Industrial Roundwood Receipts

Receipts at Nebraska primary wood-using mills totaled about 2.5 million ft^3, with 2.1 million ft^3 coming from Nebraska forest lands. An additional 326,000 ft^3 were imported primarily from forests lands of Iowa and South Dakota. Total softwood receipts decreased by 12,000 ft^3 (3 percent) and hardwood receipts decreased by 1.7 million ft^3 (45 percent) since the last survey was conducted in 2009.

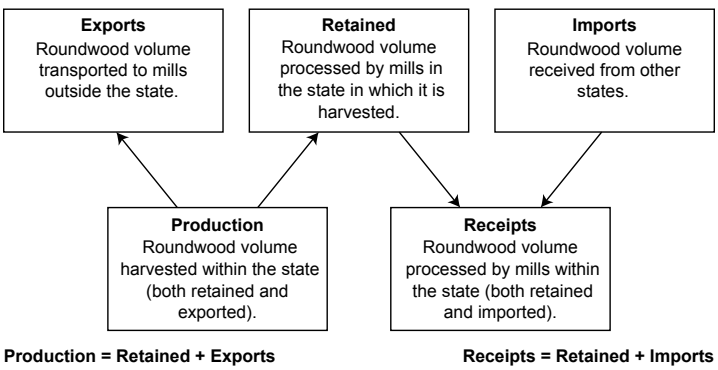

Figure 1.—Diagram of the movement of industrial roundwood.

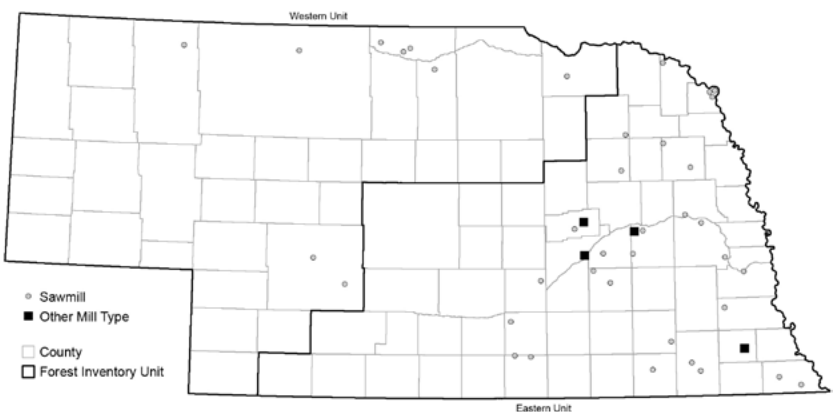

Figure 2.—Primary wood-using mills, Nebraska, 2014.

Forest Service
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Table 1.—Summary of the Nebraska timber industry, 2006, 2009, and 2014

	2006	2009	2014	Change 2009-2014
Number of primary wood-using mills	54	61	42	-31.1
Industrial roundwood production–MCF[a]	6,135	4,079	2,433	-40.3
Saw log production–MBF[b]	29,470	18,444	10,199	-44.7
Industrial roundwood receipts–MCF[a]	4,339	3,659	2,008	-45.1
Saw log receipts–MBF[b]	22,890	19,259	10,665	-44.6
Growing-stock removals from timberland for industrial roundwood–MCF[a]	6,829	4,553	2,640	-42.0
Sawtimber removals from timberland for industrial roundwood–MBF[b]	37,555	25,189	14,394	-42.9
Wood material harvested for industrial roundwood–MCF[a]	8,341.4	5,610.1	3,293.9	-41.3
Harvest residue generated by industrial roundwood harvesting–MCF[a]	2,207	1,523	861	-43.5
Residues produced at primary wood-using mills, in thousand green tons	71.98	68.39	40.1	-41.4

[a] Thousand cubic feet.

[b] Thousand board feet, International ¼-inch Rule.

