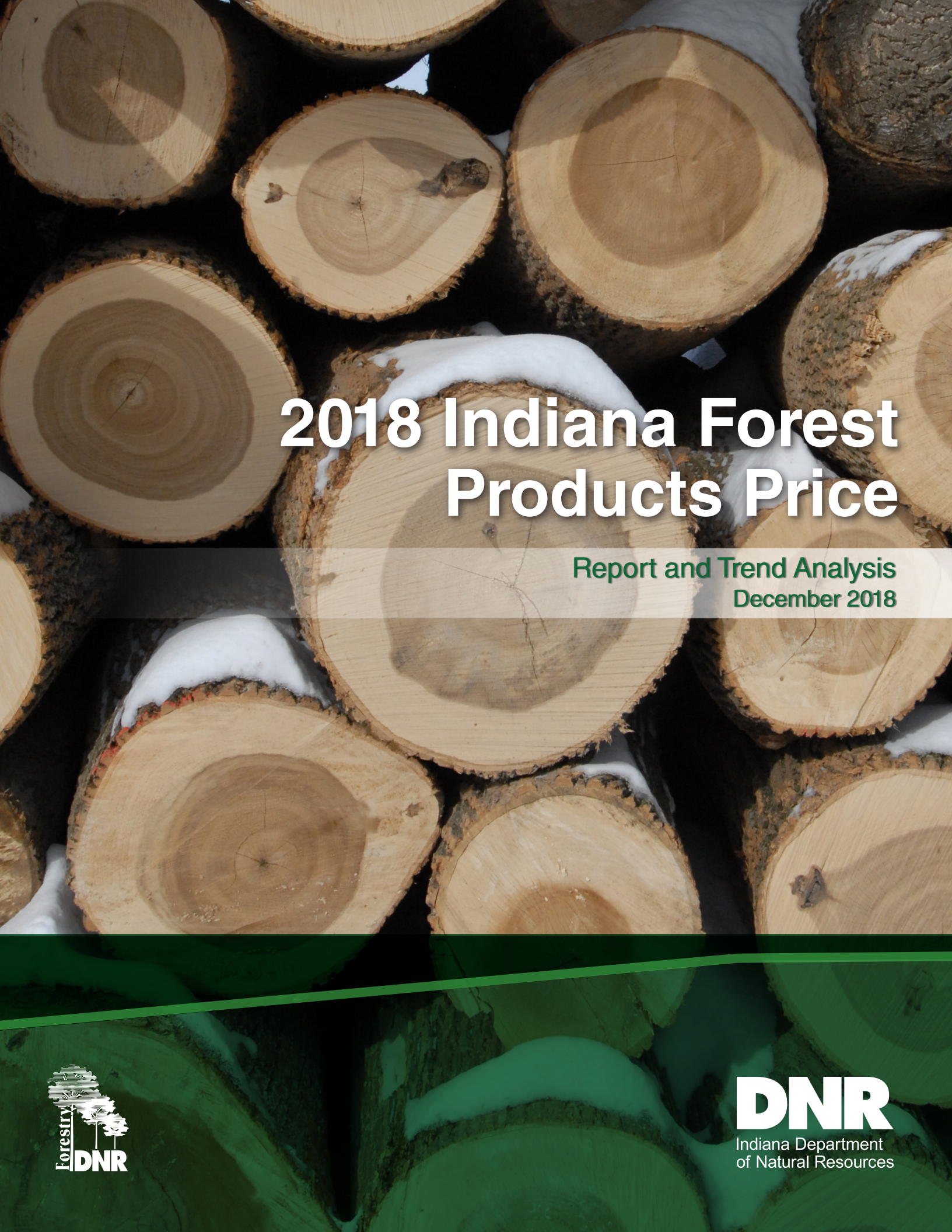

2018 Indiana Forest Products Price

Report and Trend Analysis

December 2018

Forestry DNR

DNR
Indiana Department
of Natural Resources

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Survey Procedures and Response

Data are 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 serve only as a guide. Actual stumpage values you may be offered depend on many variables such as access, terrain, species composition, time of year, etc.

Data for this survey were obtained by a combination direct-mail and email survey to 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 31 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. Five mills reported producing 1 million board feet (MMBF) or more (Figure 1). Four mills reported production of 5 MMBF or greater. Total board foot production reported was 50 MMBF compared to 70 MMBF for 2017, and 42 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, www.inwoodlands.org/.

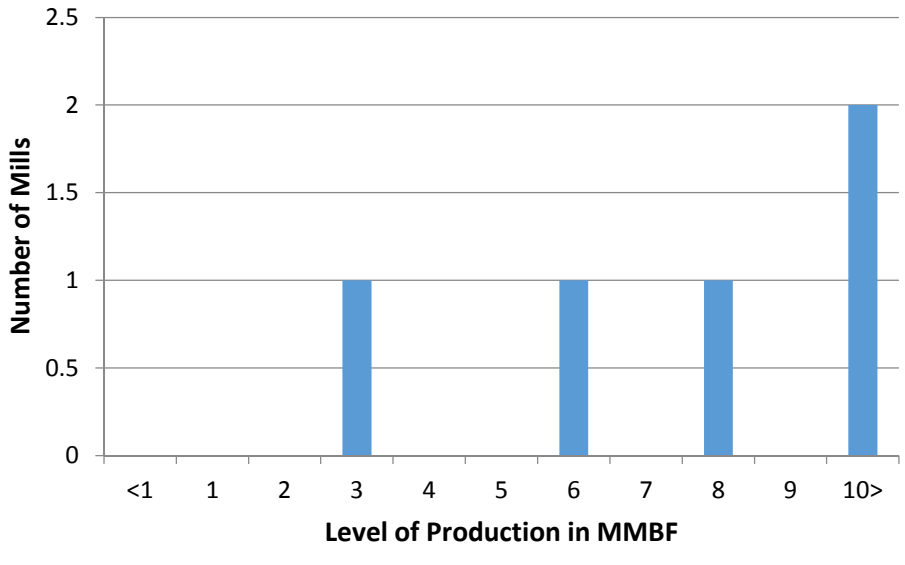


Figure 1. Distribution of the five mills reporting level of production.

