

PURDUE AGRICULTURAL ECONOMICS REPORT

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Indiana Farmland Values Continue to Increase

Craig L. Dobbins, Professor and Kim Cook, Research Associate

The 2001 Purdue Land Values Survey indicates that the value of an acre of average bare Indiana cropland was \$2,264 per acre in June 2001. This was \$91 more than the value reported in June 2000, a 4.2 percent increase. Cash rents increased from 1999 to 2000 on average land by a little less than 1 percent to \$113 per acre.

Statewide Land Values

For the *six months* ending in June 2001, the value of bare tillable land was reported to have increased 1.3 percent on top land, 1.0 percent on average land, and 1.2 percent on poor land (Table 1). While only a small upward change, these numbers indicate that the land values are holding strong in spite of continued low grain prices. Thirty-five percent of the survey respondents indicated that all classes of land (top, average, and poor) were the same or higher during the December 1, 2000 to June 1, 2001 period. Eleven percent of the respondents indicated that some or all classes of land fell in value and 49 percent indicated that land values

** In the 2000 survey, 32% of the respondents indicated land values were the same or increasing and 13% indicated that land values declined.*

*** Transitional land is land that is moving out of agriculture.*

remained unchanged during the December 1, 2000 to June 1, 2001 period. Compared to last year's survey, more respondents indicated that land values were increasing and fewer respondents indicated a decline.*

The statewide *12-month* increase in average value from June 2000 to June 2001 was 4.2 percent (Table 1).

Top-quality land (159 bushel corn yield rating) was estimated to have increased by \$87 per acre to \$2,802 (Table 1). Average land (129 bushel corn yield rating) was valued at \$2,264, an increase of \$91, while poor land (99 bushel corn yield rating) was estimated to be worth \$1,733 per acre, an increase of \$103.

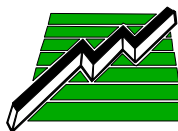
The land value per bushel of corn yield rating also increased this year. For top-quality land, the value per bushel of yield was \$17.67, up by 2.3 percent. Average quality land value was \$17.53 per bushel, while the poor quality value was \$17.42 per bushel (Table 1). The percentage increases were 2.9 percent on average land and 4.3 percent on poor land. These per-bushel figures are \$0.39 higher than last year on top land, \$0.49 higher on average land, and \$0.72 higher on poor land.

The value of transition land** also exhibited an increase. The average value of transitional land in June 2001 was \$6,627, an increase of

1.5 percent from June 2000. For the six-month period from June 1, 2000 to December 1, 2000 transitional land values declined. However in the latter half of the year, December 1, 2000 to June 1, 2001, transitional land increased by 3.1 percent (Table 1). Due to the wide variation in estimates (from \$900 to \$35,000 in June, 2001), the median value may give a more meaningful picture than the arithmetic average. The median value of transitional land in June 2001 was \$5,250 per acre more than reported in June 2000.

Statewide Rents

Cash rents increased statewide from 2000 to 2001 by \$1 per acre on all classes of land (Table 2). The estimated cash rent on top land was \$141 per acre, \$113 per acre on average land, and \$87 per acre on poor land. Rent per bushel of estimated corn yield was \$0.89 on



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Table 1. Average Estimated Indiana Land Value Per Acre (Tillable, Bare Land) and Per Bushel of Corn Yield, Percentage Change by Geographic Area and Land Class, Selected Time Periods, Purdue Land Values Survey, June 2001¹

