

A close-up photograph of a stack of cut logs. The logs are arranged in a somewhat circular pattern, showing their cross-sections. The wood is light brown with visible growth rings. Some logs have a thin layer of white snow on their surfaces. The background is dark, making the logs stand out.

2019 Indiana Forest Products Price

Report and Trend Analysis
December 2019

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Survey Procedures and Response

Data is collected twice a year, but log prices change constantly. Standard appraisal techniques by those familiar with local market conditions should be used to obtain estimates of current market values for stands of timber or lots of logs. Please note, because of the small number of mills reporting logging costs, “stumpage prices” estimated by deducting the average logging and hauling costs (Table 5) from delivered log prices must be interpreted with extreme caution and are meant to only serve as a guide. Actual stumpage values you may be offered depend on many variables such as access, terrain, time of year, etc.

Data for this survey was obtained by a combination direct mail/email survey of a variety of forest product industries, including sawmills, veneer mills, concentration yards, and independent log buyers. Only firms operating in Indiana were included. The survey was conducted and analyzed by the Indiana Division of Forestry. The prices reported are for logs delivered to the log yards of the reporting mills or concentration yards. Thus, prices reported may include logs shipped in from other states (e.g., black cherry veneer logs from Pennsylvania and New York).

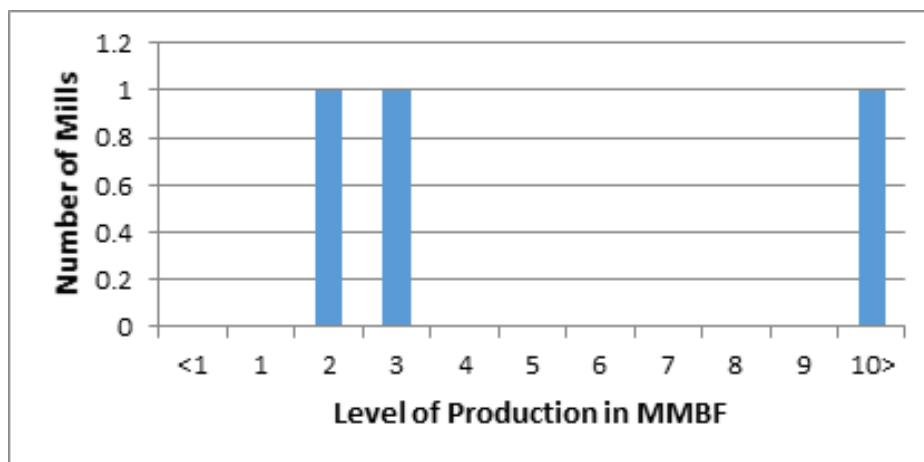
The survey was mailed to 17 firms and emailed to 32 firms. It is estimated these companies produce close to 90% of the state’s roundwood production. Electronic reminders, follow-up phone calls and additional mailings encouraged responses.

Ten firms reported some useful data. Three mills reported producing 1 million board feet (MMBF) or more (Figure 1). One mill reported production of 5 MMBF or greater. Total board foot production reported for 2018 was 25 MMBF compared to 36 MMBF for 2017, and 70 MMBF for 2016. The largest single mill production reported was 20 MMBF. These annual levels are not comparable since they do not represent a statistical estimate of total production. The number of companies contributing price data for each product is shown in the second and third columns in Tables 2 and 3, and in the second column in tables 4 and 5.

The price statistics by species and grade don’t include data from small custom mills, because most do not purchase logs, or they pay a fixed price for all species and grades of pallet-grade logs. They are, however, the primary source of data on the cost of custom sawing and pallet logs. The custom sawing costs reported in Table 5 do not reflect the operating cost of large mills.

This report can be used as an indication of price trends for logs of defined species and qualities. It should not be used for the appraisal of logs or standing timber (stumpage). Stumpage price averages are reported by the Indiana Association of Consulting Foresters in the Indiana Woodland Steward, <http://www.inwoodlands.org/>.

Figure 1. Distribution of the 3 mills reporting 2018 level of production.



Hardwood Lumber Prices

Hardwood lumber prices as of August 2019 are shown in Table 1, which represents prices per thousand board feet (MBF) for green, 1 inch thick 4/4 lumber by species and grade compiled by the Hardwood Market report out of Memphis. Log prices are directly tied to lumber prices because logs are delivered to mills on a continuing basis. This allows mills to base the price they pay for logs on current lumber market prices. The link to prices paid for standing timber is less direct, depending on how far in advance of logging a stand of timber is purchased.



Premium Species

Red oak and white oak are often looked at as the primary market economic indicators in the hardwood industry. Current pricing for both red and white oak has decreased since March 2019. White oak lumber (#2/Btr) prices are 9% lower than what was reported in March 2019, and red oak prices are 17% lower. Most in the hardwood industry point to the US/China trade war and associated tariffs as the primary reason for the lower prices, especially for red oak).

