

# **2014 Indiana Forest Products Price Report and Trend Analysis**

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## Survey Procedures and Response

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/>.

Data is collected once 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. Because of the small number of mills reporting logging costs, “stumpage prices” estimated by deducting the average logging and hauling costs (Table 4) from delivered log prices must be interpreted with extreme caution.

Data for this survey was obtained by a direct mail survey of all known sawmills, veneer mills, concentration yards, loggers and firms producing wood chips, sawdust, etc., as a byproduct. 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 219 firms, compared to 216 in 2013. Several were returned as undeliverable. There was an initial mailing and one reminder postcard sent to non-respondents. Follow-up phone calls and mailing got a few of those mills and operators back into the system.

An abbreviated survey form was used for 87 firms that do not buy logs, compared to 86 in 2013. The long form with the tables for prices paid for sawlogs and veneer logs went to 132 firms, compared to 130 in 2013.

Fifty-four mills reported some useful data, compared to 47 in 2013, 52 in 2012, 56 in 2011, 62 in 2010, 73 in 2009 and 88 in 2008. Seven mills were dropped because their phones were disconnected, or they reported being out of business.

The number of mills 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. Forty-three mills reported their 2013 board foot production in 2014, compared to 43 reporting their 2012 production in 2013. Thirteen mills reported producing 1 million board feet (MMBF) or less (Figure 1). Eight mills reported production of 5 MMBF or greater. Total production reported for 2013 was 147 MMBF compared to 151 MMBF for 2012, and 134 MMBF for 2011. The largest single mill production reported was 23 MMBF. These annual levels are not comparable since they do not represent a statistical estimate of total production.

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 4 do not reflect the operating cost of large mills.

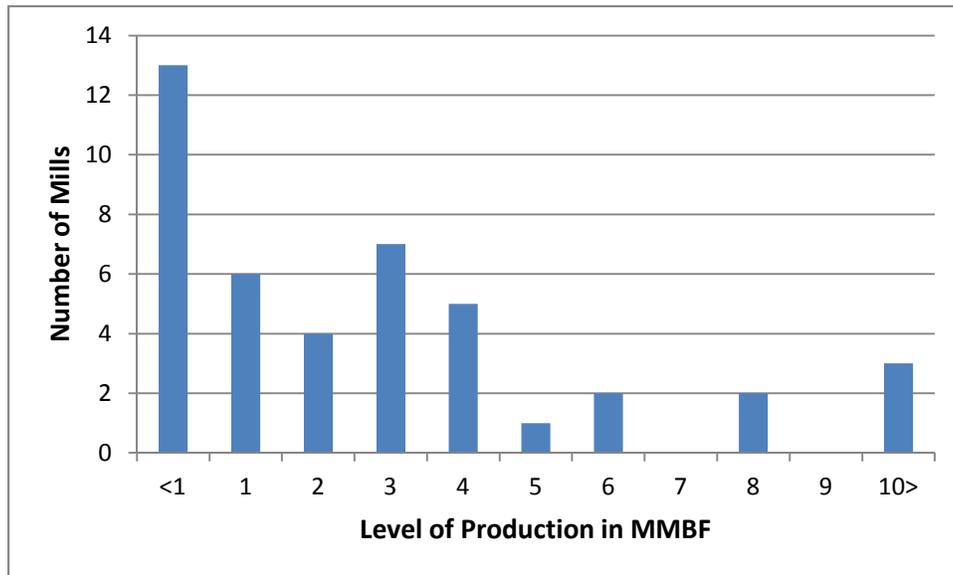


Figure 1. Distribution of the 43 mills reporting 2013 level of production.

## Hardwood Lumber Prices

Hardwood lumber prices continue to increase as 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, TN. Log prices are directly tied to lumber prices since 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 is an economic indicator species in the hardwood industry. Prices cycle with the general domestic economy and housing. Export markets continue to be a major factor as well. The price of the top grade of lumber, first and seconds (FAS), plus a \$200 premium peaked at \$1,310 per thousand board feet (MBF) in the summer of 2004 and has gone through two cycles since. It's been increasing since July 2012, hitting \$1,145 per MBF in December 2014 – 27% increase. The premium applies when a buyer and a manufacturer negotiate a price for the purchase of lumber consisting of No. 1 C and better grades.

White oak prices are also cyclical, but the cycles are slightly more moderate than red oak's. An exception is the 42% drop in FAS plus the premium from \$1,390 per MBF in 2008 to \$800 per MBF in the summer of 2009. In mid-December of 2014, FAS lumber pricing was \$1,425 per MBF.

Black walnut is in great demand both domestically and globally at this time. FAS lumber is being reported at \$3,040 per MBF, a 37% increase from September 2013.

Black cherry FAS prices dropped in January 2013 to \$1,335 per MBF. For the most part however, black cherry prices have held pretty steady with current pricing at \$1,540 per MBF.

FAS hard maple reached \$1,305 in July 2013 and increased slightly in early 2014 but current markets have softened with recent pricing around \$1,390 per MBF.

Yellow poplar hit a low point of \$550 in the summer of 2011. Markets have become stronger and demand continues to be good despite increased production. FAS lumber pricing is reported at \$830 per MBF, a 34% increase

Soft maple markets have improved in the past couple of years. In July of 2012, prices were reported at \$920 per MBF and current pricing at \$1,115 per MBF.

Locally, ash markets have become stronger with good volumes of lumber moving overseas as well as being used as a substitute for higher priced red oak. These increases are despite a large amount of ash logs and lumber entering the market as landowners harvest ash because of Emerald Ash Borer (EAB). December pricing is at \$1,085 per MBF; a 22% increase from September 2013.

True to form, beech prices were unchanged. FAS last changed in July 2005.

Basswood prices increased to \$660 per MBF in September 2013. Current basswood pricing is at \$695 per MBF.