Industrial Roundwood Production

Industrial roundwood production decreased by 40 percent, or 1.6 million ft^3, between surveys (Fig. 3). Of the 2.4 million ft*3* of industrial roundwood produced from Nebraska's forests, roughly 88 percent, or 2.1 million ft^3, was processed at Nebraska mills. About 292,000 ft^3 were exported to primary mills in other states. Missouri mills received about 72 percent of industrial roundwood exports. Eighty-one percent of the industrial roundwood harvested from Nebraska's forest land was hardwood species. Cottonwood accounted for 77 percent of the total volume processed in the State. Other species of importance to the forest products industry were eastern redcedar, white oak group, ash, red oak group, basswood, and ponderosa pine (Fig. 4).

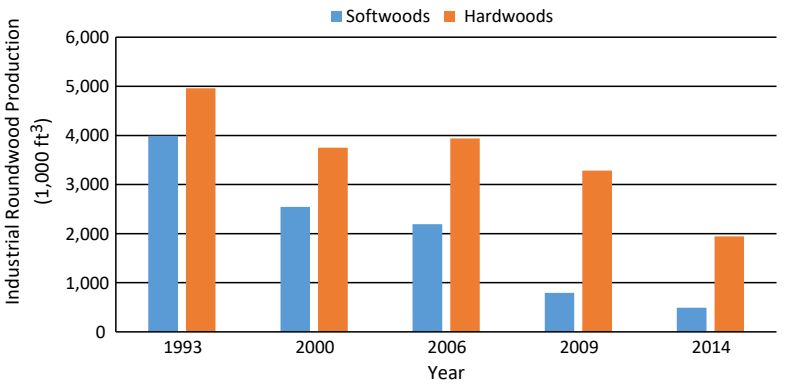

Figure 3.—Industrial roundwood production by softwoods and hardwoods, and survey year, Nebraska.

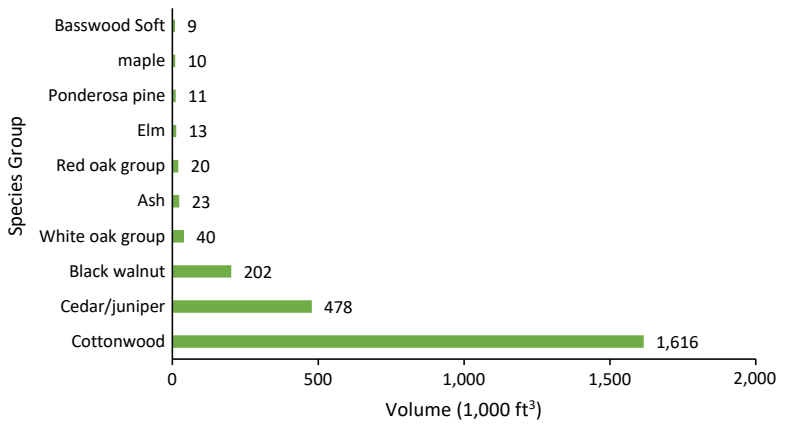

Figure 4.—Industrial roundwood production for the ten most voluminous species or groups, Nebraska 2014.

Primary Timber Industry

Saw Log Receipts

Nebraska saw log receipts totaled 10.6 million board feet (bf) in 2014, a decrease of 45 percent from 2009. Softwood saw log receipts increased by 59 percent, from 511,000 bf in 2009 to 811,000 bf in 2014; while hardwood receipts decreased by 47 percent, from 19,000 bf in 2009 to 10,000 bf in 2014. Cottonwood and eastern red cedar accounted for 93 percent of the total receipts at Nebraska saw mills in 2014.

Saw Log Production

Saw logs represented 67 percent of the total industrial roundwood production in 2014. Production of saw logs decreased by 45 percent or 8.2 million bf between 2009 and 2014. In 2014, cottonwood and black walnut accounted for 84 percent of the total harvest of saw logs from Nebraska's forests. Other important species/species groups harvested were eastern redcedar, white oaks, and red oaks.

Other Products

Production of veneer logs from Nebraska's forests amounted to 141,000 ft^3, a decrease from the 319,000 ft^3 harvested in 2009. Logs harvested for excelsoir/shavings use also decreased between surveys, going from 823,000 ft^3 in 2009 to 593,000 ft^3 in 2014. Logs harvested for post, poles and pilings increased between surveys form 9,000 ft^3 in 2009 to 61,000 ft^3 in 2014.

