



Forest Service
U.S. DEPARTMENT OF AGRICULTURE

Rocky Mountain Research Station

RMRS-RB-41

May 2025

Colorado's Timber Harvest and Forest Products Industry, 2020

**Benjamin T. Irely, Lucas Townsend, Thale Dillon, Samuel G. Scott,
Eric A. Simmons, Todd A. Morgan, and John D. Shaw**



Citation: Benjamin T. Ireby, Lucas Townsend, Thale Dillon, Samuel G. Scott, Eric A. Simmons, Todd A. Morgan, and John D. Shaw. 2025. **Colorado's timber harvest and forest products industry, 2020**. Resour. Bull. RMRS-RB-41. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 30 p. <https://doi.org/10.2737/RMRS-RB-41>

Abstract: This report traces the flow of timber harvested in Colorado during calendar year 2020, describes the composition and operations of the State's primary forest products industry, and quantifies volumes and uses of wood fiber. Recent wood products industry changes are discussed as well as trends in timber harvest, production, and sales of primary wood products.

Keywords: forest economics, forest industry, forest industry employment, mill residue, primary forest products, timber capacity, timber flow, timber harvest, timber processors, timber use, wood utilization

Cover: Logging operations on Colorado forest land (above, left and right) and Colorado forest with fall colors (below). Courtesy photos by Micah Scudder, BBER (above) and courtesy photo by Eric Simmons, BBER, (below).

All Rocky Mountain Research Station publications are published by U.S. Forest Service employees and are in the public domain and available at no cost. Even though U.S. Forest Service publications are not copyrighted, they are formatted according to U.S. Department of Agriculture standards and research findings and formatting cannot be altered in reprints. Altering content or formatting, including the cover and title page, is strictly prohibited.

Authors

Benjamin T. Ireby is a Research Social Scientist at the Bureau of Business and Economic Research (BBER), University of Montana, Missoula, Montana.

Lucas Townsend is a Forester for Green Diamond Resources in Kalispell, MT.

Thale Dillon is a Research Economist at BBER, University of Montana, Missoula, Montana.

Samuel G. Scott is a Forest Economist at BBER, University of Montana, Missoula, Montana.

Eric A. Simmons is a Senior Research Associate at BBER, University of Montana, Missoula, Montana.

Todd A. Morgan is Director of the Forest Industry Research Program at BBER, University of Montana, Missoula, Montana.

John D. Shaw is a Research Forester, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Forest Sciences Laboratory, Riverdale, Utah.

Highlights

- Colorado's total timber harvest in 2020 was 190.8 million board feet Scribner, 64 percent more than in 2016.
- 2020 timber harvests from private timberlands were 159 percent higher than in 2016 while timber harvests from National Forest System lands were 33 percent higher.
- Spruce, ponderosa pine, Douglas-fir, and true firs were harvested in greater volumes in 2020 than in 2016 while the lodgepole pine harvest volume decreased in 2020.
- A total of 46 primary wood products facilities were identified as active in Colorado during 2020, 10 fewer than in 2016.
- In 2020 the net outflow of all log types from Colorado was 18 million board feet Scribner.
- The average lumber production per sawmill in Colorado was 43 percent higher in 2020 compared to 2016.
- Timber-processing capacity among Colorado sawmills was 201.4 million board feet in 2020.
- The percent utilization of timber-processing capacity and lumber-production capacity was down in 2020 as compared to 2016, though total lumber production was up.
- Sawmill residue production dropped from a rate of 1.00 bone-dry unit of residue generated for every 1,000 board feet of lumber manufactured in 2016, to 0.88 in 2020.
- Total mill residues produced in 2020 were 55 percent higher than what was produced in 2016.
- Total receipts for finished product sales from Colorado's primary wood products industry was 6 percent lower in 2020 than in 2016 (adjusted for inflation).
- The direct labor income for the total of Colorado's forest products industry was 74 percent higher in 2020 than in 2016 while total direct employment was 4 percent higher.

Contents

Authors	iii
Highlights	iv
Introduction	1
Forest Industry Data Collection System	1
Colorado's Timber Harvest, Flow and Use.....	2
Timber Harvest.....	3
Timber Flow.....	12
Timber Use	13
Colorado Timber Harvest and Flow.....	13
Forest Industry Sectors	15
Sawmill and veneer sector	17
Log home sector	19
Other products sectors	19
Capacity and Utilization.....	19
Mill Residue Volumes, Types, and Uses	21
Primary Forest Products Sales	22
Forest Industry Employment and Labor Income	25
Conclusion	28
References	29

This page intentionally left blank.

Introduction

This report details timber harvest and describes the composition and operations of the primary forest products industry in Colorado during calendar year 2020. The report focuses on trends and changes in timber harvest and timber processing since the last industry census of 2016 operations. More information on prior years and historical perspectives can be found in Hayes et al. (2021).

Timber used in the direct manufacture of products is the focus of this report. Products directly manufactured from timber are referred to as “primary products” and include lumber, veneer, posts and poles, house logs, log furniture, and excelsior. Reconstituted products made from chipped or ground timber, as well as products made from mill residues generated in the production of primary products (e.g., bark and sawdust) are discussed in this report. Reconstituted products include wood pellets, bark and mulch products, energywood, and fuelwood. Manufacturers of secondary products (e.g., window frames, doors, trusses, and furniture) were not surveyed.

The major source of data for this report was a census of primary wood products facilities in Colorado and mills in other States that received timber from Colorado during calendar year 2020. Firms were identified through telephone directories, internet queries, directories of the forest products industries, and with the assistance of State forestry agencies, extension foresters, and the mills themselves.

The University of Montana’s Bureau of Business and Economic Research (BBER) and the USDA Forest Service, Forest Inventory and Analysis (FIA) Program (Riverdale, Utah) cooperated in the analysis and preparation of this report. The BBER, in cooperation with FIA programs at the Rocky Mountain and Pacific Northwest Research Stations, has developed a system to collect, compile, and make available State and county-level information on timber harvest and the operations of the forest products industry—the Forest Industries Data Collection System (FIDACS). The system is administered in all western States.

Forest Industry Data Collection System

This report represents the fifth application of the Forest Industry Data Collection System (FIDACS) in Colorado and the first occurrence as a stand-alone publication. In previous years, reporting on the Colorado mill census was combined with the results of censuses in Arizona, New Mexico, and Utah and reported as “Four Corners”. As such, the last comprehensive study of the State’s industrial roundwood production and mill residues was conducted in 2016 (Hayes et al. 2021); earlier data years include 1966 (Setzer and Wilson 1970), 1970 (Green and Setzer 1974), 1992 (Keegan et al. 1995), 2002 (Morgan et al. 2006), 2007 (Hayes et al. 2012), and 2012 (Sorenson et al. 2016).

Through written questionnaires, phone interviews, or in-person interviews, manufacturers are asked to provide the following information for each timber-processing facility for a given calendar year:

- Facility type, location, contact information, and opening year
- Installed equipment
- Production and administrative employment

- Number of operating days, shifts per day, and shift length
- Shift and annual production capacity and units of output
- Preferred and accepted log sizes
- Volume of raw material received by timber product, county, and ownership
- Species and live/dead proportions of timber received
- Beginning- and end-of-year raw material inventory
- Volume and destination of log transfers
- Finished product types, volumes, sales value, and market locations
- Beginning- and end-of-year finished product inventory
- Production, utilization, and sales of manufacturing residue

Colorado firms participating in the 2020 Colorado FIDACS census processed the majority (74 percent) of the State's commercial timber harvest. Volume and characteristics of Colorado timber processed by out-of-state firms was determined through surveys of mills in adjacent States. Data from responding firms, published sources, and information provided by federal, State, and industry representatives were used to estimate data for any non-respondent firms. The same data and information were used to verify estimates of the State's total timber harvest and the production of primary wood products and their sales value.

Information collected through FIDACS is stored at the BBER at the University of Montana—Missoula. Because of the substantial detail on the industry and its timber use, there is a time lag between conducting the census and the publication of this report. To make the collected data available in a timelier manner, tables and a highlights summary are published online as they are compiled and reviewed. Key data from other sources are included in this report to provide the most recent measures of general industry activity, as are references to other publications dealing with industry conditions. Additional information is available from BBER by request; however, firm-level data are confidential and will not be released.

Colorado's Timber Harvest, Flow and Use

In 2019, Colorado had approximately 10.4 million acres of nonreserved timberland (table 1), with national forests accounting for 70.3 percent, private owners accounting for 20.3 percent, and other public agencies accounting for the remaining 9.3 percent. All private timberland was classified as non-industrial private forest (NIPF) timberland. Colorado has no large tracts of timberland owned by entities operating primary wood processing facilities. Sawtimber volume on timberland was estimated at 14.5 billion cubic feet or approximately 68.3 billion board feet Scribner in 2019.

Table 1—Colorado nonreserved timberland by ownership class, 2020.

