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2009 Indiana Forest Products Price Report and Trend Analysis

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Survey Procedures and Response

Data for this survey were obtained by a mail survey of all known saw and veneer mills in Indiana. The survey was conducted by the Indiana Agricultural Statistics Service. The prices reported are for logs delivered to the log yards of the reporting mills and concentration yards. This report is intended to be used as an indication of price trends, not for the appraisal of logs or standing timber (stumpage). Data is collected once a year and log prices are constantly changing. 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, page 9) from delivered log prices must be interpreted with caution.

The survey was mailed to 212 mills. There was an initial mailing and one reminder postcard sent to non-respondents. Mills not responding were contacted by enumerators of the Indiana Agriculture Statistics Service. Purdue’s Department of Forestry and Natural Resources pays for this assistance using funds from its John S. Wright Endowment, not from public funds.

Seventy-three mills reported some useable data, compared to 88 last year and 102 in 2007. Six sawmills and one veneer mill responded that they went out of business. Twenty-eight declined to provide data, 11 were returned for bad addresses, and four reported that they didn’t buy logs. Thus, 123 mills were accounted for making the overall response rate 58 percent, slightly above last year’s 54 percent.

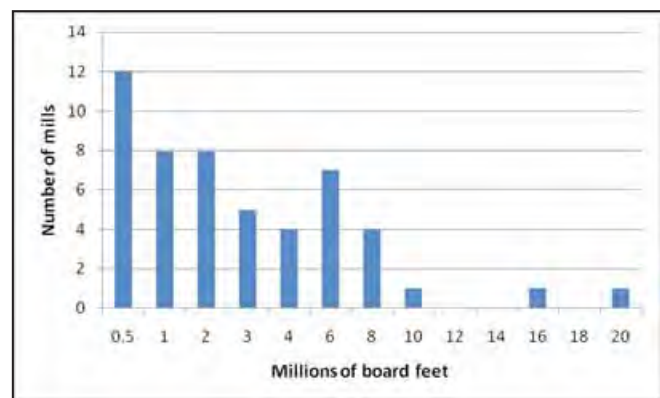


Figure 1. Distribution of the 51 mills reporting 2008 level of production

The number of mills contributing price data for each product is shown in the fourth column in Tables 2 to 3, pages 5-8. Fifty-one mills reported their 2008 total board-foot production, compared to 56 in 2007. Twelve mills reported producing 500 thousand board feet (MBF) or less, Figure 1. Total production for the reporting mills was 157 million compared to 175 million in 2007, and 205 million in 2006. Again for 2008 the largest mill responding reported 20 million board feet of output.

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 logs. They are, however, the primary source of data on the cost of custom sawing. Thus, the custom sawing costs reported in Table 4 do not reflect the operating cost of large mills.

Hardwood Lumber Prices

Considering troubles in financial markets resulting primarily from the housing bubble bursting after a

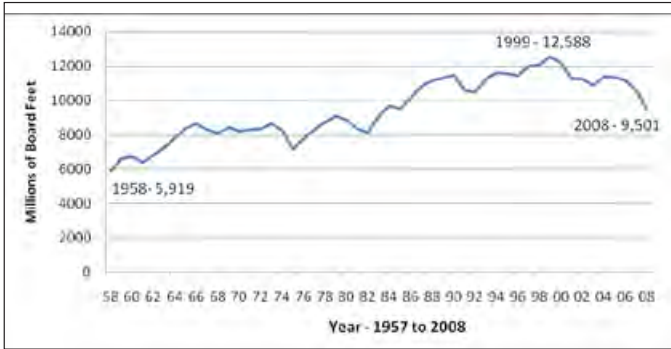


Figure 2. Total U.S. hardwood lumber production, 1958 to 2008 (Source: W. Luppold, U.S. Forest Service, Northern Research Station, Princeton, WV, personal contact, and Current Industrial Reports, U.S. Census Bureau)

period of “irrational exuberance,” many analysts are surprised that the economy did not fall even further into recession. I’m using the past tense, under the assumption that the worst is over and a slow recovery is underway. But, for the hardwood industry the best that can be said at this point is that there are a few indications of an uptick coming. Nationally, hardwood lumber output has been declining since peaking in 1999 (Figure 2). Production in 2008 was down 25 percent from this peak. Due in large part to a weak U. S. dollar, exports slightly moderated the impact of reduced domestic demand. Comments from sawmill operators indicate that production in Indiana is down about 30 percent from year-ago levels. Low-end markets were buoyed into late winter by demand for railroad ties and, to a lesser extent, for pallets and for timbers used in construction and shipping. But this has now sunk.

As this is written, lumber inventories are low enough to justify increased output based on current order levels. Price upticks in certain species will occur while supply catches up, but will then level off unless demand increases above current levels. Log yards are at or near empty since log inventories had to be reduced. Efforts to bring supplies in are facing resistance from landowners who are waiting until stumpage prices and availability of logging services increase. An advantage of the logging business, especially in the Corn Belt where firms are small, is that operators can come and go with the market. But, the number leaving the business this go-round because of the severity and length of the recession will severely delay the response of the logging industry. The likely response will be a proportionately larger increase in delivered log prices than in stumpage.

