2005

2005 Indiana Forest Products Price Report and Trend Analysis

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2005 Indiana Forest Products
Price Report and Trend Analysis

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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. This list is maintained in cooperation with the Forest Products Utilization & Marketing Program, Indiana Division of Forestry. The prices reported are for logs delivered to 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, however, see **Caution** below.

The survey was sent to 235 mills. Sixty-three mills reported useable data, compared to 62 last year. Another 11 responded in some form but provided no data making the overall response rate 31 percent, below last year's return of 33 percent. After the initial mailing and one reminder postcard, enumerators employed by the Indiana Agriculture Statistics Service contacted a subsample of nonrespondents. The Department of Forestry and Natural Resources pays for this assistance with funds provided by the John S. Wright Endowment.

The number of mills contributing price data for a specific product is shown in the fourth column in Tables 2 to 5. Fifty-four mills reported their 2004 total board foot production, compared with 43 reporting 2003 production. The distribution by production categories is shown in Figure 1. The total production for these mills was 204 million board feet. The smallest mills, i.e. custom mills, reported production of 0.5 MBF or less. The largest mill produced 18 million board feet in 2004. The price statistics don't include much data from these small custom mills (left bar in Figure 1) because most do not buy logs. They report the cost of custom sawing. Thus, the custom sawing costs reported in Table 4 do not reflect the operating cost of large mills.
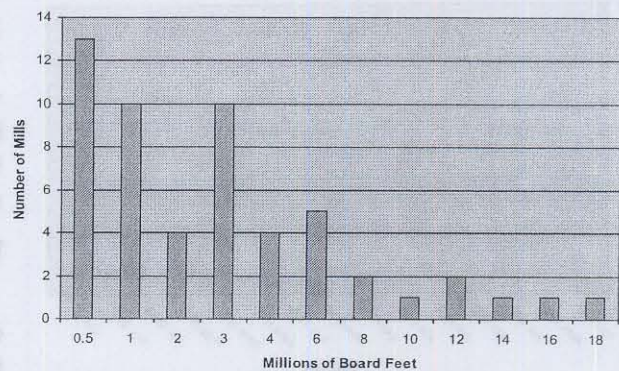

Figure 1. *Distribution of the 54 mills reporting 2004 production levels.*

Caution

Caution: This report is intended to be used as an indication of price trends, not to be used for the 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 for particular stands of timber or lots of logs. Because of the small number of mills reporting logging costs, the pseudo "stumpage prices" that can be estimated from delivered log prices by deducting the average logging and hauling costs must be used with caution.

constitutes over 13 percent of Indiana's sawtimber inventory. Log availability and continuing advances in wood finishing technology bode well for this species. Hard maple was up modestly. Black walnut declined by as much as 23 percent for large prime logs, less for smaller low-grade logs.

We haven't added black cherry veneer logs to the survey under the assumption that almost all of the cherry sliced in Indiana comes from logs procured in Pennsylvania and New York, where the premium quality cherry is found.

Implications

The economy was stronger in 2005 than the proverbial man-on-the-street thought, over 4 percent growth in GDP in the fourth quarter. Large plant closings make the headlines, but the hundreds of startups, usually much smaller operations and in different sectors of the economy than those closing, are news only in the business press. New housing and rehab expenditures were both strong, although increasing interest rates are expected to slow these segments going into 2006. The "McMansion" segment of housing appears to be rolling along. These are residential structures in the $1 million and above price range that require large amounts of real wood, hardwoods for flooring, paneling, and trim. The furniture industry continues to do well, even if an increasing percentage of the product is manufactured in Asia. The hardwood industry needs to pay attention, however, to increased use of Asian species in place of temperate hardwood species.

As discussed in last year's report, the significant factor affecting timber prices is the worsening squeeze on margins for sawmills, and veneer mills. The price of lumber (at best) just keeps pace with inflation; but as this report has shown over the years, the price of logs has increased somewhat faster than inflation. This can't continue forever. It was possible in the past only because of the dramatic increase in standing timber volumes and improved conversion efficiency in lumber processing. It appears that a major adjustment period has started. Sawmill capacity has more than caught up with the supply of logs that the timber base can support. The easy and affordable, improvements in conversion technology have come on-line. There is still

more to squeeze out, but the marginal gains available are getting smaller. A major technological advance, such as log scanning, is needed to put the profit back into the sawmill business. The dream of a kerfless system remains, but it is much further into the future.