Ownership class	Thousand acres	Percentage of nonreserved timberland
National forest	7,335	70.3
Private	2,123	20.3
Other public	974	9.3
Total	10,432	100

Timber Harvest

Previous reports in this series have reported timber harvest based on data obtained from facility surveys, but as the FIA program has transitioned into plot remeasurement cycles, it has become possible to obtain plot-based harvest estimates. Whereas survey-based estimates are confined to single years, plot-based harvest estimates use up to 10 years of data to produce annual averages. Plot-based estimates are also not subject to mill survey nonresponse, but they may be subject to some plot inaccessibility. As a result, analyzing and reporting the similarities and differences between the two estimates can be informative, especially in cases where harvest practices may result in harvested, but undesirable material possibly being utilized outside the facility processing stream, such as for local-use firewood (e.g., see Dillon et al. 2024). The national forests also report harvest numbers in the form of “cut and sold” reports, which are updated quarterly and organized by the federal fiscal year. Unlike the FIA survey and plot-based harvest estimates, which cover harvest from all ownerships, the numbers reported in cut and sold reports only include removals from national forests. Since a large proportion of harvest in western States such as Colorado comes from national forest land, these reports can provide a third view of harvest on this ownership. In the following sections, harvest volumes will be referred to as survey-based or plot-based as appropriate, and national forest cut amounts will be noted where values from cut and sold data can be used.

Based on survey data, Colorado’s 2020 commercial timber harvest was over 190.8 million board feet (MMBF) Scribner (table 2), a 63 percent increase from the 2016 harvest of 116.7 MMBF (Hayes et al. 2021). The 2020 harvest was 132 percent greater than the 2012 harvest of 82.1 MMBF (Sorenson et al. 2016). Increases in Colorado’s total annual timber harvest occurred without a substantial increase in the salvaging of dead timber. Salvage of dead timber accounted for 42 percent (80.8 MMBF) of the 2020 harvest volume and 64 percent (74.5 MMBF) of the 2016 harvest volume (Hayes et al. 2021). In 2012, 56 percent (46.3 MMBF) of the harvest was dead timber (Sorenson et al. 2016). Plot-based harvest estimates are available for inventory years 2017 to 2020, averaging 100.6 MMBF Scribner, and showing a slight downward trend from 109.9MMBF in 2017 to 94.0MMBF in 2020.

Table 2—Colorado timber harvest by ownership, selected years.

Ownership Class	MBF Scribner				Percentage of total			
	2007	2012	2016	2020	2007	2012	2016	2020
Private and Tribal timberland	41,334	24,332	33,881	87,704	47.8	29.6	29.0	46.0
Private	41,334	24,332	33,881	87,704	47.3	29.6	29.0	46.0
Public timberland	45,206	57,737	82,775	103,131	52.2	70.4	71.0	54.0
National forest	43,179	54,789	75,614	100,878	49.9	66.8	64.8	52.9
State lands	1,837	1,479	3,492	1,393	2.1	1.8	3.0	0.7
Other public	190	1,469	3,669	860	0.2	1.8	3.1	0.5
All owners	86,540	82,070	116,656	190,834	100	100	100	100

Sources: Hayes et al. 2012; Hayes et al. 2021; Morgan et al. 2006; Sorenson et al. 2016.

Based on surveys, the National Forest System (NFS) share of Colorado's timber harvest decreased from over 80 percent in 1982 (McLain 1985) to less than 40 percent in 2002 (Morgan et al. 2006). The NFS share of the harvest was 50 percent in 2007 (Hayes et al. 2012), 67 percent in 2012 (Sorenson et al. 2016), and 65 percent in 2016 (Hayes et al. 2021). In 2020 the survey-based estimate of the NFS share of Colorado's timber harvest was 53 percent, which is consistent with the plot-based estimate of 52.8 percent and the 2017 to 2020 average of 51.4 percent.

National Forest System cut and sold data typically show higher volume numbers for the years reported in table 2. For example, cut volume for 2020 as reported by national forests in Colorado was 129.1 MMBF, whereas the survey-based estimate was only 100.9 MMBF. While on the surface this is a substantial difference, it is likely attributable to the varying destinations of sales of different size. Cut and sold data include the sales size class category, which allow sales to be grouped into the following bins: less than \$300; \$301–\$10,000; \$10,001–\$100,000; \$100,001–\$1,000,000; \$1,000,001–\$5,000,000; and more than \$5,000,000. Data show that the number of sales in the less than \$300 category is usually very high annually, such that the total volume of sales in this category often exceeds the totals in the higher-value categories. Given that very small sales are typically purchased by local users, such as for personal use or small retail operations, it is likely that this portion of the volume is not accounted for at larger facilities. This information, however, will be useful when reconciling the three different estimates that are now available for NFS lands, possibly filling some gaps in our knowledge about small-scale wood use.

Harvests from NFS lands comprised the majority of inputs for saw and veneer log processing facilities (60 percent) and house log facilities (66 percent) in 2020, while private timberlands comprised the majority (79 percent) of harvests for posts and poles (table 3). Harvests from private timberlands made up the majority (61 percent) of the inputs for furniture, fiber, and viga logs, as well as for industrial fuelwood and chipped energywood.

Sawlogs accounted for about 69 percent (131.5 MMBF) of the total volume harvested; other products and posts and poles accounted for about 26 and 3 percent, respectively, and house logs were under 2 percent of the harvest in 2020.

During 2020, commercial timber harvest occurred in 36 of Colorado's 64 counties (table 4), with 13 counties providing over 80 percent of the volume. Gunnison County led Colorado's timber harvest with 11.6 percent (22 MMBF) of the volume; Eagle and Routt counties followed with 10 (19.1 MMBF) and 9.4 percent (17.9 MMBF), respectively. For comparison, Gunnison County's 2016 timber harvest was 2.1 MMBF, Eagle County's was 4.9 MMBF, and Routt County harvested 9.5 MMBF.

Table 3a—Colorado timber products harvested by ownership class, thousand board feet, Scribner, 2020.

Ownership class	Saw and veneer logs	House logs	Post and pole	Other products ^a	All products
National forest	78,633	2,194	694	19,357	100,878
Private timberland	51,552	1,136	4,745	30,271	87,704
Other public lands	1,282	—	587	384	2,253
All owners	131,467	3,330	6,026	50,012	190,834

^a Other products include furniture logs, fiber logs, viga logs, industrial fuelwood, and chipped energywood.

— Less than 0.1 percent.

Table 3b—Colorado timber products harvested, percentage by ownership class, 2020.

Ownership class	Saw and veneer logs	House logs	Post and pole	Other products ^a	All products
National forest	59.8	65.9	11.5	38.7	52.9
Private timberland	39.2	34.1	78.7	60.5	46.0
Other public lands	1.0	—	9.7	0.8	1.2
All owners	68.9	1.7	3.2	26.2	100

^a Other products include furniture logs, fiber logs, viga logs, industrial fuelwood, and chipped energywood.

— Less than 0.1 percent.

Table 4a—Colorado timber harvest by county, thousand board feet, Scribner, selected years.

County	2002	2007	2012	2016	2020
Adams	8	2	1	5	—
Alamosa	—	—	—	1,125	1,000
Archuleta	1,640	260	890	3,548	294
Boulder	44	3	2	766	556
Chaffee	595	48	—	915	1,251
Clear Creek	—	—	3,500	92	66
Conejos	740	618	1,355	7,518	3,323
Costilla	3,684	4,986	2,418	875	12,275
Custer	300	717	150	2,585	1,012
Delta	2,376	13,195	3,462	674	2,205
Dolores	5,907	3,275	3,000	2,869	13,616
Douglas	40	417	306	195	—
Eagle	200	—	144	4,866	19,094
El Paso	240	49	—	—	10
Fremont	1,673	348	—	220	25
Garfield	9,321	1,924	622	530	7,011
Gilpin	20	—	—	—	—
Grand	3,113	30,387	19,381	8,538	9,059
Gunnison	4,249	4,110	4,243	2,147	22,080
Hinsdale	—	—	—	12,898	945
Huerfano	500	500	—	5,284	6,472
Jackson	4,373	2,916	2,610	8,483	4,996
Jefferson	361	21	2	186	2,346
La Plata	2,312	321	510	2,497	2,733
Lake	844	—	—	335	—
Larimer	3,145	528	1,152	1,270	1,349
Las Animas	7,057	2,300	170	—	200
Mesa	8,660	4,973	4,798	7,602	2,954
Mineral	372	683	629	1,257	3,596
Moffat	124	—	399	186	186
Montezuma	4,495	3,242	2,202	2,995	13,320
Montrose	3,029	1,625	7,335	5,628	8,533
Ouray	30	8	129	25	—
Park	4,369	2,432	911	951	—

— Less than 0.5 MBF.

Table 4a continued.

County	2002	2007	2012	2016	2020
Pitkin	—	—	149	104	11,282
Pueblo	306	48	—	1,012	1,012
Rio Blanco	730	—	—	81	—
Rio Grande	557	100	4,313	5,418	7,322
Routt	1,143	2,008	6,593	9,465	17,940
Saguache	520	1,459	—	3,494	5,989
San Juan	274	—	—	—	—
San Miguel	1,020	—	25	230	861
Summit	289	2,606	1,072	6,265	2,663
Teller	1,049	432	9,598	3,522	3,259
Total	79,711	86,540	82,070	116,656	190,834

Table 4b—Colorado timber harvest by county, percentage of total, selected years.