Lower red oak prices are the “new” normal for now. Sawmills and downstream sales operations are struggling to keep this species moving. Demand from the cabinet, furniture, moulding, and millwork sectors is poor, and flooring manufacturers are lowering purchase prices and tightening quotas. Moreover, the window is closed for loading containers to arrive in China prior to its New Year, and red oak exports to other international markets remain limited. Despite efforts to constrain red oak production, supplies of most items are outrunning demand. Upper grade red oak prices have suffered the most since March 2019, dropping more than 21%, while #1C prices have fallen 17%. Until the trade war issues are behind us, most think the red oak market will continue to contract.

Business conditions for white oak are highly varied depending on the grade in question. FAS White Oak is attracting decent interest in Europe and other overseas markets and is moving steadily to domestic distribution yards. In contrast, #1C sales to end users and distributors in the U.S. and abroad are slow. Shipments of green #2A & 3A white oak to flooring plants are substantial but down from earlier

in the year; kiln dried #2A & 3A exports are decent to Vietnam but slow to China. #1C took the biggest hit from March 2019, dropping 14%. FAS and #2C prices were off 5 and 6.5%, respectively.

Market intensity for walnut has tapered off this year but has not completely evaporated. Walnut remains a popular option in high-end homes, particularly in flooring, as a sharp contrast to white finishes on other interior furnishings and fittings. In addition, exports have held up pretty well, although shipments are now slower in advance of Chinese New Year. Compared to March 2019, walnut prices have fallen 31% across all grades.

Many in the industry though the worst times for cherry were behind us but that hasn't been the case. Reports indicate cherry business continues to be poor or weak. Shipments to China are very slow, but demand is anemic if at all existent from most any other market, including U.S. distributors and secondary manufacturers. Sawmill operators are avoiding cherry logs and lumber whenever possible. In turn, logging operations are trying to avoid timber tracts with much cherry or are putting low values on that timber. Cherry prices decreased 17% across all grades from March 2019 with #1C taking the biggest hit—off almost 24%. Cherry prices have continually decreased since July 2015, and current prices have decreased 38% since then.

Hard maple is starting to gain traction with selected distribution yards, cabinet manufacturers, and wood

component plants looking to lower raw material costs. Demand still lags that of soft maple—that is certainly the case for market energy—but the gap has started to narrow. For now, hard maple is abundant and generally soft in price. Hard maple prices were somewhat of a bright spot for this report. Prices across all grades were down only 2% from March 2019.

Other Species

Domestic poplar business is steady, and international demand is weak, but supplies are excessive. Sawmills have turned out large volumes of poplar this year as a result of their avoidance of less salable species. More recently, a moderation in poplar log purchases by peeler plants and declines in poplar log exports have also factored into elevated sawmill production of this species. Poplar is another species that has not suffered significantly as far as price declines since March 2019. FAS and #1C prices were only off 5% and #2C prices were minimal at a decrease of 2%.

Although not setting the world on fire, market conditions for soft maple are favorable, and soft maple is the best moving hardwood species. While some are now substituting hard maple for soft maple, demand remains better for soft maple than for almost any other species. Demand is also slightly ahead of supply for soft maple. Soft maple prices across all grades were basically unchanged from March 2019. FAS prices were up 3% while #1C was unchanged, and #2C prices fell 4%.

Broadly speaking, this species is out of favor in North America. Moreover, decent ongoing business with several overseas markets has done little to stem the decline in overall ash exports resulting from curtailed Chinese purchasing. Sawmills are struggling to move green #2C ash production as it develops. Overseas demand for kiln dried FAS ash is holding steady, and inventories are manageable. The same cannot be said for common grade ash, which is moving very slowly to both domestic and export market. Ash lumber prices across all grades have fallen 19% since March 2019. #1C ash has suffered the largest decline (24%) since March 2019.

Demand for ash is flat in the U.S., with the residential flooring sector accounting for a sizeable share of the total market. Regarding exports, hickory shipments to Mexico have shown modest improvement, but Chinese business remains depressed. Consistent though limited volumes are moving to distribution yards and cabinet, millwork, and moulding manufacturers. Exports once composed a decent portion of total sales of hickory but have fallen off the last two years. Prices across all grades of hickory did not fall significantly since March, averaging only 3% less.

Table 1. Hardwood lumber prices, dollars per one thousand board feet (MBF), 1-inch-thick (4/4) Appalachian market area unless otherwise indicated. Source: Hardwood Market Report, P.O. Box 2633, Memphis, TN 38088-2633

