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**1999 INDIANA FOREST PRODUCTS PRICE
REPORT AND TREND ANALYSIS**

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and

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SURVEY PROCEDURES AND RESPONSE

Data for this survey was obtained by a mail survey of all known mills in Indiana who buy logs. The prices reported are for logs fob the log yards of the reporting mills. Approximate stumpage prices can be obtained by subtracting logging and hauling costs, Table 4, from the delivered sawlog and veneer log prices.

The number of mills providing data approximately doubled from last year. This makes the results much more reliable indicators of what's being estimated, i.e. price trends. The number of mills contributing price data for a specific product is shown in the product entries in Tables 1 and 2.

For the last 15 years at least the Indiana Forest Products Price Survey has been mailed out and responses returned to the Indiana Agricultural Statistics Service (IASS). This year for the first time IASS enumerators were used to contact mills not responding to the mail solicitation. These enumerators were familiarized with the hardwood forest products industry and this survey as part of their annual training. Although a few mills "sent packing" enumerators who made mill visits, a large majority were well received. The enumerators usually deal with production agricultural surveys. They appreciated the opportunity to become familiar with our industry and the many wonderful men and women representing it.

This report is intended to be used as an indication of price trends, not for the market appraisal of logs or stumpage. This data is collected only once a year and log prices are constantly changing. Proper appraisal techniques by those familiar with market conditions on a day-by-day basis should be used to obtain estimates of current market values.

SAWLOG PRICES

The hardwood lumber industry remained very strong over the last twelve months. There were the usual periods of price adjustments in response to log availability and lumber demand. To the surprise of many in the industry the price of black cherry continued its upward spiral, while oak softened.

As of the May survey date sawlog prices were mixed, Table 1. Prices for the premium species were about the same as 1998, but with some adjustments. Hard maple was down about 9 percent on average. White oak was down for the two top log grades. Tulip poplar and black walnut were also down. Black walnut was down over 15 percent, except for the lowest grade of logs.

Lumber prices as of the end of November 1999, Table 2, indicate upward pressure on prices. Since the weather has been dry throughout the hardwood region the increases can't be attributed to poor logging conditions in the woods. Since there's no indication of any demand increases, the price increases are apparently due to a less than ample logs supplies at mills. Mills may have held back on log purchases to see how the economy was going to respond to interest rate increases.

Table 1. Prices paid for delivered sawlogs by Indiana sawmills, May 1998 and May 1999.

Species/Grade	Range (\$/MBF)	No. Respon.		Mean (s.e.) ¹		Median		Change (%)	
		1998	1999	1998 (\$/MBF)	1999	1998	1999 (\$/MBF)	Mean	Median
White Ash									
Prime	350-700	14	50	512 (20.5)	513 (12.13)	500	500	0.2	0
No. 1	250-615	15	53	410 (23.0)	398 (10.57)	400	400	-2.9	0
No. 2	140-515	15	53	282 (20.7)	280 (10.69)	275	300	-.7	9.0
No. 3	80-315	12	55	185 (15.3)	190 (5.91)	200	200	2.7	0
Basswood									
Prime	160-500	13	35	356 (33.9)	335 (16.30)	300	350	-5.9	16.7
No. 1	160-400	15	39	293 (16.5)	273 (11.24)	300	300	-6.8	0
No. 2	120-300	13	37	217 (12.1)	212 (6.75)	200	200	-2.3	0
No. 3	80-240	12	42	178 (17.3)	179 (6.10)	180	200	.55	11.1
Beech									
Prime	80-350	10	41	242 (15.5)	224 (8.97)	225	200	-7.4	-11.1
No. 1	80-300	11	40	219 (14.8)	199 (6.81)	200	200	-9.1	0
No. 2	80-265	11	39	194 (17.2)	185 (6.45)	200	200	-4.6	0
No. 3	80-250	11	49	166 (14.2)	179 (5.82)	200	180	7.8	-10
Cottonwood									
Prime	90-350	6	22	195 (20.6)	165 (11.33)	200	150	-15.3	-25
No. 1	90-200	6	20	187 (17.6)	156 (7.86)	200	150	-16.6	-25
No. 2	80-200	7	20	181 (15.8)	151 (8.30)	200	150	-16.6	-25
No. 3	80-240	9	33	169 (15.2)	165 (7.79)	200	150	-2.4	-25

¹ Standard error of the mean is given in parentheses below the mean.