The only species increasing over the July 2008 to July 2009 period was cottonwood by a measly \$5 per MBF,

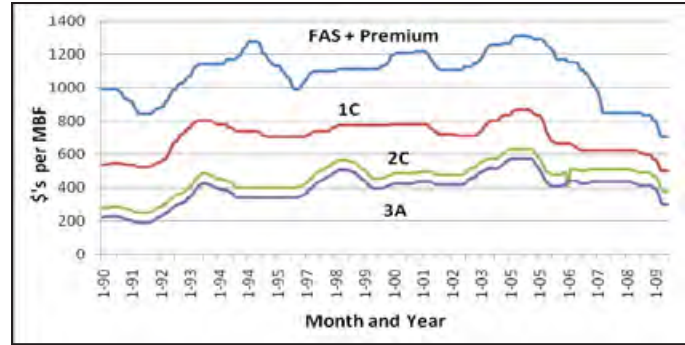


Figure 3. Red oak lumber price, monthly, January 1990 to June 2009 (Source: Hardwood Market Report, Memphis, TN)

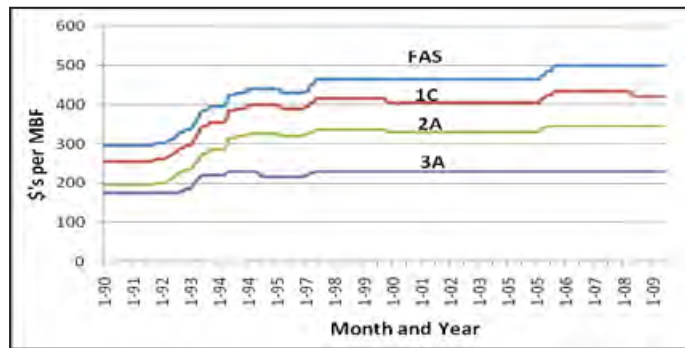


Figure 4. Beech lumber price, monthly, January 1990 to June 2009 (Source: Hardwood Market Report, Memphis, TN)

First and Seconds (FAS, the top grade of lumber) (Table 1, page 4). The largest percentage decreases were for black cherry, white oak, and black walnut. Generally, the non-premium species decreased the least in percentage terms. These species include beech, cottonwood, hickory, yellow poplar, and sycamore. The premium species have historically cycled up and down with the economy (Figure 3). Note that the two top grades cycle together as do the two lower grades, but the cycles are different, reflecting entirely different markets. Red oak FAS in June 2009 was \$705 per MBF. No premium was paid. The cyclic patterns are different for non-premium species like beech (Figure 4). These species have what I call a “ratchet pattern.” Price ratchets up or down by a small amount and stays at that level for long periods.

Sawlog Prices

The number of mills reporting prices was up slightly compared to 2008. Sawlog prices (Table 2, page 5) were down across all species. Reflecting lumber price trends, the premium species were down the most, in the 15 percent to 30 percent range, compared to less than 10 percent for the non-premium species. The lowest grade in almost all species increased the least, reflecting different

markets for low grade lumber, and tie and cants. The largest declines were for black cherry, white oak, and black walnut. Red oak has been declining since 2002 when it peaked at \$856 per MBF for prime logs. This year's \$496 is a 42 percent drop. In comparison, prime black walnut is down 15 percent from its peak in 2005.

Softwood Logs

The average for the seven mills reporting pine sawlogs was down 11.7 percent, \$210, compared to \$238 in 2008. The niche market for red cedar logs continues, down 9.7 percent, from \$450 to \$400 per MBF.

Veneer Log Prices

Veneer log prices were down more than sawlogs. Small prime walnut was down about 15 percent, larger prime logs were down over 30 percent. Select black walnut was down 25 to 60 percent. White oak was down 20 percent or more. Black cherry was down 20 to 60 percent.

Implications

We find little reason to expect a rapid recovery in the hardwood industry. Stumpage buyers will be much more active going forward, but many mills will not be able to fund the large standing inventories they've typically kept. Lead times from purchase to harvest will be in the 2 to 3 months, compared to over a year when capital availability and cash flow were better.

Stumpage buyers will be offering slightly higher prices to make close deals, but potential sellers are unlikely to know this. Most timber owners make decisions based on their overall perception of market conditions, not specific market conditions. A key will be when consulting foresters perceive that prices have recovered sufficiently to justify putting clients' timber up for sale. There is a backlog of clients waiting for sell recommendations from their consultant. This sector will become active only after buyers have worked through the easily reached direct-sale opportunities available to them.

There will be many fundamental changes in the hardwood industry in Indiana over the next decade. After recovering from this recession, production will go back on the longer run downward trend. This will impact premium species and veneer logs more than the industrial wood sector. The former is tied closely to housing and furniture, while the latter is tied to total industrial output. Export markets will make up a greater share of the market for premium species in upper grades.

The hottest topic of conversation in the wood products and forestry communities is the impact of the

renewable energy sector on wood. We need to start collecting additional information to track the impacts of this sector. Based on the data available, there are few signs that energy demand is impacting wood prices. Figure 5 shows prices per ton for small low grade sawlogs (cant logs) purchased for pallet lumber and railroad ties. The price per ton for pulpwood has caught up with cant logs. A possible indication that the energy market is affecting by-product prices is that sawdust and bark prices are coming together. We must point out that because of the low number of responses for bark and sawdust prices, any implications drawn from them must be taken lightly. In addition, there is inconsistency in how these prices are

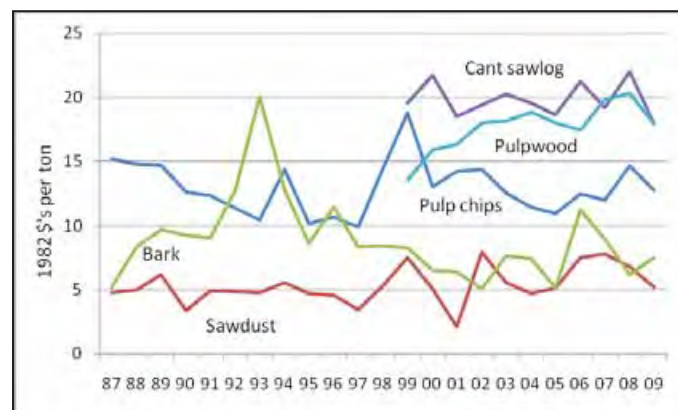


Figure 5. Price per ton for wood by-product (residue), 1987 to 2009 or 1999 to 2009.

reported.

