



2012 Indiana Forest Products Price Report and Trend Analysis

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Survey Procedures and Response

This report is intended to 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 particular 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 by the Indiana Agricultural Statistics Service and analyzed by professor Hoover. 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 275 firms. Thirty-two were returned as undeliverable. There was an initial mailing and one reminder postcard sent to non-respondents. At least one call was made to all non-respondents that received the long form. The phone

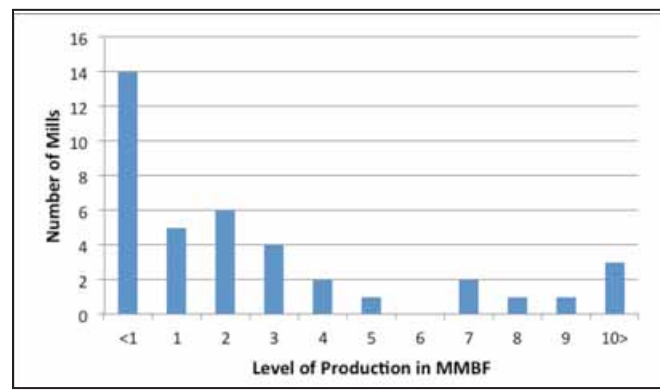


Figure 1. Distribution of the 39 mills reporting 2011 level of production.

numbers for 23 firms were no longer working. Phone solicitations were made by enumerators of the Indiana Agricultural Statistics Service. Purdue’s Department of Forestry and Natural Resources pays for this assistance using funds from its John S. Wright Endowment, not tax-based funds.

An abbreviated survey form was used for the 116 firms that do not buy logs. The long form with the tables for prices paid for sawlogs and veneer logs went to 159 firms.

Fifty-two mills reported some useful data, compared to 56 in 1911, 62 in 2010, 73 in 2009 and 88 in 2008. Seventeen 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. Thirty-nine mills reported their 2011 board foot

production. Fourteen mills reported producing 1 million board feet (MMBF) or less (Figure 1). Seven mills reported production of 5 MMBF or greater. Total production reported was 134 MMBF, a 31 percent increase from the 103 MMBF reported in 2010. The largest single mill production reported was 23 MMBF, compared to 10 MMBF in 2010. 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 buy logs, or they pay a set 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.

A New Reality for Indiana's Hardwood Industry

The hardwood industry has adjusted to its new reality. The "cleaning out" of uncompetitive producers associated with the downside of every business cycle has been completed. Some producers, however, got larger, especially those serving pallet and other industrial markets. This is possible in part because many of the small mills in this sector have shut down. Producers also have focused on the log end of their supply chains. Some have added log yards in areas where they previously had limited purchasing activity. The number of highly efficient satellite mills feeding lumber into the parent's value-added facility has increased. In addition to increased mill efficiency, transportation costs have been reduced by locating mills closer to log supplies.

This year's report, like last year's, shows that the new reality reflects the need for lumber and veneer manufacturers to keep log costs in line with lower prices they receive for lumber and veneer. The mild winter and dry spring allowed harvesting activity to keep logs moving to mills. Logging capacity, however, continues to restrain log flows.

Hardwood Lumber Prices

Table 1 shows that lumber price changes from January 2009 to July 2012 varied, as always, by species. Perhaps the biggest surprise is that ash prices have not collapsed because of increased harvests driven by the emerald ash borer (EAB). Instead, prices are increasing. Demand has remained steady in the typical ash markets. An estimated 5 percent of the ash timber region has been impacted by

EAB, with few trees in the southern region affected (See <http://www.extension.iastate.edu/NR/rdonlyres/47E91842-9B63-4140-BA3B-3870548AAC9F/124734/May13InfestationMap.JPG>). A distribution map for white ash is at <http://esp.cr.usgs.gov/data/atlas/little/fraxamer.pdf>. At least for now, ash markets are driven by typical factors, with anomalies limited to heavily infested areas where log movement is restricted.

Basswood prices remain depressed. They are unlikely to move back up until demand from the fixture sector responds to increased housing starts and remodeling.

Beech continues to follow the pattern of steady prices for 5-6 years until a slight price increase sets a new price level that prevails for another 5-6 years. The end uses of beech lumber are limited to those requiring very tight grain. Price movements for cottonwood are similar. This species is abundant as large defect-free logs. This also applies to sycamore, a species that favors the same growing sites as cottonwood.