Table 1. Prices paid for delivered sawlogs by Indiana sawmills, May 1998 and May 1999, continued.

Standard Species/Grade	Range (\$/MBF)	No. Respon.		Mean (s.e.) ¹		Median		Change %	
		1998	1999	1998	1999	1998	1999	Mean	Median
Cherry									
Prime	600-1700	16	52	1044 (75.7)	1085 (42.37)	1000	1000	3.9	0
No. 1	400-1400	17	54	791 (47.4)	824 (30.96)	800	800	4.2	0
No. 2	200-900	17	56	515 (51.6)	519 (23.73)	450	500	.7	11.1
No. 3	100-600	14	54	279 (45.8)	243 (11.71)	220	220	-12.9	0
Elm									
Prime	140-375	7	27	226 (29.8)	210 (9.82)	200	200	-7.1	0
No. 1	140-365	8	27	215 (14.5)	207 (10.00)	200	200	-3.7	0
No. 2	85-265	7	28	197 (6.8)	187 (7.58)	200	180	-5.1	10
No. 3	85-250	9	39	170 (15.1)	181 (6.82)	200	180	6.5	10
S. Hickory									
Prime	170-600	13	43	346 (27.7)	339 (16.38)	380	300	-2.0	-21.1
No. 1	160-500	15	48	279 (19.5)	288 (13.25)	300	280	3.2	-6.6
No. 2	85-350	15	47	209 (12.9)	216 (8.34)	200	200	3.3	0
No. 3	80-250	12	52	168 (14.1)	183 (5.74)	180	200	8.9	11.1
Hard Maple									
Prime	300-1100	15	51	713 (47.9)	669 (22.45)	750	700	-6.1	-6.7
No. 1	300-915	17	53	567 (38.8)	534 (20.31)	550	500	-5.8	-9.1
No. 2	140-715	16	54	367 (28.2)	345 (15.67)	375	325	-6.0	-13.3
No. 3	80-365	14	52	220 (17.8))	205 (7.80)	210	200	-6.8	-4.7
Soft Maple									
Prime	140-550	11	41	337 (26.8)	326 (14.39)	325	300	-3.3	-7.7
No. 1	140-500	13	48	293 (22.9)	281 (11.81)	300	285	-4.1	-5.0
No. 2	120-350	13	48	228 (15.6)	216 (7.67)	200	200	-5.3	0
No. 3	80-270	12	51	172 (12.8)	181 (6.00)	180	180	5.2	0

¹ Standard error of the mean is given in parentheses below the mean.

Table 1. Prices paid for delivered sawlogs by Indiana sawmills, May 1998 and May 1999, cont.