Based on discussions with colleagues in the Forestry and Natural Resources Department, here's our assessment of the impact of renewable energy demand on wood products and forests in Indiana. Demand for sawdust will increase, driven by the fuel pellet industry that is serving domestic markets and exporting to European Union countries. Bark will be substituted to a greater extent for sawdust in boilers at wood products firms and paper mills. Hogged chips from debarked logs will also go to pellet mills. Hogged chips from slabs with bark on will go to boilers. The demand for bark for fuel will bump up against the hardwood mulch market, capping the volume going for fuel.

There will be a substantial increase in the demand for low-grade, small timber for pulpwood, pulp chips, wood pellets, and traditional firewood (split ricked wood). This demand will be met by harvesting smaller and lower grade stands. Cutover tracks with the potential to make 150 bushel or more of corn, or equivalent in soybeans, will be considered for conversion to row crop land. Lower quality tracts will be left to coppice for fuelwood on

rotations as short as 25 years. Regeneration of such sites for 60-or-more-year rotations of quality hardwoods is unlikely. As the demand for land clearing increases, the cost will come down, as larger more efficient equipment is acquired by land contractors. Clearing cost is in the \$2,000 to \$3,000 per acre range. Tiling adds at least another \$1,000.

Once the readily available supply of existing low-grade stands is drawn down, intensively managed short-rotation fuelwood plantations with genetically improved stock will come into production. A cellulosic ethanol and methanol market will come into play in about five years. Given the low yield of current processes, it's possible that the price offered for wood will not be competitive with pellet and direct-combustion markets.

What about the quality hardwood sector? As mentioned above, we expect that the total demand for hardwood lumber for high-end uses will continue a long-term decline. Existing stands with good stocking of

premium species have a good chance of staying in timber. The financial return will be adequate to cover taxes and holding costs, and provide a real rate of return equivalent to the long-term stock market average, but a somewhat lower level of short-term risk. "Owner occupied woodland" will play a greater role in the supply of quality hardwood. These are 5 to perhaps 30 acre tracts on which the owner's principal residence is located. These folks don't want to harvest in the near term, allowing the timber to grow, albeit, not managed to provide the best possible rate of return. As these tracts change hands, it's increasingly likely that the seller, or in many cases their estate, will find the liquidation of some portion of the timber wealth an irresistible option. Except for part time commercial and home-use firewood cutters, we don't expect commercial timber stand improvement (TSI) cuttings for fuelwood to have a significant impact. This would need to be reevaluated if smaller scale automated harvesting equipment, such as feller-bunchers and forwarders, come on the market.

Table 1. Hardwood Lumber prices, dollars per thousand board feet (MBF), one-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 2006	July 2006	Jan 2007	July 2007	Jan 2008	July 2008	Jan 2009	July 2009
Ash	FAS + Prem.	760	750	750	750	750	750	735	705
	No. 1C	575	525	455	455	455	465	455	425
	No. 2A	325	300	270	260	280	300	300	290
Basswood	FAS + Prem.	775	775	775	755	710	685	685	645
	No. 1C	415	415	415	385	360	340	330	300
	No. 2A	210	210	210	200	200	200	200	180
Beech	FAS	500	500	500	500	500	500	500	500
	No. 1C	435	435	435	435	435	420	420	420
	No. 2A	345	345	345	345	345	345	345	345
Cottonwood (Southern)	FAS	600	600	600	600	600	600	615	605
	No. 1C	400	400	400	400	400	400	415	405
	No. 2A	220	220	220	220	220	220	220	220
Cherry (North Central)	FAS + Prem.	2330	2470	2470	2320	2320	2145	1975	1630
	No. 1C	1320	1415	1445	1275	1230	1035	825	660
	No. 2A	625	700	715	680	635	535	455	350
Hickory	FAS + Prem.	770	770	755	735	735	690	650	615
	No. 1C	650	650	660	650	600	550	490	500
	No. 2A	405	435	450	450	425	390	350	350
Hard Maple (unselected)	FAS + Prem.	1655	1625	1535	1240	1240	1220	1220	1080
	No. 1C	1270	1205	1180	940	900	845	815	655
	No. 2A	670	620	610	530	490	480	480	480
Soft Maple (unselected)	FAS + Prem.	1450	1385	1400	1310	1295	1215	980	880
	No. 1C	845	770	700	585	570	550	550	525
	No. 2A	385	300	290	275	275	275	275	275
White Oak (plain)	FAS + Prem.	1165	1230	1335	1390	1390	1390	1205	800
	No. 1C	590	580	610	640	640	610	560	450
	No. 2A	415	410	440	440	450	450	420	325

Table 1. (continued)

	Lumber Grade	Jan 2006	July 2006	Jan 2007	July 2007	Jan 2008	July 2008	Jan 2009	July 2009
Red Oak (plain)	FAS + Prem.	1155	1090	935	850	850	835	800	705
	No. 1C	665	625	625	625	625	605	570	500
	No. 2A	510	500	510	510	510	490	470	385
Yellow Poplar	FAS + Prem.	730	800	800	775	740	680	680	600
	No. 1C	410	410	400	380	350	330	370	340
	No. 2A	305	305	295	295	290	290	300	290
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 (steamed)	FAS	2040	2055	2100	2180	2180	2135	2010	1800
	No. 1C	1030	1100	1210	1300	1285	1225	1065	765
	No. 2A	670	760	885	940	930	595	520	360