Black cherry's return to its traditional ranking behind black walnut continues. Furniture production remains soft awaiting the much anticipated housing recovery. There's a new reality in this sector, as well. Lenders are restricting loans to borrowers with an above-average chance of actually covering their loans. This has moved more families into the rental market, driving increases in multifamily construction in some markets. The impact on furniture and fixture sales is minimal, since families driven by foreclosure to apartments aren't in the market for new furniture.

Hickory prices have been rising this year. Both domestic and international markets are strong. The character marks associated with hickory provide furniture and fixture buyers with a distinctive real wood appearance affordable in solid wood pieces.

Demand for white-wood species, including hard and soft maple, is off, driven by consumer preferences in both domestic and international markets. The declining economic growth rate in China has reduced housing starts, mostly multiunit.

White oak lumber prices remain soft, but up slightly so far this year. Mills serving the quarter- and rift-sawn markets have been kept busy this year by serving high-end markets. Logs destined for these mills also can be sliced for face veneer, providing a higher level of competition in the timber and log markets than for most other species.

Red oak prices have been up and down the last several years, and remain soft so far this year. The red oak fad, especially in the commercial building market, remains down. Red oak is left to survive in traditional furniture and fixture markets.

Yellow poplar is making a bit of a comeback, as the demand for millwork firms up in response to growing increases in construction. Significant price increases, as always, are unlikely because of the readily available timber supply and ease of processing this species.

Black walnut lumber prices were moving up in 2011, but have now fallen off by 16 percent from last summer. Demand is down based on consumer preferences in the U.S. and overseas.

Sawlog Prices

The number of mills reporting sawlog prices was up slightly this year (Table 2). Changes varied by species, with median prices showing less change than average price, as usual. This is because one out-of-range price changes the mean price more than the median price.

Consistent with price increases for ash lumber, log prices were up for all grades, 20 percent for No. 2's. Basswood prices essentially were unchanged, as were beech and cottonwood.

Lower black cherry lumber prices are reflected in 15-20 percent declines in log prices. The lowest quality, No. 3's, was up substantially. The log cost to lumber yield ratio remains sufficient for mills to process these logs.

The two upper grades of elm logs were up, likely reflecting their use for pallet lumber and blocking. Hickory prices varied greatly, with increases for No. 2 logs.

Prices paid for the higher-grade maple logs, hard and soft, increased. This is surprising given declines in lumber prices.

White oak prices were up slightly, most likely based on the availability of high-grade logs for quarter-sawn and rift-cut lumber. As noted above, another factor is competition with white oak timber and log buyers for veneer mills. The decline in red oak lumber prices is reflected in log prices, down by as much as 14 percent. Black oak, a "substitute" for red oak, showed price increases. Red oak lumber prices refer to lumber from any of the species in the red oak family. The lower cost for black oak logs makes them competitive even with lower yields of No. 1C and better lumber.

Tulip poplar log prices were up substantially. Sawmills are returning to this species as demand increases. Good

stands of this species are common in southern Indiana. Sycamore and black gum prices generally were down.

Black walnut log prices were down substantially, even median prices. The decline in log prices matched those for lumber, averaging about 15 percent in both cases. The median price of prime logs was down almost 25 percent.

Softwood Logs

One less mill reported pine log prices (Table 2, bottom). The average for the four reporting mills was \$203, down from \$228 in 2011. This may reflect decreased demand for disposal pallets, compared to hardwood reusable ones. Red cedar prices also were down.

Veneer Log Prices

The number of mills reporting veneer log prices declined further this year. One more mill was added to the list of those doing only custom cutting. This refers to mills that do not take ownership of logs, but process those of other firms. In many cases these other firms are buying logs to convert to veneer to be exported.

Veneer log prices (Table 3) were down for all the species, and by more than 50 percent for some species-grade-size categories. The declines hit even the smaller sizes of lower-grade, select, logs. This indicates that the demand for veneer was not strong enough to justify substituting these lower cost logs for larger higher grade logs. Small lower-grade logs require more handling per square foot of veneer produced. The veneer from such logs usually is trimmed for sale to producers of panels used in furniture construction. No prices for yellow poplar logs.