Species/Grade	Range (\$/MBF)	No. Respon.		Mean (s.e.) ¹		Median		Change (%)	
		1998	1999	1998 (\$/MBF)	1999 (\$/MBF)	1998 (\$/MBF)	1999 (\$/MBF)	Mean	Median
White Oak									
Prime	250-1000	16	49	728 (41.1)	633 (19.64)	750	600	-13	-20.0
No. 1	250-815	17	54	528 (34.4)	488 (15.10)	500	488	-7.6	-2.4
No. 2	150-600	16	58	310 (26.5)	322 (12.92)	300	300	3.8	0
No. 3	80-500	12	58	201 (19.2)	211 (9.18)	200	200	5.0	0
Red Oak									
Prime	350-1615	17	54	772 (30.6)	780 (22.98)	800	800	1.0	0
No. 1	400-1015	17	56	579 (19.3)	600 (13.37)	600	600	3.6	0
No. 2	170-715	16	58	365 (25.2)	397 (14.74)	375	400	8.8	6.7
No. 3	80-475	13	59	225 (18.3)	227 (9.68)	220	200	0.9	-9.1
Black Oak									
Prime	300-1200	14	46	706 (29.4)	691 (21.37)	700	700	-2.1	0
No. 1	300-815	16	50	525 (17.8)	519 (15.66)	510	500	-1.1	-2.0
No. 2	170-600	16	53	315 (20.3)	340 (13.74)	300	300	7.9	0
No. 3	80-400	12	50	203 (16.5)	210 (7.84)	200	200	3.4	0
Tulip Poplar									
Prime	300-550	14	49	427 (15.2)	414 (7.62)	415	400	-3.0	-3.6
No. 1	250-500	16	54	333 (13.7)	326 (7.53)	340	300	-2.1	-11.8
No. 2	120-400	16	53	241 (12.5)	235 (7.39)	250	240	-2.5	-4.0
No. 3	80-300	13	54	189 (14.7)	188 (6.15)	200	190	-0.5	0.5
Sycamore									
Prime	100-350	11	36	211 (11.3)	218 (8.17)	200	200	3.3	0
No. 1	100-350	10	36	196 (7.2)	204 (7.84)	200	200	4.1	0
No. 2	85-265	11	36	180 (11.8)	178 (7.07)	200	180	-1.1	-10
No. 3	85-250	11	47	171 (12.7)	178 (6.05)	200	180	4.1	-10

¹ Standard error of the mean is given in parentheses below the mean.

Table 1. Prices paid for delivered sawlogs by Indiana sawmills, May 1998 and May 1999, continued

Species/Grade	Range (\$/MBF)	No. Respon.		Mean (s.e) ¹		Median		Change (%)	
		1998	1999	1998	1999	1998	1999	Mean	Median
Sweetgum									
Prime	150-300	8	32	216 (11.5)	210 (6.46)	210	200	-2.8	-4.7
No. 1	150-300	8	30	193 (7.5)	194 (5.74)	200	200	-0.5	0
No. 2	85-250	9	31	181 (11.6)	176 (6.41)	200	180	-2.8	-10
No. 3	85-250	10	40	165 (14.4)	177 (6.57)	180	180	7.2	09
Black Walnut									
Prime	400-1500	14	42	836 (66.8)	820 (35.01)	1000	800	-1.9	-20
No. 1	400-1000	15	46	673 (38.7)	638 (23.16)	700	600	-5.2	-14.3
No. 2	200-800	14	48	425 (20.8)	396 (20.14)	425	350	-6.8	-17.6
No. 3	80-415	12	48	207 (17.2)	232 (10.75)	200	210	12.1	5.0
Softwood									
Pine	180 - 250	2	10	210	203	210	200	-3.33	-4.76
Red cedar									
Sawlog	350	1	1	400	350	400	350	-12.50	-12.50
Chipping	175	n.a.	1	n.a.	175	n.a.	175	n.a.	n.a.

Table 2. Hardwood Lumber prices, 4/4 Appalachian unless otherwise indicated (Hardwood Market Report, Memphis, Tenn.), \$ per MBF.