Timber Removals

During the harvest of industrial roundwood from Nebraska's forests in 2014, 2.4 million ft^3 of wood material from growing stock (e.g., sawtimber and pole timber) and non-growing stock (e.g., limb wood, saplings, cull trees, nonforest trees, dead trees) was used for primary wood products and another 861,000 ft^3 of wood material from growing stock (e.g., logging residue) and non-growing stock (e.g., logging slash) was left on the ground as harvest residues (Fig. 5). Growing-stock sources, at 2.6 million ft^3, were the largest component of removals for industrial roundwood production. Eighty-six percent of the growing-stock volume removed and used for products came from sawtimber-size trees, 3 percent from pole-size trees, and 11 percent was left as logging residue.

In 2014, 654,000 ft^3 of non-growing-stock wood material was removed in the production of industrial roundwood, but only 11 percent of this material was used for products and the remainder was left on the ground as logging slash. Forty-five percent of the non-growing-stock material used for industrial roundwood came from cull trees, 34 percent from nonforest trees, 11 percent from sapling trees, 6 percent from limbs of growing-stock trees, and the other 4 percent from dead trees.

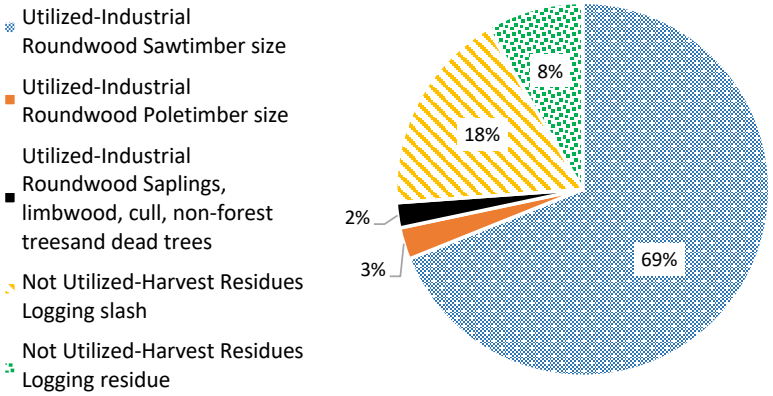

Figure 5.—Distribution of timber removals for industrial roundwood by source of material, Nebraska, 2014.

Harvest Intensity

Statewide in 2014, average annual net growth (gross growth minus mortality) and removals of live trees on forest land averaged 35 ft^3/acre and 20 ft^3 acre, respectively (Miles 2017). Only five counties had more than 15 ft^3 of total live trees volume removed per acre of forest land (Fig. 6). (For reference, a cord of roundwood contains about 79 ft^3 of wood.)

In 2014, there were over 1.6 million acres of forest land in Nebraska (Meneguzzo and Crocker 2014). The net volume in live trees on forest land was over 2 billion ft^3. The 3.3 million ft^3 of total wood material harvested was less than 1 percent of the total live volume of trees on forest land in Nebraska.

The Eastern Forest Inventory Unit had a harvest intensity in 2014 of 2.9 ft^3 of total wood removals per acre of forest land. The Western Unit had roughly 0.68 ft^3 of total wood removals per acre of forest land in 2014.