Miscellaneous Products

Prices of the logs purchased at a bulk price decreased (Table 4). These are logs sawn or chipped into cants, and re-sawn into boards used for pallets or blocking, railroad ties or other industrial applications. Pallet lumber logs decreased by \$14 per MBF and \$3 per ton. Prices received for byproducts, such as sawdust and bark, also were down. Bark sold by the cubic yard was an exception. That price increased by \$2 per yard.

Custom Costs

A large number of owners of small portable mills continue to saw logs brought to them. This practice harkens back to pioneer days when every county had a couple of mills that sawed logs into lumber needed by the log owners. Today, they charge a fee per MBF or per hour (Table 5). The cost for this service increased by about \$25

per MBF. Logging costs increased significantly. The mean went from \$96-\$163 per MBF. The number of firms reporting this cost increased significantly compared to previous years, making the 2011 cost estimate suspect. The logging cost increase is due in part to a decline in the number of loggers during the recession.

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 2012 for the average stand was 687.3 percent of the 1957 price. This index for a quality stand decreased from 826.6 percent to 739.9 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.

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 2009	July 2009	Jan 2010	July 2010	Jan 2011	July 2011	Jan 2012	July 2012
Ash	FAS + Prem.	735	705	715	805	785	800	800	845
	No. 1C	455	425	470	580	575	575	575	585
	No. 2A	300	290	320	380	360	360	360	360
Basswood	FAS + Prem.	685	645	635	660	645	630	630	630
	No. 1C	330	300	300	335	335	345	345	345
	No. 2A	200	180	180	190	190	190	190	190
Beech	FAS	500	500	500	500	500	500	500	500
	No. 1C	420	420	420	420	420	420	420	420
	No. 2A	345	345	345	345	345	345	345	345
Cottonwood (Southern)	FAS	615	605	605	605	625	635	635	635
	No. 1C	415	405	405	405	425	435	435	435
	No. 2A	220	220	220	220	220	220	220	220
Cherry (North Central)	FAS + Prem.	1975	1630	1610	1610	1610	1525	1355	1440
	No. 1C	825	660	660	720	720	720	655	720
	No. 2A	455	350	350	375	375	375	330	375
Hickory	FAS + Prem.	650	615	615	640	640	655	670	720
	No. 1C	490	500	500	530	530	540	560	595
	No. 2A	350	350	350	405	405	405	415	445
Hard Maple (unselected)	FAS + Prem.	1220	1080	1080	1095	995	970	1050	1050
	No. 1C	815	655	655	710	710	705	735	750
	No. 2A	480	480	480	545	535	535	565	555
Soft Maple (unselected)	FAS + Prem.	980	880	880	895	835	805	845	920
	No. 1C	550	525	535	610	595	580	595	610
	No. 2A	275	275	275	320	320	320	330	330
White Oak (plain)	FAS + Prem.	1205	800	915	1165	1060	1035	995	1015
	No. 1C	560	450	540	655	625	575	555	555
	No. 2A	420	325	365	500	500	450	420	410

Table 1. (continued)

	Lumber Grade	Jan 2009	July 2009	Jan 2010	July 2010	Jan 2011	July 2011	Jan 2012	July 2012
Red Oak (plain)	FAS + Prem.	800	705	825	1095	930	925	830	830
	No. 1C	570	500	560	665	615	580	535	520
	No. 2A	470	385	470	540	540	460	430	420
Yellow Poplar	FAS + Prem.	680	600	620	640	550	550	590	700
	No. 1C	370	340	420	470	350	360	385	445
	No. 2A	300	290	310	320	270	280	300	310
Sycamore (Southern plain)	FAS	455	455	455	455	455	455	455	455
	No. 1C	435	435	435	435	435	435	435	435
	No. 2A	375	375	375	375	375	375	375	375
Black Walnut	FAS	2010	1800	1800	1995	2105	2155	2070	1815
	No. 1C	1065	765	765	1040	1125	1160	1075	905
	No. 2A	520	360	360	620	740	770	705	505

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 2011 and May 2012.