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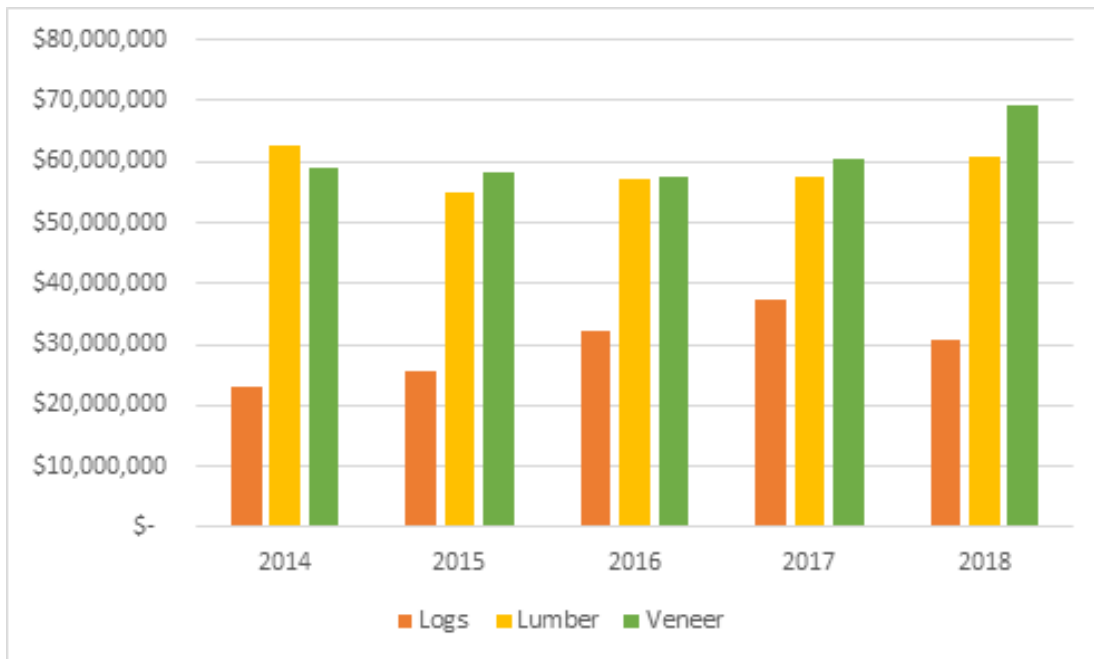
Lumber/Grade	July 2015	Jan 2016	July 2016	Jan 2017	July 2017	Jan 2018	July 2018	March 2019	August 2019
Ash									
FAS + Prem.	1,150	1,085	950	960	1,050	1,110	1285	1110	950
No. 1C	780	685	585	565	660	750	900	735	560
No. 2A	505	455	375	320	370	420	540	435	355
Basswood									
FAS + Prem.	695	775	795	765	765	735	735	710	685
No. 1C	430	465	460	440	440	400	400	390	360
No. 2A	230	245	245	215	215	195	205	215	205
Beech									
FAS	500	555	545	560	560	560	575	575	610
No. 1C	420	460	460	460	435	420	435	435	465
No. 2A	345	360	350	340	285	275	290	290	320
Cottonwood (Southern)									
FAS	745	765	780	780	780	780	780	780	780
No. 1C	535	545	560	560	560	575	575	575	575
No. 2A	260	260	260	260	260	260	260	260	260
Cherry (North Central)									
FAS + Prem.	1,495	1,265	1,210	1,210	1,420	1,595	1815	1275	1125
No. 1C	1,015	825	775	775	770	1,025	1200	780	595
No. 2A	645	475	405	405	450	570	685	395	330
Hickory									
FAS + Prem.	905	830	820	820	840	920	960	865	835
No. 1C	705	545	535	525	535	610	630	560	545
No. 2A	545	425	415	385	395	450	450	425	415
Hard Maple (unselected)									
FAS + Prem.	1,220	1,305	1,300	1,150	1,070	1,195	1210	1190	1170
No. 1C	700	850	840	730	730	890	960	960	940
No. 2A	495	495	485	405	425	500	610	630	620
Soft Maple (unselected)									
FAS + Prem.	1,095	1,210	1,250	1,250	1,230	1,175	1150	1130	1165
No. 1C	635	825	870	840	830	770	770	795	800
No. 2A	450	460	480	430	400	400	400	460	440
White Oak (plain)									
FAS + Prem.	1,340	1,440	1,570	1,715	1,615	1,675	1800	1740	1650
No. 1C	665	710	790	960	975	1,030	1140	990	850
No. 2A	485	470	480	535	525	570	660	620	580
Red Oak (plain)									
FAS + Prem.	935	1,040	1,030	1,160	1,080	1,190	1145	955	750
No. 1C	550	610	665	785	795	885	845	665	550
No. 2A	500	485	500	540	530	575	665	615	535
Yellow Poplar									
FAS + Prem.	830	830	830	830	830	830	840	955	905
No. 1C	535	515	475	435	435	435	455	540	515
No. 2A	385	365	335	275	265	275	335	440	430
Sycamore (Southern plain)									
FAS	455	455	455	455	455	460	460	460	460
No. 1C	435	435	435	435	435	440	440	440	440
No. 2A	375	375	375	360	360	360	360	360	360
Black Walnut									
FAS	2,575	2,425	2,515	2,515	2,600	3,000	3025	2700	2250
No. 1C	1,310	1,270	1,270	1,270	1,400	1,750	1960	1725	1250
No. 2A	745	730	715	715	765	1,060	1235	945	480

Exports

Indiana’s export of hardwood products continues to be an important part of overall hardwood sales. According to data from the U.S. Census Bureau, log exports declined, primarily to Asia and China specifically, likely due to tariffs imposed as part of U.S.–China

trade dispute. Lumber exports increased slightly, and there was a modest increase in veneer exports by comparison. In 2018, Indiana exported slightly more than \$30 million of logs, \$60 million of lumber and almost \$70 million of veneer.