	Lumber Grade	Jan 1996	June 1996	Jan 1997	July 1997	Jan 1998	July 1998	Jan 1999	July 1999	Nov 1999
Ash	FAS + Prem.	925	845	845	845	800	745	735	735	765
	No. 1C	680	600	590	590	560	560	560	560	575
	No. 2A	360	325	320	320	310	310	310	310	315
Basswood	FAS + Prem.	710	710	710	735	735	710	710	710	635
	No. 1C	350	350	350	360	360	360	360	360	375
	No. 2A	220	195	195	225	225	225	225	225	225
Beech	FAS	440	430	435	465	465	465	465	465	465
	No. 1C	400	390	395	415	415	415	415	415	405
	No. 2A	325	320	325	335	335	335	335	335	330
Cottonwood (Southern)	FAS	605	600	600	600	600	600	600	600	600
	No. 1C	405	400	400	400	400	400	400	220	400
	No. 2A	220	220	220	220	220	220	220	185	220
Cherry	FAS + Prem.	1670	1670	1785	1875	1940	2010	2025	2040	2100
	No. 1C	845	845	855	885	895	1065	1120	1135	1135
	No. 2A	445	445	445	465	475	625	675	690	690
Elm (Southern)	FAS	355	355	355	355	355	355	355	355	355
	No. 1C	335	335	335	335	335	335	335	270	335
	No. 2B	270	270	270	270	270	270	270	205	270
Hickory	FAS + Prem.	455	455	645	755	755	755	785	880	880
	No. 1C	435	435	460	510	510	510	540	620	620
	No. 2A	265	265	275	300	300	300	320	385	385
Hard Maple	FAS + Prem.	990	1060	1215	1370	1370	1230	1235	1310	1350
	No. 1C	625	635	715	805	835	845	845	845	855
	NO. 2A	370	370	445	495	560	550	490	435	435
Soft Maple	FAS + Prem.	700	715	835	975	975	915	845	835	865
	No. 1C	500	500	560	650	650	650	625	590	590
	No. 2A	325	325	355	400	400	400	380	325	315
White Oak -Plain	FAS + Prem.	1005	1005	1015	1080	1080	990	955	920	925
	No. 1C	600	600	600	615	615	595	570	535	530
	No. 2A	315	305	305	365	430	435	380	330	365
Red Oak-Plain	FAS + Prem.	1130	1010	1050	1100	1100	1115	1115	1115	1195
	No. 1C	705	705	710	740	760	775	775	775	780
	No. 2A	400	400	430	500	555	560	505	455	480
Yellow Poplar	FAS + Prem.	625	650	665	710	680	680	650	670	785
	No. 1C	330	355	390	435	435	410	390	380	395
	No. 2A	235	250	270	295	295	295	295	285	285

Table 2. Hardwood Lumber prices, 4/4 Appalachian unless otherwise indicated (Hardwood Market Report, Memphis, Tenn.), \$ per MBF, cont.

	Lumber Grade	Jan. 1996	June 1996	Jan. 1997	July 1997	Jan 1998	July 1998	Jan 1999	July 1999
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	1535	1455	1410	1410	1410	1410	1410	1410
	No. 1C	810	780	775	775	775	775	775	775
	No. 2A	290	290	290	290	290	290	290	290

VENEER LOG PRICES

Although veneer log prices appear to have increased dramatically from 1998 to 1999, no such conclusion should be drawn from the data. This is because the response in 1998 was too small to provide reliable averages. However, given the relatively good prices for sawlogs reported this year, it can be assumed that veneer logs still bring a premium over sawlogs and should be carefully marketed to obtain the best price.

Table 3. Prices paid for delivered veneer logs by Indiana veneer mills, May 1998 and May 1999.

¹ Standard error of the mean is given in parentheses below the mean

Species/Grade/Log Dia.	1999 Range	No. Respon.		Mean (s.e.) ¹		Median		Change (%)	
		1998	1999	1998	1999	1998	1999	Mean	Median
				(\$/MBF)		(\$/MBF)			
Black Walnut									
Prime									
12-13	1000-3000	3	11	1600 (100)	1627 (223.64)	1500	1500	1.7	0
14-15	1200-4000	3	12	1933 (66.7)	2350 (219.33)	2000	2100	21.6	5.0
16-17	1500-5500	4	14	2625 (314.6)	2900 (246.51)	2500	3000	10.5	20
18-20	1500-7000	4	11	3000 (204.1)	3882 (463.55)	3000	4000	29.4	33.3
21-23	2000-7500	4	9	3125 (125)	4583 (571.30)	3000	5000	46.7	66.6
24-28	2500-8000	4	7	3125 (125)	5429 (774.82)	3000	6000	73.7	100
*28	3000-7000	4	5	3125 (125)	5400 (979.80)	3000	7000	72.8	133.3
Select									
12-13	1000-2400	1	7	1000 n.a.	1414 (218.69)	1000	1000	41.4	0
14-15	1200-3200	2	7	1550 (550)	1943 (275.90)	1550	2000	25.4	29.0
16-17	1500-4000	2	7	1650 (450)	2329 (309.93)	1650	2000	41.2	21.2
18-20	1500-5000	2	6	1800 (300)	2583 (523.08)	1800	2000	43.5	11.1
21-23	2000-5000	2	6	1800 (300)	2833 (459.47)	1800	2500	57.4	38.9
24-28	2500-5000	2	3	1800 (300)	3333 (833.33)	1800	2500	85.2	38.9
*28	3000-3000	2	2	1800 (300)	3000 (0.00)	1800	3000	66.7	66.7