County	2002	2007	2012	2016	2020
Adams	^a	^a	^a	^a	^a
Alamosa	^a	^a	^a	1.0	0.5
Archuleta	2.1	0.3	1.1	3.0	0.2
Boulder	0.1	^a	^a	0.7	0.3
Chaffee	0.7	0.1	^a	0.8	0.7
Clear Creek	^a	^a	4.3	0.1	0.0
Conejos	0.9	0.7	1.7	6.4	1.7
Costilla	4.6	5.8	2.9	0.8	6.4
Custer	0.4	0.8	0.2	2.2	0.5
Delta	3.0	15.2	4.2	0.6	1.2
Dolores	7.4	3.8	3.7	2.5	7.1
Douglas	0.1	0.5	0.4	0.2	^a
Eagle	0.3	^a	0.2	4.2	10.0
El Paso	0.3	0.1	^a	^a	0.0
Fremont	2.1	0.4	^a	0.2	0.0
Garfield	11.7	2.2	0.8	0.5	3.7
Gilpin	^a	^a	^a	^a	^a
Grand	3.9	35.1	23.6	7.3	4.7
Gunnison	5.3	4.7	5.2	1.8	11.6
Hinsdale	^a	^a	^a	11.1	0.5
Huerfano	0.6	0.6	^a	4.5	3.4

^a Less than 0.05 percent.

Table 4b continued.

County	2002	2007	2012	2016	2020
Jackson	5.5	3.4	3.2	7.3	2.6
Jefferson	0.5	a	a	0.2	1.2
La Plata	2.9	0.4	0.6	2.1	1.4
Lake	1.1	a	a	0.3	a
Larimer	3.9	0.6	1.4	1.1	0.7
Las Animas	8.9	2.7	0.2	a	0.1
Mesa	10.9	5.7	5.8	6.5	1.5
Mineral	0.5	0.8	0.8	1.1	1.9
Moffat	0.2	a	0.5	0.2	0.1
Montezuma	5.6	3.7	2.7	2.6	7.0
Montrose	3.8	1.9	8.9	4.8	4.5
Ouray	a	a	a	a	a
Park	5.5	2.8	1.1	0.8	a
Pitkin	a	a	0.2	0.1	5.9
Pueblo	0.4	0.1	a	0.9	0.5
Rio Blanco	0.9	a	a	0.1	a
Rio Grande	0.7	0.1	5.3	4.6	3.8
Routt	1.4	2.3	8.0	8.1	9.4
Saguache	0.7	1.7	a	3.0	3.1
San Juan	0.3	a	a	a	a
San Miguel	1.3	a	0.0	0.2	0.5
Summit	0.4	3.0	1.3	5.4	1.4
Teller	1.3	0.5	11.7	3.0	1.7
Total	100	100	100	100	100

Based on facility surveys, spruce was the leading species harvested in Colorado in 2020 (table 5), accounting for 40 percent of the volume, which matches closely with the plot-based estimate of 38.2 percent. In 2007, 2012, and 2016, lodgepole pine dominated the harvest at 52, 50, and 55 percent, respectively. In 2020, lodgepole pine was 26 percent of the harvest, ponderosa pine was 15 percent and Douglas-fir was 9 percent based on facility surveys. The 2017 to 2020 plot-based estimates, however, showed lodgepole pine at 37.7 percent, ponderosa pine at 18.7 percent, and Douglas-fir at only 1.5 percent. Given the blending effect of plot-based estimates over several years of measurements and the fact that plot data show a general downward trend in lodgepole pine harvest, these species-by-species differences are not noteworthy. Spruce and lodgepole pine were the leading species harvested for sawlogs in 2020 (table 6), accounting for 48 and 23 percent, respectively. Spruces comprised 72 percent of the house log harvest, while lodgepole pine was the leading species harvested for posts and poles (78 percent) and other products (30 percent).

Table 5a—Colorado timber harvest by species, thousand board feet, Scribner, selected years.

Species	2002	2007	2012	2016	2020
Spruce ^a	19,908	10,203	15,488	26,578	75,851
Lodgepole pine	12,457	45,026	41,091	64,105	49,963
Ponderosa pine	22,526	6,899	10,983	8,505	27,871
Douglas-fir	6,959	3,946	5,334	6,948	17,778
True firs ^b	2,512	3,132	1,350	2,301	10,766
Aspen	15,292	17,319	7,727	8,192	8,597
Other species ^c	58	14	96	27	9
All species	79,711	86,539	82,070	116,656	190,834

^a Spruce includes Engelmann and blue spruce.

^b True firs include white and subalpine fir.

^c Other species include cottonwood, western redcedar, gambel oak, Rocky Mountain juniper, and pinyon.

Sources: Hayes et al. 2012; Hayes et al. 2021; McLain 1985; Morgan et al. 2006; Setzer and Shupe 1977; Sorenson et al. 2016.

Table 5b—Colorado timber harvest by species, percentage of total, selected years.

Species	2002	2007	2012	2016	2020
Spruce ^a	25.0	11.8	18.9	22.8	39.7
Lodgepole pine	15.6	52.0	50.1	55.0	26.2
Ponderosa pine	28.3	8.0	13.4	7.3	14.6
Douglas-fir	8.7	4.6	6.5	6.0	9.3
True firs ^b	3.2	3.6	1.6	2.0	5.6
Aspen	19.2	20.0	9.4	7.0	4.5
Other species ^c	0.1	0.0	0.1	0.0	0.0
All species	100	100	100	100	100

^a Spruce includes Engelmann and blue spruce.

^b True firs include white and subalpine fir.

^c Other species include cottonwood, western redcedar, gambel oak, Rocky Mountain juniper, and pinyon.

Sources: Hayes et al. 2012; Hayes et al. 2021; McLain 1985; Morgan et al. 2006; Setzer and Shupe 1977; Sorenson et al. 2016

Table 6a—Colorado timber harvest by species and product, thousand board feet, Scribner, 2020.

Species	Saw and veneer logs	House logs	Posts and poles	Other products ^a	All products
Spruce ^b	63,506	2,390	491	9,464	75,851
Lodgepole pine	29,759	487	4,699	15,019	49,963
Ponderosa pine	13,956	117	809	12,989	27,871
Douglas-fir	9,008	62	21	8,686	17,778
True firs ^c	10,741	—	—	25	10,766
Aspen	4,497	265	6	3,829	8,597
Other species ^d	—	9	—	—	9
All species	131,467	3,330	6,026	50,012	190,834

^a Other products include furniture logs, fiber logs, industrial fuelwood, and chipped energywood.

^b Spruce includes Engelmann and blue spruce.

^c True firs include white and subalpine fir.

^d Other species include gambel oak, Rocky Mountain juniper, pinyon, cottonwood, and western redcedar.

— Less than 0.5 MBF.

Table 6b—Colorado timber harvest, percentage by species and product, 2020.

Species	Saw and veneer logs	House logs	Posts and poles	Other products ^a	All products
Spruce ^b	48.3	71.8	8.1	18.9	39.7
Lodgepole pine	22.6	14.6	78.0	30.0	26.2
Ponderosa pine	10.6	3.5	13.4	26.0	14.6
Douglas-fir	6.9	1.9	0.3	17.4	9.3
True firs ^c	8.2	—	—	0.0	5.6
Aspen	3.4	8.0	0.1	7.7	4.5
Other species ^d	—	0.3	—	—	0.0
All species	68.9	1.7	3.2	26.2	100

^a Other products include furniture logs, fiber logs, industrial fuelwood, and chipped energywood.

^b Spruce includes Engelmann and blue spruce.

^c True firs include white and subalpine fir.

^d Other species include gambel oak, Rocky Mountain juniper, pinyon, cottonwood, and western redcedar.

— Less than 0.05 percent.

Timber Flow

The vast majority (90 percent) of Colorado's 2020 timber harvest was processed in-state. During 2020 Colorado had a net outflow of almost 18 MMBF of timber (table 7); 19.5 MMBF of the timber from Colorado was processed out of State, while there was an inflow of 1.5 MMBF of timber from other States for processing in Colorado.

Table 7—Timber product flow into and out of Colorado, thousand board feet, Scribner, 2020.

Timber Product	Log flow into Colorado	Log flow out of Colorado	Net inflow (net outflow)
Sawlogs	793	18,221	(17,428)
House logs	180	11	169
Other products ^a	560	1,239	(679)
All products	1,533	19,470	(17,937)

^a Other products include fiber logs, post and pole logs, energywood logs, and industrial fuelwood.

Timber processors in Colorado received 172,897 MBF of timber in 2020 (table 8), 65 percent more timber than in 2016. National Forest System lands provided 50 percent (86,055 MBF) of the timber delivered to Colorado facilities in 2020, with 28 of Colorado's timber processors—62 percent—receiving timber cut from national forests. By contrast, 38 of Colorado's timber processors, or 84 percent, received timber from private timber lands. Private timber lands provided 49 percent of timber receipts or 84,589 MBF Scribner. The remaining timber receipts were from State lands and other public ownerships. During 2020, NFS lands provided Colorado facilities the majority of saw and veneer logs (57 percent) and house logs (65 percent) while private timberlands provided the majority of post and pole logs (77 percent) and the majority of logs for energywood, fiber, and furniture (61 percent).

Table 8a—Timber received by Colorado forest products industry by ownership class and product, thousand board feet, Scribner, 2020.