Hardwood Lumber Prices

Hardwood lumber prices since July 2014 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, Tennessee. 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 July 2018. White oak lumber (#2/Btr) prices are 6% lower than what was reported in July 2018 and red oak prices are 12% lower. Most people in the hardwood industry think the lower prices are a combination of the Chinese inventories being plentiful and the tariff issues.

Lower red oak prices are the "new" normal for now. Most industry experts do not foresee much of a change in the market until Chinese inventories begin to thin and purchasing resumes after the Chinese New Year. Tariffs are most likely the other culprit to lower prices. Fortunately "splitting tariffs" are taking place between countries. As stated above, overall red oak prices have dropped 12% since July 2017. FAS and #1C prices were off by 17% and 18% respectively since July 2018. #2A prices remained pretty consistent with July 2018 pricing. Thankfully mills have not overproduced red oak primarily due to wet logging conditions. Inventories in China will thin in the spring and many are hopeful the trade war between the U.S. and China will be resolved soon.

Demand and prices for many white oak items have come down in recent months but market diversity has prevented a significant collapse that other species heavily dependent on the China market have experienced. Exports to China are weak and shipments to a few European destinations have seasonally slowed. Total demand from other markets in Southeast Asia are decent. Residential and truck trailer flooring plants are purchasing consistent quantities of green #2/3A lumber. Overall 4/4 green white oak pricing has dropped 6% since July 2018. #1C saw the largest drop – 12% while #2A pricing did not change compared to the July 2018 data.

Walnut availability has increased since July, causing lumber inventories to become problematic. Orders for lumber that were readily available during the first half of the year have changed dramatically. Compared to early-mid 2018, little volume is moving to China and domestic markets have lost momentum. Supplies are more than ample to meet demand. Walnut prices across all grades of green 4/4 lumber have dropped 8% since July 2018 with #2A prices seeing a 13% decline. Look for prices to continue to cool from record highs for the near future.

Most in the hardwood industry define cherry as a problem. Markets have changed significantly since mid-2018. Pricing across all grades of green 4/4 cherry dropped 30% since July 2018. #2A lumber saw the biggest decline at 36%, while FAS and #1C averaged a 26% decline. Despite these price drops, FAS lumber prices would have to drop over $250/MBF to reach their five-year low, while common grade cherry would have to fall $200/MBF. Lumber exports were higher for the first time in nearly four months in September, while log exports are steady. All this being said, the worst of the cherry declines are hopefully behind us.

Hard maple demand has remained steady with little change in the last few months. Common grade hard

maple is a better mover than the upper grades. Lumber prices have remained fairly consistent compared to July 2018. Green 4/4 hard maple prices across all grades have dropped an average of 4% since July 2018. Shipments of #1C and 2A are steady to cabinet and component plants, as are shipments of #2/3A to wood flooring operations. With hard maple accounting for only 2% of the total U.S. hardwood exports, the tariff issues have not had as much of an effect as other China dependent species. Industry speculation is that demand for common grade hard maple will be sufficient to keep prices stable.

Other Species

Demand for poplar has been very strong from multiple markets. In some areas, mills are competing heavily with the peeler plants for logs. Most mills have plenty of orders for as much lumber as they produce across all grades as well as pallet cants. Prices across all grades of green 4/4 poplar are up 7% with #2A experiencing the largest increase since July 2018 – 13%. After a positive early to mid-2018, soft maple markets have cooled. Producers comment they can move upper grade soft maple but they are a hard sell. Similar to hard maple, this species does not see a big "export" demand. Currently, the common grades are drawing more interest than FAS lumber. Lumber prices compared to July 2018 did not see much of a change, the common grades were off 3% while FAS prices were down 8%. Ash log inventories are down throughout the region. The quality of the remaining standing ash timber is a concern. Ash comprises only a small percentage of the total U.S. production. Although mills report they can move their green lumber with little difficulty, there is a segment that reports demand is just "OK." Pricing, however, is down 22% across all grades of green 4/4 ash when compared to July 2018. Demand from overseas (especially China) is low and seasonally slower for European destinations.

Reports on hickory are mixed. On one hand, green lumber appears to be moving steadily to residential flooring factories. Demand is steady from cabinet and moulding/millwork sectors, and treating plants are buying large volumes of ties. On the negative side, exports have experienced a sharp drop in shipments. Despite reported steady demand, prices have dropped since July 2018. Hickory lumber prices across all grades have dropped an average of 11%.