On the supply side, the fragmentation of forest land has to be reducing the portion of standing inventory available for sale at any price. In most of Indiana, forests are more valuable for amenity-based uses than for "commercial" timber production. There is no magic bullet, other than a major economic depression, that will change this trend. Hardwood timber price increases have been great enough to attract billions of dollars to investment grade hardwood holdings, i.e. well-stocked tracts in the 10,000 acre and larger category. This opportunity doesn't exist in Indiana. Timber buyers have to establish practices that accommodate the values of the owners of ever smaller tracts. This means procurement and logging costs will continue to increase, putting even more pressure on sawmill margins. The reason that the hardwood industry has thrived for the last century is because of its ability to adjust. It will survive by making ever greater adjustments.

Looking at all this from the standpoint of timberland owners who are considering selling timber, the previous comments should make it clear that buyers are hungry for timber. But, of necessity they will be more careful about how much money they put on the table. The trendlines in Figures 3 and 4 indicate that prices overall are just slightly below the long-run trend, but be sure to consider that the trend line has been pivoting down slightly each year for the last five years. Thus, your decision to sell should be based as much on what's good for the long-run health of your timber stands as on the potential for significant price increases in the next five or so years. The latter is highly unlikely, except for adjustments in the price of specific species. The health of your forest is ignored at your peril, considering the increased occurances of the Emerald ash borer and other uninvited insect pests. And, setting aside the argument of what is causing it, the increase in average temperature makes it necessary for plant communities to adjust. Stands of mixed species with vigorous growth, i.e. healthy forests, will do much better at meeting your needs, even aesthetic ones, than stagnated stands.

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 2004 and May 2005.

Species/ Grade	2004 Range	No. Respon.		Mean (s.e.)[1]		Median		Change (%)	
		2004	2005	2004	2005	2004	2005	Mean	Median
	($/MBF)			($/MBF)		($MBF)			
White Ash									
Prime	300-700	25	27	508 (20.49)	522 (19.67)	500	550	2.8	10
No. 1	275-600	28	25	394 (14.91)	403 (17.81)	400	400	2.3	0.0
No. 2	180-450	27	27	295 (11.34)	293 (12.41)	300	300	-0.6	0.0
No. 3	150-300	22	22	217 (9.89)	221 (8.57)	200	220	1.8	10.0
Basswood									
Prime	150-650	18	23	357 (27.92)	363 (24.46)	400	375	1.7	-6.3
No. 1	150-550	20	21	301 (19.86)	279 (20.38)	300	300	-7.3	0.0
No. 2	150-300	18	23	241 (12.41)	231 (9.85)	250	235	-4.1	-6.0
No. 3	150-260	16	18	212 (11.31)	208 (7.51)	200	200	-1.5	0.0
Beech									
Prime	150-360	19	19	238 (12.66)	265 (16.88)	235	275	11.4	17
No. 1	150-300	17	17	226 (10.40)	240 (13.64)	210	220	6.4	4.8
No. 2	150-275	15	18	214 (9.47)	219 (8.73)	200	220	2.3	10.0
No. 3	150-260	14	16	215 (10.38)	206 (8.70)	200	200	-4.1	0.0
Cottonwood									
Prime	130-260	9	12	166 (8.99)	187 (10.32)	150	180	12.8	20.0
No. 1	130-220	8	10	166 (10.17)	182 (9.29)	150	180	9.5	20.0
No. 2	130-220	8	10	166 (10.17)	182 (9.29)	150	180	9.5	20.0
No. 3	130-220	8	10	166 (10.17)	182 (9.29)	150	180	9.5	20.0
Cherry									
Prime	850-2000	21	28	1364 (59.68)	1296 (65.87)	1475	1200	-5.0	-18.6
No. 1	400-1800	24	27	1061 (44.17)	1002 (60.06)	1000	975	-5.6	-2.5
No. 2	250-1000	23	29	632 (42.54)	607 (43.88)	600	525	-3.9	-12.5
No. 3	150-750	21	28	296 (24.93)	312 (25.83)	293	300	5.2	2.6
Elm									
Prime	150-300	12	16	238 (12.15)	214 (11.65)	245	200	-9.9	-18.4
No. 1	150-300	11	14	232 (11.78)	211 (10.84)	240	200	-9.0	-16.7
No. 2	150-275	10	14	220 (11.89)	206 (9.32)	200	200	-6.1	0.0
No. 3	150-250	11	14	219 (13.07)	199 (8.64)	200	200	-9.2	0.0
Shag. Hickory									
Prime	250-600	20	21	388 (22.54)	405 (20.09)	400	400	4.4	0.0
No. 1	180-500	23	23	338 (19.01)	333 (16.32)	313	300	-1.5	-4.0
No. 2	180-400	22	24	255 (13.31)	259 (12.68)	250	250	1.5	0.0
No. 3	150-300	20	19	208 (9.58)	219 (9.36)	200	200	5.3	0.0
Hard Maple									
Prime	300-2000	24	28	887 (58.66)	950 (64.45)	800	1000	7.1	25.0
No. 1	250-1250	26	27	657 (36.42)	760 (51.62)	600	750	15.7	25.0
No. 2	200-1000	25	28	432 (25.97)	477 (36.15)	400	400	10.04	0.0
No. 3	150-600	24	26	245 (13.39)	292 (21.06)	250	260	19.1	4.0