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 2008 and May 2009

Species/Grade	2009 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2008	2009	2008	2009	2008	2009	Mean	Median
White Ash									
Prime	250-450	20	23	442 (21.24)	358 (12.71)	440	350	-19.0	-20.5
No. 1	200-450	20	23	315 (14.22)	312 (12.44)	300	300	-1.1	0.0
No. 2	200-350	18	24	257 (11.74)	256 (8.86)	250	250	-0.3	0.0
No. 3	120-300	17	23	207 (10.46)	208 (8.91)	200	200	0.4	0.0
Basswood									
Prime	120-400	12	14	279 (25.72)	255 (21.17)	250	250	-8.7	0.0
No. 1	120-350	15	15	246 (15.09)	227 (17.63)	240	200	-7.5	-16.7
No. 2	120-250	14	14	206 (8.62)	201 (10.30)	200	200	-2.8	0.0
No. 3	120-240	14	16	198 (15.09)	182 (9.63)	200	190	-7.8	-5.0
Beech									
Prime	120-330	11	14	245 (13.84)	238 (13.8)	250	250	-3.1	0.0
No. 1	120-300	11	15	235 (9.08)	236 (11.29)	240	250	0.2	4.2
No. 2	120-300	13	17	230 (8.47)	227 (11.2)	230	240	-1.2	4.3
No. 3	120-280	14	16	217 (10.51)	208 (9.84)	210	200	-4.2	-4.8
Cottonwood									
Prime	120-220	9	14	203 (9.57)	176 (9.00)	200	165	-13.6	-17.5
No. 1	120-220	10	14	205 (8.72)	174 (8.56)	200	165	-15.0	-17.5
No. 2	120-220	11	14	200 (9.34)	174 (8.56)	200	165	-12.9	-17.5
No. 3	120-220	14	16	191 (11.55)	175 (7.53)	200	175	-8.2	-12.5
Cherry									
Prime	300-1100	23	25	1089 (77.06)	690 (42.33)	1000	650	-36.6	-35.0
No. 1	300-800	24	27	813 (50.15)	506 (31.95)	825	500	-37.8	-39.4
No. 2	100-600	22	24	494 (39.75)	329 (21.19)	450	300	-33.4	-33.3
No. 3	100-400	22	20	267 (23.77)	224 (15.58)	238	200	-16.3	-15.8
Elm									
Prime	120-600	11	12	223 (7.15)	238 (35.46)	220	200	7.0	-9.1
No. 1	120-500	11	11	220 (6.61)	229 (29.62)	220	200	4.1	-9.1
No. 2	120-300	12	12	218 (11.73)	204 (13.45)	210	200	-6.5	-4.8
No. 3	120-280	14	15	214 (10.42)	199 (11.19)	200	200	-7.0	0.0

Table 2. (continued)

Species/Grade	2009 Range	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2008	2009	2008	2009	2008	2009	Mean	Median
	(\$/MBF)			(\$/MBF)		(\$/MBF)			
S. Hickory									
Prime	250-500	14	21	404 (24.84)	346 (14.76)	400	350	-14.3	-12.5
No. 1	200-450	18	22	373 (23.62)	297 (13.50)	355	300	-20.3	-15.5
No. 2	120-350	17	23	274 (14.14)	252 (10.39)	270	250	-8.0	-7.4
No. 3	100-300	17	18	216 (10.84)	206 (12.24)	220	200	-5.0	-9.1
Hard Maple									
Prime	350-1000	20	23	793 (57.84)	604 (36.51)	750	600	-23.7	-20.0
No. 1	250-829	23	23	576 (31.57)	482 (29.92)	600	500	-16.4	-16.7
No. 2	200-500	23	23	399 (22.58)	336 (18.52)	400	300	-15.7	-25.0
No. 3	100-400	18	20	240 (17.62)	236 (16.93)	210	220	-1.7	4.8
Soft Maple									
Prime	200-500	14	17	399 (42.99)	335	375	350	-15.9	-6.7
No. 1	200-400	20	19	347 (24.15)	288	300	275	-16.8	-8.3
No. 2	120-300	19	18	267 (13.63)	234	250	235	-12.1	-6.0
No. 3	120-280	19	18	202 (10.22)	212	200	200	4.7	0.0
White Oak									
Prime	400-1100	22	25	902 (40.36)	665 (39.33)	925	600	-26.3	-35.1
No. 1	300-800	23	26	666 (33.77)	478 (27.61)	700	475	-28.3	-32.1
No. 2	100-600	25	28	416 (22.68)	325 (21.23)	400	300	-21.9	-25.0
No. 3	100-400	20	20	274 (19.09)	229 (15.23)	250	200	-16.3	-20.0
Red Oak									
Prime	300-1026	21	28	586 (25.41)	496 (28.95)	600	475	-15.5	-20.8
No. 1	200-800	22	27	439 (22.02)	379 (20.39)	410	400	-13.8	-2.4
No. 2	100-400	23	26	315 (13.61)	278 (13.68)	300	300	-11.6	0.0
No. 3	100-320	20	22	258 (14.69)	221 (11.22)	250	200	-14.2	-20.0
Black Oak									
Prime	200-900	19	23	562 (29.90)	454 (28.10)	550	400	-19.1	-27.3
No. 1	200-840	19	24	394 (29.08)	366 (25.32)	400	350	-7.0	-12.5
No. 2	100-400	21	24	289 (17.76)	271 (14.34)	300	290	-6.0	-3.3
No. 3	100-300	17	20	248 (15.78)	216 (11.43)	250	200	-12.8	-20.0
Tulip Poplar									
Prime	250-400	20	24	459 (28.72)	359 (9.35)	435	355	-21.9	-18.4
No. 1	200-400	21	26	339 (16.11)	299 (10.35)	350	300	-11.7	-14.3
No. 2	100-300	19	23	252 (11.47)	237 (9.69)	250	250	-6.1	0.0
No. 3	100-280	18	22	208 (9.52)	200 (9.03)	200	200	-3.8	0.0
Sycamore									
Prime	120-300	13	15	225 (10.23)	228 (13.17)	230	250	1.2	8.7
No. 1	120-280	14	16	219 (9.4)	212 (11.11)	210	200	-3.4	-4.8
No. 2	120-280	15	15	225 (10.28)	211 (11.12)	220	200	-5.9	-9.1
No. 3	120-280	16	18	220 (8.22)	214 (9.68)	210	200	-2.5	-4.8
Sweetgum									
Prime	120-300	11	14	221 (11.63)	211 (13.21)	220	200	-4.3	-9.1
No. 1	120-280	11	13	212 (8.61)	203 (11.34)	200	200	-4.1	0.0
No. 2	120-280	11	12	207 (7.76)	198 (11.73)	200	200	-4.3	0.0
No. 3	120-280	13	14	208 (9.86)	191 (9.69)	200	200	-8.5	0.0
Black Walnut									
Prime	600-1900	26	26	1308 (89.77)	1060 (62.02)	1250	1000	-18.9	-20.0
No. 1	400-1500	23	27	1076 (71.31)	816 (52.96)	1000	750	-24.2	-25.0
No. 2	280-1000	25	26	724 (47.09)	503 (37.01)	750	425	-30.5	-43.3
No. 3	100-700	21	22	428 (42.63)	312 (32.17)	400	290	27.0	-27.5
Softwood									
Pine	150-300	7	7	238 (20.06)	210 (19.02)	220	200	-11.7	-6.9
Red cedar	200-500	6	7	433 (42.65)	404 (37.96)	450	400	-9.7	-11.1