Ownership class	Saw and veneer logs	Posts and poles	House logs	Other products ^a	All products
Private timberland	48,856	3,693	1,215	30,825	84,589
Public timberland	65,183	1,100	2,284	19,741	88,308
National Forest	63,901	513	2,284	19,357	86,055
State lands	743	315	—	335	1,393
Other public	539	272	—	49	860
All owners	114,039	4,793	3,499	50,566	172,897

^a Other products include energywood logs, fiber logs, furniture logs, and chipped energywood.

— Less than 0.5 MBF.

Table 8b—Timber received by Colorado forest products industry by ownership class and product, percentage of total, 2020.

Ownership class	Saw and veneer logs	Posts and poles	House logs	Other products ^a	All products
Private timberland	42.8	77.0	34.7	61.0	48.9
Public timberland	57.2	23.0	65.3	39.0	51.1
National Forest	56.0	10.7	65.3	38.3	49.8
State lands	0.7	6.6	—	0.7	0.8
Other public	0.5	5.7	—	0.1	0.5
All owners	66.0	2.8	2.0	29.2	100

^a Other products include energywood logs, fiber logs, furniture logs, and chipped energywood.

— Less than 0.5 percent.

Timber Use

Colorado's 2020 timber harvest was approximately 51,203 thousand cubic feet (MCF), excluding bark (fig. 1). Of this volume, 28,153 MCF went as logs to sawmills, 623 MCF went to house log and log home manufacturers, and 22,428 MCF went to post, pole, log furniture, and utility pole manufacturers. The following conversion factors were used to convert Scribner board foot volume to cubic feet:

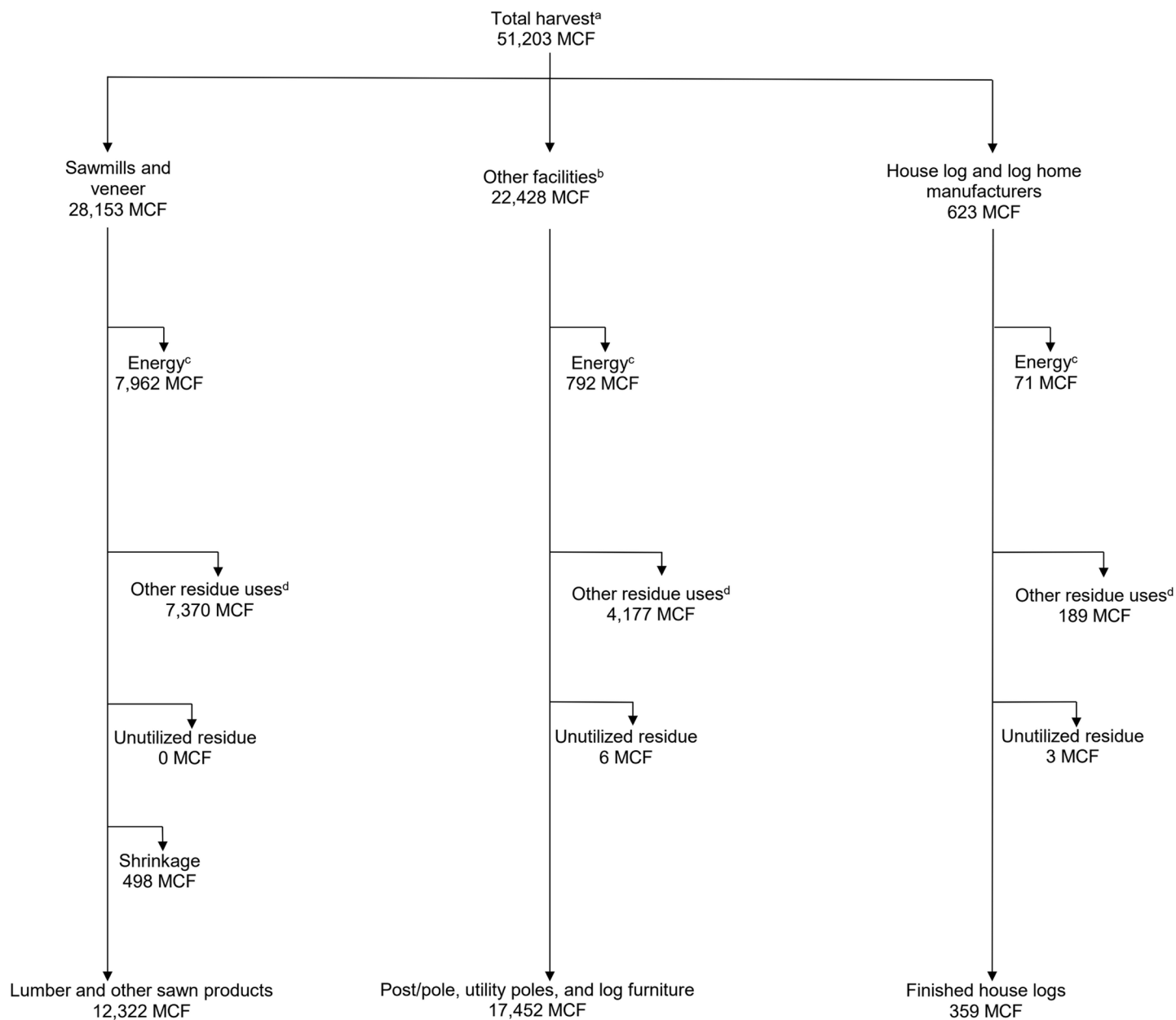
- 4.66 board feet per cubic foot for sawlogs and veneer logs
- 4.85 board feet per cubic foot for house logs
- 2.48 board feet per cubic foot for posts and poles
- 2.20 board feet per cubic foot average for log furniture, excelsior, firewood, and biomass

Colorado Timber Harvest and Flow

Of the 28,153 MCF of timber received by saw and veneer mills, 12,322 MCF (44 percent) was processed into finished lumber, other sawn products, and veneer and 498 MCF was lost to shrinkage (2 percent). The remaining 15,332 MCF (54 percent) became mill residue. In 2020, all the sawmill residue was utilized; 7,962 MCF was for internal energy production and the remaining 7,370 MCF was used for products such as landscaping materials, mulch, and animal bedding.

Of the 623 MCF of timber received by log home manufacturers, about 359 MCF (58 percent) was manufactured into house logs, while the remaining 263 MCF became mill residue. All but 3 MCF of the house log residue was used for energy (71 MCF) and for other uses (189 MCF).

Of the 22,428 MCF of timber received by other facilities, 17,452 MCF (78 percent) was used in solid wood products (such as posts, poles, and log furniture) and 4,177 MCF (19 percent) was used in the production of mulch, animal bedding, and excelsior. About 792 MCF (3 percent) of residues was used for internal energy production and the production of fuel pellets and 6 MCF of residue went unused.



^a Harvest volume does not include bark.

^b Other facilities include post/pole, firewood, log furniture, biomass energy, and shavings/excelsior products.

^c Energy includes residue used internally for energy and residue sold for hog fuel, wood pellets, and energy logs.

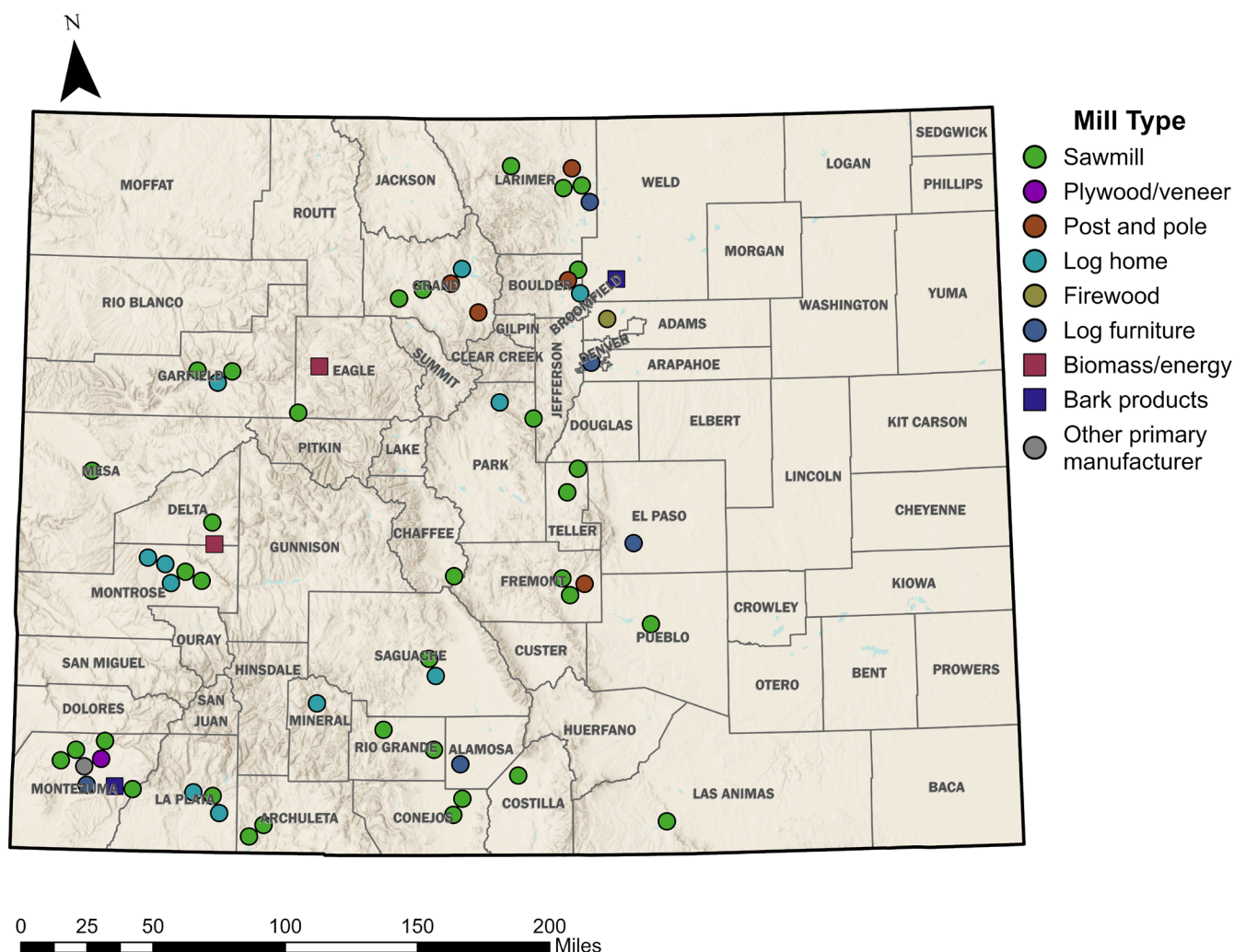
^d Other uses include, landscape, mulch, excelsior/shavings, and animal bedding.