[1] *Standard error of the mean is given in parentheses*

Table 3. Prices paid for delivered veneer logs by Indiana veneer mills, May 2004 and May 2005.

Species/Grade/ Log Dia.	2005 Range	No. Respon.		Mean (s.e.)[1]		Median		Change (%)	
		2004	2005	2004	2005	2004	2005	Mean	Median
	($/MBF)			($/MBF)		($/MBF)			
Black Walnut									
Prime									
12-13	800-3500	16	12	2050 (168.76)	1950 (237.17)	2000	2000	-4.9	0.0
14-15	850-4500	17	12	2669 (190.54)	2581 (322.03)	2675	2500	-3.3	-6.5
16-17	2000-5500	17	12	3621 (259.49)	3525 (337.75)	3750	3250	-2.6	-13.3
18-20	2000-7000	15	11	4777 (440.37)	4414 (505.61)	4500	4500	-7.6	0.0
21-23	2000-8000	12	10	5408 (510.56)	4730 (615.19)	6000	4000	-12.5	-33.3
24-28	2000-9000	9	9	6722 (821.21)	5144 (808.82)	6500	4500	-23.5	-30.8
>28	2000-10000	8	8	7250 (920.99)	5663 (1015.76)	8000	5000	-21.9	-37.5
Select									
12-13	600-2500	9	10	1367 (136.42)	1475 (218.23)	1300	1500	7.9	15.4
14-15	850-3000	10	10	1960 (248.19)	1885 (251.00)	2000	2000	-3.8	0.0
16-17	1500-3500	10	9	2610 (280.65)	2511 (263.76)	2500	2800	-3.8	12.0
18-20	1700-4500	10	9	3310 (335.81)	2867 (287.23)	3500	2800	-13.4	-20.0
21-23	1700-5500	8	8	3638 (497.47)	3200 (407.08)	4000	3400	-12.0	-15.0
24-28	2000-7000	7	7	4300 (798.51)	3914 (583.68)	4000	3500	-0.0	-12.5
>28	2000-8000	6	6	4683 (1010.19)	4233 (847.22)	4000	3500	-9.6	-12.5
White Oak									
Prime									
13-14	400-1500	11	7	1277 (105.18)	1229 (156.93)	1425	1500	-3.8	5.3
15-17	1000-2200	16	9	1628 (145.7)	1650 (130.70)	1600	1600	1.3	0.0
18-20	1500-2800	15	9	2153 (177.51)	2167 (161.59)	2250	2000	0.6	-11.1
21-23	1500-4000	12	10	2567 (233.33)	2850 (236.29)	2500	3000	11.0	20.0
24-28	1500-4000	10	8	2940 (318.40)	3250 (313.39)	2500	3500	10.5	40.0
>28	1500-6000	8	7	3000 (400.89)	3571 (539.27)	2500	3500	19.0	40.0
Select									
13-14	300-1200	7	4	971 (103.43)	825 (193.11)	925	800	-15.1	-13.5
15-17	400-1500	9	5	1072 (99.69)	1120 (198.49)	1000	1150	4.5	15.0
18-20	400-2000	9	6	1306 (126.50)	1267 (221.61)	1100	1200	-3.0	9.1
21-23	400-3000	6	7	1633 (202.76)	1743 (313.86)	1500	1500	6.7	0.0
24-28	400-3500	6	5	2083 (351.58)	2140 (512..45)	2000	2150	2.7	7.5
>28	400-5000	6	5	2250 (381.88)	2640 (776.27)	2000	2150	17.3	7.5
Red Oak									
Prime									
16-17	900-1600	15	10	1342 (85.20)	1230 (74.61)	1350	1200	-8.3	-11.1
18-20	900-1600	14	9	1402 (79.31)	1294 (81.84)	1400	1225	-7.7	-12.5
21-23	900-1800	13	9	1487 (86.11)	1378 (98.29)	1500	1350	-7.3	-10.00
24-28	900-2000	11	9	1594 (115.30)	1456 (117.98)	1600	1400	-8.7	-12.5
>28	900-2400	7	8	1629 (147.50)	1525 (166.64)	1700	1500	-6.4	-11.8
Select									
16-17	750-1200	6	7	1000 (51.46)	993 (65.85)	1000	1000	-0.7	0.0
18-20	750-1200	6	6	1117 (110.81)	1067 (72.65)	1000	1050	-4.5	5.0
21-23	900-1500	6	5	1200 (126.49)	1180 (96.95)	1000	1150	-1.7	15.0
24-28	900-1800	6	6	1283 (127.58)	1250 (120.42	1000	1200	-2.6	20.0
>28	900-2000	4	5	1425 (143.61)	1320 (182.76)	1500	1200	-7.4	-20.0