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

Lumber/Grade	July 2014	Jan 2015	July 2015	Jan 2016	July 2016	Sept 2016	July 2017	Dec 2017	July 2018	Dec 2018
Ash										
FAS + Prem.	845	845	875	1,085	1,110	1,150	1,085	950	1,285	1,110
No. 1C	585	585	620	780	795	780	685	585	900	725
No. 2A	360	350	350	450	460	505	455	375	540	425
Basswood										
FAS + Prem.	630	645	660	695	695	695	775	795	735	700
No. 1C	345	385	405	430	430	430	465	460	400	380
No. 2A	190	210	210	230	230	230	245	245	205	215
Beech										
FAS	500	500	500	500	500	500	555	545	575	460
No. 1C	420	420	420	420	420	420	460	460	435	415
No. 2A	345	345	345	345	345	345	360	350	290	310
Cottonwood (Southern)										
FAS	635	635	670	685	705	745	765	780	780	780
No. 1C	435	435	470	480	500	535	545	560	575	575
No. 2A	240	255	240	260	260	260	260	260	260	260
Cherry (North Central)										
FAS + Prem.	1,335	1,345	1,345	1,540	1,520	1,495	1,265	1,210	1,815	1,390
No. 1C	705	780	775	1,050	1,035	1,015	825	775	1,200	835
No. 2A	375	445	455	675	660	645	475	405	685	440
Hickory										
FAS + Prem.	720	775	845	1,000	1,000	905	830	820	960	865
No. 1C	595	660	715	835	835	705	545	535	630	560
No. 2A	445	480	520	615	615	545	425	415	450	415
Hard Maple (unselected)										
FAS + Prem.	1,075	1,305	1,390	1,450	1,390	1,220	1,305	1,300	1,210	1,090
No. 1C	790	1,000	1,180	1,260	905	700	850	840	975	960
No. 2A	550	685	810	835	655	495	495	485	610	620
Soft Maple (unselected)										
FAS + Prem.	940	1,000	1,040	1,115	1,115	1,095	1,210	1,250	1,150	1,060
No. 1C	650	710	785	845	750	635	825	870	770	750
No. 2A	340	360	455	500	490	450	460	480	400	390
White Oak (plain)										
FAS + Prem.	1,015	1,055	1,295	1,410	1,410	1,340	1,440	1,570	1,800	1,685
No. 1C	575	695	845	960	920	665	710	790	1,140	1,000
No. 2A	475	620	660	660	650	485	470	480	660	660
Red Oak (plain)										
FAS + Prem.	880	1,045	1,370	1,335	1,145	935	1,040	1,030	1,120	925
No. 1C	570	690	860	930	795	550	610	665	820	675
No. 2A	495	650	700	700	690	500	485	500	665	655
Yellow Poplar										
FAS + Prem.	760	775	775	830	830	830	830	830	840	860
No. 1C	490	505	505	545	545	535	515	475	455	475
No. 2A	330	340	355	385	385	385	365	335	325	375
Sycamore (Southern plain)										
FAS	455	455	455	455	455	455	455	455	460	460
No. 1C	435	435	435	435	435	435	435	435	440	440
No. 2A	375	375	375	375	375	375	375	375	360	360
Black Walnut										
FAS	1,795	1,815	2,325	2,890	3,040	2,575	2,425	2,515	2,975	2,800
No. 1C	875	875	1,235	1,590	1,645	1,310	1,270	1,270	1,960	1,775
No. 2A	475	475	730	990	1,035	745	730	715	1,235	1075

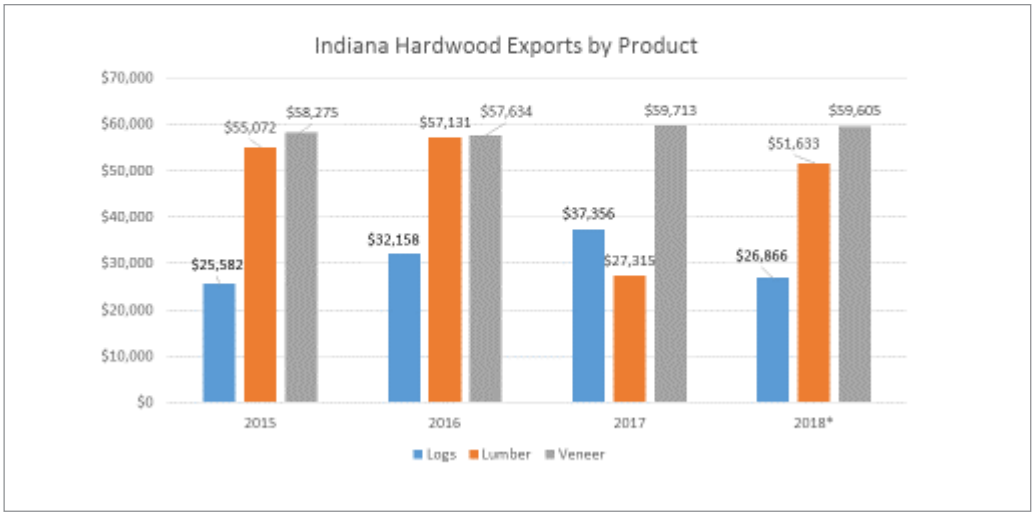
Exports

Indiana's exports of primary hardwood products (log, lumber, veneer) continues to be an important part of overall industry sales. Log exports from Indiana have decreased 15% in 2018 through October (most recent data available) compared to the same period 2017. Comparatively, Indiana lumber exports YTD through October are up 7% and Indiana veneer exports are up 22%. China is the largest importer of Indiana's logs in YTD through October followed by United Kingdom, Vietnam and Japan. China imported over 8.5 times the amount of its next closest competitor, United Kingdom.