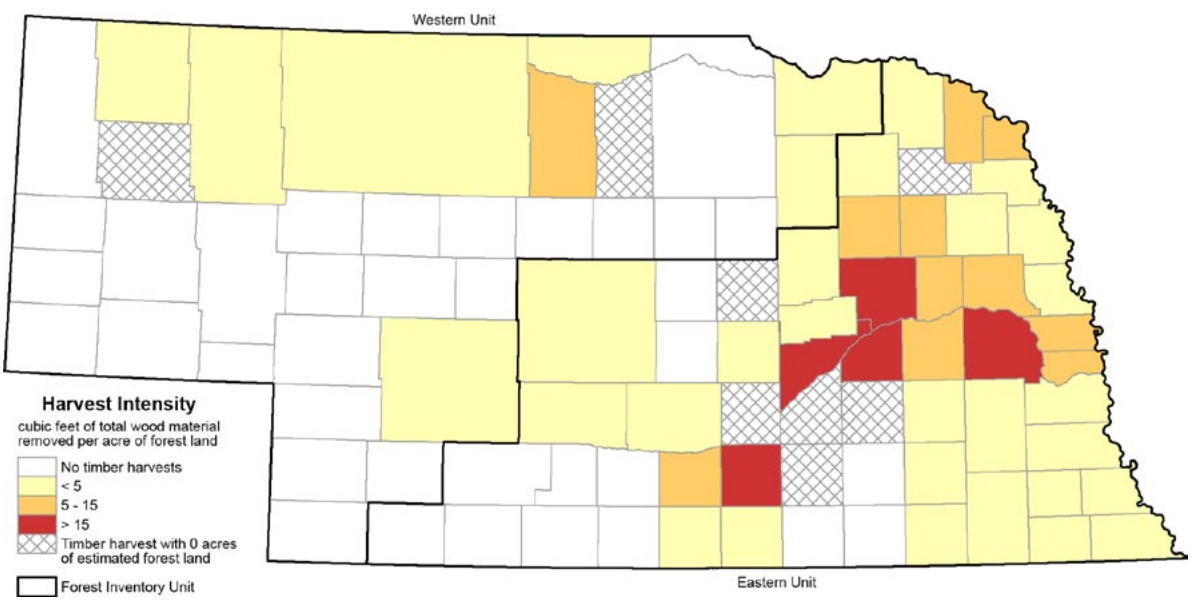

Figure 6.—Harvest intensity for industrial roundwood production, Nebraska, 2014.

Primary Mill Residues

In converting industrial roundwood into products, such as lumber, Nebraska's primary wood-using

industries generated over 40,000 green tons of wood (coarse and fine residues) and bark residue. Fifty-one percent of the mill residues were from coarse wood residue (e.g., slabs and edgings residue). Fine wood residue (e.g., sawdust) made up another 28 percent. Bark accounted for the remaining 21 percent (Fig.7).

Mulch, animal bedding, residential fuel, industrial fuel and miscellaneous uses (e.g., small dimension, charcoal and specialty items) accounted for 47, 29, 10, 1, and 1 percent, respectively, of the end-use of mill residues generated by the primary wood processors in Nebraska (Fig. 8). Eleven percent

of mill residues went unused in 2014. Fifty-five percent of the fine residue was used for animal bedding, and mulch products consumed 55 percent of the coarse residue and 67 percent of the total bark residues produced by the milling operations across the state.

Literature Cited

Miles, P.D. 2017. Forest Inventory EVALIDator web-application, version 1.6.0.03A. Washington, DC: U.S. Department of Agriculture, Forest Service. https://apps.fs.fed.us/Evalidator/evalidator.jsp (accessed Aug. 16, 2017).

Meneguzzo, D.M.; Crocker, S.J. 2015 **Forests of Nebraska, 2014.** Resource Update FS-50. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 5 p. https://doi.org/10.2737/FS-RU-50.

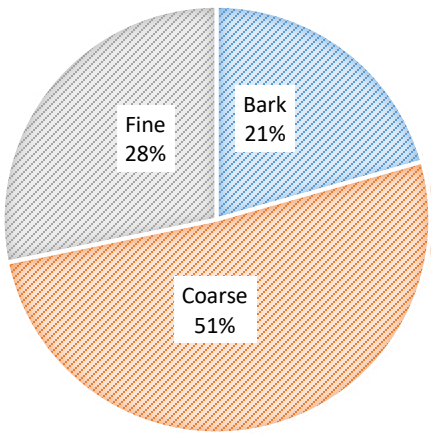

Figure 7.—Distribution of residues generated by primary wood-using mills by type of residue, Nebraska, 2014.