[1] *Standard error of the mean is given in parentheses*

(Continued)

Table 5. Prices of miscellaneous products reported by Indiana mills, May 2004 and May 2005, fob the producing mill.

	No. Responses	2005 Range	Mean		Median	
			2004	2005	2004	2005
Pallet logs, $/MBF	21	160-280	211	219	200	210
Pallet logs, $/ton	1	29	29	29	30	29
Pulpwood, $/ton	1	28	28	28	28	28
Pulp Chips, $/ton	13	10.5-23	17	17	18	18
Sawdust, $/ton	5	5.60-13.05	7	8	5.50	8.25
Sawdust, $/cu.yd.	10	1-6	3	3	2.25	2.75
Bark, $/ton	7	4-13.25	11	8	12.5	7.25
Bark, $/cu.yd.	19	3-15.	7	7	5	6.13
Mixed, $/ton	0					
Mixed, $/cu. Yd.	2	8-12		10		10

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

The nominal (not deflated) price, columns 3 and 6 of Table 8, 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 2005 was 800.5 percent of the price in 1957. 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 8, 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 to long-term investments such as timber.

Note that each year the previous year's numbers are recalculated using the producer price index 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. You'll see from this series that inflation this year is at least three whole percentage points above the rate in the last several years.

Average Stand

The nominal weighted average price declined from $452.20 per MBF in 2004 to $445.20 in 2005 for the average stand, Table 8, column 3. Remember, this series is based on delivered log prices, not stumpage prices. This is a 1.6 percent decrease, Figure 3. The deflated or real price decreased from $304.5 per MBF to $286,50 a 5.9 percent decrease, Figure 3. This decrease pulled down the slope of the trend line for real prices by a small amount.

The new equation for the trend line for the 1957 to 2005 period is as follows:

$$\text{Avg. Stand Real Price} = 165.45 + 2.67 \times T,$$

$$\text{where,}$$

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

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 much over 15 years give unrealistic results. As discussed above, real prices can't increase exponentially for long periods of time. The market adjusts by using more substitutes for "real wood" and consumers being willing to accept substitutes.

Table 8. Weighted average actual price, price index, and deflated price for an average and quality stand of timber in Indiana, 1970 to 2005.

Year (1)	Producer Price Index (2)	Average Stand			Quality Stand		
		Nominal Price (3) ($/MBF)	Index Number (4)	Real Price [1] (5) ($/MBF)	Nominal Price (6) ($/MBF)	Index Number (7)	Real Price [1] (8) ($/MBF)
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	133.0	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	155.4	445.2	800.5	286.5	621.5	933.4	399.9