China is also the largest importer of Indiana's lumber in YTD through October 2018 followed by Canada, Japan, and Vietnam. Again, China dwarfs the next largest importer, Canada, by 3 times. The largest importer of Indiana veneer is Canada followed by Spain, Germany, Portugal and Belgium. Canada is the dominant importer with over 4 times the next largest importer, Spain.

Figure #1 below compares exports of Indiana's primary hardwood products by year.

Figure #1- Indiana Hardwood Exports by Product



U.S. Census Bureau's Hardwood Export Statistics – 2015-2017, *2018 through October

Logs

China, Vietnam and the United Kingdom are the three largest importers of hardwood logs from Indiana in 2017. U.S. Census Bureau's Hardwood Export Statistics show that Indiana exported $37 million worth of logs to the world in 2017. Using $2500/m' for an average, this is approximately 14.8 million board feet (BF), enough to supply a large sawmill or two medium mills.

China is by far the largest importer at $25.4 million in 2017, an increase of +14% from 2016. Over 20 countries compete to purchase logs from Indiana.

Figure #2 table shows log export totals by country for 2015 - 2017. Data are from the U.S. Census Bureau.

Figure #2 – Indiana Log Exports by Country

Indiana Log Exports by Country Destination

Country	2015	2016	2017
World Total	25,582,120	32,158,310	37,355,618
China	15,014,522	21,850,169	25,413,877
Vietnam	1,682,531	2,282,769	2,472,637
United Kingdom	591,358	1,204,895	2,241,457
Taiwan	1,091,157	1,093,096	1,293,331
Japan	1,175,936	1,039,441	1,100,108
Korea, South	762,800	747,848	867,340
India	740,115	526,045	769,127
Pakistan	264,000	266,900	662,450
Portugal	436,342	334,381	415,089
Germany	1,336,328	1,300,205	415,042
Italy	592,789	539,708	387,356
Turkey	420,000	137,406	369,768
Hong Kong	50,030	12,635	303,744
Egypt	110,698		149,089
Indonesia	69,996	199,538	128,700
Spain		171,606	119,306
New Zealand	620,227	60,823	58,714
Ireland		50,000	55,500
Qatar			45,505
Estonia		13,450	34,179
Argentina			25,000
Lebanon			20,271
Canada	9,778	42,897	8,028
Czech Republic	310,750	32,000	
Denmark	136,106		
Lithuania	75,451	14,500	
Malaysia	43,944	49,875	
Thailand	19,044	22,904	
France	14,418	75,147	
Singapore	13,800	10,565	
Slovenia		34,703	
Belgium		20,487	
Saudi Arabia		12,368	
Netherlands		11,949	

Lumber

Indiana's lumber exports in 2017 were $57 million. That amount changed relatively little from 2016. China, as stated earlier, is Indiana's largest export market and nearly 2.5 times as large as the next largest market, Canada, based on figures from 2017. Vietnam continues to slowly gain ground due to its need for the #1C and #2C grades mostly used in home furnishings and kitchen cabinet construction.

Figure #3 table shows Indiana's lumber exports by country destination for the last three years. Data are from the U.S. Census Bureau.

Figure #3 – Indiana Lumber Exports by Country

Indiana Lumber Exports by Country Destination

Country	2015	2016	2017	Country	2015	2016	2017
World total	55,071,923	57,130,909	57,315,561	Australia	15,000	65,985	28,859
China	16,178,568	18,508,123	25,484,595	Ireland			26,350
Canada	6,962,064	7,872,397	10,826,349	Mauritius			25,000
Japan	13,730,621	12,976,440	8,567,844	Hong Kong	30,900	32,682	24,871
Vietnam	1,152,002	3,182,507	4,044,399	France			24,298
Turkey	1,058,856	640,359	1,407,057	India	51,261	30,000	19,000
United Kingdom	811,758	836,563	1,255,128	Portugal	45,686	28,850	17,155
Spain	1,989,261	1,006,037	1,108,291	South Africa	35,134	27,593	13,944
Mexico	8,728,129	8,377,639	752,957	Argentina			7,516
Germany	718,778	484,333	631,257	Malta	142,285		
Italy	927,612	737,411	335,048	Lebanon	71,203	119,490	
Estonia	162,790	285,898	319,008	Saudi Arabia	70,488		
Pakistan	266,199	253,715	298,855	Lithuania	65,044		
Egypt	365,508	98,470	260,705	Netherlands	23,575	58,206	
New Zealand	19,862	266,857	255,800	Singapore	22,069	12,345	
Malaysia	114,543	33,274	233,352	Belgium	19,389	115,937	
Taiwan	299,983	56,613	229,665	Bermuda	12,217		
Indonesia	68,424	133,067	211,654	Jordan	11,831	20,405	
Thailand	42,167	107,690	209,400	Trinidad and Tobago	10,710		
Denmark	231,600	55,642	177,005	Czech Republic	8,500		
Guatemala	302,015	88,346	133,671	Sweden		157,964	
Korea, South	127,367	235,358	97,973	Bahamas		43,742	
Israel			82,355	United Arab Emirates		26,174	
Russia	42,489	63,448	73,027	Bulgaria		10,000	
British Virgin Islands			49,187	Philippines		3,400	
Greece	115,375		43,865	Kuwait		2,553	
El Salvador	20,660	75,396	40,121				

Veneer

Veneer demand remains firm. YTD 2018 veneer exports are above 2017's numbers by 22%.