Species/Grade	2012 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2011	2012	2011	2012	2011	2012	Mean	Median
				(\$/MBF)		(\$/MBF)			
White Ash									
Prime	300 – 600	12	17	418 (24.21)	457 (22.87)	400	450	9.3	12.5
No. 1	200 – 550	15	19	333 (12.85)	371 (19.59)	350	400	11.3	14.3
No. 2	150 – 400	15	19	254 (11.54)	283 (14.49)	250	300	11.3	20.0
No. 3	150 – 250	13	13	196 (12.89)	215 (17.54)	200	230	9.8	20.0
Basswood									
Prime	240 – 450	8	9	313 (24.55)	316 (23.99)	300	300	1.0	0.0
No. 1	200 – 450	9	10	263 (17.40)	268 (24.03)	250	245	1.8	-2.0
No. 2	150 – 300	9	10	221 (16.17)	228 (16.79)	225	240	3.4	6.7
No. 3	100 – 300	9	10	187 (15.18)	202 (18.18)	200	200	8.2	0.0
Beech									
Prime	240 – 300	8	9	258 (16.6)	258 (8.13)	250	250	0.1	0.0
No. 1	200 – 250	9	10	228 (7.60)	242 (6.2)	240	250	6.2	4.2
No. 2	150 – 250	9	10	217 (10.93)	227 (4.8)	220	240	4.8	9.1
No. 3	150 – 250	9	9	211 (10.2)	219 (3.7)	200	240	3.7	20.0
Cottonwood									
Prime	150 – 240	6	6	190 (14.14)	195 (12.04)	200	200	2.6	0.0
No. 1	150 – 240	7	7	191 (12.04)	196 (2.2)	200	200	2.2	0.0
No. 2	150 – 240	7	7	189 (12.04)	196 (3.8)	200	200	3.8	0.0
No. 3	150 – 240	7	8	189 (12.04)	205 (11.02)	200	200	8.7	0.0
Cherry									
Prime	300 – 1,100	13	16	782 (74.28)	672 (50.20)	750	625	-14.1	-16.7
No. 1	200 – 800	16	18	613 (51.94)	471 (31.95)	550	475	-23.1	-13.6
No. 2	150 – 700	16	18	373 (31.38)	350 (27.42)	325	350	-6.2	7.7
No. 3	150 – 340	15	13	211 (17.04)	244 (15.04)	200	250	15.4	25.0
Elm									
Prime	150 – 400	6	8	210 (14.61)	240 (25.70)	210	240	14.3	14.3
No. 1	100 – 300	7	8	214 (13.07)	228 (15.67)	220	240	6.2	9.1
No. 2	100 – 240	7	8	211 (13.88)	209 (10.93)	220	200	-1.3	-9.1
No. 3	150 – 240	7	7	211 (13.88)	210 (12.54)	220	200	-0.7	-9.1
Hickory									
Prime	200 – 750	12	16	423 (54.83)	401 (27.79)	400	400	-5.1	0.0
No. 1	100 – 750	15	18	338 (32.66)	340 (30.34)	325	338	0.5	3.8
No. 2	100 – 450	14	15	254 (11.26)	273 (20.73)	268	288	7.6	7.5
No. 3	150 – 450	12	12	200 (13.37)	256 (28.16)	200	250	27.9	25.0

Table 2. (continued)