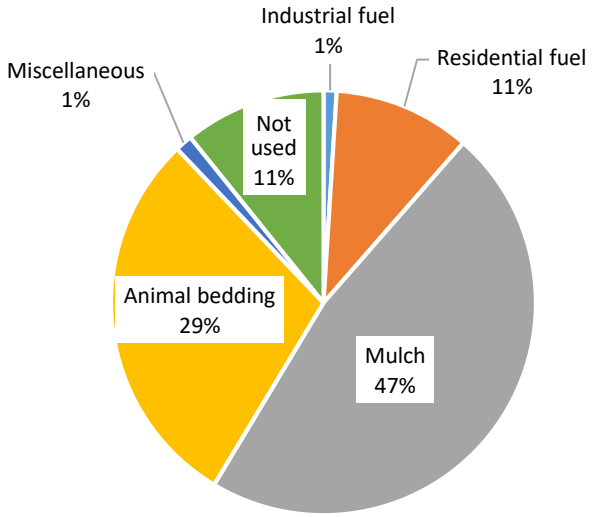

Figure 8.—Distribution of residues generated by primary wood-using mills by method of disposal, Nebraska, 2014.

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Supplemental Tables
Data tables to accompany this report are available at https://doi.org/10.2737/FS-RU-173

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Common and scientific names of tree species in Nebraska by TPO species group

Softwoods

Cedar/juniper		
	Eastern redcedar	*Juniperus virginiana*
	Rocky Mountain Juniper	*Juniperus scopulorum*
Lodgepole pine		
	Lodgepole pine	*Pinus contorta*
Ponderosa		
	Ponderosa pine	*Pinus ponderosa*
White pine		
	Eastern white pine	*Pinus strobus*
Other pine species		*Pinus* spp.

Hardwoods

Ash		
	White ash	*Fraxinus americana*
	Green ash	*Fraxinus pennsylvanica*
Basswood		
	American basswood	*Tilia americana*
Beech		
	American beech	*Fagus grandifolia*
White (paper) birch		
	White (paper) birch	*Betula papyrifera*
Black cherry		
	Black cherry	*Prunus serotina*
Black walnut		
	Black walnut	*Juglans nigra*
Sycamore		
	American sycamore	*Platanus occidentalis*
Cottonwood		
	Eastern cottonwood	*Populus deltoides*
Elm		
	American elm	*Ulmus americana*
	Siberian elm	*Ulmus pumila*
	Slippery elm	*Ulmus rubra*
	Rock elm	*Ulmus thomasii*
Hickory		
	Pecan	*Carya illinoensis*
	Bitternut hickory	*Carya cordiformis*
	Shagbark hickory	*Carya ovata*
Soft maple		
	Boxelder	*Acer negundo*
	Silver maple	*Acer saccharinum*
Red oak		
	Northern red oak	*Quercus rubra*
	Black oak	*Quercus velutina*
White oak		
	Bur oak	*Quercus macrocarpa*
	Chinkapin oak	*Quercus muehlenbergii*

Other hardwoods

	Ohio buckeye	*Aesculus glabra*
	Ailanthus	*Ailanthus altissima*
	American hornbeam	*Carpinus caroliniana*
	Northern catalpa	*Catalpa speciose*
	Sugarberry	*Celtis laevigata*
	Hackberry	*Celtis occidentalis*
	Flowering dogwood	*Cornus florida*
	Hawthorn species	*Crataegus* spp.
	Honeylocust	*Gleditsia triacanthos*
	Kentucky coffeetree	*Gymnocladus dioicus*
	Osage-orange	*Maclura pomifera*
	Apple species	*Malus* spp.
	White mulberry	*Morus alba*
	Red mulberry	*Morus rubra*
	Eastern hophornbeam	*Ostrya virginiana*
	Chokecherry	*Prunus virginiana*
	Wild plum	*Prunus* spp.
	Black locust	*Robinia pseudoacacia*
	Black willow	*Salix nigra*
	Peachleaf willow	*Salix amygdaloides*
	Bebb willow	*Salix bebbiana*

Definition of Terms

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

Growing-stock tree. A live timberland tree of commercial species that meets specified standards of size, quality, and merchantability. (Note: Excludes rough, rotten, and dead trees.)

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

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

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

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