Figure #4 Table shows Indiana's veneer exports by country destination for the last three years. Data are from the U.S. Census Bureau.

Compared to other states, Indiana remains an important player in wood product exports from the United States even with significant distance to east and west coast ports. Indiana retains the top spot for the fourth year in a row for veneer exports. Over the past 10 years, Indiana has had the top spot in veneer exports for eight years with Pennsylvania exporting just slightly more value in 2012 and 2013. For log exports, Indiana ranks 18th among other states and for lumber exports Indiana ranks 22nd based on 2017 figures.

Indiana Veneer Exports by Country Destination

	2015	2016	2017
World Total	58,275,422	57,634,305	59,713,094
Canada	17,842,402	15,788,962	19,988,686
Spain	4,465,053	6,547,639	6,892,941
Germany	6,126,277	6,744,586	4,897,237
Portugal	2,265,506	2,568,448	3,380,513
China	3,627,961	3,023,389	2,839,379
Belgium	1,509,061	1,411,603	2,535,051
Italy	736,423	1,207,485	2,066,671
Lithuania	857,744	2,304,666	2,052,758
South Africa	2,453,495	3,068,000	1,905,452
Malaysia	2,139,317	2,547,792	1,774,613
Austria	2,518,464	2,344,088	1,262,522
United Kingdom	2,110,443	1,614,432	981,917
Vietnam	321,181	633,494	974,082
Romania	355,696	55,102	759,172
Australia	815,865	772,019	736,318
Indonesia	584,658	529,839	714,109
Turkey	1,629,224	829,876	700,267
Mexico	1,345,812	1,078,171	558,634
Brazil	1,005,832	814,968	539,386
Greece		291,154	464,510
Israel	437,806	145,380	451,886
Japan	597,889	561,547	435,778
India	173,136	173,949	429,733
United Arab Emirates	624,900	800,658	406,410
Taiwan	100,581	226,686	355,055
Estonia			350,749
Morocco			193,197
Egypt	1,509,002	736,626	190,232
Singapore	118,938	140,298	183,082
Uzbekistan			114,766
Honduras			114,010
Finland	162,033	201,611	108,562
Ireland	248,123	200,071	103,671
Netherlands	35,284	3,500	88,975
Guatemala	11,137		38,166
Korea, South			35,431
Bulgaria		28,213	31,990
Czech Republic	288,198	34,161	22,702
Latvia	27,327		22,332
Switzerland	121,660	5,625	12,149
France	912,680	169,357	
Thailand		18,084	
New Zealand		4,041	
Lebanon	94,619		
Russia	84,359		
Ukraine	17,336		

Delivered Sawlog Prices

Ten mills reported delivered sawlog prices for the 2018 fall report. This is significantly less than the number of mills that reported for the 2018 spring report. The lack of responses can dramatically affect pricing data and concurrently may not reflect an accurate picture of the hardwood log market (Table 2). Sawlog prices for the premium species (specifically black walnut and white oak) were lower than what was reported in the 2018 spring report. Black walnut prices were down across all sawlog grades by an average of 10%, while white oak sawlogs saw an increase of almost 11%. From an overall standpoint, prices were down for most every other species with red oak and soft maple taking the biggest hits. Ash log prices were down an average of 6%, hickory prices were basically unchanged, cherry log prices were up 14.5% and tulip poplar log prices were off by 5%. Red oak log prices took the biggest hit species wise, being 13% lower than what was reported during the 2018 spring report. 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 close-out costs.

Premium Species

White oak sawlog prices were significantly higher than what was reported from the 2018 spring report, averaging almost 11% higher across all grades. The lone decrease was for #3 sawlogs at 14%. Prime white oak sawlogs were up 52% while #1 and #2 were 4.7% and 1% higher respectively. Demand for white oak veneer logs is unsatisfied. Although not as sought after as a year or so ago, stave log demand is still considered good. These two "other" markets continue to take considerable volume away from the grade sawmills.

Demand for black walnut sawlogs has cooled compared to the 2018 spring report in large part because of the tariff issues. Overall walnut log pricing decreased 10% from the 2018 spring report. Prime walnut sawlogs showed a significant increase of 27% while lesser-quality sawlogs took an average dramatic 22% decrease. Hopefully the tariff/trade war issues will be resolved soon allowing prices to make a recovery.

Black cherry sawlog prices continued their turnaround that began in 2017. Overall cherry log prices were up 14.5% across all grades with the prime grade seeing a massive 65 % increase. #1 grade cherry sawlog prices

were up 2.5% while #2 and 3 grade log prices were down 2.5 and 6%, respectively.

Similar to cherry, hard maple continues to see strong markets. Hard maple saw the biggest price jump across all species at 19% across all grades. Prime grade logs were higher by almost 80% while increases were less significant for the lower grades.

The soft maple market continues to struggle, although it seems location plays a big part in how well or how poor markets are. Those in the Appalachian region are experiencing stronger markets than those in the east. That being said, soft maple log prices were down 13% across all grades.