Figure 1—Colorado timber harvest and flow, 2020.

Forest Industry Sectors

Colorado's primary forest products industry in 2020 consisted of 46 active manufacturers in 25 counties, nine fewer facilities than in 2016 (table 9). Facilities tended to be located near the forest resource in the central and southwestern portions of the State (fig. 2). The sawmill sector—manufacturing lumber and other sawn products—was the largest sector operating in 2020 with 27 mills. There was one veneer facility in Colorado in 2020, which was new since the 2016 report. Six facilities produced house logs and log homes. There were 12 excelsior, fuel pellet, posts and poles, log furniture, and biomass/energy manufacturers in Colorado in 2020.

Hayes et al. (2021) identified 55 primary wood-processing plants in 2016: 30 sawmills, 10 house log plants, and 15 facilities producing excelsior, fuel pellets, posts, poles, log furniture, or biomass/energy. Changes in Colorado's industry structure over the past 30 years were similar to those experienced throughout the West, with the number of sawmills (Morgan et al. 2006) and log home facilities declining, particularly after the Great Recession.



Esri. USGS. USFS. BBER

Figure 2—Map of Colorado primary timber processors.

Table 9—Active Colorado primary wood products facilities by county and product, 2020.

County	Lumber	Veneer	House logs and log homes	Other products ^a	Total
Adams	—	—	—	1	1
Alamosa	—	—	—	1	1
Arapahoe	—	—	—	1	1
Archuleta	2	—	—	—	2
Boulder	1	—	—	1	2
Chaffee	1	—	—	—	1
Conejos	1	—	—	—	1
Costilla	1	—	—	—	1
Delta	1	—	—	—	1
Denver	—	—	—	1	1
Eagle	—	—	—	1	1
Fremont	1	—	—	—	1
Garfield	1	—	—	1	2
Grand	2	—	1	2	5
La Plata	1	—	2	—	3
Larimer	2	—	—	2	4
Las Animas	1	—	—	—	1
Mesa	1	—	—	—	1
Montezuma	4	1	—	1	6
Montrose	1	—	1	—	2
Park	1	—	1	—	2
Pueblo	1	—	—	—	1
Rio Grande	1	—	—	—	1
Saguache	1	—	1	—	2
Teller	2	—	—	—	2
2020 Total	27	1	6	12	46
2016 Total	30	—	10	15	55
2012 Total	31	—	12	15	58
2007 Total	30	—	19	15	64
2002 Total	50	—	46	37	133
1982 Total	84	—	5	6	95

^a Other products include excelsior, fuel pellets, posts, poles, log furniture, and biomass/energy.

Sources: Hayes et al. 2012; Hayes et al. 2021; McLain 1985; Morgan et al. 2006; Sorenson et al. 2016.

— No facilities reported.

In 2020, sales value of finished products from Colorado’s primary wood products industry totaled \$107.3 million (table 10). This compares to 2016 sales of \$114.6 million, 2012 sales of \$112.3 million, 2007 sales of \$154.2 million, and 2002 sales of \$189.9 million, in 2020 dollars. In 2020 sales from sawmills accounted for 75 percent of total sales, whereas in 2016 sawmill sales were 49 percent of total sales. Total sales from sawmills were 44 percent higher in 2020 than in 2016. In 2020 house log and log home manufacturers accounted for 9 percent of total sales and sales in this sector were 6 percent lower than in 2016. Sales of posts, poles, log furniture, fuel pellets, biomass/energy, and excelsior accounted for 16 percent of total sales in 2020, down 64 percent from 2016.

Table 10—Finished product sales of Colorado’s primary wood products sectors, thousands of 2020 dollars^a, 2002, 2007, 2012, 2016, and 2020. Sources: Hayes et al. 2012; Hayes et al. 2021; Morgan et al. 2006; Sorenson et al. 2016.

Sector	2002	2007	2012	2016	2020
Sawmills and veneer	82,095	68,641	50,236	55,882	80,356
House logs and log homes	55,332	29,655	17,480	9,855	9,253
Other sectors ^b	52,423	55,854	44,547	48,847	17,656
Total	189,850	154,151	112,263	114,584	107,265

^a All sales are reported f.o.b. the manufacturer’s plant.

^b Other sectors include producers of posts, poles, log furniture, fuel pellets, biomass/energy and excelsior.

Sawmill and veneer sector—

As shown in table 11, there were 84 sawmills in Colorado in 1982 (McLain 1985). More recently, there were 50 in 2002 and 30, 31, and 30 respectively in 2007, 2012, and 2016 (Hayes et al. 2012; Sorenson et al. 2016; Hayes et al. 2021). There were 27 sawmills identified as producing lumber in Colorado in 2020. With three fewer mills than in 2016 and a higher-than-average lumber production per mill, Colorado lumber production was 29 percent higher in 2020. The State’s 12 largest sawmills produced an average of 11.4 MMBF in 2020, while the remaining 15 sawmills averaged 345 MBF (table 12).

Table 11—Number of Colorado sawmills and their average lumber production, selected years.

Year	Number of sawmills	Average lumber production (MMBF ^a)
2020	27	5.3
2016	30	3.7
2012	31	3.1
2007	30	3.9
2002	50	1.7
1982	84	1.4

^a MMBF = million board feet lumber tally

Sources: Hayes et al. 2012; Hayes et al. 2021; McLain 1985; Morgan et al. 2006; Sorenson et al. 2016; WWP 2020

Table 12—Colorado lumber production by mill size, 2020.

Size class ^a	Number of mills	Volume (MBF ^b)	Percentage of total	Average per mill (MBF ^b)
Over 2 MMBF	12	136,728	96	11,394
Under 2 MMBF	15	5,168	4	345
Total	27	141,896	100	5,255

^a Size class is based on reported lumber production in 2020. MMBF denotes million board feet lumber tally.

^b MBF = thousand board feet lumber tally.

Product recovery ratios, or the volume of output per unit of log volume input, are measures of efficiency reported as lumber recovery factors (LRF) and lumber overrun (LO). The LRF is the lumber output (in thousand board feet lumber tally) divided by the log input volume in cubic feet of solid wood, expressed as a proportion of the log scale. The LO is the amount of lumber recovered in excess of the amount predicted by the Scribner log scale, expressed as a proportion of the log scale. Although LO is the most commonly quoted measure of lumber recovery or efficiency, LO fails to accurately capture differences in lumber output per unit of timber input primarily due to the Scribner log scale. Lumber recovery factors (LRF) better illustrate increased lumber output as a function of improvements in technology and sawing techniques (Keegan et al. 2010).

Of the data years 2002, 2007, 2012, 2016, and 2020, LRF were highest in 2007 and lowest in 2012 (table 13). From the low in 2012, LRF increased in 2016 and again in 2020. Up from 49 percent in 2016 (Hayes et al. 2021), LO for sawmills in Colorado was 60 percent in 2020, meaning they produced 1.60 board feet of lumber for every board foot Scribner of timber processed. Recent data indicates that sawmill efficiency in Colorado is trending upward from a low in 2012, with LRF 0.45 higher in 2020 than in 2012. As the technological advances having occurred over the past couple of decades are unlikely to have been reversed, the primary reason behind the variability in LO and LRF in Colorado sawmills is likely due to variations in mill-delivered log diameters and log quality over the past 20 years (Keegan 2010). Reduced old-growth harvesting, increased use of restoration and fuels treatments that favor retention of larger trees, the removal of smaller stems, and insect and disease all have an impact on log quality.

Table 13—Colorado lumber overrun and lumber recovery factor (LRF), selected years.