Figure 2. Indiana Export of Logs, Lumber & Veneer – Last 5 years..



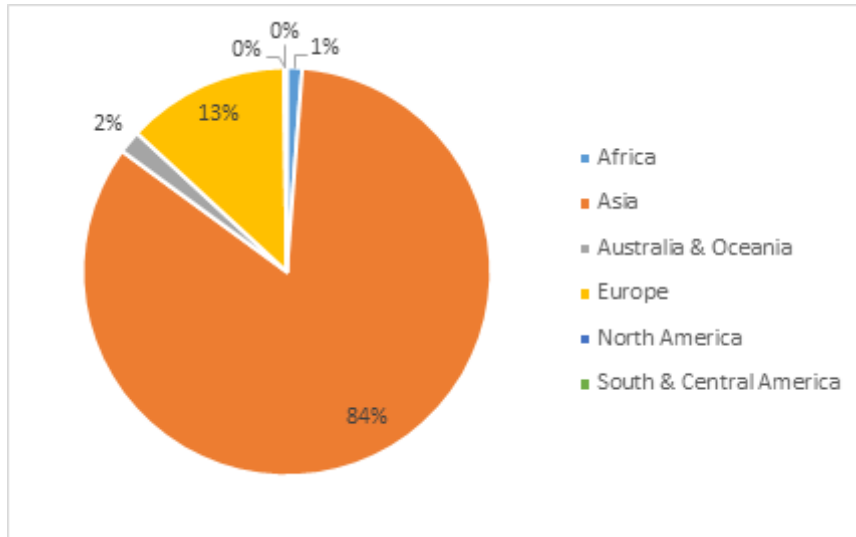
U.S. Census Bureau, Economic Indicators Division. State Exports by HS Commodities for logs (4403), lumber (4407) and veneer (4408).

Logs

As stated above, Indiana log exports declined in 2018 for the first time in five years. The decline was about 17% from 2017 levels. Indiana log exports totaled \$30,932,951 in 2018. The destination of logs exported remained dominated by Asia (China) at 84% in 2018 but that figure is down from 89% in 2017. Europe increased 2% to 13% of log exports in 2018. This does

not reflect an increase in sales to Europe, which were mostly flat from last year but is an impact of the total value in log shipments to Asia, which fell by 21%. By country, the top five markets were China (60%), Vietnam (7%), United Kingdom (6%), Taiwan (4%), and Japan (4%). Indiana shipped logs to 29 different countries in 2018.

Figure 3. Indiana Log Exports to World by Region, 2018



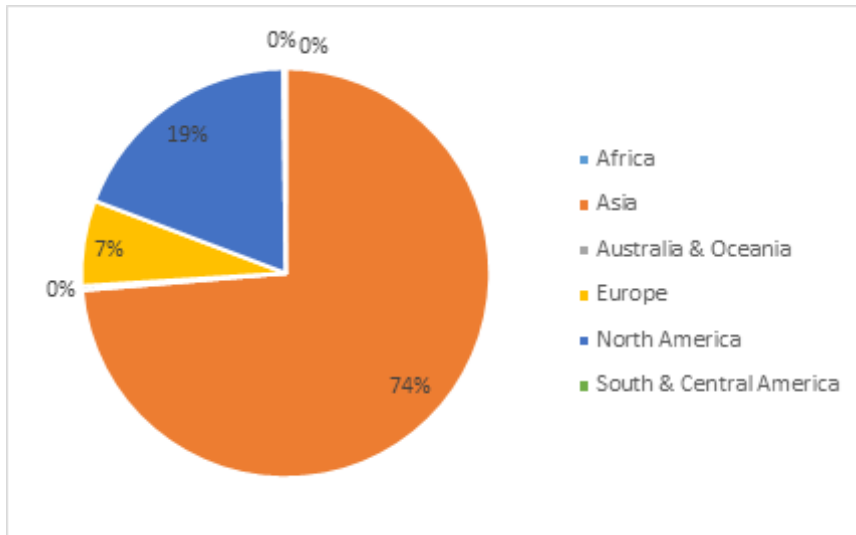
Data from U.S. Census Bureau.

Lumber

In 2018, Indiana lumber exports increased from 2017 by about 6% to \$60,777,280. Regionally, Indiana exports of lumber to Europe declined by 24% and increased to Asia by 13%. By country, China (49%),

Canada (17%), Japan (14%), Vietnam (8%), and United Kingdom (3%) were the top markets for the year. Indiana shipped lumber to 29 countries in 2018.