Other Hardwood Species

The decline in the quality of the remaining ash is becoming quite an issue. A large majority of the remaining ash standing timber has been severely affected by emerald ash borer. Many in the industry feel there will be little to no ash left in three to five years. However, the overall price of ash sawlogs dropped only 6% from the 2018 spring report. In fact, #1 and #2 grade sawlogs saw increases of 6% and 4.5%, respectively. Prime logs were off 7% and #3 grade logs took the biggest hit at 27%. Demand for ash logs for export is still steady but not at the levels reported in 2017 and early 2018.

Tulip poplar prices were slightly off overall at 5%. Prime sawlogs were up just over 4% while the remaining grades saw prices drop an average of 8%.

Softwood Logs

Unfortunately there were no responses to price data for pine and cedar.

Table 2. Prices paid for delivered sawlogs by Indiana sawmills (Sept. 2018).

Species/Grade	September-18 Range ($/MBF)	No. Responses		Mean (s.e.)[1]		Median		Change (%)	
		Mar-18	Sep-18	Mar-18	Sep-18	Mar-18	Sep-18	Mean	Median
				($/MBF)		($/MBF)			
White Ash									
Prime	550-750	5	2	700	650	700	650	-7.1	-7.1
				47.43	100.00				
No. 1	390-800	8	4	529	560	550	525	5.9	-4.5
				46.65	100.08				
No. 2	300-500	8	4	364	380	400	360	4.4	-10.0
				24.85	45.46				
No. 3	150-300	7	3	318	233	275	250	-26.7	-9.1
				20.31	44.10				
Beech									
Prime	300	5	1	318	300	300	300	-5.7	0.0
				11.14					
No. 1	250-300	7	3	306	267	300	250	-12.7	-16.7
				5.71	16.67				
No. 2	200-250	8	3	303	233	300	250	-23.1	-16.7
				15.21	16.67				
No. 3	150-250	8	3	293	200	288	200	-31.7	-30.6
				16.77	28.87				
Cherry									
Prime	800-2000	6	2	850	1400	850	1400	64.7	64.7
				61.91	600.00				
No. 1	600-990	9	4	730	748	750	700	2.5	-6.7
				41.63	86.64				
No. 2	400-620	9	4	518	505	500	500	-2.5	0.0
				22.59	60.76				
No. 3	350-500	8	3	319	300	300	300	-6.0	0.0
				18.43	28.87				
Hickory									
Prime	500-700	6	2	567	600	600	600	5.8	0.0
				30.73	100.00				
No. 1	440-520	9	4	451	465	450	450	3.1	0.0
				31.51	18.48				
No. 2	320-390	9	4	365	353	350	350	-3.3	0.0
				27.41	14.36				
No. 3	250-300	8	3	291	267	300	250	-8.2	-16.7
				29.10	16.67				
Hard Maple									
Prime	800-2000	6	2	779	1400	863	1400	79.7	62.2
				65.96	600.00				
No. 1	500-850	9	4	618	650	600	625	5.2	4.2
				50.52	79.06				
No. 2	400-540	9	4	441	441	425	413	0.0	-2.8
				32.45	33.44				
No. 3	250-300	8	3	307	283	300	300	-7.8	0.0
				27.27	16.67				

Soft Maple									
Prime	400-450	6	2	492	425	475	425	-13.6	-10.5
				45.49	25.00				
No. 1	300-620	9	4	418	398	400	335	-4.8	-16.3
				36.54	74.87				
No. 2	200-390	9	4	331	285	350	275	-13.9	-21.4
				24.35	40.52				
No. 3	150-250	8	3	276	217	288	250	-21.4	-13.2
				23.06	33.33				
White Oak									
Prime	1200-2000	5	2	1050	1600	1200	1600	52.4	33.3
				120.42	400.00				
No. 1	600-1120	8	4	793	830	800	800	4.7	0.0
				73.45	107.55				
No. 2	400-700	8	4	541	544	538	538	0.6	0.0
				51.74	63.22				
No. 3	250-300	7	3	350	300	300	300	-14.3	0.0
				47.25	28.87				
Red Oak									
Prime	700	6	2	767	700	750	700	-8.7	-6.7
				49.44	0.00				
No. 1	420-700	9	4	631	555	550	550	-12.0	0.0
				45.69	60.76				
No. 2	350-450	9	4	476	398	440	395	-16.4	-10.2
				38.16	27.50				
No. 3	250-300	8	3	335	283	313	300	-15.5	-4.2
				30.72	16.67				
Tulip Poplar									
Prime	500-550	6	2	504	525	500	525	4.2	5.0
				16.35	25.00				
No. 1	275-500	9	4	414	394	400	400	-4.8	0.0
				26.72	50.39				
No. 2	230-400	8	4	323	295	300	275	-8.7	-8.3
				20.42	37.97				
No. 3	200-250	7	3	261	233	250	250	-10.7	0.0
				13.20	16.67				
Black Walnut									
Prime	2000-3000	7	2	1964	2500	2000	2500	27.3	25.0
				252.77	500.00				
No. 1	600-2070	9	4	1434	1393	1400	1450	-2.9	3.6
				240.93	302.58				
No. 2	500-1290	9	4	1072	848	900	800	-20.9	-11.1
				178.75	168.59				
No. 3	350-500	8	3	709	400	500	350	-43.6	-30.0
				232.22	50.00				
Softwood									
Pine	0	3	0	260	0	250	0	-100.0	-100.0
				20.82	0.00				
Red cedar	0	3	0	383	0	300	0	-100.0	-100.0
				109.29	0.00				

Veneer Log Prices

The number of mills reporting veneer log prices decreased significantly from the 2018 spring report. The limited number of responses makes it important to remember that this report should only serve 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 marginal veneer logs. The variation in veneer log pricing is due to mix 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 the spring of 2018. With a large volume of veneer logs being exported, the trade war/tariffs appear to be having significant impacts on the market. It is everyone's hope these issues are resolved soon in order to see some price recovery. Both walnut and white veneer log prices were lower compared to those in the 2018 spring report. Prime walnut veneer log prices were 10% lower while select veneer log prices were 1% higher. White oak prime grade veneer log were down 12%, while select veneer log prices were off by 15% compared to the 2018 spring report. In addition to the tariff issue, recomposed veneer is a real threat to real wood veneer. A substantially lower price combined with extremely high yields makes recomposed veneer an attractive product to both the producer and consumer.