Table 3. Prices paid for delivered veneer logs by Indiana mills, May 2008 and May 2009

Species/Grade/ Log Dia.	2009 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹ (\$/MBF)		Median (\$/MBF)		Change (%)	
		2008	2009	2008	2009	2008	2009	Mean	Median
Black Walnut									
Prime									
12-13	1200-3000	11	7	2391 (235.66)	2093 (290.0)	2500	2500	-12.5	0.0
14-15	1500-5000	11	8	3473 (359.06)	3006 (376.94)	3500	3000	-13.5	-14.3
16-17	1800-6000	11	9	4209 (553.58)	3560 (451.46)	3500	3241	-15.4	-7.4
18-20	2750-8000	10	7	6820 (1085.85)	4446 (735.95)	7500	3500	-34.8	-53.3
21-23	3000-10000	8	6	7700 (1562.05)	4819 (1048.56)	7500	4000	-37.4	-46.7
24-28	4500-10000	6	3	9250 (2308.50)	6333 (1833.33)	8000	4500	-31.5	-43.8
>28	5000-10000	6	3	9500 (2217.36)	7000 (1527.53)	8000	6000	-26.3	-25.0
Select									
12-13	900-2000	6	4	1900 (318.33)	1393 (236.76)	1800	1335	-26.7	-25.8
14-15	1200-2000	6	5	2417 (454.91)	1539 (128.91)	2000	1500	-36.3	-25.0
16-17	1462-3500	7	5	2529 (448.13)	1992 (389.82)	2500	1500	-21.2	-40.0
18-20	1475-4500	5	4	4000 (707.11)	2444 (693.90)	4000	1900	-38.9	-52.5
21-23	1540-2500	5	3	5440 (1677.38)	2013 (277.21)	4000	2000	-63.0	-50.0
24-28	2000-3000	5	2	6000 (2024.38)	2500 (500.00)	4000	2500	-58.3	-37.5
>28	2000-5000	5	2	6200 (1984.94)	3500 (1500.00)	5000	3500	-43.5	-30.0
White Oak									
Prime									
13-14	850-2029	9	5	1583 (178.34)	1256 (204.23)	1500	1200	-20.7	-20.0
15-17	1000-2138	10	8	2195 (209.29)	1605 (116.44)	2150	1550	-26.9	-27.9
18-20	1200-2400	9	9	2622 (230.02)	1955 (131.13)	3000	2000	-25.4	-33.3
21-23	1750-3000	7	9	3064 (262.02)	2466 (166.62)	3000	2500	-19.4	-16.7
24-28	2500-3500	5	5	3700 (300.00)	2963 (205.06)	4000	3000	-19.9	-25.0
>28	2500-4500	5	3	3800 (374.17)	3500 (577.35)	4000	3500	-7.9	-12.5
Select									
13-14	800-1741	5	3	1220 (190.79)	1130 (305.67)	1300	850	-7.3	-34.6
15-17	850-1679	5	4	1660 (143.53)	1282 (174.38)	1500	1300	-22.8	-13.3
18-20	850-2000	4	4	2000 (204.12)	1629 (263.05)	2000	1834	-18.5	-8.3
21-23	850-2400	5	3	2360 (273.13)	1817 (486.77)	2500	2200	-23.0	-12.0
24-28	1200-3000	4	2	2625 (515.39)	2100 (900.0)	2750	2100	-20.0	-23.6
>28	1200-4000	4	2	2750 (595.12)	2600 (1400.0)	2750	2600	-5.5	-5.5
Black Cherry									
Prime									
12-13	600-2500	7	4	1729 (276.64)	1438 (480.18)	2000	1325	-16.8	-26.4
14-15	650-3500	9	6	2478 (367.72)	1825 (477.10)	2000	1750	-26.3	-12.5
16-17	750-4000	8	7	3375 (580.56)	2114 (529.46)	3250	1300	-37.4	-60.0
18-20	850-5250	6	7	4433 (922.56)	2450 (650.46)	3550	1500	-44.7	-57.7
21-23	900-5000	6	5	5000 (1024.70)	2590 (733.89)	4000	2500	-48.2	-37.5
24-28	1000-5000	5	3	5400 (1197.91)	3167 (1166.67)	5000	3500	-41.4	-30.0
>28	1000-6000	5	3	5400 (1197.91)	4000 (1527.53)	5000	5000	-25.9	0.0
Select									
12-13	500-600	4	2	1500 (300.00)	550 (50.0)	1600	550	-63.3	-65.5
14-15	600-2000	4	3	1700 (362.86)	1067 (466.67)	1750	600	-37.3	-65.7
16-17	600-2500	4	3	1963 (311.83)	1300 (602.77)	2000	800	-33.8	-60.0
18-20	600-4000	3	4	2833 (166.67)	1601 (812.10)	3000	901.5	-43.5	-70.0
21-23	600-2000	3	2	3333 (440.96)	1300 (700.00)	3500	1300	-61.0	-62.9
24-28	600-3000	3	2	3500 (500.00)	1800 (1200.0)	4000	1800	-48.6	-55.0
>28	600-5000	3	2	3500 (500.00)	2800 (2200)	4000	2800	-20.0	-30.0