Species/Grade	2012 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2011	2012	2011	2012	2011	2012	Mean	Median
				(\$/MBF)		(\$/MBF)			
Hard Maple									
Prime	300 – 1600	12	17	600 (61.55)	668 (76.57)	600	650	11.3	8.3
No. 1	200 – 1200	15	17	477 (35.81)	494 (53.01)	500	500	3.7	0.0
No. 2	150 – 550	15	17	343 (11.26)	341 (26.99)	350	350	-0.8	0.0
No. 3	150 – 300	13	13	208 (16.71)	228 (21.47)	200	240	9.6	20.0
Soft Maple									
Prime	250 – 550	10	14	332 (22.15)	368 (23.79)	325	400	10.8	23.1
No. 1	200 – 550	13	15	275 (12.79)	303 (21.68)	250	300	10.2	20.0
No. 2	150 – 400	13	14	233 (10.69)	248 (18.19)	240	240	6.5	0.0
No. 3	100 – 300	11	13	209 (12.68)	240 (16.15)	220	240	2.3	9.1
White Oak									
Prime	350 – 1170	13	17	700 (50.64)	719 (57.44)	700	700	2.7	0.0
No. 1	250 – 850	17	19	509 (31.28)	530 (35.28)	500	500	4.2	0.0
No. 2	150 – 600	17	18	345 (18.86)	354 (23.46)	350	350	2.5	0.0
No. 3	150 – 350	14	13	223 (20.71)	232 (16.26)	210	240	4.2	14.3
Red Oak									
Prime	250 – 700	13	17	550 (34.55)	547 (25.17)	550	550	-0.5	0.0
No. 1	200 – 650	16	19	430 (20.57)	424 (22.47)	450	400	-1.4	-11.1
No. 2	150 – 450	16	19	339 (17.30)	317 (17.52)	350	300	-6.6	-14.3
No. 3	150 – 350	15	13	225 (18.10)	225 (17.34)	220	240	0.0	9.1
Black Oak									
Prime	150 – 700	13	16	504 (35.90)	503 (30.44)	500	500	-0.1	0.0
No. 1	150 – 550	15	18	373 (20.19)	388 (26.19)	350	400	4.0	14.3
No. 2	100 – 400	15	18	283 (17.28)	296 (19.89)	280	300	4.3	7.1
No. 3	100 – 350	13	13	205 (17.45)	221 (19.06)	200	240	7.5	20.0
Tulip Poplar									
Prime	150 – 500	13	16	338 (19.56)	381 (18.73)	350	400	12.8	14.3
No. 1	100 – 450	16	18	278 (14.51)	307 (19.60)	275	300	10.5	9.1
No. 2	100 – 350	16	15	219 (14.21)	242 (17.13)	210	250	10.3	19.0
No. 3	100 – 250	14	13	182 (13.18)	202 (13.81)	200	200	10.6	0.0
Sycamore									
Prime	150 – 300	9	9	229 (20.24)	241 (12.96)	240	250	5.3	4.2
No. 1	100 – 250	10	10	220 (14.76)	222 (16.65)	230	245	0.9	6.5
No. 2	100 – 250	10	10	215 (12.41)	207 (15.57)	230	220	-3.7	-4.3
No. 3	100 – 250	9	9	206 (12.26)	202 (16.56)	200	200	-1.6	0.0
Sweetgum									
Prime	150 – 300	8	8	220 (22.68)	235 (15.47)	210	245	6.8	16.7
No. 1	100 – 300	8	8	205 (14.27)	210 (22.12)	200	220	2.4	10.0
No. 2	100 – 250	8	7	199 (13.29)	211 (20.29)	200	240	6.4	20.0
No. 3	100 – 250	8	7	199 (13.29)	217 (20.55)	200	240	9.3	20.0
Black Walnut									
Prime	700 – 1800	14	18	1389 (85.83)	1203 (71.68)	1450	1100	-13.4	-24.1
No. 1	600 – 1350	17	19	1079 (61.99)	953 (53.05)	1000	900	-11.7	-10.0
No. 2	300 – 1000	17	18	709 (63.48)	708 (47.36)	700	800	-0.1	14.3
No. 3	100 – 800	15	13	393 (67.94)	369 (48.22)	350	350	-6.1	0.0
Softwood									
Pine	150 – 250	5	4	228	203 (20.56)	220	205	-11.2	-6.8
Red cedar	150 – 450	5	3	347	333 (92.80)	400	400	-3.9	0.0

Table 3. Prices paid for delivered veneer logs by Indiana mills, May 2011 and May 2012.