Hickory markets have continued to pick up steam due to increased demand from the cabinet and rustic flooring markets. Current pricing is reportedly \$1000 per MBF, a 33% increase since January 2012.

**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	Jan 2010	July 2010	Jan 2011	July 2011	Jan 2012	July 2012	Jan 2013	July 2013	Sep 2013	Dec 2014
<b>Ash</b>										
FAS + Prem.	715	805	785	800	800	845	845	845	845	1085
No. 1C	470	580	575	575	575	585	585	585	585	780
No. 2A	320	380	360	360	360	360	360	360	350	450
<b>Basswood</b>										
FAS + Prem.	635	660	645	630	630	630	630	630	660	695
No. 1C	300	335	335	345	345	345	345	385	395	430
No. 2A	180	190	190	190	190	190	190	210	210	230
<b>Beech</b>										
FAS	500	500	500	500	500	500	500	500	500	500
No. 1C	420	420	420	420	420	420	420	420	420	420
No. 2A	345	345	345	345	345	345	345	345	345	345
<b>Cottonwood (Southern)</b>										
FAS	605	605	625	635	635	635	635	635	655	705
No. 1C	405	405	425	435	435	435	435	435	455	500
No. 2A	220	220	220	220	220	220	240	220	240	260
<b>Cherry (North Central)</b>										
FAS + Prem.	1610	1610	1610	1525	1355	1440	1335	1335	1335	1540
No. 1C	660	720	720	720	655	720	705	765	795	1050
No. 2A	350	375	375	375	330	375	375	430	460	675
<b>Hickory</b>										
FAS + Prem.	615	640	640	655	670	720	720	765	800	1000
No. 1C	500	530	530	540	560	595	595	650	685	835
No. 2A	350	405	405	405	415	445	445	480	500	615

**Table 1. (continued)**

Lumber Grade	Jan 2010	July 2010	Jan 2011	July 2011	Jan 2012	July 2012	Jan 2013	July 2013	Sep 2013	Dec 2014
<b>Hard Maple (unselected)</b>										
FAS + Prem.	1080	1095	995	970	1050	1050	1075	1305	1305	1390
No. 1C	655	710	710	705	735	750	790	1000	1000	905
No. 2A	480	545	535	535	565	555	550	685	685	665
<b>Soft Maple (unselected)</b>										
FAS + Prem.	880	895	835	805	845	920	940	1000	1000	1115
No. 1C	535	610	595	580	595	610	650	710	710	785
No. 2A	275	320	320	320	330	330	340	360	360	490
<b>White Oak (plain)</b>										
FAS + Prem.	915	1165	1060	1035	995	1015	1015	1070	1070	1425
No. 1C	540	655	625	575	555	555	575	695	705	960
No. 2A	365	500	500	450	420	410	475	610	630	650
<b>Red Oak (plain)</b>										
FAS + Prem.	825	1095	930	925	830	830	880	1045	1045	1145
No. 1C	560	665	615	580	535	520	570	680	700	795
No. 2A	470	540	540	460	430	420	495	640	660	690
<b>Yellow Poplar</b>										
FAS + Prem.	620	640	550	550	590	700	760	775	775	830
No. 1C	420	470	350	360	385	445	490	505	505	545
No. 2A	310	320	270	280	300	310	330	340	340	385
<b>Sycamore (Southern plain)</b>										
FAS	455	455	455	455	455	455	455	455	455	455
No. 1C	435	435	435	435	435	435	435	435	435	435
No. 2A	375	375	375	375	375	375	375	375	375	375
<b>Black Walnut</b>										
FAS	1800	1995	2105	2155	2070	1815	1795	1795	1905	3040
No. 1C	765	1040	1125	1160	1075	905	875	875	935	1645
No. 2A	360	620	740	770	705	505	475	475	530	1035

## Delivered Sawlog Prices

The number of mills reporting delivered sawlog prices slightly increased this year (Table 2). Almost without exception sawlog prices for the premium species, such as black walnut and white oak have increased. Sawlog price changes varied for the other species.

### Premium Species

All four sawlog grades of the oak species increased again this year with many mills reportedly paying similar prices for red oak and black oak. The lumber from these two and all other species in the red oak family is sold as red oak.

Demand for black walnut has made it difficult for producers to keep up supply, increasing the price for both lumber and sawlogs. However, this year the prices for the lower grade sawlogs increased at a higher rate than that of the prime and grade 1 sawlogs. If the price cycles from the previous 10 years are at all predictive, there is room for further price increases.

Black cherry sawlog prices generally increased, with the exception of grade 1 sawlogs, coinciding with increased lumber prices. Prices still remain well below their peak in 2004.

Hard and soft maple are not substitutes in finished goods markets, thus their prices can be expected to behave differently. Hard maple had increases in all grades, but the largest increases were in the lower grade sawlogs. However, soft maple prices increased more in the upper sawlog grades.

### Other Hardwood Species

The increases in ash lumber prices have affected the average price of ash sawlogs across the board, with increases from 10.1% to 18.3%. Despite ash logs continually hitting the market due to EAB, the overseas and domestic markets keep demand high.

Basswood prices for sawlogs were mixed as grade 2 prices decreased while the other grades increased. Beech and cottonwood sawlog prices had moderate increases for all grades, whereas elm prime decreased by 1.9% and grade 1 increased by 8.5%.

Tulip poplar increased across all grades, but at a much lower rate than in the previous year. This could be due to the increased supply of sawlogs from landowners selling it more due to several years of dry weather. It grows best in bottoms and on north facing slopes, but can be susceptible to drought.

### Softwood Logs

The price of pine sawlogs decreased by 6.3%, to \$218 per MBF. However, red cedar increased by 55.7% to \$475 per MBF. The same number of mills reporting in 2013 reported in 2014.

**Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 2013 and May 2014.**

Species/Grade	2014 Range (\$/MBF)	No. Responses		Mean (s.e.) <sup>1</sup>		Median		Change (%)	
		2013	2014	2013	2014	2013	2014	Mean	Median
<b>White Ash</b>									
Prime	300 - 800	15	21	520 (27.52)	573 (22.75)	600	600	10.1	0.0
No. 1	200 - 600	20	25	400 (22.86)	457 (18.79)	400	500	14.3	25.0
No. 2	150 - 400	17	23	306 (17.09)	338 (13.78)	300	350	10.5	16.7
No. 3	150 - 350	16	20	221 (13.62)	262 (13.79)	220	250	18.3	13.6
<b>Basswood</b>									
Prime	250 - 500	11	14	305 (24.73)	329 (21.43)	300	300	7.7	0.0
No. 1	200 - 500	15	16	300 (23.40)	288 (18.54)	300	275	-4.2	-8.3
No. 2	150 - 300	11	14	217 (15.32)	241 (14.14)	240	250	11.3	4.2
No. 3	100 - 300	12	14	213 (13.55)	231 (14.77)	230	250	8.3	8.7

Table 2. (continued)

Species/Grade	2014 Range (\$/MBF)	No. Responses		Mean (s.e.) <sup>1</sup>		Median		Change (%)	
		2013	2014	2013	2014	2013	2014	Mean	Median
				(\$/MBF)		(\$/MBF)			
<b>Beech</b>									
Prime	180 - 500	10	14	280 (18.56)	283 (19.01)	250	262.5	0.9	5.0
No. 1	180 - 500	12	16	257 (9.87)	282 (21.12)	250	250	9.6	0.0
No. 2	150 - 300	12	14	237 (10.91)	241 (12.02)	250	250	1.6	0.0
No. 3	150 - 300	11	15	234 (10.29)	238 (11.51)	240	250	1.7	4.2
<b>Cottonwood</b>									
Prime	150 - 250	10	10	211 (9.60)	211 (10.59)	200	200	0.0	0.0
No. 1	150 - 300	12	12	214 (8.30)	223 (12.32)	210	215	4.0	2.4
No. 2	150 - 300	11	11	214 (9.07)	215 (12.24)	200	200	0.3	0.0
No. 3	150 - 300	11	11	212 (9.13)	215 (12.24)	200	200	1.2	0.0
<b>Cherry</b>									
Prime	300 - 1800	16	20	788 (83.98)	798 (69.82)	800	800	1.2	0.0
No. 1	200 - 1800	21	23	648 (66.86)	609 (62.84)	650	600	-6.1	-7.7
No. 2	150 - 600	18	21	381 (24.15)	400 (20.12)	400	400	5.0	0.0
No. 3	150 - 350	16	17	258 (14.79)	268 (12.08)	250	300	3.7	20.0
<b>Elm</b>									
Prime	150 - 300	9	11	239 (18.22)	235 (14.23)	250	250	-1.9	0.0
No. 1	150 - 450	10	13	236 (14.16)	256 (20.71)	250	250	8.5	0.0
No. 2	150 - 300	10	12	235 (13.52)	235 (13.00)	250	250	0.0	0.0
No. 3	150 - 300	10	12	230 (13.82)	232 (13.30)	245	250	0.7	2.0

Table 2. (continued)

Species/Grade	2014 Range (\$/MBF)	No. Responses		Mean (s.e.) <sup>1</sup>		Median		Change (%)	
		2013	2014	2013	2014	2013	2014	Mean	Median
<b>Hickory</b>									
Prime	300 - 850	13	16	485	503	450	475	3.7	5.6
				(41.36)	(32.43)				
No. 1	300 - 850	18	20	367	436	350	400	18.9	14.3
				(25.24)	(27.47)				
No. 2	250 - 400	15	18	285	328	300	325	15.0	8.3
				(8.92)	(12.28)				
No. 3	150 - 300	13	16	228	263	250	250	15.1	0.0
				(12.29)	(10.70)				
<b>Hard Maple</b>									
Prime	300 - 1400	14	18	832	881	850	900	5.8	5.9
				(93.12)	(58.46)				
No. 1	200 - 1400	18	22	642	698	630	750	8.7	19.0
				(63.56)	(49.18)				
No. 2	150 - 600	17	20	373	483	400	525	29.4	31.3
				(25.07)	(29.53)				
No. 3	150 - 400	15	18	249	311	250	300	24.9	20.0
				(19.56)	(18.33)				
<b>Soft Maple</b>									
Prime	250 - 650	11	17	355	424	350	400	19.3	14.3
				(24.73)	(36.41)				
No. 1	200 - 600	16	21	309	379	300	350	22.5	16.7
				(16.14)	(25.72)				
No. 2	150 - 450	15	19	245	288	250	300	17.7	20.0
				(13.45)	(15.94)				
No. 3	150 - 300	14	16	223	249	245	250	11.5	2.0
				(12.69)	(13.29)				
<b>White Oak</b>									
Prime	350 - 1700	13	18	804	953	800	875	18.5	25.0
				(67.34)	(77.49)				
No. 1	250 - 1250	16	22	550	689	500	600	25.2	20.0
				(37.08)	(46.63)				
No. 2	150 - 900	19	21	405	502	400	500	24.0	25.0
				(26.39)	(34.07)				
No. 3	150 - 700	16	19	275	337	275	300	22.5	9.1
				(21.19)	(27.79)				

Table 2. (continued)