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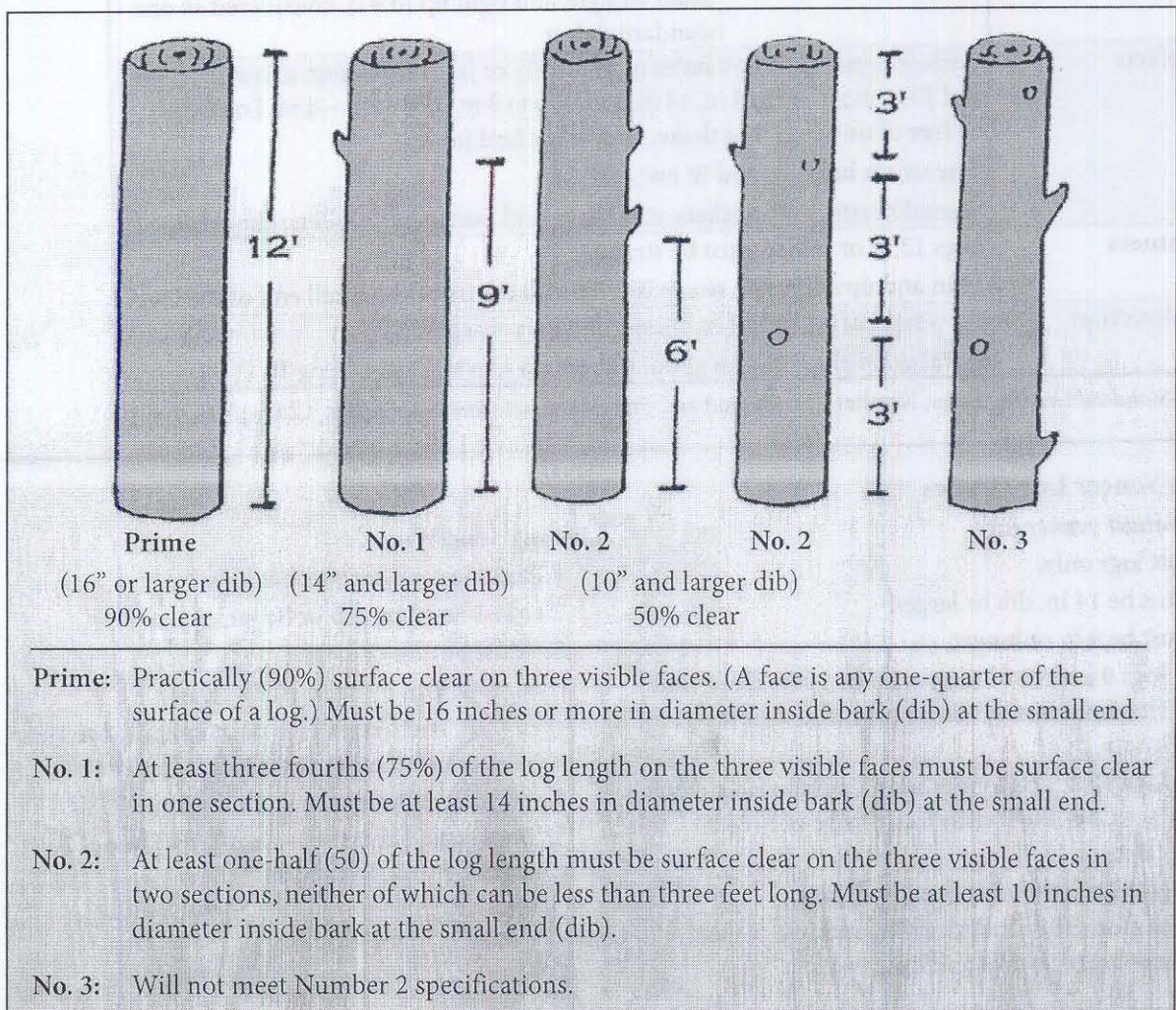
Log Grades Used

Sawlog Grades

I'm sometimes asked why this survey uses the Purdue Log grades instead of the industry standard, which is the US Forest Service Standard Factory Log Grading Rules as presented in Forest Service General Technical Report NE-1, 1973. The quick answer is that the Purdue Log grades were first published in 1949 in Purdue University Agricultural Service Bulletin No. 346. Roy Brundage, the Purdue Forest Products Extension Specialist from the 1930's through 1970 started collecting price information as far back as 1932. The first published price report is 1954, and it used the Purdue Log grades. If anyone has an earlier published price report or summarized data, please let me know.

Purdue was collecting price data using its log grading system 25 years before the US Forest Service grades were published. I have asked over the years if we should change, but the majority of mills reported that they would prefer to keep the Purdue grades.

The Prime grade in the Purdue system is a somewhat better log than No. 1's in the US Forest Service system. This allows mills to grade out top quality sawlogs separately from low quality veneer logs. For some species, there is essentially no difference between a Prime sawlog and low grade veneer logs, red oak, and yellow poplar for example.

Here are the Purdue sawlog grading rules in the form presented to mills on the price survey questionnaire.

Prime	No. 1	No. 2	No. 2	No. 3
(16" or larger dib)	(14" and larger dib)	(10" and larger dib)		
90% clear	75% clear	50% clear		

Prime: Practically (90%) surface clear on three visible faces. (A face is any one-quarter of the surface of a log.) Must be 16 inches or more in diameter inside bark (dib) at the small end.

No. 1: At least three fourths (75%) of the log length on the three visible faces must be surface clear in one section. Must be at least 14 inches in diameter inside bark (dib) at the small end.

No. 2: At least one-half (50) of the log length must be surface clear on the three visible faces in two sections, neither of which can be less than three feet long. Must be at least 10 inches in diameter inside bark at the small end (dib).

No. 3: Will not meet Number 2 specifications.

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