Figure 4. Indiana Lumber Exports to World by Region, 2018



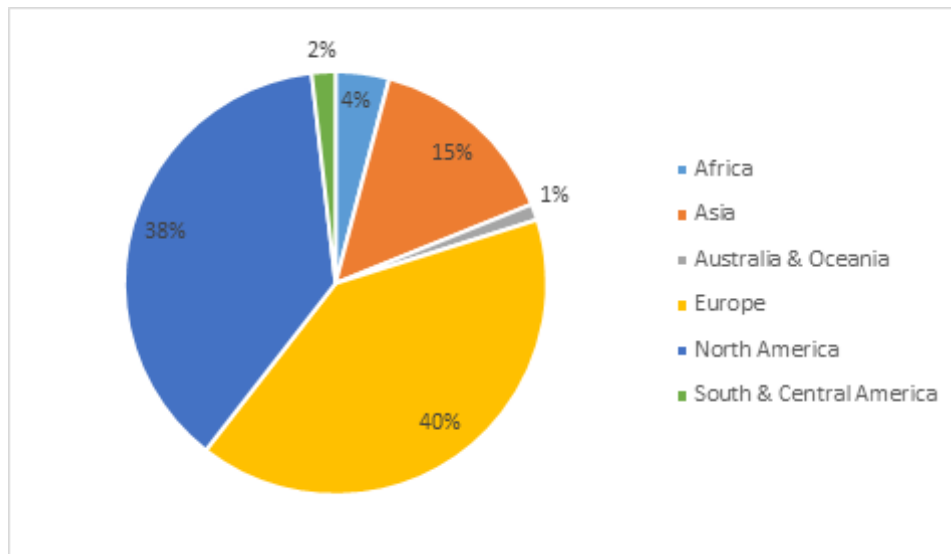
Data from U.S. Census Bureau.

Veneer

Indiana exports of veneer were up 14% in 2018 to \$69,115,689. Veneer exports are not as dominated by one region as lumber and log sectors. Regionally, the percentage of Indiana veneer sales to North America increased by about \$5 million from last year. Also significant, there was a \$1.6 million increase in sales to Asia. The other regions remained relatively flat except for a significant increase in exports to South American and Central America, but the dollar value is relatively small because that region only purchases about 2% of Indiana’s veneer exports. By country, top markets were: Canada (35%), Spain (9%), Germany (7%), Portugal (6%), and Belgium (4%). Indiana shipped veneer to 42 different countries in 2018.



Figure 5. Indiana Veneer Exports to World by Region, 2018



Data from U.S. Census Bureau.

Delivered Sawlog Prices

Ten mills reported delivered sawlog prices for the 2019 fall report. This is same number of mills that reported data from last fall's report. Sawlog prices for the premium species (specifically black walnut and white oak) were higher than what was reported in the 2019 spring report. Black walnut prices were up for all sawlog grades by an average of almost 14%. Sawlog grades of prime and #3 had the biggest increases of 8% and 34%, respectively. White oak sawlog prices were also higher than the spring report. Overall, prices were 11% higher. Prime sawlog prices were up 27%, and #3 grade sawlogs were up 19%. White oak sawlog prices had an increase of almost 11%. From an overall standpoint, prices were higher than what was reported in the spring 2019 report. Ash sawlog prices were up almost 6%, hickory prices were only up 3%, hard maple sawlog prices were up almost 21%, tulip poplar prices up 2%, and cherry prices were up 18% but caution should be taken because demand for cherry is sluggish. Grades 1-3 were up 3%. Although demand for soft maple is decent and markets are good, sawlog prices were down 7% from the spring report. Red oak sawlog prices were off 8% compared to March 2019 figures. Red oak was a large percentage of the total volumes sent to China, so the tariffs have hit this species especially hard. Several in the industry have



commented that one can hardly give away red oak. Please note the price information is meant to be used only as a guide. Several variables can have significant impacts on pricing data, such as number of responses, access to timber, topography, diesel fuel costs, and closeout costs.

Softwood Logs

Price data for softwood (pine and cedar) should also be looked at with caution as only five mills reported data. Pine sawlog prices were up significantly at 43%, and red cedar prices were off by 13%.

Table 2. Prices paid for delivered sawlogs by Indiana sawmills (Sept. 2019).

Species/Grade	Sep-19 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		Mar-19	Sep-19	Mar-19	Sep-19	Mar-19	Sep-19	Mean	Median
				(\$/MBF)		(\$/MBF)			
White Ash									
Prime	550-650	2	3	650	600	650	600	-7.7	-7.7
				50.00	28.87				
No. 1	390-550	4	4	473	485	470	500	2.5	6.4
				60.60	39.48				
No. 2	320-400	4	4	368	380	375	400	3.3	6.7
				19.74	20.00				
No. 3	300-380	3	4	267	333	300	320	24.7	6.7
				60.09	19.74				
Beech									
Prime	250-400	2	3	300	317	300	300	5.7	0.0
				0.00	44.10				
No. 1	250-400	3	3	317	317	300	300	0.0	0.0
				16.67	44.10				
No. 2	200-350	3	3	317	283	300	300	-10.7	0.0
				16.67	44.10				
No. 3	150-380	3	4	250	283	250	300	13.2	20.0
				100.00	52.18				
Cherry									
Prime	600-2000	3	3	667	1100	700	700	64.9	0.0
				88.19	450.92				
No. 1	500-600	6	4	608	563	650	575	-7.4	-11.5
				55.40	23.94				
No. 2	400-480	6	4	467	420	450	400	-10.1	-11.1
				51.10	20.00				
No. 3	300-380	4	4	275	345	300	350	25.5	16.7
				43.30	16.58				
Hickory									
Prime	500-700	3	3	500	567	500	500	13.4	0.0
				57.74	66.67				
No. 1	400-450	6	4	465	435	445	445	-6.5	0.0
				42.33	23.80				
No. 2	350-400	6	4	407	373	395	370	-8.4	-6.3
				30.18	13.15				
No. 3	250-380	4	4	275	308	300	300	12.0	0.0
				43.30	33.76				
Hard Maple									
Prime	800-2000	3	3	733	1200	800	800	63.7	0.0
				66.67	400.00				
No. 1	500-600	6	4	600	575	600	600	-4.2	0.0
				57.74	25.00				
No. 2	400-500	6	4	458	450	400	450	-1.7	12.5
				52.31	28.87				
No. 3	300-400	4	4	275	345	300	340	25.5	13.3
				43.30	26.30				