Species/Grade	2014 Range (\$/MBF)	No. Responses		Mean (s.e.) <sup>1</sup>		Median		Change (%)	
		2013	2014	2013	2014	2013	2014	Mean	Median
				(\$/MBF)	(\$/MBF)	(\$/MBF)	(\$/MBF)		
<b>Red Oak</b>									
Prime	250 - 1000	17	20	633 (38.75)	783 (34.08)	650	800	23.6	23.1
No. 1	200 - 1000	20	23	508 (30.62)	612 (31.98)	500	600	20.5	20.0
No. 2	150 - 600	19	21	354 (18.06)	460 (22.42)	350	450	30.1	28.6
No. 3	150 - 350	17	18	255 (17.87)	306 (13.94)	250	325	19.8	30.0
<b>Black Oak</b>									
Prime	150 - 1000	16	20	609 (43.83)	728 (37.95)	600	750	19.5	25.0
No. 1	150 - 1000	20	23	457 (34.57)	561 (32.20)	400	500	22.7	25.0
No. 2	150 - 600	17	21	321 (19.02)	425 (19.67)	300	400	32.3	33.3
No. 3	150 - 350	15	18	244 (16.27)	300 (14.00)	250	300	23.0	20.0
<b>Tulip Poplar</b>									
Prime	150 - 600	16	19	459 (26.72)	493 (22.61)	450	500	7.5	11.1
No. 1	150 - 600	21	23	375 (18.60)	403 (19.90)	400	400	7.5	0.0
No. 2	150 - 400	19	21	287 (13.90)	298 (14.10)	300	300	3.9	0.0
No. 3	150 - 350	16	19	212 (13.49)	245 (10.74)	210	250	15.4	19.0
<b>Sycamore</b>									
Prime	180 - 500	12	15	231 (15.45)	265 (19.68)	250	250	14.9	0.0
No. 1	180 - 500	13	17	229 (12.73)	272 (20.91)	250	250	18.9	0.0
No. 2	150 - 300	13	15	225 (12.33)	235 (10.73)	240	250	4.6	4.2
No. 3	150 - 300	13	16	221 (12.27)	236 (11.06)	220	250	6.9	13.6

Table 2. (continued)

Species/Grade	2014 Range (\$/MBF)	No. Responses		Mean (s.e.) <sup>1</sup>		Median		Change (%)	
		2013	2014	2013	2014	2013	2014	Mean	Median
<b>Sweetgum</b>									
Prime	150 - 500	11	14	225 (13.91)	250 (22.61)	250	250	11.3	0.0
No. 1	150 - 500	12	16	226 (12.76)	266 (23.40)	245	250	17.7	2.0
No. 2	150 - 300	12	14	218 (10.95)	226 (10.41)	230	245	3.9	6.5
No. 3	150 - 300	12	15	218 (10.95)	225 (11.08)	230	200	3.4	-13.0
<b>Black Walnut</b>									
Prime	1000 - 2750	15	17	1430 (114.21)	1709 (116.73)	1400	1750	19.5	25.0
No. 1	800 - 2750	20	21	1113 (100.71)	1321 (97.07)	1000	1300	18.7	30.0
No. 2	400 - 1500	21	19	719 (54.72)	937 (68.38)	700	950	30.3	35.7
No. 3	150 - 1200	16	17	376 (39.45)	594 (82.01)	305	600	58.0	96.7
<b>Softwood</b>									
Pine	150 - 250	6	6	233 (21.08)	218 (15.58)	250	230	-6.3	-8.0
<b>Red Cedar</b>									
	150 - 1000	5	5	305 (55.00)	475 (141.86)	350	400	55.7	14.3

## Veneer Log Prices

The number of mills reporting veneer log price decreased in 2014, Table 3. Prices were reported by both veneer mills and sawmills. Sawmills resell their veneer quality logs to veneer mills, exporters, and in some cases they saw the marginal veneer logs for specialty cuts like quarter sawn. The large variation in pricing would be reduced if only prices reported by veneer mills were used.

Overall, veneer demand remains slow with most mills running at 60% - 70% capacity. Conversely, veneer quality logs continue to remain in demand with minor price increases depending on the species, such as hard maple or cherry, and the mills specializing in them. Additionally, bad weather conditions or a special project that requires large veneer volumes can increase pricing.

Black walnut and white oak veneer demand has been in great demand with pricing continuing to strengthen, countering the trend of species specialization by some manufacturers. The demand domestically, and especially internationally, for black walnut continues to remain very strong, so much that it has driven some of the local veneer mills and sawmills to drop out of the market or reduce production. This demand for veneer, veneer logs, and grades 2 and 3 sawlogs continue to elevate pricing for logs on a weekly basis. The result of these increases will eventually force some buyers to purchase lower-cost species like cherry or maple. Additionally, slower economic conditions and housing starts in China and Europe, the two largest buyers in volume of black walnut should cause prices to begin to level off in 2015.

These economic conditions will also affect white oak veneer, but to a much smaller degree. One of the biggest drivers for white oak currently is the stave market. Wine and whiskey manufacturers are currently having difficulty building inventories thus requiring additional stave demand. When you add the demand for quarter-sawn and export lumber to the mix, the pressure for logs increases exponentially. Look for white oak logs to remain constant for 2015 and possibly longer.

**Table 3. Prices paid for delivered veneer logs by Indiana mills, May 2013 and May 2014.**

Species/Grade/ Log Dia.	2014 Range (\$/MBF)	No. Responses		Mean (s.e.) <sup>1</sup>		Median		Change (%)	
		2013	2014	2013	2014	2013	2014	Mean	Median
<b>Black Walnut</b>									
<b>Prime</b>									
12-13	1200 - 4500	7	8	1879 (244.43)	2775 (322.79)	2000	2750	47.7	37.5
14-15	2750 - 5500	8	8	3363 (295.16)	3719 (338.84)	3100	3500	10.6	12.9
16-17	3500 - 6500	8	7	4456 (414.19)	4929 (428.57)	4575	5000	10.6	9.3
18-20	4000 - 8500	8	7	5875 (523.98)	5857 (604.69)	6000	5000	-0.3	-16.7
21-23	6000 - 12500	7	5	6571 (751.42)	8000 (1214.50)	6000	7000	21.7	16.7
24-28	5000 - 14500	6	6	7500 (1056.72)	8917 (1462.97)	7500	7500	18.9	0.0
>28	6000 - 16000	4	5	7500 (1658.31)	9600 (1691.15)	8500	9000	28.0	5.9
<b>Select</b>									
12-13	1200 - 3000	5	5	1310 (272.21)	2060 (326.50)	1500	2100	57.3	40.0
14-15	1500 - 4500	6	6	2108 (481.04)	2842 (402.16)	2000	2750	34.8	37.5
16-17	2000 - 4500	6	5	3200 (461.88)	3110 (399.50)	3000	3000	-2.8	0.0
18-20	2750 - 5000	6	5	4000 (577.35)	3950 (357.07)	4000	4000	-1.3	0.0
21-23	3750 - 6000	6	3	4833 (792.32)	4917 (650.85)	4500	5000	1.7	11.1
24-28	5000 - 7000	6	4	5833 (1046.16)	5875 (426.96)	6000	5750	0.7	-4.2
>28	6000 - 7000	4	3	6250 (1547.85)	6333 (333.33)	7000	6000	1.3	-14.3