Area	Land Class	Corn bu/A	Land Value					Land Value/Bu			Projected Land Value	
			Dollars Per Acre			% Change		\$ Amount	\$ Amount	% Change	Dec. 2001	6/01-12/01
			June 2000	Dec 2000	June 2001	6/00-6/01	12/00-6/01					
			\$/A	\$/A	\$/A	%	%	\$	\$	%	\$	%
North	Top	158	2,638	2,662	2,704	2.5%	1.6%	16.96	17.15	1.1%	2,676	-1.0%
	Average	125	2,040	2,090	2,121	4.0%	1.5%	16.33	16.96	3.9%	2,097	-1.1%
	Poor	92	1,413	1,544	1,552	9.8%	0.5%	15.14	16.82	11.1%	1,531	-1.4%
Northeast	Top	156	2,630	2,699	2,711	3.1%	0.4%	16.94	17.41	2.8%	2,664	-1.7%
	Average	128	2,062	2,130	2,133	3.4%	0.1%	16.37	16.64	1.6%	2,094	-1.8%
	Poor	99	1,595	1,607	1,635	2.5%	1.7%	16.52	16.48	-0.2%	1,615	-1.2%
W. Central	Top	157	2,786	2,807	2,823	1.3%	0.6%	17.61	17.96	2.0%	2,812	-0.4%
	Average	131	2,289	2,332	2,329	1.7%	-0.1%	17.52	17.73	1.2%	2,312	-0.7%
	Poor	103	1,681	1,735	1,742	3.6%	0.4%	16.55	16.87	1.9%	1,726	-0.9%
Central	Top	165	3,006	3,088	3,135	4.3%	1.5%	18.43	19.06	3.4%	3,154	0.6%
	Average	136	2,519	2,596	2,631	4.4%	1.3%	18.76	19.35	3.1%	2,643	0.5%
	Poor	107	2,035	2,111	2,154	5.8%	2.0%	19.39	20.05	3.4%	2,164	0.5%
Southwest	Top	166	2,663	2,731	2,801	5.2%	2.6%	16.54	16.92	2.3%	2,843	1.5%
	Average	129	1,981	2,105	2,146	8.3%	1.9%	15.70	16.64	6.0%	2,207	2.8%
	Poor	95	1,330	1,446	1,472	10.7%	1.8%	14.39	15.55	8.1%	1,519	3.2%
Southeast	Top	149	2,185	2,383	2,426	11.0%	1.8%	15.35	16.29	6.1%	2,484	2.4%
	Average	118	1,808	1,959	2,000	10.6%	2.1%	15.65	16.96	8.4%	2,071	3.6%
	Poor	91	1,429	1,576	1,585	10.9%	0.6%	16.17	17.34	7.2%	1,641	3.5%
Indiana	Top	159	2,715	2,767	2,802	3.2%	1.3%	17.28	17.67	2.3%	2,804	0.1%
	Average	129	2,173	2,242	2,264	4.2%	1.0%	17.04	17.53	2.9%	2,269	0.2%
	Poor	99	1,630	1,712	1,733	6.3%	1.2%	16.70	17.42	4.3%	1,736	0.2%
	Trans. ²		6,532	6,428	6,627	1.5%	3.1%				6,820	2.9%

1 The land values contained in this summary represent averages over several different locations and soil types. If a precise value is needed for a specific property, this value can be determined by a professional appraiser.

2 Transition land is land moving out of production agriculture.

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Editor

Gerald A. Harrison
E-mail: harrison@agecon.purdue.edu
Phone: 765-494-4216 or
toll free 1-888-398-4636

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top land and \$0.88 on average land and \$0.87 on poor land. This value is the same as the 2000 values for top and average land and is a 1¢ decrease for poor land. Statewide, cash rent as a percentage of estimated land value decreased. For 2001, cash rent as a percentage of value was 5.0 percent for all land classes. (Table 2).

Area Land Values

Changes in the value of farmland in the six different geographic areas of Indiana (Figure 1) for December 1, 2000 to June 1, 2001, ranged from a slight decline (-.1% for average land in West Central Indiana) to an increase of 2.6 percent for top land in the Southwest region (Table 1). For the December 1, 2000 to June 1, 2001 period, all regions reported slight to moderate increases in farmland values. The Southwest region reported the strongest

increases for this six-month period, ranging from 1.8 to 2.6 percent. This is a sharp contrast to last year, when declines for all land types was reported for the Southwest. The West Central region had only slight changes in land values for the December 1, 2000 to June 1, 2001 period. As noted previously this was the only region to report a decline in land values.