Table 3. (continued)

Species/Grade/ Log Dia.	2009 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2008	2009	2008	2009	2008	2009	Mean	Median
Red Oak									
Prime									
16-17	750-1500	8	6	1094 (125.51)	1048 (112.56)	1200	1020	-4.2	-15.0
18-20	1000-1700	7	5	1250 (126.77)	1224 (126.40)	1300	1200	-2.1	-7.7
21-23	1000-1700	5	5	1640 (172.05)	1295 (132.38)	1800	1200	-21.0	-33.3
24-28	1000-1800	5	3	1720 (205.91)	1533 (266.67)	1800	1800	-10.9	0.0
>28	1000-2000	5	3	1840 (263.82)	1600 (305.51)	1800	1800	-13.0	0.0
Select									
16-17	550-800	3	2	717 (148.14)	675 (125.00)	650	675	-5.8	3.8
18-20	550-1000	2	3	1100 (100.00)	783 (130.17)	1100	800	-28.8	-27.3
21-23	550-1200	2	2	1650 (150.00)	875 (325.00)	1650	875	-47.0	-47.0
24-28	550-1500	2	2	1900 (100.00)	1025 (475.00)	1900	1025	-46.1	-46.1
>28	550-1500	2	2	2100 (100.00)	1025 (475.00)	2100	1025	-51.2	-51.2
Hard Maple									
Prime									
16-20	2000-2250	8	6	2150 (309.38)	2126 (49.24)	2000	2130	-1.1	6.4
>20	2250-3000	6	3	2783 (622.05)	2583 (220.48)	2600	2500	-7.2	-3.8
Select									
16-20	600-1800	4	5	1850 (405.17)	1230 (242.69)	1750	1000	-33.5	-42.9
>20	600-2500	2	2	2250 (250.00)	1550 (950.00)	2250	1550	-31.1	-31.1
Yellow Poplar									
Prime									
16-20	400-1200	6	3	700 (86.60)	683 (258.74)	725	450	-2.4	-37.9
>20	400-1500	5	4	720 (121.04)	738 (257.69)	650	525	2.4	-19.2
Select									
16-20	400-800	2	2	500 (100.00)	600 (200.00)	500	600	20.0	20.0
>20	400-1200	2	2	500 (100.00)	800 (400.00)	500	800	60.0	60.0

Custom Costs

The number of mills reporting custom costs was down by about 30 percent compared to last year. The average cost reported for custom sawing was \$297 per MBF, up from \$274 last year, Table 4, page 9. The mills reporting are primarily small "local" mills, many portable. Two mills reported on a per-hour basis. The average was \$45, down from \$62 last year. Average logging cost was \$131 per MBF, about the same as last year's \$138. The reported cost of hauling was \$50, back to the level reported in 2007, but down 50 percent from last year. The calculated cost per MBF per mile also was down about 50 percent, going from \$1.98 to \$1.00.

The average logging cost of \$131 per MBF plus a hauling cost of \$1 per MBF per mile for the 67 mile average haul equates to a cost of about \$200 to put a thousand board feet of logs on a mill deck, compared to \$227 per MBF in 2008. With the average price of pallet logs at \$226, Table 5, the so-called "conversion surplus" is \$26 per MBF or 2.6 cents a board foot.

Miscellaneous Products

The number of mills reporting prices for miscellaneous products was down on about 15 percent. The average price paid for cant logs (i.e., logs sawn for pallet lumber, railroad ties, and industrial and trucking blocking) was \$226 per MBF, down from \$248 last year, Table 5 page 9. The price per ton decreased to \$31 from \$39 in 2008. Pulp chip prices decreased from \$26 per ton to \$22, while pulpwood decreased from \$36 to \$31 per ton. Any declines in mill residue must be interpreted with suspicion. The decline in sawmill production in the 30 percent range on average has reduced residue availability. Anecdotal reports indicate that some mills are short of boiler fuel needed to power their dry kilns.