Table 3. Prices paid for delivered veneer logs by Indiana mills (Sept. 2018).

Species/Grade	Sept. 2018 Range	No. Responses		Mean (s.e.)[1]		Median		Change (%)	
		Mar-18	Sep-18	Mar-18	Sep-18	Mar-18	Sep-18	Mean	Median
	($/MBF)			($/MBF)		($/MBF)			
Black Walnut									
Prime									
12–13	2000-4000	7	2	3,864	3,000	4,000	3,000	-22.4	-25.0
				575.77	1,000.00				
14–15	2000-5500	8	4	5,056	3,625	5,500	3,500	-28.3	-36.4
				562.63	746.52				
16–17	3000-7000	8	3	6,488	5,333	7,000	6,000	-17.8	-14.3
				799.60	1201.85				
18–20	3000-8000	8	3	7,563	6,000	7,750	7,000	-20.7	-9.7
				903.55	1527.53				
21–23	4000-10000	5	3	8,400	8,000	10,000	10,000	-4.8	0.0
				1391.04	2000.00				
24–28	4000-12000	2	3	6,250	8,667	6250	10000	38.7	60.0
				3250.00	2403.70				
>28	0	2	0	6,750	0	6750	0	-100.0	-100.0
				2750.00	0.00				
Select									
12–13	1200-3000	5	2	2,600	2,100	3000	2100	-19.2	-30.0
				556.78	900.00				
14–15	1200-4000	5	3	3,900	2,733	4500	3000	-29.9	-33.3
				857.32	819.21				
16–17	4000-5500	7	2	4,779	4,750	5500	4750	-0.6	-13.6
				815.17	750.00				
18–20	5500-6000	7	2	6,000	5,750	7,000	5,750	-4.2	-17.9
				1091.09	250.00				
21–23	6500-7000	3	2	4,833	6,750	4,500	6,750	39.7	50.0
				1740.05	250.00				
24–28	6500-8000	2	2	6,000	7,250	6,000	7,250	20.8	20.8
				3000.00	750.00				
>28	0	2	0	6,500	0	6500	0	-100.0	-100.0
				2500.00	0.00				

Table 3. (continued)

White Oak									
Prime									
13–14	1500-2300	6	4	1,933	1,900	2,275	1,900	-1.7	-16.5
				333.58	168.33				
15–17	1500-2500	7	5	2,279	2,160	2,500	2,400	-5.2	-4.0
				309.73	186.01				
18–20	2000-3000	7	4	2,950	2,625	3,250	2,750	-11.0	-15.4
				450.40	217.47				
21–23	2500-3500	3	3	4,167	3,167	4000	3500	-24.0	-12.5
				166.67	333.33				
24–28	2500-4500	4	3	4,625	3,667	4750	4000	-20.7	-15.8
				330.72	600.93				
>28	0	1	0	6,000	0	6000	0	-100.0	-100.0
				0.00	0.00				
Select									
13–14	600-1500	3	3	1,183	1,167	1,200	1,400	-1.4	16.7
				476.39	284.80				
15–17	600-1800	3	3	1,433	1,383	1,500	1,750	-3.5	16.7
				607.13	391.93				
18–20	1750-2200	3	2	1,700	1,975	1,600	1,975	16.2	23.4
				723.42	225.00				
21–23	1750-2600	1	2	3,500	2,175	3,500	2,175	-37.9	-37.9
				0.00	425.00				
24–28	1750-3000	1	2	4,750	2,375	4,750	2,375	-50.0	-50.0
				0.00	625.00				
>28	0	1	0	5,500	0	5,500	0	-100.0	-100.0
				0.00	0.00				
Black Cherry									
Prime									
12–13	1500	2	1	1,700	1,500	1,700	1,500	-11.8	-11.8
				1300.00	0.00				
14–15	1000-2000	2	2	1,950	1,500	1,950	1,500	-23.1	-23.1
				1550.00	500.00				
16–17	2000	1	1	600	2,000	600	2,000	233.3	233.3
				0.00	0.00				
18–20	3000	1	1	600	3,000	600	3,000	400.0	400.0
				0.00	0.00				
21–23	3000	1	1	600	3,000	600	3,000	400.0	400.0
				0.00	0.00				
24–28	0	0	0	0	0	0	0	0.0	0.0
				0.00	0.00				
>28	0	1	0	0	0	0	0	0.0	0.0
				0.00	0.00				
Select									
12–13	600	1	1	350	600	350	600	71.4	71.4
				0.00	0.00				
14–15	600-800	1	2	350	700	350	700	100.0	100.0
				0.00	100.00				
16–17	900	1	1	400	900	400	900	125.0	125.0
				0.00	0.00				
18–20	1000	1	1	400	1,000	400	1,000	150.0	150.0
				0.00	0.00				
21–23	1000	1	1	400	1,000	400	1,000	150.0	150.0
				0.00	0.00				
24–28	0	0	0	0	0	0	0	0.0	0.0
				0.00	0.00				
>28	0	0	0	0	0	0	0	0.0	0.0
				0.00	0.00				