Year	Timber processed (MMBF ^a Scribner)	Lumber produced (MMBF ^a lumber tally)	Overrun ^b	LRF ^c
2002	56.7	83.3	1.47	7.72
2007	75.4	116.1	1.54	8.12
2012	60.4	95.4	1.58	7.09
2016	73.8	109.9	1.49	7.15
2020	88.6	141.9	1.60	7.54

^a MMBF = million board feet.

^b Overrun = board feet of lumber per board foot Scribner of log input.

^c LRF = board feet of lumber per cubic foot of log input.

Sources: Hayes et al. 2021, Sorenson et al. 2016, Hayes et al. 2012, Morgan et al. 2006.

Sales from saw and veneer mills increased from \$55.9 million in 2016 to \$80.4 million in 2020, bringing the saw and veneer mill share of total primary product sales from 48 percent in 2016 to 75 percent in 2020 (Hayes et al. 2021).

Log home sector—

From 1982 to 2002, Colorado's log home industry grew from 5 to 46 facilities (see table 9). By 2016 the number of log home and house log manufacturers had dropped to 10, and there were just six manufacturers operating in 2020. Only firms that processed timber and manufactured house logs or log homes are included in the FIDACS census. In 2020, Colorado's six log home manufacturers received 3.5 MMBF Scribner of timber, produced about 854 thousand lineal feet (MLF) of house logs, and generated \$9.3 million in product sales.

Other products sectors—

Following the same trend as the log home sector, the number of facilities producing posts and poles, excelsior, fuel pellets, log furniture, and biomass/energy increased from 6 to 37 between 1982 and 2002, then fell to 15 facilities in 2007, where it remained in 2012 and 2016 before it dropped to 12 in 2020 (table 9). In 2020, three of the other products facilities manufactured log furniture, five were post and pole producers, two were biomass/fuel pellets facilities, and two were excelsior plants. Finished products sales by all manufacturers in the other products category totaled almost \$17.7 million in 2020, a 64 percent reduction from 2016.

Capacity and Utilization

Timber-processing capacity among Colorado sawmills in 2020 was 201.5 MMBF, with 88.6 MMBF of timber processed, making utilization of timber-processing capacity among sawmills 44 percent (table 14). Colorado's annual sawmill production capacity was 327.4 MMBF of lumber in 2020, up from 223.7 MMBF in 2016. Sawmills produced 141.9 MMBF of lumber in 2020, utilizing 43 percent of their lumber production capacity. The percent of capacity utilization in 2020 was down compared to 2016, even though the total production was up compared to the 110 MMBF produced in 2016 (Hayes et al. 2021).

Across all industry sectors in the State, total timber-processing capacity in 2020 was 280.3 MMBF Scribner. A total of 114.2 MMBF Scribner was processed by Colorado firms in 2020, making timber-processing capacity utilization about 41 percent across all sectors. In 2016, total timber-processing capacity was 183 MMBF and a total of 105.5 MMBF was processed, making the capacity utilization about 57 percent across all sectors.

Table 14—Active Colorado sawmills by production capacity class: timber-processing capacity, lumber production capacity, lumber production, and capacity utilization.

Sawmills by size		Annual timber processing			Annual production		
Production capacity size class	Number of mills	Total capacity MBF ^a	Total processed MBF ^a	Percentage of capacity utilization	Total capacity MBF ^b	Total production MBF ^b	Percentage of capacity utilization
≤500 MBF	7	1,539	892	58	1,525	913	60
>500 MBF to 2,000 MBF	6	4,457	2,496	56	5,615	2,995	53
>2,000 MBF to 5,000 MBF	6	18,175	11,079	61	21,200	12,480	59
>5,000 MBF	8	177,308	74,138	42	299,060	125,508	42
Total	27	201,479	88,605	44	327,400	141,896	43

^a MBF = thousand board feet, Scribner.

^b MBF = thousand board feet lumber tally.

Mill Residue Volumes, Types, and Uses

Sawmills, the leading timber sector in Colorado, were also the main residue producers. In 2020, sawmills produced 0.88 BDU of residue per MBF of lumber (table 15). Across all sectors, Colorado timber processors produced 202,376 BDU, or approximately 19,428 MCF, of mill residue, with virtually 100 percent used (table 16). Total residue production has seen an overall increase, from 22,749 MCF in 1974 (Sorenson et al. 2016), while the proportion used increased from 40 percent in 1974 to 99.9 percent in 2020. In 2016, Colorado's total residue production was approximately 12,464 MCF. Colorado's increased residue production since 2016 was a result of increased timber volumes processed by the State's facilities. Increased residue utilization rates between 1974 and 2020 could be attributable to both a decreased supply of residue in the market and increased demand for residues as inputs for residue-related product manufacturing such as energy, and fuel pellets.

Table 15—Colorado's sawmill residue factors, BDU/MBF lumber tally^a, 2002, 2007, 2012, 2016, and 2020.

Type of residue	2002	2007	2012	2016	2020
Coarse	0.42	0.60	0.56	0.54	0.53
Sawdust	0.17	0.21	0.20	0.20	0.14
Planer shavings	0.13	0.09	0.09	0.08	0.09
Bark	0.29	0.14	0.15	0.18	0.12
Total	1.01	1.04	1.00	1.00	0.88

^a Bone-dry unit (BDU = 2,400 lb oven-dry wood) of residue generated for every 1,000 board feet of lumber manufactured.

Sources: Hayes et al. 2012; Hayes et al. 2021; Morgan et al. 2006 Sorenson et al. 2016.

Table 16a—Production and disposition of Colorado mill residues, bone-dry units^a, 2020.

Residue type	Total utilized	Pulp and board	Energy	Mulch/ bedding	Unspecified use	Unused	Total produced
Coarse	99,728	—	64,881	—	34,847	8	99,736
Fine	54,861	—	8,228	43,188	3,445	45	54,906
Sawdust	37,003	—	6,074	27,484	3,445	35	37,038
Planer shavings	17,858	—	2,154	15,704	—	10	17,868
Bark	47,520	—	10,963	35,586	971	214	47,734
Total	202,109	—	84,072	78,774	39,263	267	202,376

^a Bone-dry unit = 2,400 lb oven-dry wood.

— Less than 0.5 bone-dry units.

Table 16b—Production and disposition of Colorado mill residues, percentage of residue type, 2020.

Residue type	Total utilized	Pulp and board	Energy	Mulch/ bedding	Unspecified use	Unused	Total produced
Coarse	100.0	—	65.1	—	34.9	0.0	49.3
Fine	99.9	—	15.0	78.7	6.3	0.1	27.1
Sawdust	99.9	—	16.4	74.2	9.3	0.1	18.3
Planer shavings	99.9	—	12.1	87.9	—	0.1	8.8
Bark	99.6	—	23.0	74.6	2.0	0.4	23.6
Total	99.9	—	41.5	38.9	19.4	0.1	100

— Less than 0.1 percent.

Coarse residue was the State’s largest residue component at 49 percent (99,736 BDU) of total in 2020, with nearly 100 percent used (table 16). Unspecified uses were reported as absorbing 34,847 BDU of the coarse material, and the remaining volume (64,881 BDU) was used for energy production. Fine residues comprised the second largest component at 27 percent (54,906 BDU) with approximately 100 percent being used in 2020, primarily for mulch or animal bedding, with 15 percent of fine residues being used for energy. Bark accounted for 24 percent of all residues in 2020 and was largely used for mulch and bedding or burned for energy, with 47,520 BDUs (99.6 percent) used.

Primary Forest Products Sales

Sales from Colorado’s primary wood products industry during 2020 totaled over \$107 million dollars and included the sales of finished products and mill residues (table 17). Lumber, timbers, and other sawn products accounted for approximately 75 percent (over \$80 million) of total sales, while house logs and log homes made up 9 percent (over \$9 million). Sales of posts, poles, and log furniture constituted 10 percent (over \$11 million) of total sales, and sales of other products made up 6 percent (over \$6 million).

Table 17a—Destination and sales value of Colorado’s primary wood products and mill residues, thousand 2020 dollars, 2020.

Product	Colorado	Other 4-Corners States ^a	Other Rocky Mtn States ^b	Far West ^c	Northeast ^d	South ^e	North Central ^f	Other ^g	Total
Veneer and lumber, timbers, and other sawn products	30,229	7,396	2,516	6,662	2,979	9,469	21,105	—	80,356
House logs and log homes	5,599	292	107	—	38	1,618	1,601	—	9,253
Posts, poles, and log furniture	7,156	1,392	631	571	316	595	541	—	11,204
Other products ^h	4,277	248	339	589	—	125	125	750	6,453
Total	47,261	9,328	3,592	7,822	3,333	11,806	23,372	750	107,265

^a The other Four Corners States are Utah, Arizona, and New Mexico.

^b Other Rocky Mountain States include Wyoming, Idaho, Montana, and Nevada.

^c Far West includes Alaska, California, Hawaii, Oregon, and Washington.

^d Northeast includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

^e South includes Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

^f North Central includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

^g Other areas consists of products being shipped outside the U.S.A.

^h Other products include erosion control products, wood pellets, shavings, mulch, firewood, clean chips, and mill residues.

— Less than 500 dollars.

Table 17b—Destination and sales value of Colorado’s primary wood products and mill residues, percentage of product sales by region, 2020.