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

Table 4. Custom costs reported by Indiana mills, May 2008 and May 2009

	No. Responses	2009 Range	Mean		Median	
			2008	2009	2008	2009
Sawing (\$/MBF)	21	120-650	274	297	250	250
Sawing (\$/Hour)	2	30-60	62	45	60	45
Logging (\$/MBF)	4	50-200	138	131	150	140
Hauling (\$/MBF)	2	50	100	50	50	50
Distance (Miles)	7	15-200	43	67	35	40
\$/MBF/Mile	2	1.25-1.67	1.98	1.00	2.00	1.46
\$/Mile	0		4		4	

Table 5. Prices of miscellaneous products reported by Indiana mills, May 2008 and May 2009, free on board (fob) the producing mill

	No. Responses	2009 Range	Mean		Median	
			2008	2009	2008	2009
Cant logs, \$/MBF	28	150-350	248	226	245	223
Cant logs, \$/ton	4	28-32	39	31	39	32
Pulpwood, \$/ton	2	30-32	36	31	36	31
Pulp Chips, \$/ton	19	10-35	26	22	25	25
Sawdust, \$/ton	10	3.5-16	12	9	8.20	8
Sawdust, \$/cu. yd.	13	2-12	3.00	6	3.33	5
Bark, \$/ton	6	6-27	11	13	10.75	11
Bark, \$/cu. yd.	18	3-25	6	9	5.50	7.75
Mixed, \$/ton	0		12		12	
Mixed, \$/cu. yd.	1	3	na	3	na	3

monitor long-term price trends for timber. The species distribution used to calculate the weighted averages are presented in Table 6, page 10. The log quality weights used are presented in Table 7, page 10. These weights are based primarily on the 1967 Forest Survey of Indiana.

The nominal (not deflated) price (columns three and six of Table 8 page 12) are a weighted average of the delivered log prices reported in the price survey. The price indexes (columns four and seven) 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 2009 was almost 645 percent of the price in 1957 for the average stand. The real prices (columns five and eight) are the nominal prices deflated by the producer price index for finished goods with 1982 as the base year (Table 8, column two). The real price series represents the purchasing power of dollars based on a 1982 market basket of finished producer goods (Figure 6). It's this real price trend that is important for long-term investments like timber. Receiving a rate of return less than the inflation rate means that the timber owner is losing purchasing power.

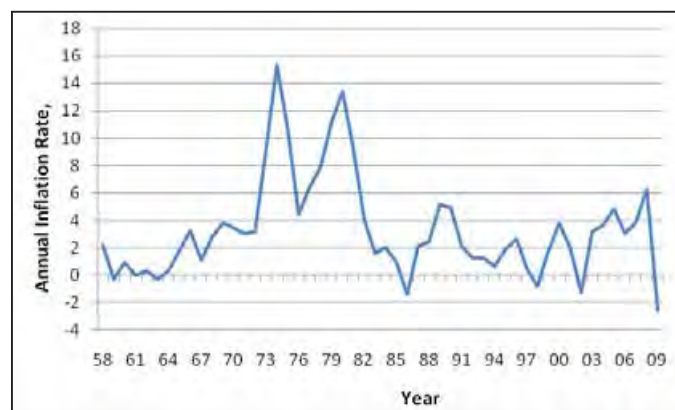


Figure 6. Annual inflation rate for all finished producer goods, 1958 to July 2009

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 decreased more than 2.5 percent as of July of this year compared to the average rate for 2008.

Average Stand

The nominal weighted average price for a stand of average quality decreased from \$433.7 last year to \$358.8 per MBF (Table 8, column three and Figure 7). This is a 17.3 percent drop, the largest decline since this price report started in 1957. The next largest decline was 10.7 percent from 1984 to 1985. Remember that this series is based on delivered log prices, not stumpage prices.

The deflated or real price decreased from \$244.9 to \$207.9, 15.1 percent drop. This decrease continued the slow decline in the trend-line rate for the real price series. It went from 1.02 percent simple compound rate of interest last year to 0.95 percent this year.

The new equation for the trend line for the 1957 to 2009 period is,

$$\text{Avg. Stand Real Price} = 173.66 + 2.00 \times T,$$

where,

$$T=1 \text{ for } 1957, 2 \text{ for } 1958 \dots 53 \text{ for } 2009$$

A linear trend line should be used to project timber prices, as discussed in greater detail in Purdue University Station Bulletin No. 148. Although it's easier to simply plug the average annual compound rate of increase value into the compound interest formula (exponential rate of increase), projections for much longer than 15 years give unrealistic results. Real prices can't increase exponentially for long periods of time. The market adjusts by using more substitutes for "real wood" and through the willingness of consumers to accept substitutes.

Quality Stand

The nominal weighted average price for a high quality stand decreased 20.4 percent from \$643.2 in 2008 to \$512.0 per MBF (Table 8, column six and Figure 8). The average real price series for a high quality stand decreased 18.3 percent from \$363.2 in 2008 to \$296.6 per MBF.

The average annual compound rate of increase for the trend line declined from 1.33 percent per annum in 2008 to 1.25 percent this year (Figure 8). The equation for the trend line is,

$$\text{Quality Stand Real Price} = 207.62 + 3.79 \times T,$$

where

$$T=1 \text{ for } 1957, 2 \text{ for } 1958 \dots 53 \text{ for } 2009$$

Thus, the contribution of the real price increase to the total financial return on a quality stand continues to be higher than for the average stand of timber in Indiana. This is an obvious justification for evaluating the potential rate of return from conducting crop tree selection, but the costs for such a treatment must be considered as well.