Table 3. (continued)

Species/Grade/ Log Dia.	2014 Range (\$/MBF)	No. Responses		Mean (s.e.) <sup>1</sup>		Median		Change (%)	
		2013	2014	2013	2014	2013	2014	Mean	Median
<b>White Oak</b>									
<b>Prime</b>									
13-14	1200 - 2000	4	5	1363	1560	1375	1500	14.5	9.1
				(80.04)	(128.84)				
15-17	1000 - 2300	7	6	1793	1917	2000	2100	6.9	5.0
				(121.71)	(197.34)				
18-20	1500 - 2875	7	5	2271	2415	2400	2500	6.3	4.2
				(96.89)	(245.41)				
21-23	2000 - 4000	6	6	2750	3242	2900	3500	17.9	20.7
				(227.67)	(305.62)				
24-28	2500 - 5250	6	6	3583	3958	3750	4000	10.5	6.7
				(416.67)	(378.69)				
>28	3000 - 7000	4	5	4500	4550	4000	4000	1.1	0.0
				(1322.88)	(717.64)				
<b>Select</b>									
13-14	1200-1500	2	2	1000	1350	1000	1350	35.0	35.0
				(200.00)	(150.00)				
15-17	1000 - 1500	4	2	1425	1250	1350	1250	-12.3	-7.4
				(217.47)	(250.00)				
18-20	1500 - 1700	4	2	1775	1600	2000	1600	-9.9	-20.0
				(225.00)	(100.00)				
21-23	1700 - 3000	3	3	2333	2233	2500	2000	-4.3	-20.0
				(166.67)	(392.99)				
24-28	1700 - 3000	4	3	2525	2400	2750	2500	-5.0	-9.1
				(592.14)	(378.59)				
>28	1700 - 3000	4	3	3275	2567	3000	3000	-21.6	0.0
				(1091.92)	(433.33)				

Table 3. (continued)

Species/Grade/ Log Dia.	2014 Range (\$/MBF)	No. Responses		Mean (s.e.) <sup>1</sup>		Median		Change (%)	
		2013	2014	2013	2014	2013	2014	Mean	Median
<b>Black Cherry</b>									
<b>Prime</b>									
12-13	1200	2	1	475 (25.00)	1200	475	1200	152.6	152.6
14-15	2000	2	1	1575 (425.00)	2000	1575	2000	27.0	27.0
16-17	1000 - 2500	3	2	1550 (292.97)	1750 (750.00)	1650	1750	12.9	6.1
18-20	1500 - 3000	4	2	2338 (389.11)	2250 (750.00)	2000	2250	-3.8	12.5
21-23	4000	4	1	2863 (557.29)	4000	2475	4000	39.7	61.6
24-28	2000 - 5000	3	2	3533 (1245.44)	3500 (1500.00)	2600	3500	-0.9	34.6
>28	N/A	3	0	4867 (2572.50)	N/A	2600	N/A	N/A	N/A
<b>Select</b>									
12-13	N/A	1	0	500	N/A	500	N/A	N/A	N/A
14-15	N/A	1	0	2000	N/A	2000	N/A	N/A	N/A
16-17	N/A	2	0	1400 (600.00)	N/A	1400	N/A	N/A	N/A
18-20	N/A	3	0	2067 (520.68)	N/A	2000	N/A	N/A	N/A
21-23	N/A	3	0	2333 (600.93)	N/A	2000	N/A	N/A	N/A
24-28	N/A	2	0	3500 (1500.00)	N/A	3500	N/A	N/A	N/A
>28	N/A	2	0	5000 (3000.00)	N/A	5000	N/A	N/A	N/A

Table 3. (continued)

Species/Grade/ Log Dia.	2014 Range (\$/MBF)	No. Responses		Mean (s.e.) <sup>1</sup>		Median		Change (%)	
		2013	2014	2013	2014	2013	2014	Mean	Median
<b>Red Oak</b>									
<b>Prime</b>									
16-17	1100 - 2500	5	6	1330	1650	1200	1500	24.1	25.0
				(157.80)	(221.74)				
18-20	1200 - 2500	5	6	1690	1833	1600	1650	8.5	3.1
				(308.38)	(224.60)				
21-23	1500 - 2500	5	5	1910	1970	1700	1750	3.1	2.9
				(417.85)	(220.00)				
24-28	1500 - 3000	4	4	2213	2250	1650	2250	1.7	36.4
				(777.92)	(322.75)				
>28	1500 - 4000	3	4	2950	2500	1800	2250	-15.3	25.0
				(1540.29)	(540.06)				
<b>Select</b>									
16-17	1050 - 1800	2	2	1350	1425	1350	1425	5.6	5.6
				(150.00)	(375.00)				
18-20	1500 - 1800	2	2	1750	1650	1750	1650	-5.7	-5.7
				(450.00)	(150.00)				
21-23	1500 - 1800	2	2	2150	1650	2150	1650	-23.3	-23.3
				(850.00)	(150.00)				
24-28	1500 - 1800	2	2	2400	1650	2400	1650	-31.3	-31.3
				(1100.00)	(150.00)				
>28	1500 - 1800	2	2	3150	1650	3150	1650	-47.6	-47.6
				(1850.00)	(150.00)				