For the year ending June 1, 2001, the change in land values ranged from a 1.3 percent increase in top farmland in the West Central region to an 11.0 percent increase for top land in the Southeast region. All regions except the West Central and Northeast regions reported strong increases in some or all land types for the year ending in June 2001. The changes in land values for West Central and Northeast Indiana were still positive, but smaller than those reported in other regions.

The highest valued top-quality land was in the Central area, \$3,135 per acre. The next highest values were in the West Central (\$2,823), Southwest (\$2,801), Northeast (\$2,711), and North (\$2,704) regions. Reported values for average quality land were \$2,631 in the Central area, \$2,329 in the West Central area, and around \$2,100 in the North, Northeast, and Southwest regions.

Land value per bushel of estimated average corn yield (land value divided by bushels) on top land in the Central region was \$19.06. For the West Central, North, and Northeast regions, land value per bushel of corn yield on top land ranged from \$17.15 to \$17.96. In the Southeast and Southwest, land value per bushel of corn yield on top land ranged from \$16.29 to \$16.92 (Table 1). The pattern in the land value per bushel for other land classes was similar.

Respondents were asked to estimate the value of rural home sites with no accessible gas line or city utilities and located on a black top or well-maintained gravel road. The median value for five-acre home sites ranged from \$5,000 to \$6,250 per acre (Table 3). Estimated per acre median values of the larger tracts (10 acres) ranged from \$4,000 to \$6,000 per acre.

Area Cash Rents

All regions except the Northeast reported increases in cash rents for the year (Table 2). The strongest increases in cash rents occurred in the Southeast, increasing 3.1 percent on poor land, 3.6 percent on average land, and 3.8 percent on top land. The Central region reported the next strongest increases, ranging from a 2.0 percent increase on poor land to a 2.7 percent increase on top land. The North, Northeast, and West Central regions each had a mixture of increases, decreases for no change in cash rents. For this group of regions the largest decrease was reported for poor land in the Northeast, a decline of 2.4 percent. The largest increase was for poor land in the West Central region, 2.1 percent.

Table 2. Average Estimated Indiana Cash Rent Per Acre, (Tillable, Bare Land) 2000 and 2001, Purdue Land Value Survey, June 2001

Area	Land Class	Corn bu/A	Rent/Acre		Change '00-'01 %	Rent/bu. of Corn		Rent as % of June Land Value	
			2000 \$/A	2001 \$/A		2000 \$/bu.	2001 \$/bu.	2000 %	2001 %
North	Top	158	140	142	1.4%	0.90	0.90	5.3	5.3
	Average	125	111	110	-0.9%	0.89	0.88	5.4	5.2
	Poor	92	81	82	1.2%	0.87	0.89	5.7	5.3
Northeast	Top	156	132	132	0.0%	0.85	0.85	5.0	4.9
	Average	128	105	104	-1.0%	0.83	0.81	5.1	4.9
	Poor	99	82	80	-2.4%	0.85	0.81	5.1	4.9
W. Central	Top	157	153	151	-1.3%	0.97	0.96	5.5	5.3
	Average	131	127	128	0.8%	0.97	0.97	5.5	5.5
	Poor	103	96	98	2.1%	0.94	0.95	5.7	5.6
Central	Top	165	150	154	2.7%	0.92	0.94	5.0	4.9
	Average	136	123	126	2.4%	0.92	0.93	4.9	4.8
	Poor	107	99	101	2.0%	0.94	0.94	4.9	4.7
Southwest	Top	166	136	140	2.9%	0.84	0.85	5.1	5.0
	Average	129	106	107	0.9%	0.84	0.83	5.4	5.0
	Poor	95	76	76	0.0%	0.82	0.80	5.7	5.2
Southeast	Top	149	105	109	3.8%	0.74	0.73	4.8	4.5
	Average	118	83	86	3.6%	0.72	0.73	4.6	4.3
	Poor	91	64	66	3.1%	0.72	0.72	4.5	4.2
Indiana	Top	159	140	141	0.7%	0.89	0.89	5.2	5.0
	Average	129	112	113	0.9%	0.88	0.88	5.2	5.0
	Poor	99	86	87	1.2%	0.88	0.87	5.3	5.0