Table 3. (continued)

Red Oak									
Prime									
16–17	700-1500	4	4	1,325	1,163	1,550	1,225	-12.2	-21.0
				296.16	167.55				
18–20	1250-1300	5	2	1,490	1,275	1,600	1,275	-14.4	-20.3
				237.91	25.00				
21–23	1400-1500	2	2	1,625	1,450	1,625	1,450	-10.8	-10.8
				125.00	50.00				
24–28	1,500	3	2	1,683	1,500	1,750	1,500	-10.9	-14.3
				92.80	0.00				
>28	0	1	0	1,750	0	1,750	0	-100.0	-100.0
				0.00	0.00				
Select									
16–17	600-800	4	2	1,663	700	1,550	700	-57.9	-54.8
				606.00	100.00				
18–20	1000	3	1	1,183	1,000	1,500	1,000	-15.5	-33.3
				367.80	0.00				
21–23	1200	2	1	1,550	1,200	1,550	1,200	-22.6	-22.6
				50.00	0.00				
24–28	1400	2	1	1,550	1,400	1,550	1,400	-9.7	-9.7
				70.71	0.00				
>28	0	1	0	1,600	0	1,600	0	-100.0	-100.0
				0.00	0.00				
Hard Maple									
Prime									
16–20	400-2500	5	3	2,420	1,300	2,600	1,000	-46.3	-61.5
				505.12	624.50				
> 20	400-3000	2	3	3,250	1,533	3,250	1,200	-52.8	-63.1
				750.00	768.84				
Select									
16–20	300-1500	1	3	400	867	400	800	116.8	100.0
				0.00	348.01				
> 20	300-2000	0	3	0	1,100	0	1,000	0.0	0.0
				0.00	493.29				
Yellow Poplar									
Prime									
16–20	550-1000	4	3	668	783	675	800	17.2	18.5
				192.07	130.17				
> 20	550-1000	3	2	623	775	550	775	24.4	40.9
				199.69	225.00				
Select									
16–20	350-600	2	2	275	475	275	475	72.7	72.7
				25	125.00				
> 20	350-800	2	2	325	575	325	575	76.9	76.9
				25	225.00				

Miscellaneous Products

The change in prices paid for or received for various raw-wood products between the spring 2018 report and the current report is pictured on Table 4. These are lower quality and sometimes smaller logs 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. Some mills restrict purchases to or exclude specific species, depending on the markets they sell to. The price for pallet and cant logs increased 6% from the 2018 spring report as the industrial markets are much improved and continue to be a foundation for the overall hardwood market. It is estimated that upward of 60% of the lumber produced goes into an industrial market. Mills continue to sell as many pallet cants and they can produce. Bark prices were also slightly lower than what was reported in the spring 2018 report. Coarse mill residue (chips) prices were 26% lower than the 2018 spring price report.

Until about the 1970s, sawdust, chips and bark would have been burned or landfilled by many mills. They 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 are used to fire efficient low-emission boilers to heat dry kilns year-round and 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 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 industrial/low grade products reported by Indiana mills (Sept. 2018), free on board (fob) the producing mill.

Industrial Products		Range	Mean		Median	
	No. Responses	Sep-18	Mar-18	Sep-18	Mar-18	Sep-18
Pallet logs, $/MBF	4	250-430	324	343	320	345
Pallet logs, $/ton	1	50	211	50	200	50
Pulpwood, $/ton	0	0	31	0	40	0
Pulp chips, $/ton	3	12-37	31	23	29	23
Sawdust, $/ton	2	10-25	11	18	10	18
Sawdust, $/cu. yd.	2	5-10	8	8	6	8
Bark, $/ton	1	5	6	5	6	5
Bark, $/cu. yd.	3	2-10	9	6	6	5
Mixed, $/ton	0	N/A	N/A	N/A	N/A	N/A
Mixed, $/cu. yd.	0	N/A	4	N/A	4	N/A

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 two responses were returned for logging costs, which were reported at $200 MBF. In reality, we feel this is a low estimate as communications with various logging professionals put the logging costs at $230-280 MBF. Custom sawing costs are normally associated with portable sawmills. For many years, the common rate was $250 MBF. The average custom sawing cost reported is now over $500 MBF. The average distance is now at 88 miles, significantly higher than the 40 miles reported during the spring but most likely an accurate distance. In most cases, mills can procure logs within a 100 mile radius. Keep in mind though with all of the custom cost information, the number of responses was very limited.

Table 5. Custom costs reported by Indiana mills (Sept. 2018)

Custom Costs	No. Respons es	Sep-18 Range	Mean		Median	
			Mar-18	Sep-18	Mar-18	Sep-18
Sawing ($/MBF)	3	250-1000	300	517	300	300
Sawing ($/hour)	0	0	0	0	0	0
Logging ($/MBF)	2	200	200	200	200	200
Hauling ($/MBF)	1	40	127	40	80	40
Distance (miles)	2	25-40	63	33	63	33
$/MBF/mile	0	0	0	0	0	0