Table 3. (continued)

Species/Grade/ Log Dia.	2014 Range (\$/MBF)	No. Responses		Mean (s.e.) <sup>1</sup>		Median		Change (%)	
		2013	2014	2013	2014	2013	2014	Mean	Median
<b>Hard Maple</b>									
<b>Prime</b>									
16–20	1500 - 3000	6	6	2292	2500	2250	2500	9.1	11.1
				(261.54)	(223.61)				
>20	2000 - 3500	6	4	2967	3125	2650	3500	5.3	32.1
				(466.67)	(375.00)				
<b>Select</b>									
16–20	1500 - 1800	3	2	1733	1650	2000	1650	-4.8	-17.5
				(266.67)	(150.00)				
>20	2000	3	2	2133	2000	2200	2000	-6.2	-9.1
				(66.67)	(0.00)				
<b>Yellow Poplar</b>									
<b>Prime</b>									
16–20	1800	2	1	650	1800	650	1800	176.9	176.9
				(150.00)					
>20	2200	2	1	750	2200	750	2200	193.3	193.3
				(250.00)					
<b>Select</b>									
16–20	N/A	1	0	600	N/A	600	N/A	N/A	N/A
>20	N/A	1	0	800	N/A	800	N/A	N/A	N/A

## Miscellaneous Products

The change in prices paid for or received for various raw-wood products between 2013 and 2014 varied (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 specific species or exclude specific species, depending on the markets they sell to. The price for pallet and cant logs increased, pulpwood and bark prices decreased, and sawdust prices were variable.

Until about the 1970's 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. 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 is used for landscape mulch. 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, or in standalone generating plants. Success has been limited by the low cost of electricity purchased off of the grid, and below cost price received if sold into the grid.

**Table 4. Prices of miscellaneous products reported by Indiana mills, May 2013 and May 2014, free on board (fob) the producing mill.**

	No. Responses	2014 Range	Mean		Median	
			2013	2014	2013	2014
Pallet logs, \$/MBF	25	200 - 445	266	286	260	280
Pallet logs, \$/ton	5	34 - 50	30	39	34.5	37
Sawn cants	3	375 - 485	376	419	340	397
Pulpwood, \$/ton	5	10 - 42	33	31	32	34
Pulp chips, \$/ton	14	12 - 38.5	26	22	23.5	20
Sawdust, \$/ton	6	9 - 27.7	14	17	9.5	15.95
Sawdust, \$/cu. yd.	11	1.5 - 10	5	5	4.3	5
Bark, \$/ton	4	1.75 - 16	9	8	8.5	8
Bark, \$/cu. yd.	14	1 - 15	9	8	6	8.16
Mixed, \$/ton	2	17.5 - 20.56	7.5	19	7.5	19.03
Mixed, \$/cu. yd.	0	N/A	N/A	N/A	N/A	N/A

## Custom Costs

Costs of custom services were generally down (Table 5). Logging costs as reported in this survey indicate an increase in logging costs from \$106 to \$125 per MBF.

**Table 5. Custom costs reported by Indiana mills, May 2012 and May 2013.**

	No. Responses	2014 Range	Mean		Median	
			2013	2014	2013	2014
Sawing (\$/MBF)	12	250 - 500	306	293	293	250
Sawing (\$/hour)	5	50 - 85	128	69	128	75
Logging (\$/MBF)	4	70 - 150	106	125	140	140
Hauling (\$/MBF)	4	12 - 60	60	44	50	52.5
Distance (miles)	6	20 - 150	55	79	50	60
\$/MBF/mile	0	N/A	2.4	N/A	3	N/A

## Indiana Timber Price Index

The delivered log prices collected in the Indiana Forest Products Price Survey are used to calculate the delivered log value of typical stands of timber. This provides trend-line information that can be used to monitor long-term prices for timber. The species and log quality weights used to calculate the index are described in previous editions of this report, available at <https://ag.purdue.edu/fnr/Pages/extforestsprice.aspx>. The weights are based primarily on the 1967 Forest Survey of Indiana. Adjusting the weights for more recent forest surveys did not change the series enough to justify converting to a new series.

The nominal (not deflated) price (columns three and six in Table 6) is a weighted average of the delivered log prices reported in the price survey. The price indexes [columns (4) and (7)] are the series of nominal prices divided by the price in 1957, the base year, multiplied by 100. Thus, the index is the percentage of the 1957 price. For example, the average price in 2014 for the average stand was 937.0 percent of the 1957 price. The index for a quality stand increased from 997.5 percent to 1092.6 percent.

The real prices [columns (5) and (8)] are the nominal prices deflated by the producer price index for finished goods, with 1982 as the base year [Table 6, column (2)]. The real price series represents the purchasing power of dollars based on a 1982 market basket of finished producer goods. It's this real price trend that is important for evaluating long-term investments like timber and the log input cost of mills. Receiving a rate of return less than the inflation rate means that the timber owner is losing purchasing power, a negative real rate of return.

Note that each year the previous year's number is recalculated using the producer price index for finished goods for the entire year. The price index used for the current year is the last one reported for the month when the analysis is conducted: October this year. The index increased from 198.1 for 2013 to 200.5 as of October 2014. Inflation in the 1 to 2 percent range is generally considered a sign of a healthy, growing economy. The change from 2013 to 2014 is about 2 percent.

## Average Stand

The nominal weighted average price for a stand of average quality increased from \$449.1 in 2013 to \$521.1 this year (Table 6, column three and Figure 2). Again, this series is based on delivered log prices, not stumpage prices.