Cash rents were again highest in the Central and West Central areas at \$154 and \$151 per acre, respectively, for top land. Cash rents per bushel for the West Central and Central regions ranged from \$0.93 to \$0.97. These were also the highest in the state. The next highest per-bushel rent was in the North, ranging from \$0.88 to \$0.90 per bushel. The per bushel rents in the Northeast and Southwest ranged from \$0.82 to \$0.85. The lowest per bushel cash rents were reported for

the Southeast, ranging from \$0.72 to \$0.73.

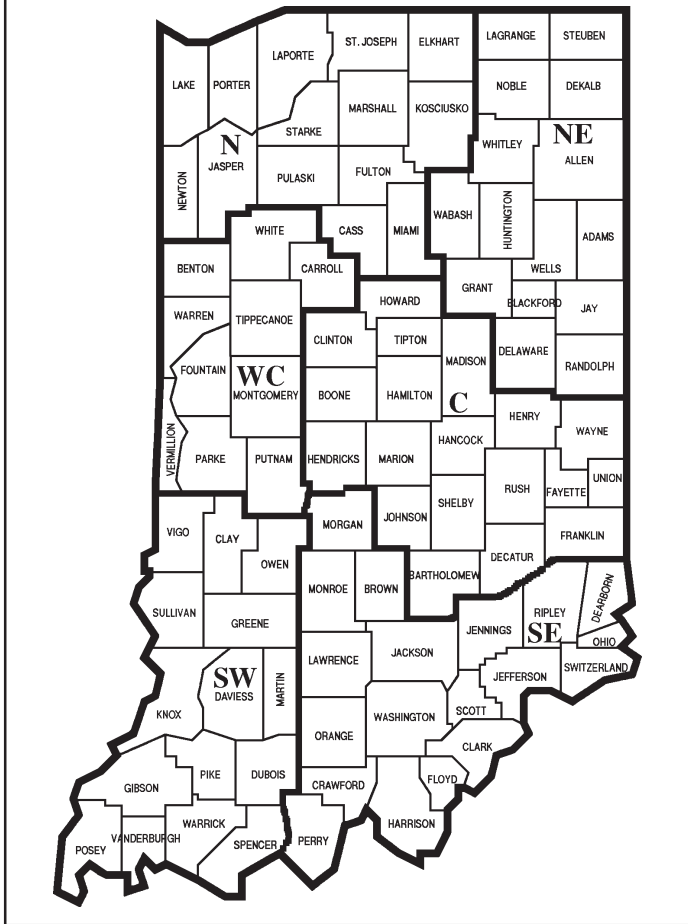
Land Market Activity

There are several factors that influence farmland prices. The supply of land on the market, the eagerness of buyers to make purchases, expectations about grain prices, rate of inflation, and interest rates are just a few examples. To assess the supply of land on the market, respondents were asked to indicate the amount of farmland on the market compared to a year