Species/Grade/ Log Dia.	2012 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2011	2012	2011	2012	2011	2012	Mean	Median
				(\$/MBF)		(\$/MBF)			
Black Walnut									
Prime									
12-13	1200 – 5500	7	5	2500 (189.2)	2640 (777.56)	2500	2000	5.6	-20.0
14-15	2000 – 5500	9	5	3346 (207.11)	3240 (602.16)	3200	3000	-3.2	-6.3
16-17	2750 – 5500	10	6	4189 (448.85)	3708 (420.40)	3750	3500	-11.5	-6.7
18-20	1600 – 5500	10	7	5223 (540.45)	3979 (524.84)	4750	4000	-23.8	-15.8
21-23	2750 – 6000	10	5	6145 (737.82)	4950 (614.41)	5500	5500	-19.5	0.0
24-28	2750 – 7000	9	4	6575 (1027.76)	5063 (880.19)	6000	5250	-23.0	-12.5
>28	2750 – 8000	7	4	6499 (646.24)	5563 (1081.93)	7000	5750	-14.4	-17.9
Select									
12-13	1000 – 2750	4	4	1738 (167.55)	1488 (423.47)	1750	1100	-14.4	-37.1
14-15	1400 – 2750	5	4	2530 (399.87)	1788 (321.70)	2500	1500	-29.3	-40.0
16-17	1400 – 2750	6	4	2900 (365.38)	2038 (343.62)	3000	2000	-29.7	-33.3
18-20	1600 – 3500	6	4	3775 (758.70)	2413 (440.82)	3750	2275	-36.1	-39.3
21-23	1800 – 2750	6	3	4380 (957.46)	2183 (289.16)	4250	2000	-49.3	-52.9
24-28	1800 – 2750	4	3	5650 (1834.17)	2350 (284.31)	5250	2500	-58.4	-52.4
>28	2000 – 2750	3	3	4533 (1576.21)	2417 (220.48)	5000	2500	-46.7	-50.0
White Oak									
Prime									
13-14	1150 – 2400	8	2	1262 (118.15)	1775 (625.00)	1225	1775	40.6	44.9
15-17	1400 – 2400	8	3	1638 (150.31)	1933 (290.59)	1775	2000	18.1	12.7
18-20	1400 – 2400	8	4	2096 (177.70)	1950 (206.16)	2200	2000	-7.0	-9.1
21-23	2400 – 2500	8	3	2604 (112.02)	2467 (33.33)	2590	2500	-5.3	-3.5
24-28	2400 – 2750	8	3	3067 (144.94)	2633 (116.67)	3000	2750	-14.1	-8.3
>28	2400 – 3000	7	3	3290 (238.23)	2800 (200.00)	3500	3000	-14.9	-14.3
Select									
13-14	500	3	1	1017 (216.67)	500	1000	500	-50.8	-50.0
15-17	750 – 1000	3	2	1167 (260.34)	875 (125.00)	1200	875	-25.00	-27.1
18-20	750 – 1000	3	2	1533 (266.67)	875 (125.00)	1800	875	-42.9	-51.4
21-23	1000	3	2	1833 (440.96)	1000	2000	1000	-45.5	-50.0
24-28	1000	3	2	2267 (635.96)	1000	2800	1000	-55.9	-64.3
>28	1000	2	2	2250 (1250.00)	1000	2250	1000	-55.6	-55.6
Black Cherry									
Prime									
12-13	NA	2	0	1100 (100.00)	NA	1100	NA	NA	NA
14-15	2000 – 3500	6	3	2292 (417.62)	2500 (500)	1900	2000	9.1	5.3
16-17	2000 – 3500	7	4	2550 (390.51)	2563 (359.04)	2000	2375	0.5	18.8
18-20	2100 – 3500	7	4	3100 (603.96)	2650 (315.57)	2500	2500	-14.5	0.0
21-23	2250 – 3500	7	4	3586 (704.55)	2750 (270.03)	3000	2625	-23.3	-12.5
24-28	2250 – 3500	5	4	4500 (974.68)	2750 (270.03)	4000	2625	-38.9	-34.4
>28	2400 – 3500	4	4	3875 (657.49)	2788 (248.64)	4000	2625	-28.1	-34.4
Select									
12-13	600	1	1	800	600	800	600	-25.0	-25.0
14-15	600 – 1000	3	2	1817 (841.79)	800 (200.0)	1000	800	-56.0	-20.0
16-17	600 – 2750	3	3	2033 (883.80)	1483 (649.57)	1200	1100	-27.0	-8.3
18-20	600 – 2750	3	3	2883 (1331.14)	1517 (640.53)	2000	1200	-47.4	-40.0
21-23	1000 – 2750	3	3	3300 (1497.78)	1650 (553.02)	2500	1200	-50.0	-52.0
24-28	1000 – 2750	2	3	2375 (1125.00)	1650 (553.02)	2375	1200	-30.5	-49.5
>28	1000 – 2750	2	3	2875 (1625.00)	1650 (553.02)	2875	1200	-42.6	-58.3

Table 3. (continued)