The deflated, or real, price increased from \$226.70 in 2013 to \$259.90 this year. The new equation for the trend line for the 1957 to 2013 period is,

$$\text{Avg. Stand Real Price} = 184.89 + 1.61 \times T, \text{ where,}$$

$$T = 1 \text{ for } 1957, 2 \text{ for } 1958 \dots 58 \text{ for } 2014$$

The average annual compound rate of interest required to take the linear trend line from \$187 in 1957 to \$278 in 2014 is 0.70%, i.e. less than 1 percent. This rate will continue to decrease until the real price is above the trend line for several years. Compare the green trend line with the red real price line in Figure 2.

## Quality Stand

The nominal weighted average price for a high-quality stand increased from \$664.1 in 2013 to \$727.50 this year. (Table 6, column six and Figure 3). The average real price series for a high-quality stand increased from an adjusted \$335.3 in 2013 to \$362.8 this year.

The average annual compound rate of increase for the trend line declined from 0.98% in 2013 to 0.97% this year (Figure 3). The equation for the trend line is,

$$\text{Quality Stand Real Price} = 223.9 + 2.92 \times T, \text{ where}$$

$$T = 1 \text{ for } 1957, 2 \text{ for } 1958 \dots 58 \text{ for } 2014$$

As for an average stand, this rate will continue to decrease until the real price is above the trend line for several years. Compare the green trend line with the red real price line in Figure 3.

## Implications

The extent to which holding a stand of timber increases purchasing power depends on when you take ownership and when you liquidate. The 58 year period used in this analysis is much longer than the typical length of ownership. The rate of increase in the trend line doesn't include the return resulting from increase in volume per acre by physical growth, nor the potential increase in unit price as trees get larger in diameter and increase in quality. Maximizing these increases in value requires timber management.

**Table 6. Weighted average actual price, price index and deflated price for an average and quality stand of timber in Indiana, 1973-2014.**

Year	Producer Price Index	Average Stand			Quality Stand		
		Nominal Price	Index Number	Real Price 1	Nominal Price	Index Number	Real Price 1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		(\$/MBF)		(\$/MBF)	(\$/MBF)		(\$/MBF)
1973	45.6	112.6	202.5	247	139	208.8	304.9
1974	52.6	135.3	243.3	257.3	170.2	255.7	323.7
1975	58.2	125.1	225	215	166.3	249.8	285.8
1976	60.8	133.6	240.2	219.7	172.7	259.4	284.1
1977	64.7	143.6	258.1	221.9	188	282.4	290.6
1978	69.8	181.7	326.1	260.3	234.9	352.9	336.6
1979	77.6	201.5	362.3	259.6	260.7	391.6	336
1980	88	207.8	373.6	236.1	309.3	464.5	351.5
1981	96.1	206.7	371.7	215.1	284.9	427.8	296.4
1982	100	196.8	353.8	196.8	277.3	416.5	277.3
1983	101.6	207.6	373.3	204.3	294.4	442.2	289.8
1984	103.7	235.8	424	227.4	322.7	484.6	311.2
1985	104.7	210.5	378.5	201	274	411.5	261.7
1986	103.2	223.6	402	216.6	312.2	468.9	302.5
1987	105.4	257.3	462.7	244.2	334.6	502.6	317.5
1988	108	262.1	471.3	242.7	345.9	519.6	320.3
1989	113.6	285.9	514	251.6	404.9	608.1	356.4
1990	119.2	288.3	518.3	241.8	397.9	597.6	333.8
1991	121.7	268.1	482.1	220.3	362.9	545.1	298.2
1992	123.2	293.4	527.6	238.2	417.6	627.1	338.9
1993	124.7	355.2	638.8	284.9	491.2	737.8	393.9
1994	125.5	364.8	655.9	290.6	507.4	762.1	404.3
1995	127.9	354	636.4	276.7	451.6	678.3	353.1
1996	131.3	337.7	607.1	257.2	495.4	744	377.3
1997	131.8	357.5	642.7	271.2	448.3	673.3	340.2
1998	130.7	391.1	703.3	299.3	501.7	753.5	383.9

Table 6. (continued)

Year	Producer Price Index	Average Stand			Quality Stand		
		Nominal Price	Index Number	Real Price 1	Nominal Price	Index Number	Real Price 1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		(\$/MBF)		(\$/MBF)	(\$/MBF)		(\$/MBF)
1999	133	389.2	699.8	292.6	526.3	790.5	395.7
2000	138	426.5	766.9	309.1	617.6	927.5	447.5
2001	140.7	389.7	700.8	277	538.5	808.8	382.7
2002	138.9	410.7	738.4	295.7	561.2	842.9	404
2003	143.3	433.7	779.7	302.6	567.9	852.9	396.3
2004	148.5	452.2	813.1	304.5	625.1	938.9	421
2005	155.7	445.2	800.5	285.9	621.5	933.4	399.9
2006	160.4	448.3	806	279.5	643.6	966.6	401.2
2007	166.6	414.2	744.8	248.6	559.9	840.9	336.1
2008	177.1	433.7	779.8	244.9	643.2	966	363.2
2009	172.1	358.8	645.2	208	512	769	296.8
2010	179.8	412.5	741.7	229.4	584.1	877.3	324.9
2011	190.5	388.5	698.6	199.2	550.4	826.6	288.9
2012	194.2	382.2	687.3	197.9	492.7	739.9	253.7
2013	198.1	449.1	807.6	226.7	664.1	997.5	335.3
2014	200.5	521.1	937.0	259.9	727.5	1092.6	362.8