Table 2. (continued)

Soft Maple									
Prime	400-600	3	3	500	500	500	500	0.0	0.0
				57.74	57.74				
No. 1	320-500	6	4	428	405	375	400	-5.4	6.7
				51.34	36.86				
No. 2	250-400	6	4	380	325	325	325	-14.5	0.0
				55.78	32.27				
No. 3	200-380	4	4	325	295	325	300	-9.2	-7.7
				72.17	36.86				
White Oak									
Prime	1000-2000	2	3	1100	1400	1100	1200	27.3	9.1
				100.00	305.51				
No. 1	600-800	5	4	740	750	800	800	1.4	0.0
				60.00	50.00				
No. 2	400-600	5	4	535	519	500	538	-3.0	7.6
				35.00	44.92				
No. 3	300-400	3	4	300	358	350	365	19.3	4.3
				76.38	21.75				
Red Oak									
Prime	450-700	2	3	600	583	600	600	-2.8	0.0
				0.00	72.65				
No. 1	300-500	5	4	514	413	500	425	-19.6	-15.0
				37.36	42.70				
No. 2	240-450	5	4	430	348	400	350	-19.1	-12.5
				33.91	42.89				
No. 3	250-400	3	4	300	333	350	340	11.0	-2.9
				76.38	34.97				
Tulip Poplar									
Prime	500-600	4	3	575	550	575	550	-4.3	-4.3
				32.27	28.87				
No. 1	400-550	7	3	493	483	500	500	-2.0	0.0
				33.50	44.10				
No. 2	300-450	6	3	375	367	375	350	-2.1	-6.7
				42.33	44.10				
No. 3	250-400	4	4	275	320	300	315	16.4	5.0
				43.30	40.62				
Black Walnut									
Prime	1500-3000	1	3	2000	2167	2000	2000	8.4	0.0
				0.00	440.96				
No. 1	1200-1500	4	4	1250	1325	1200	1300	6.0	8.3
				150.00	75.00				
No. 2	900-1000	4	4	913	975	825	1000	6.8	21.2
				135.98	25.00				
No. 3	380-800	4	4	463	620	500	650	33.9	30.0
				114.34	106.77				
Softwood									
Pine	150-500	2	3	205	293	205	230	42.9	12.2
				145.00	105.88				
Red cedar	150-500	2	2	375	325	375	325	-13.3	-13.3
				25.00	175.00				

Veneer Log Prices

The number of mills reporting veneer log prices continues to be a problem. Depending on species, there were between 1-3 mills reporting. This is a concern as far as how accurate of a picture the data presents. Please keep this in mind as you view the results below. The limited number of responses is an important key to remember. This report should serve only as a guide rather than “the rule”. Prices were reported by both veneer mills and sawmills. Sawmills resell their veneer-quality logs to veneer mills, exporters, overseas importers and manufacturers. On occasion, sawmills may produce specialty cuts like quarter sawn with the marginal veneer logs. The variation in veneer log pricing is due to the mix of veneer mills, sawmills and loggers reporting their values. This difference in values could be reduced if prices were only from veneer manufacturers.

Markets are mostly slower than what was reported in spring 2019. With a large volume of veneer logs being exported, the trade war/tariffs appear to be having significant impacts on the market. Early, many thought the tariff issues would be resolved sooner rather than later but that has not been the case. White oak veneer log prices were off by 10% compared to the spring report’s figure. Only data from prime veneer logs can

be used for comparison due to no comparable data being reported for white oak select veneer logs in the spring report. The same concern surrounds walnut. Only one mill reported data for select grade walnut veneer logs, so comparing spring 2019 data to this fall’s report does not accurately portray the market conditions. For prime walnut veneer logs, prices were 30% higher compared to those in the spring report. Again, keep in mind that only two mills reported walnut veneer pricing.

Because there was only one mill reporting on three cherry veneer log diameters, we do not feel the data accurately represents the cherry veneer log market. However, we feel the veneer log is comparable to the cherry sawlog market, which is sluggish to very weak. Responses on red oak veneer closely resembled those for cherry. However, in red oak’s case, those few responses closely mirrored those from the spring report—there was less than 1% difference. Hard maple pricing data between prime and select veneer logs offset each other, with prime pricing data showing a 9% decrease and select showing a 10% increase. Due to no pricing data being received for yellow poplar in the spring report, we cannot draw an accurate conclusion in comparing the few responses received for this report.