Species/Grade/ Log Dia.	2012 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2011	2012	2011	2012	2011	2012	Mean	Median
				(\$/MBF)		(\$/MBF)			
Red Oak									
Prime									
16–17	550 – 1250	8	4	1166 (98.11)	925 (145.06)	1100	950	-20.7	-13.6
18–20	800 – 1250	7	4	1292 (112.08)	988 (96.56)	1200	950	-23.5	-20.8
21–23	850 – 1250	7	4	1401 (126.29)	1000 (88.98)	1500	950	-28.6	-36.7
24–28	900 – 1250	7	3	1450 (146.35)	1050 (104.08)	1500	1000	-27.6	-33.3
>28	900 – 1250	5	3	1466 (157.30)	1050 (104.08)	1500	1000	-28.4	-33.3
Select									
16–17	550 – 900	3	3	967 (33.33)	700 (104.08)	1000	650	-27.6	-35.0
18–20	650 – 900	3	3	1033 (88.19)	733 (83.33)	1000	650	-29.0	-35.0
21–23	650 – 900	3	2	1133 (185.59)	775 (125.00)	1000	775	-31.6	-22.5
24–28	650 – 900	3	2	1233 (284.80)	775 (125.00)	1000	775	-37.2	-22.5
>28	650 – 900	2	2	1400 (400.00)	775 (125.00)	1400	775	-44.6	-44.6
Hard Maple									
Prime									
16–20	1400 – 2000	7	4	1854 (182.89)	1850 (150.00)	2000	2000	-0.2	0.0
>20	1400 – 2000	6	3	1925 (294.32)	1800 (200.00)	2000	2000	-6.5	0.0
Select									
16–20	950 – 1400	2	3	1500 (500.00)	1117 (142.40)	1500	1000	-25.6	-33.3
>20	950 – 1400	2	2	1750 (750.00)	1175 (225.00)	1750	1175	-32.9	-32.9
Yellow Poplar									
Prime									
16–20	400 – 500	4	2	575 (85.39)	450 (50.00)	550	450	-21.7	-18.2
>20	400 – 500	4	2	600 (81.65)	450 (50.00)	600	450	-25.0	-25.0
Select									
16–20	350 – 500	1	2	400	425 (75.00)	400	425	6.3	6.3
>20	350 – 500	1	2	600	425 (75.00)	600	425	-29.2	-29.2

Table 4. Prices of miscellaneous products reported by Indiana mills, May 2011 and May 2012, free on board (fob) the producing mill.

	No. Responses	2012 Range	Mean		Median	
			2011	2012	2011	2012
Pallet logs, \$/MBF	24	140 – 340	250	236	250	240
Pallet logs, \$/ton	6	10 – 38	32	29	34	34
Sawn cants	1	320	310	320	310	320
Pulpwood, \$/ton	1	35	30	35	30	35
Pulp chips, \$/ton	12	5.5 – 32.1	27	22	28	22
Sawdust, \$/ton	5	3.43 – 15	12	10	9	10
Sawdust, \$/cu. yd.	13	3 – 10	5	5	4.38	5
Bark, \$/ton	5	5 – 20	10	12	8.5	12
Bark, \$/cu. yd.	12	3 – 18	7	9	4.6	7
Mixed, \$/ton	0		12		12	
Mixed, \$/cu. yd.	0					

Table 5. Custom costs reported by Indiana mills, May 2011 and May 2012.

	No. Responses	2012 Range	Mean		Median	
			2011	2012	2011	2012
Sawing (\$/MBF)	12	150-625	288	315	250	275
Sawing (\$/hour)	2	60-75	83	68	83	68
Logging (\$/MBF)	8	125-225	96	163	120	145
Hauling (\$/MBF)	5	50-80	60	58	60	50
Distance (miles)	9	25-50	45	41	45	50
\$/MBF/mile	2	3.5-4.2	3.5	4	3.5	3.8

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: July this year. The inflation rate increased by 1.36 percent from 2011 to June of this year.

Average Stand

The nominal weighted average price for a stand of average quality decreased from \$388.5 per MBF in 2011 to \$382.2 this year (Table 6, column three and Figure 2). This is a 1.62 percent decrease, continuing the downward trend. Remember that this series is based on delivered log prices, not stumpage prices.