Product	Colorado	Other 4-Corners States ^a	Other Rocky Mtn States ^b	Far West ^c	Northeast ^d	South ^e	North Central ^f	Other ^g	Total
Lumber, timbers and other sawn products	37.6	9.2	3.1	8.3	3.7	11.8	26.3	—	74.9
House logs and log homes	60.5	3.2	1.2	0.0	0.4	17.5	17.3	—	8.6
Posts, poles, and log furniture	63.9	12.4	5.6	—	2.8	5.3	4.8	—	10.4
Other products ^h	66.3	3.8	5.3	9.1	—	1.9	1.9	11.6	6.0
Total	44.1	8.7	3.3	7.3	3.1	11.0	21.8	0.7	100

^a The other Four Corners States are Utah, Arizona, and New Mexico.

^b Other Rocky Mountain States include Wyoming, Idaho, Montana, and Nevada.

^c Far West includes Alaska, California, Hawaii, Oregon, and Washington.

^d Northeast includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

^e South includes Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

^f North Central includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

^g Other areas consists of products being shipped outside the U.S.A.

^h Other products include erosion control products, wood pellets, shavings, mulch, firewood, clean chips, and mill residues.

— Less than 0.1 percent.

Colorado was the leading market for all categories of products, at 44 percent (over \$47 million) of the total. The North Central region accounted for approximately 22 percent (over \$23 million) of total sales, 26 percent of lumber, veneer and other sawn product sales, and 17 percent of house log and log home sales. The South region was the second-largest out-of-state market, at 11 percent (nearly \$12 million), followed by the other Four Corners States (Arizona, New Mexico, and Utah), which accounted for about 9 percent (over \$9 million) of total sales. Further, the Far West region accounted for more than 7 percent (\$7.8 million) of total sales.

This regional distribution of sales constitutes a departure from 2016 sales, when more localized sales prevailed, with a larger portion going to other Four Corners States and a much larger portion (12.9 percent versus 3.3 percent) going to other Rocky Mountain States (Hayes et al. 2021).

Forest Industry Employment and Labor Income

The primary forest products manufacturers characterized in BBER's periodic censuses are just one component of the broader forest industry in Colorado. The classification of the forest industry sectors used here follows the North American Industry Classification System (NAICS) available at the U.S. Department of Commerce's Census Bureau website (<https://www.census.gov/naics/>). Colorado's primary wood products industry can best be described using two categories: NAICS 113—forestry and logging and NAICS 321—wood products manufacturing. These categories include employees who work in both the primary and secondary wood products sectors. It should be noted that these NAICS categories likely underestimate total employment in the forest industry because they do not include log hauling (trucking) companies, lumber and construction material wholesalers, road construction and maintenance contractors, and forest management services performed by government agencies or nonprofit organizations. These publicly-available data provide a point of comparison for BBER estimates of employees and labor income for the primary forest products manufacturers, as well as additional information on the larger forest industry.

Between 2016 and 2020, Colorado saw a less than 1 percent decline in direct employment in the primary and secondary forest industries (fig. 3), with a posting of 5,618 jobs in 2020 (Hayes et al. 2021; USDC BEA 2022a). Differences include a less than 1 percent decrease in employment within wood products manufacturing and a 36 percent increase in jobs within the forestry support services sector, as well as a 12 percent decrease in forestry and logging employment. Of the 4,304 full- and part-time jobs within wood products manufacturing, 23 percent were in the primary sector and 77 percent were in the secondary sector.

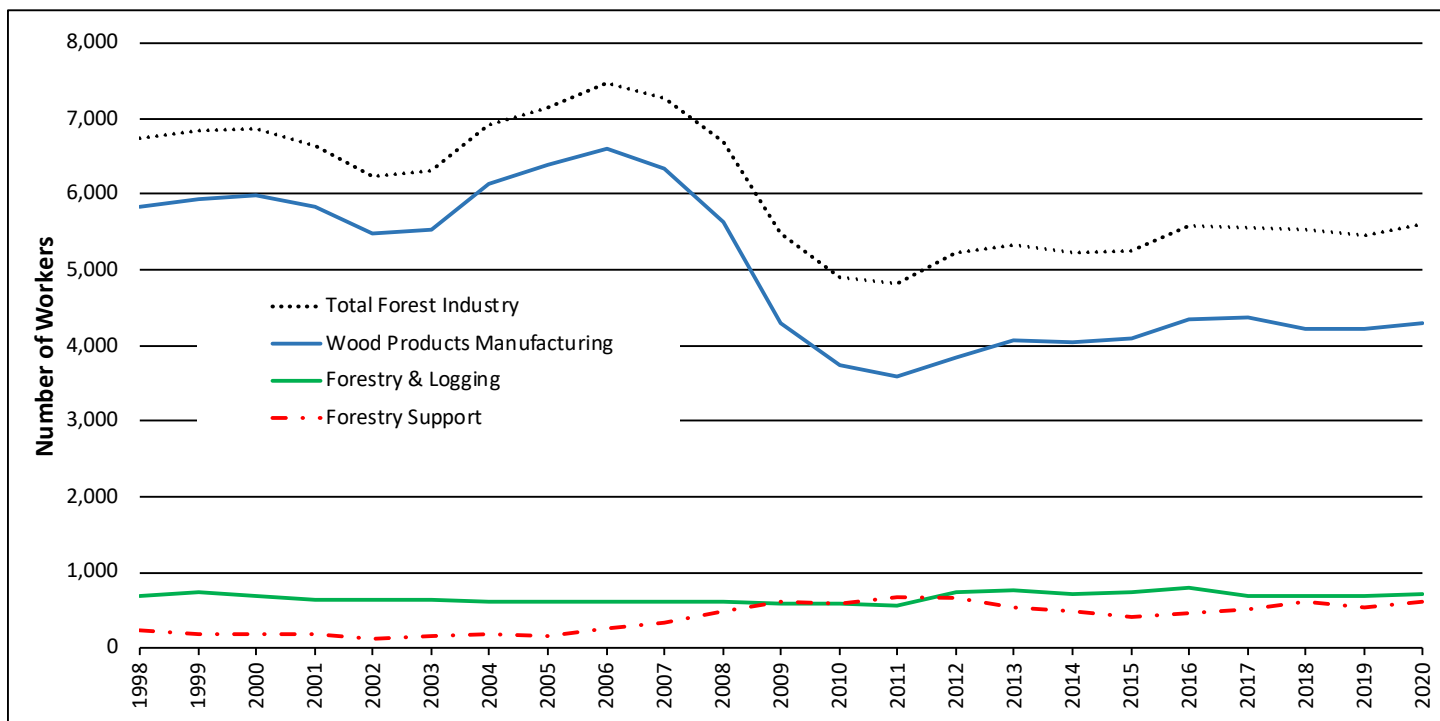


Figure 3—Colorado forest industry employment, 1998-2020.

Colorado’s forest industry worker earnings exceeded \$215 million (USDC BEA 2022b) in 2020, a 26 percent increase over 2016 after adjusting for inflation (Hayes et al. 2021), but still well below 2005 earnings levels (fig. 4). Most of the increase in earnings over 2016 was in the wood products manufacturing sector, which increased by 21 percent, though both the forestry support and forestry and logging sectors saw increases as well, at 62 percent and 73 percent respectively.

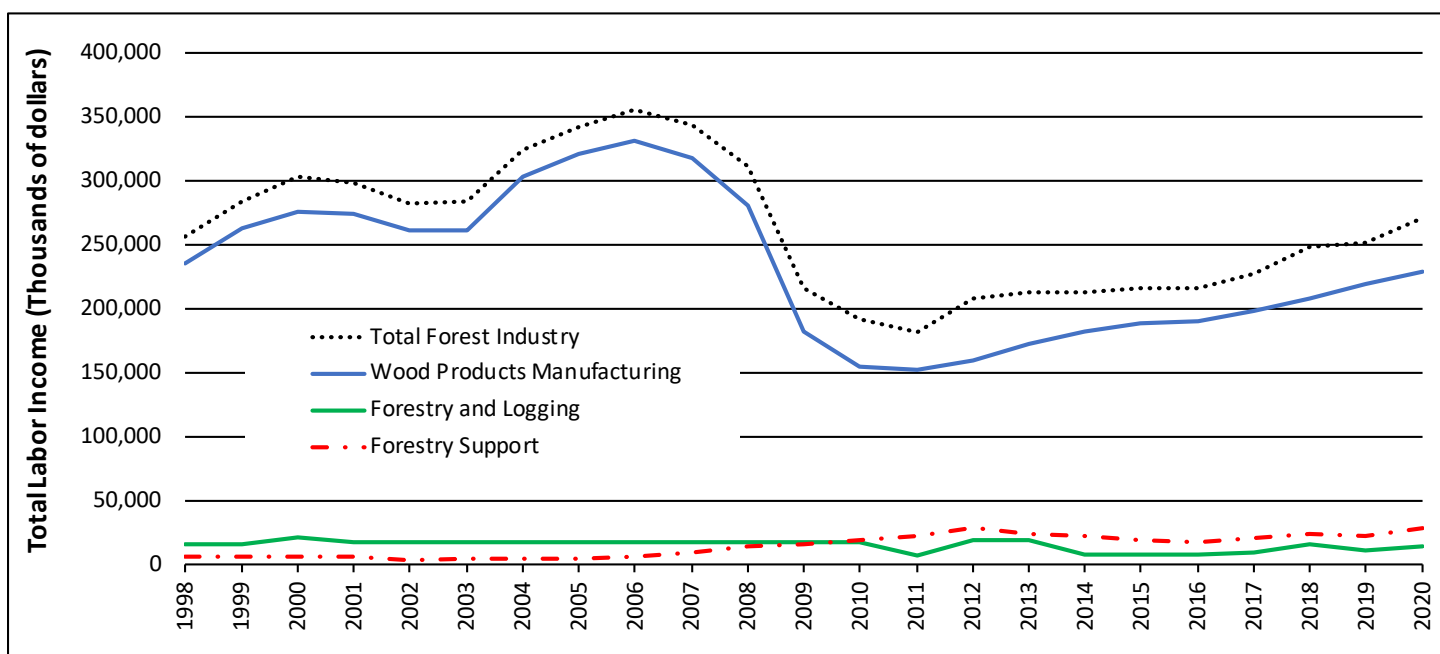


Figure 4—Colorado forest industry labor income, 1998-2020.