Table 3. Prices paid for delivered veneer logs by Indiana mills (Sept. 2019).

Species/Grade	Sep-19 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		Mar-19	Sep-19	Mar-19	Sep-19	Mar-19	Sep-19	Mean	Median
				(\$/MBF)		(\$/MBF)			
Black Walnut									
Prime									
12-13	4,000	2	1	2,000	4,000	2,000	4,000	100.0	100.0
				800.00					
14-15	5000-5250	3	2	3,767	5,125	4,000	5,125	36.0	28.1
				1,361.78	125.00				
16-17	6000-6500	3	2	4,667	6,250	6,000	6,250	33.9	4.2
				1,589.90	250.00				
18-20	7500-8000	3	2	5,767	7,750	7,500	7,750	34.4	3.3
				1,988.58	250.00				
21-23	10,000	3	2	7,333	10,000	10,000	10,000	36.4	0.0
				2,666.67					
24-28	10000-12000	2	2	6,500	11,000	6,500	11,000	69.2	69.2
				3,500.00	1,000.00				
>28	0	2	0	7,500	0	7,500	0	-100.0	-100.0
				2,500.00					
Select									
12-13	3,500	1	1	1,000	3,500	1,000	3,500	250.0	250.0
				0.00					
14-15	4000-4500	1	2	1,200	4,250	1,200	4,250	254.2	254.2
				0.00	250.00				
16-17	5,000	1	2	1,300	5,000	1,300	5,000	284.6	284.6
				0.00					
18-20	5500-6000	1	2	1,700	5,750	1,700	5,750	238.2	238.2
				0.00	250.00				
21-23	8,000	1	1	1,800	8,000	1,800	8,000	344.4	344.4
				0.00					
24-28	0	1	0	2,500	0	2,500	0	-100.0	-100.0
				0.00					
>28	0	1	0	4,000	0	4,000	0	-100.0	-100.0
				0.00					
White Oak									
Prime									
13-14	2000-2500	1	2	1,800	2,250	1,800	2,250	25.0	25.0
				0.00	250.00				
15-17	2400-3250	2	3	2,600	2,817	2,600	2,800	8.3	7.7
				0.00	245.52				
18-20	3500-3750	2	3	3,350	3,383	3,350	3,200	1.0	-4.5
				150.00	183.33				
21-23	3500-4500	2	3	4,250	4,000	4,250	4,000	-5.9	-5.9
				250.00	288.68				
24-28	4500-5500	1	3	4,500	5,000	4,500	5,000	11.1	11.1
				0.00	288.68				
>28	0	1	0	5,000	0	5,000	0	-100.0	-100.0
				0.00					
Select									
13-14	1700	0	1		1,700		1,700	0.0	0.0
15-17	1700-2800	0	2		2,250		2,250	0.0	0.0
					550.00				
18-20	2200-3000	0	2		2,600		2,600	0.0	0.0
					400.00				
21-23	2200-3500	0	2		2,850		2,850	0.0	0.0
					650.00				
24-28	2200-4000	0	2		3,100		3,100	0.0	0.0
					900.00				
>28	0	0	0		0		0	0.0	0.0
Black Cherry									
Prime									
12-13	0	1	0	3,000	0	3,000	0	-100.0	-100.0
				0.00	0.00				
14-15	0	1	0	3,500	0	3,500	0	-100.0	-100.0
				0.00	0.00				
16-17	3000	1	1	4,000	3,000	4,000	3,000	-25.0	-25.0
				0.00	0.00				
18-20	4000	1	1	5,000	4,000	5,000	4,000	-20.0	-20.0
				0.00	0.00				
21-23	5000	1	1	6,000	5,000	6,000	5,000	-16.7	-16.7
				0.00	0.00				
24-28	0	1	0	8,000	0	8,000	0	-100.0	-100.0
				0.00					
>28	0	1	0	8,000	0	8,000	0	-100.0	-100.0
				0.00					

Table 3. (continued)