Table 3. Prices paid for delivered veneer logs by Indiana veneer mills, May 1998 and May 1999, cont..
¹ Standard error of the mean is given in parentheses below the mean.

Species/Grade Log Dia.	1999 Range (\$/MBF)	No. Respon.		Mean (s.e.) ¹		Median		Change (%)	
		1998	1999	1998	1999	1998	1999	Mean	Median
White Oak				(\$/MBF)		(\$/MBF)			
Prime									
13-14	600-2000	3	11	1317 (60.1)	1169 (121.58)	1350	1000	-11.2	-25.9
15-17	900-2250	3	13	1533 (66.7)	1565 (123.05)	1600	1500	2.1	-6.3
18-20	1000-2800	4	12	1838 (172.5)	1975 (158.17)	1875	2000	7.5	6.7
21-23	1000-3200	4	10	1938 (213.5)	2225 (196.81)	1875	2200	14.8	17.3
24-28	1000-3700	4	8	2188 (449.2)	2588 (287.50)	1875	2750	18.3	46.7
*28	1000-4000	4	6	2188 (449.2)	2917 (490.18)	1875	3250	33.3	73.3
Select									
13-14	660-1650	1	9	800 n.a.	990 (99.81)	800	1000	23.8	25
15-17	900-1750	3	9	1333 (166.7)	1250 (102.06)	1500	1200	-6.2	-20
18-20	900-2300	2	8	1250 (250.0)	1438 (180.22)	1250	1350	15.0	8.0
21-23	900-2500	2	6	1150 (350)	1467 (255.17)	1150	1300	27.6	13.0
24-28	1000-2500	2	5	1150 (350)	1580 (280.00)	1150	1600	37.4	39.1
*28	1000-2800	2	4	1150 (350)	1650 (427.20)	1150	1400	43.5	21.7

Table 3. Prices paid for delivered veneer logs by Indiana veneer mills, May 1998 and May 1999, cont.
¹ Standard error of the mean is given in parentheses below the mean.

Species/Grade/ Log Dia.	1999 Range (\$/MBF)	No. Respon.		Mean (s.e) ¹		Median		Change (%)	
		1998	1999	1998 (\$/MBF)	1999 (\$/MBF)	1998 (\$/MBF)	1999	Mean	Median
Red Oak Prime									
16-17	650-1800	2	12	1250 (250.0)	1304 (102.70)	1150	1400	4.3	21.7
18-20	900-1800	2	10	1250 (250.0)	1385 (100.57)	1250	1450	10.8	16.0
21-23	1000-1800	2	8	1500 (500.0)	1375 (122.11)	1250	1400	-8.3	12.0
24-28	1000-1925	2	7	1500 (500.0)	1446 (136.32)	1500	1400	-3.6	-6.7
*28	1000-1800	2	6	1500 (500.0)	1383 (132.71)	1500	1450	-7.8	-3.3
Select									
16-17	600-1375	1	6	700 n.a.	979 (107.71)	700	1000	39.9	42.9
18-20	800-1100	1	4	700 n.a.	975 (62.92)	700	1000	39.3	42.9
21-23	800-1100	1	4	700 n.a.	975 (62.92)	700	1000	39.3	42.9
24-28	800-1000	1	3	700 n.a.	933 (66.67)	700	1000	33.3	42.9
*28	800-1000	1	3	700 n.a.	933 (66.67)	700	1000	33.3	42.9

Table 3. Prices paid for delivered veneer logs by Indiana veneer mills, May 1998 and May 1999, cont.
¹ Standard error of the mean is given in parentheses below the mean.