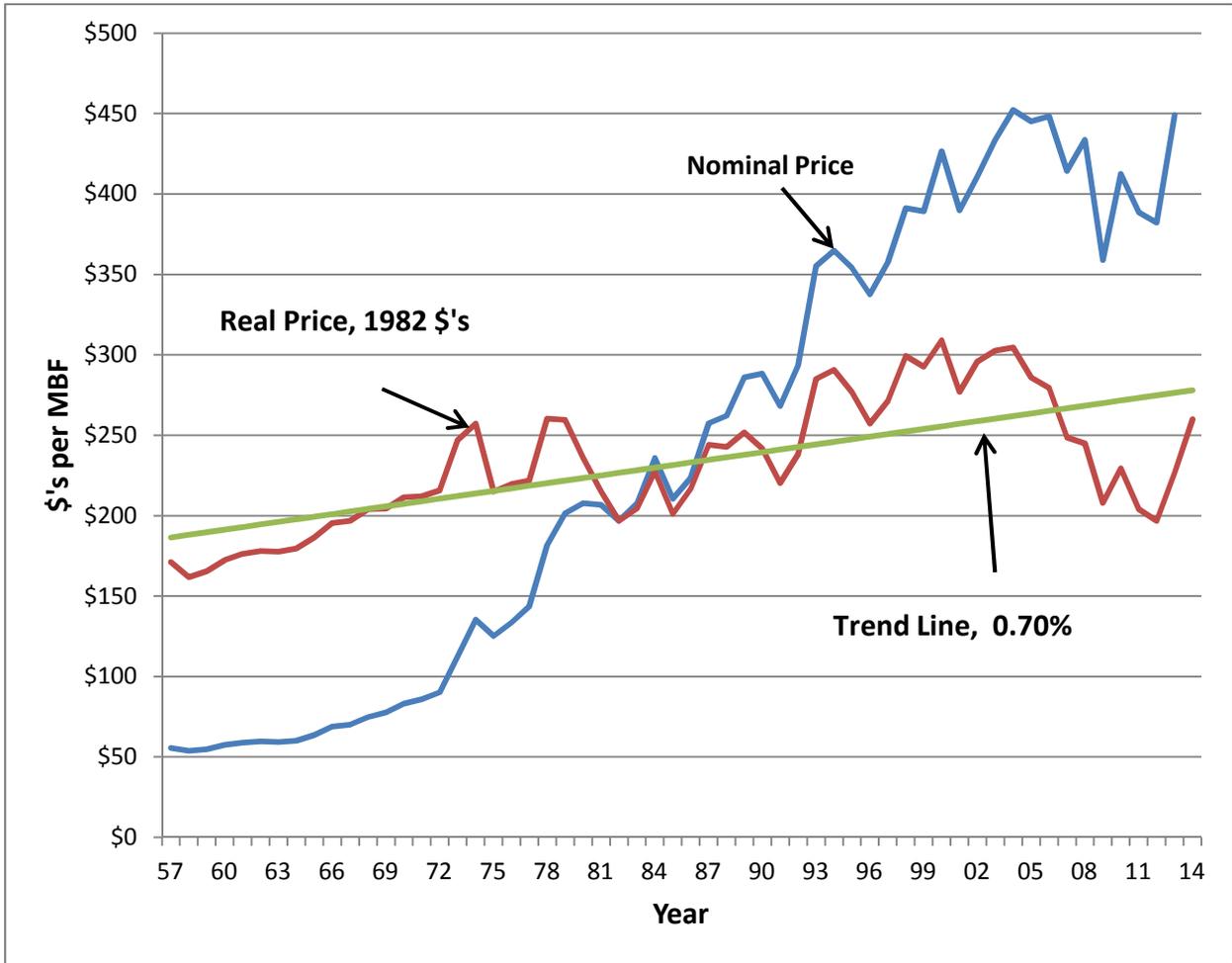


Figure 2. Average stand of timber: nominal, deflated, and trend-line price series, 1957-2014.

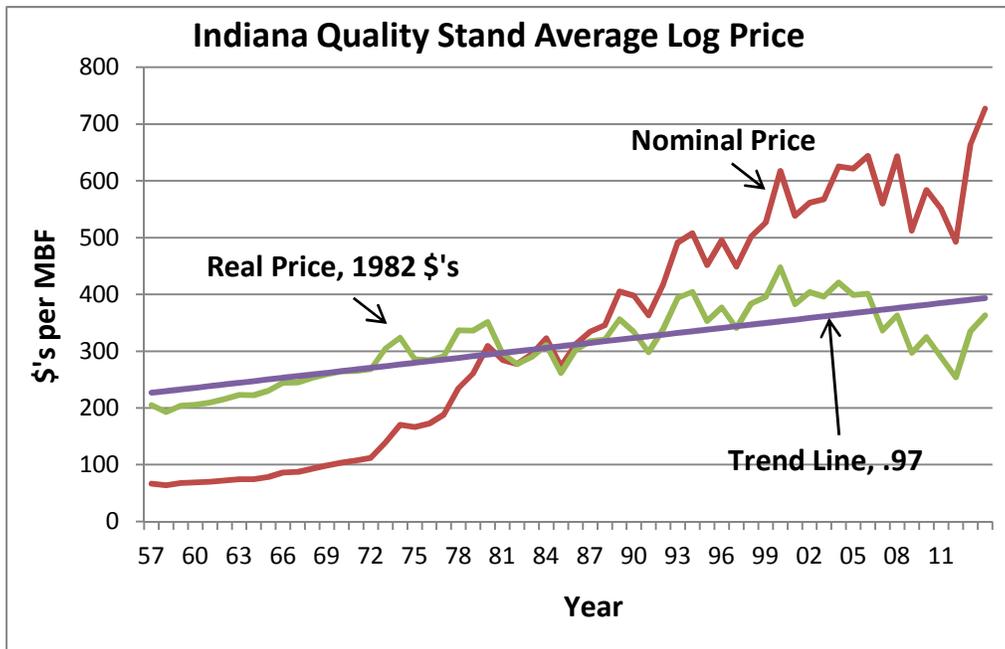


Figure 3. Quality stand of timber: nominal, deflated, and trend-line price series 1957-2014.