Black Cherry									
Select									
12-13	0	1	0	3,000	0	3,500		-100.0	-100.0
				0.00					
14-15	0	1	0	3,000	0	3,500		-100.0	-100.0
				0.00					
16-17	0	1	0	3,500	0	4,000		-100.0	-100.0
				0.00					
18-20	0	1	0	4,000	0	4,000		-100.0	-100.0
				0.00					
21-23	0	1	0	5,000	0	4,000		-100.0	-100.0
				0.00					
24-28	0	1	0	7,000	0	0		-100.0	0.0
				0.00					
>28	700	1	0	7,000	0	0		-100.0	0.0
				0.00					
Red Oak									
Prime									
16-17	1,500	1	1	1,000	1,500	1,000	1,500	50.0	50.0
18-20	1700-2000	1	2	1,000	1,850	1,000	1,850	85.0	85.0
					150.00				
21-23	0	1	0	1,000	0	1,000	0	-100.0	-100.0
24-28	0	1	0	1,000	0	1,000	0	-100.0	-100.0
>28	0	1	0	1,000	0	1,000	0	-100.0	-100.0
Select									
16-17	0	0	0		0	1,550	0	0.0	-100.0
18-20	1500	0	1		1,500	1,500	1,500	0.0	0.0
21-23	0	0	0		0	1,550	0	0.0	-100.0
24-28	0	0	0		0	1,550	0	0.0	-100.0
>28	0	0	0		0	1,600	0	0.0	-100.0
Hard Maple									
Prime									
16-20	2000-2800	1	3	2,500	2,267	2,500	2,000	-9.3	-20.0
				0.00	266.67				
> 20	2250-3500	1	3	2,500	2,750	2,500	2,500	10.0	0.0
				0.00	381.88				
Select									
16-20	0	0	0		0		0	0.0	0.0
> 20	1,500	0	1		1,500		1,500	0.0	0.0
Yellow Poplar									
Prime									
16-20	1000	0	1		1,000	675	1,000	0.0	48.1
> 20	1000-2000	0	2		1,500	550	1,500	0.0	172.7
					500.00				
Select									
16-20	0	0	0			2,750	0	0.0	0.0
> 20	1,500	0	1		1,500	3,250	1,500	0.0	0.0

Low Grade / Industrial Products

The change in prices paid for or received for various raw-wood products between the spring 2019 report and the current report are shown in Table 4. Raw-wood products are of lower quality, and sometimes smaller logs are purchased in batches of random species to be sawn into cants or chipped. The cants are re-sawn into boards used for pallets, blocking, railroad ties or other industrial applications that have a strong market. It is estimated that as much as 60% of the lumber produced goes into an industrial market. Some mills restrict purchases to specific species or exclude specific species, depending on the markets they sell to. The price for pallet and cant logs decreased by 20% from the 2019 spring report. Pallet manufacturers are consuming consistent volumes of pallet lumber and cants; however, supplies are plentiful, with only a few localized exceptions. Prices are declining in most areas. Tie-treating operations are readily absorbing all the crossties sawmills can produce. Some worry the market will become saturated, but there is no evidence of that happening yet. Price data for sawdust varied greatly from \$6/ton to \$35/ton. Bark prices were more

than 20% higher than what was reported in the spring 2019 report. Coarse mill residue (chips) prices were 4% higher than in the 2019 spring price report.

Until about the 1970s, sawdust, chips and bark would have been burned or landfilled by many mills. Those materials now have many more uses. Sawdust can be used to make fuel pellets, burned as a heating source, or used as animal bedding. Wood chips are produced primarily from slabs sawn off of debarked logs. The decline in the pulp and paper industry is a threat to this market. Bark used for landscape mulch is now a large market. In some facilities, all or some portion of these byproducts is used to fire efficient low-emission boilers to heat dry kilns year-round and to heat facilities in the winter. Attempts have been made to cogenerate electricity at mills, stand-alone generating plants, and biofuel. Success has been limited by the low cost of electricity purchased off of the grid, below-cost price received if sold into the grid, the high cost to produce biofuels, and in many cases public opposition.

Table 4. Prices of miscellaneous products reported by Indiana mills (Sept. 2019), free on board (fob) the producing mill.

Product	No. Responses	Range	Mean		Median	
		Sep-19	Mar-19	Sep-19	Mar-19	Sep-19
Pallet logs, \$/MBF	2	150-380	318	265	430	265
Pallet logs, \$/ton	2	42-50	0	46	0	46
Pulpwood, \$/ton	1	150	0	150	0	150
Pulp chips, \$/ton	2	16-29	22	23	20	23
Sawdust, \$/ton	3	6-35	35	18	35	13
Sawdust, \$/cu. yd.	1	10	8	10	6	10
Bark, \$/ton	3	4-10	5	6	5	5
Bark, \$/cu. yd.	1	10	5	10	5	10
Mixed, \$/ton	1	6	0	6	0	6
Mixed, \$/cu. yd.	0	0	0	0	0	0

Custom Costs

Costs of custom services increased from the spring report in the area of sawing (\$/MBF). The high cost of diesel fuel usually plays a large role in logging costs as well as sale layout and costs to close out sales implementing Best Management Practices (BMPs) (Table 5). Only one response was returned for logging costs, and it was reported at \$250 MBF. Although this was the only reported figure, the cost is probably accurate. Custom sawing costs are normally associated with portable sawmills. For many years, the common rate was \$250 MBF. The custom sawing cost reported was \$350 MBF. The average distance was reported at 100 miles, which is likely accurate. In most cases it is difficult to remain profitable if mills reach out over 100 miles for their logs. Keep in mind, though, with all of the custom cost information, we only on response was received.

Table 5. Custom costs reported by Indiana mills (Sept. 2019).

Product	No. Respons	Sep-19 Range	Mean		Median	
			Mar-19	Sep-19	Mar-19	Sep-19
Sawing (\$/MBF)	1	350	325	350	325	350
Sawing (\$/hour)	0	0	0	0	0	0
Logging (\$/MBF)	1	250	175	250	175	250
Hauling (\$/MBF)	1	80	100	80	100	80
Distance (miles)	1	70	75	70	75	70
\$/MBF/mile	0	0	0	0	0	0