It is not unusual to see a greater change in labor income than employment. Employees who were previously part-time and/or seasonally employed are likely to add more hours or days of work, or extend employment into shoulder seasons, all of which increase wages paid by businesses, but have less impact on overall employment estimates. Similarly, decreases in wages paid without equivalent decreases in employment would be the result of reduced work hours rather than a reduction in the number of workers.

The sectors comprising the forest products industry in Colorado directly contributed 5,618 jobs and \$271.6 million in labor income to the State economy in 2020 (table 18). Using regional data and existing linkages within Colorado's economy represented by the Bureau of Economic Analysis's (BEA's) Regional Input-Output Modeling System (RIMS II)¹ (USDC BEA 2020), BBER has estimated that wood products manufacturing directly and indirectly supported approximately 8,940 full- and part-time jobs in Colorado in 2020, with an associated \$547 million in labor income. In other words, for every wood products manufacturing job in the State, another 1.08 jobs were supported in other sectors, and for every \$1.00 paid in labor income by wood products manufacturing firms, another \$1.39 was paid in supporting sectors. Sectors supporting forest products include trucking, wholesale trade, and management.

Table 18—Average annual employment and labor income contributions (thousands of dollars) from Colorado's forest industry, 2020.

Sector	Direct employment	Indirect and induced employment	Total employment contribution ^a	Direct Labor Income	Indirect and induced labor income	Total labor income contribution ^a
Forestry and logging	703	445	1,148	\$14,403	\$11,597	\$26,000
Forestry support activities	611	181	792	\$28,352	\$16,002	\$44,354
Primary wood products mfg	985	1,410	2,395	\$47,988	\$77,611	\$125,599
Secondary wood products mfg	3,319	3,226	6,545	\$180,888	\$240,563	\$421,451
Total forest industry	5,618	a	a	\$271,631	a	a

^a Indirect and induced employment and labor income should not be summed for multiple sectors due to some employment and income showing up as both direct contributions to their sector and indirect contributions to other sectors.

Likewise, BBER has estimated that the 703 people directly employed in the forestry and logging sector in Colorado in 2020 indirectly supported an additional 445 jobs in other sectors, such as equipment sales and repair. These 445 additional jobs generated \$11.6 million in labor income, bringing the total economic impact of the forestry and logging sector to \$26 million.

Leveraging the BEA RIMS II multipliers allows for a broad contribution analysis of economic activity generated in and cycled through Colorado's economy by the different sectors

¹ The Bureau of Economic Analysis does not endorse any resulting estimates and/or conclusions about the contribution of a given sector on an area.

comprising the forest industry. It should be noted that we do not aggregate sectors and avoid providing estimates for the total employment and labor income impacts of the entire forest industry to avoid double counting, as some employment and labor income constitute both direct contributions to their sector and indirect contributions to other sectors. For example, some or all of the direct employment and labor income in the forestry and logging sector would be included with the indirect and induced contributions from primary wood products manufacturing, since these manufacturers rely on forestry and logging businesses to supply their raw material inputs.

Conclusion

Colorado's forest products industry leads the Four Corners States in production. Some long-term trends remain to be overcome, however. Although industry labor income has been increasing over the past several years, it has not yet recovered to levels seen prior to the Great Recession; and while income has increased substantially, employment numbers have increased more gradually. This can be viewed as positive, since workers receiving higher wages and/or working more hours (i.e., from part-time to full-time) could account for the difference in rates of increase. Although harvest volume has been generally increasing—at least doubling between 2002 and 2020—finished product sales have decreased 43 percent over the same period when expressed in constant dollars. Both mill capacity and number of mills are lower than in previous years, continuing the trend of decreasing capacity seen across the Interior West, but capacity utilization is currently less than 50 percent. This leaves room for production growth without the need to add facilities in the near term. All these factors, coupled with a forest resource that has been heavily impacted by insects, fire, and disease, add up to a mixed outlook for Colorado's forest products industry.

References

- Dillon, T.; Townsend, L.; Irely, B.; Simmons, E.A.; Morgan, T.A.; Shaw, J.D. 2024. Utah's forest products industry and timber harvest, 2020. Resour. Bull. RMRS-RB-39. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 32 p.
<https://doi.org/10.2737/RMRS-RB-39>
- Green, A.W.; Setzer, T.S. 1974. The Rocky Mountain timber situation, 1970. Resour. Bull. INT-10. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 78 p.
- Hayes, S.W.; Morgan, T.A.; Berg, E.C.; [et al.]. 2012. Four Corners timber harvest and forest products industry, 2007. Resour. Bull. RMRS-RB-13. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 61 p.
- Hayes, S.W.; Bingaman, C.A.; Morgan, T.A.; [et al.]. 2021. The Four Corners timber harvest and forest products industry, 2016. Resour. Bull. RMRS-RB-34. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 72 p.
- Keegan, C.E.; Morgan, T.A.; Blatner, K.A.; [et al.]. 2010. Trends in lumber processing in the Western United States. Part II: Overrun and lumber recovery factors. Forest Products Journal. 60 (2): 140-143.
- Keegan, C.E.; Wichman, D.P.; Van Hooser, D.D. 1995. Utah's forest products industry: A descriptive analysis, 1992. Resour. Bull. INT-83. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 21 p.
- McLain, W.H. 1982. Colorado's industrial roundwood production and mill residue, 1982. Resour. Bull. INT-35. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 13 p.
- Morgan, T.A., C.E. Keegan, T.P. Spoelma, T. [et al.]. 2004. Idaho's forest products industry: A descriptive analysis. Resour. Bull. RMRS-RB-4. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 31 p.
- Morgan, T.A.; Dillon, T.; Keegan, C.E.; [et al.]. 2006. The Four Corners timber harvest and forest products industry, 2002. Resour. Bull. RMRS-RB-7. Fort Collins, CO: Department of Agriculture, Forest Service, Rocky Mountain Research Station. Resour. Bull. RMRS-RB-7.
- Setzer, T. S.; Shupe, D.G. 1977. Colorado timber production and mill residues, 1974. Res. Note INT-232. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forst and Range Experiment Station. 7 p.
- Setzer, T.S.; Wilson, A.K. 1970. Timber products in the Rocky Mountain States, 1966. Resour. Bull. INT-9. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 93 p.
- Sorenson, C.B.; Hayes, S.W.; Morgan, T.A.; [et al.]. 2016. The Four Corners timber harvest and forest products industry, 2012. Resour. Bull. RMRS-RB-21. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 62 p.

U.S. Department of Commerce, Bureau of Economic Analysis [USDC BEA]. 2020. Regional input-output modeling system (RIMS II). <https://www.bea.gov/regional/rims>

U.S. Department of Commerce, Bureau of Economic Analysis [USDC BEA]. 2022a. Interactive data, table CAEMP25, total full-time and part-time employment by NAICS industry. www.bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=1&acrdn=6#reqid=70&step=30&isuri=1&7022=4&7023=0&7033=1&7024=naics&7025=0&7026=04000,08000,35000,4949000&7027=-1&7001=44- &7028=-1&7031=0&7040=-1&7083=levels&7029=30&7090=70 [Accessed 11 May 2022]

U.S. Department of Commerce, Bureau of Economic Analysis [USDC BEA]. 2022b. Interactive data, table CAINC5. Personal income by major component and earnings by NAICS industry. www.bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=1&acrdn=6#reqid=70&step=30&isuri=1&7022=4&7023=0&7033=1&7024=naics&7025=0&7026=04000,08000,35000,49000&7027=-1&7001=44- &7028=-1&7031=0&7040=-1&7083=levels&7029=30&7090=70 [Accessed 11 May 2022]

Western Wood Products Association [WWPA]. 2020. 1964–2020 statistical yearbook of the Western lumber industry. Portland, OR: Western Wood Products Association.

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the State or local Agency that administers the program or contact USDA through the Telecommunications Relay Service at 711 (voice and TTY). Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at [How to File a Program Discrimination Complaint](#) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Mail Stop 9410, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.



To learn more about RMRS publications or search our online titles:

<https://research.fs.usda.gov/rmrs/products/publications>

<https://research.fs.usda.gov/treesearch>