Table 6. Species composition of the Indiana timber price index for an average and a quality stand

Species	Average Stand	Quality Stand
<i>Veneer species:</i>	(%)	(%)
White oak	13.4	21.0
Red oak	15.1	20.0
Hard maple	9.6	14.0
Yellow poplar	7.5	9.0
Black walnut	5.4	5.0
<i>Non-veneer species:</i>		
White ash	5.8	3.1
Basswood	1.5	3.1
Beech	5.6	3.1
Cottonwood	6.2	3.1
Black cherry	0.8	3.1
Elm	1.2	3.1
Hickory	4.7	3.1
Soft maple	6.7	3.1
Black oak	11.4	3.1
Sycamore	5.1	3.1

Table 7. Log quality composition of the Indiana timber price index for an average and a quality stand.

Log Grade	Average Stand		Quality Stand	
	Veneer Species	Non-veneer Species	Veneer Species	Non-veneer Species
Veneer logs	(%)	(%)	(%)	(%)
Prime	1.0	0.0	7.0	0.0
Select	3.0	0.0	13.0	0.0
Sawlogs				
Prime	20.0	24.0	19.0	24.0
No. 1	26.0	26.0	21.0	26.0
No. 2	38.0	38.0	33.0	38.0
No. 3	12.0	12.0	7.0	12.0

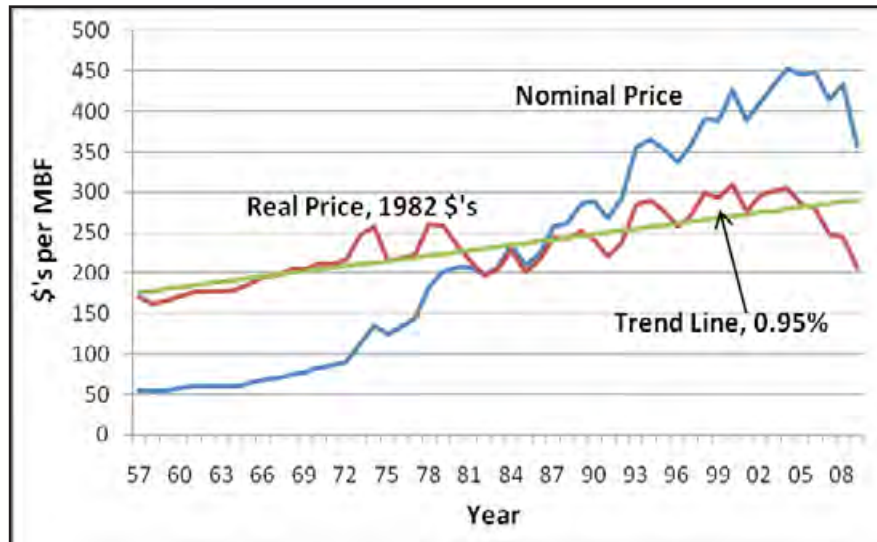


Figure 7. Average stand of timber: nominal, deflated, and trend line price series, 1957 to 2009

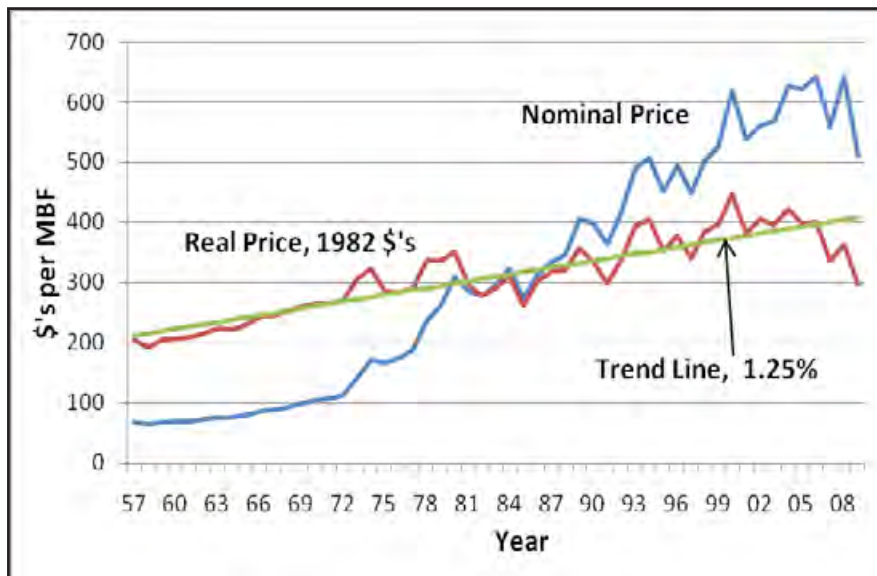


Figure 8. Quality stand of timber: nominal, deflated, and trend line price series 1957 to 2009

Table 8. Weighted average actual price, price index, and deflated price for an average and quality stand of timber in Indiana, 1971 to 2009

Year	Producer Price Index	Average Stand			Quality Stand		
		Nominal Price (\$/MBF)	Index Number	Real Price ¹ (\$/MBF)	Nominal Price (\$/MBF)	Index Number	Real Price ¹ (\$/MBF)
1971	40.5	85.9	154.4	212.0	107.4	161.3	265.2
1972	41.8	90.2	162.2	215.8	112.2	168.5	268.4
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	172.6	358.8	645.2	207.9	512.0	769.0	296.6

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