Species/Grade/ Log Dia.	1999 Range (\$/MBF)	No. Respon.		Mean (s.e.) ¹		Median		Change (%)	
		1998	1999	1998	1999	1998	1999	Mean	Median
Hard Maple									
Prime									
16-20	1000-3000	3	11	1600 (100.0)	1941 (207.02)	1500	2000	21.3	33.3
*20	1000-3000	3	10	1667 (166.7)	2060 (178.39)	1500	2000	23.6	33.3
Select									
16-20	600-2000	1	7	1500 n.a.	1229 (203.21)	1500	1000	-18.0	-33.3
*20	600-1800	1	6	1500 n.a.	1150 (212.52)	1500	950	-23.3	-36.7
Yellow Poplar									
Prime									
16-20	400-1000	3	7	550 (50.0)	600 (81.65)	500	500	9.1	0
*20	500-1000	1	6	600 n.a.	683 (84.33)	600	625	13.8	4.2
Select									
16-20	400-400	1	1	400 n.a.	400	400	400	0	0
*20	400-400	1	1	500 n.a.	400	500	400	-20	-20

CUSTOM COSTS AND MISCELLANEOUS PRODUCTS

An adequate number of mills reported custom costs and prices received for by-products to place some reliability in the results. Data from mills reporting prices received for semi-truck loads of sawdust and bark were not included in the analysis since the size of these loads wasn't known.

Custom Costs

There appear to be significant differences between custom costs in 1998 and 1999, Table 4. No implications should be drawn from this, however. The number of mills reporting in 1998 was too small to provide reliable averages. The 1999 averages appear to fall within the range of those reported in the mid-1990's when more mills were reporting.

Table 4. Custom costs reported by Indiana mills, May 1998, and May 1999.

	No. Responses	1999 Range	Mean		Median	
			1998	1999	1998	1999
Sawing (\$/MBF)	33	50 - 500	219	188	200	180
Logging (\$/MBF)	7	80 - 135	130	106	130	100
Hauling (\$/MBF)	10	40 - 400	156	88	138	55
Distance (Miles)	18	15 - 110	43	53	41	50
\$/MBF/Mile	n.a.	n.a.	3.63	1.66	3.37	1.10

Miscellaneous Products

Table 5. Prices of miscellaneous products reported by Indiana mills, May 1998 and May 1999, fob the producing mill.

	No. Responses	1999 Range	Mean		Median	
			1998	1999	1998	1999
Pallet logs, \$/MBF	53	100 - 280		197		200
Pallet logs, \$/ton	6	24 - 30		25.83		24.5
Pulpwood, \$/ton	2	14 - 22		18.00		18.00
Pulp Chips, \$/ton	29	12.5 - 38.0		25.02		17.5
Sawdust, \$/ton	19	4 - 30		9.72		8
Sawdust, \$/cu.yd.	23	0.25 - 15	n.a.	3.88	n.a.	3.00
Bark, \$/ton	7	6 - 22		10.93		10.00
Bark, \$/cu.yd.	45	1.60 - 18.50	n.a.	6.39	n.a.	5.00
Mixed, \$/ton	2	5.00		5.00		5.00
Mixed, \$/cu. Yd.	2	4.00 - 35.00		19.50		19.50

IMPLICATIONS

As of the first of December 1999 the U.S. economy remained very strong. Further interest rate increases are not anticipated in the next few months. Hardwood lumber prices are very strong and trending upward. An exception is the less preferred species whose prices are holding steady. Log and timber buyers are very active and competing for product. Landowners placing timber on the market can expect to find a great amount of interest in quality offerings. As always pallet grade logs and timber will take some effort to sell and prices will reflect this much lower buyer interest.