The deflated, or real, price decreased from \$199.2 in 2011 to \$197.9, a 0.6 percent decrease. This continues the trend since 2004 of dropping further below the historical trend line. As discussed in the "Implications" section, we expect further declines.

The new equation for the trend line for the 1957 to 2012 period is,

$$\text{Avg. Stand Real Price} = 182.42 + 1.73 \times T,$$

where,

$$T = 1 \text{ for } 1957, 2 \text{ for } 1958 \dots 56 \text{ for } 2012$$

We usually say that this linear trend line should be used to project real prices of a commodity like hardwood logs. The slope of this trend line depends on the starting point. The year 1957 is used simply because this is the first year data was available. A better year might be 1972, the start of the first large price cycle. Doing so reduces the slope of this trend line to \$0.90 — i.e., next year's trend-line price is this much higher than the previous year. The average annual compound rate of increase from 1972 to 2012 based on this trend line is 0.37 percent. This means that the real rate of return from holding such a stand over

the 41 years would be 0.37 percent. Most investors seek a real rate of return of at least 1 percent. The increase for the trend line starting in 1957 is 0.76 percent (Figure 2).



Figure 2. Average stand of timber: nominal, deflated, and trend-line price series, 1957-2012.



Figure 3. Quality stand of timber: nominal, deflated, and trend-line price series 1957-2012.

Quality Stand

The nominal weighted average price for a high-quality stand decreased from \$550.41 last year to \$492.70 this year. (Table 6, column six and Figure 3). This is a 10.48 percent decrease. The average real price series for a high-quality stand decreased from \$288.9 per MBF last year to \$255.1 this year. This is an 11.69 percent decrease.

The average annual compound rate of increase for the trend line declined from 1.11 percent last year to 1.02 percent this year (Figure 3). The equation for the trend line is,

$$\text{Quality Stand Real Price} = 220.55 + 3.10 \times T,$$

where

$$T = 1 \text{ for } 1957, 2 \text{ for } 1958 \dots 56 \text{ for } 2012$$

The average annual compound rate of increase for a trend line starting in 1972 is 0.54 percent. This is a 50 percent cut in the average rate of return from holding such a stand of timber.

Table 6. Weighted average actual price, price index and deflated price for an average and quality stand of timber in Indiana, 1973-2011.

Year	Producer Price Index	Average Stand			Quality Stand		
		Nominal Price	Index Number	Real Price ¹	Nominal Price	Index Number	Real Price ¹
		(3)	(4)	(5)	(6)	(7)	(8)
(1)	(2)	(\$/MBF)		(\$/MBF)	(\$/MBF)		(\$/MBF)
1973	45.6	112.6	202.5	247.0	139.0	208.8	304.9
1974	52.6	135.3	243.3	257.3	170.2	255.7	323.7
1975	58.2	125.1	225.0	215.0	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	188.0	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	336.0
1980	88.0	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	100.0	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	424.0	227.4	322.7	484.6	311.2
1985	104.7	210.5	378.5	201.0	274.0	411.5	261.7
1986	103.2	223.6	402.0	216.6	312.2	468.9	302.5
1987	105.4	257.3	462.7	244.2	334.6	502.6	317.5
1988	108.0	262.1	471.3	242.7	345.9	519.6	320.3
1989	113.6	285.9	514.0	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	354.0	636.4	276.7	451.6	678.3	353.1
1996	131.3	337.7	607.1	257.2	495.4	744.0	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
1999	133.0	389.2	699.8	292.6	526.3	790.5	395.7
2000	138.0	426.5	766.9	309.1	617.6	927.5	447.5
2001	140.7	389.7	700.8	277.0	538.5	808.8	382.7
2002	138.9	410.7	738.4	295.7	561.2	842.9	404.0
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	421.0
2005	155.7	445.2	800.5	285.9	621.5	933.4	399.9
2006	160.4	448.3	806.0	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	966.0	363.2
2009	172.1	358.8	645.2	208.0	512.0	769.0	296.8
2010	179.8	412.5	741.7	229.4	584.1	877.3	324.9
2011	195.0	388.5	698.6	199.2	550.4	826.6	288.9
2012	193.1	382.2	687.3	197.9	492.7	739.9	255.1

PURDUE AGRICULTURE

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