The depressed farm economy has motivated more farmers than usual to "dip into their timber saving account." No matter how badly someone needs access to funds, it's not in anyone's interest to rush into a sale and risk not getting fair market value for their timber. There is no need to rush a sale for fear that the timber market will become saturated.

INDIANA TIMBER PRICE INDEX - UPDATE

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 data that can be used to monitor long-term price trends for timber. The species distribution used to calculate the weighted averages are presented in Table 8. The log quality weights used are presented in Table 9. These weights are based primarily on the 1967 Forest Survey of Indiana.

The nominal (not deflated) price, columns 3 and 6 of Table 10, are 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 1999 was 699.8 percent of the price in 1957. The real prices, columns 5 and 8 are the actual prices deflated by the producer price index for finished goods with 1982 as the base year, Figure 10. The real price series represents the purchasing power of dollars based on a 1982 market basket of industrial goods. It's this real price trend that is important to long-term investments like timber.

Average Stand

The nominal weighted average price decreased from \$391.1 in 1998 to \$389.2 in 1999 for the average stand, Table 10, column 3. This is a 0.49 percent decrease.

The new equation for the trend line for the 1957 to 1999 period is,

$$\text{Avg. Index} = 167.57 + 2.53 \times T,$$

where,

$$T=1 \text{ for } 1957, 2 \text{ for } 1958, \text{ etc.}$$

A linear trend line should be used if it's necessary to project timber prices, as discussed in greater detail in 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 much over 15 years gives unrealistic results. Real prices can't increase exponentially for long periods of time. Market adjustments, like those observed for black walnut, come into play to retard the increase and eventually reverse it.

The real price incres based on the trend line is 1.13 percent per annum for the average stand from 1957 to 1999. Although this is down slightly from last year, this still represents a significant increase in purchasing power for timber assets.

Quality Stand

The nominal weighted average price for the quality stand increased by 4.9 percent from 501.7 in 1998 to 526.3 in 1999, Table 10, column 6.

The average annual compound rate of increase for the trend line decreased somewhat to 1.50% per annum, Figure 16. The equation for the trend line is,

$$\text{Qual. Index} = 199.4265 + 4.2249 \times T$$

Thus, a quality stand provides a better rate of return than the average stand of timber in Indiana.

Table 8. Species composition of the Indiana timber price index for an average and a quality stand.

Species	Average Stand	Quality Stand
Veneer species:	(%)	(%)
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
Nonveneer species:		
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 9. Log quality composition of the Indiana timber price index for an average and a quality stand.

Log Grade	Average Stand		Quality Stand	
	Veneer Species	Nonveneer Species	Veneer Species	Nonveneer 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

Table 10. Weighted average actual price, price index, and deflated price for an average and quality stand of timber in Indiana, 1957 to 1999.

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)
1957	32.5	55.6	100.0	171.1	66.6	100.0	204.9
1958	33.2	53.7	96.6	161.8	64.0	96.1	192.8
1959	33.1	54.8	98.5	165.5	67.5	101.4	204.0
1960	33.4	57.5	103.5	172.3	68.7	103.2	205.7
1961	33.4	58.9	105.9	176.3	70.0	105.1	209.5
1962	33.5	59.6	107.3	178.1	72.3	108.6	215.8
1963	33.4	59.3	106.7	177.6	74.5	111.9	223.1
1964	33.5	60.1	108.1	179.5	74.4	111.8	222.2
1965	34.1	63.6	114.3	186.4	78.5	118.0	230.3
1966	35.2	68.8	123.7	195.4	86.0	129.2	244.3
1967	35.6	70.1	126.0	196.8	87.2	131.0	245.0
1968	36.6	74.7	134.2	204.0	92.7	139.3	253.4
1969	38.0	77.7	139.7	204.5	98.6	148.2	259.6
1970	39.3	83.1	149.4	211.5	103.9	156.0	264.3
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	133.7	389.2	699.8	291.1	526.3	790.5	393.6

¹ Actual price deflated by Producer Price Index for Finished Goods, U.S. Dept. Commerce, 1982 base year.