Table 3. Median Value of Five-Acre Home Sites and Home Sites of 10 Acres or More

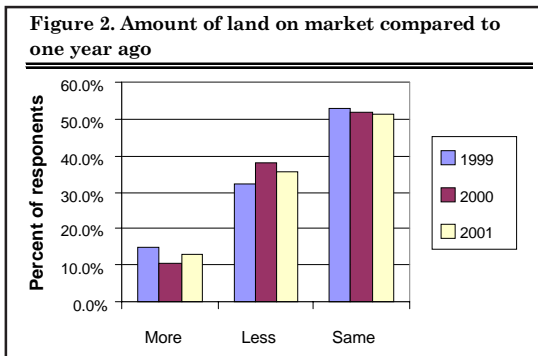
Area	Median Value, \$ per acre									
	Under 5 Acres					10 Acres & Over				
	1997 \$/A	1998 \$/A	1999 \$/A	2000 \$/A	2001 \$/A	1997 \$/A	1998 \$/A	1999 \$/A	2000 \$/A	2001 \$/A
North	5,000	5,000	5,000	5,000	5,250	4,250	4,000	5,000	5,000	5,000
Northeast	4,250	5,000	5,000	5,000	5,000	4,000	4,000	4,000	4,500	4,500
West Central	5,000	5,000	5,000	5,000	5,000	5,000	4,700	4,000	5,000	5,000
Central	5,000	5,000	5,000	6,000	6,250	4,500	5,000	5,000	5,500	5,000
Southwest	4,250	5,000	5,000	5,000	6,000	5,000	4,500	5,000	5,000	6,000
Southeast	4,000	5,000	5,000	5,000	5,000	3,500	3,000	3,750	4,000	4,000

Figure 1. Geographic Areas Used in the Purdue Land Values Survey



earlier (Figure 2). The respondents indicated there was more, less, or the same amount of land compared to a year earlier. For the last three years the majority of the respondents have indicated that the amount of land on the market was the same as the previous year. Nearly a third indicate that there is

less land on the market (Figure 2). Just over 10 percent indicate an increase. The most noticeable changes in the response to this question were the increase in the percent of respondents that indicated a decrease in land available and the decrease in the percent of respondents that indicated an



increase in land available in 2000. In the 2001 survey, there was an increase in the number indicating more land on the market and a decrease in the number indicating less.

Respondents were also asked to provide their assessment regarding the number of farmland transfers during the previous six months compared to a year ago. Again, they were asked if the number of transfers had increased, decreased, or remained the same. Twenty-two percent of the respondents indicated that the number of transfers increased, 29 percent indicated that the number of transfers declined and 49 percent indicated that the number of transfers were the same.

Respondents were asked to provide their perceptions of how the purchasers of farmland had changed from a year earlier. Demand from farmers was said to have increased by 22 percent of the respondents, while 19 percent of the respondents indicated that farmer demand had declined. In 2000, 26 percent of the respondents indicated an increase in farmer demand, while 17 percent indicated a decline.

Seventy-six percent of the respondents indicated an increase in demand for rural residences. While this is less than the 83 percent that reported an increase last year, it still indicates a strong demand for rural residences. Three percent of the respondents indicated a decrease in demand for rural residences, while 21 percent indicated no change. Twenty-seven percent of the respondents indicated that individual nonfarm investors in farmland had increased, while 17 percent indicated that this source of demand had decreased. In 2000, 32 percent of the respondents indicated an increase from individual nonfarm investors, while 19 percent indicated a decrease in demand from individual nonfarm investors.

The purchase of farmland by pension funds and other large investors is always a topic of discussion. Compared to a year ago, 10 percent of the respondents indicated that demand from this source had increased, 30 percent indicated a

decrease, and 60 percent indicated no change. These are similar to the numbers reported in 2000, when eight percent of the respondents indicated an increase and 28 percent indicated a decrease.

Expectations regarding intermediate crop prices have a strong influence on farmland values because of their affect on the expected return to the land investment and the expected cash flows associated with the investment purchase. In order to gain some insight into the income level expected from a land purchase, respondents were asked to estimate annual average prices over the next five years for corn and soybeans. Respondents have made these projections since 1984 (Table 4).

Another decrease occurred in the expected five-year average price of corn and soybeans. The price of \$2.12 for corn and the \$5.07 are the lowest expected 5-year prices in the 18-year series. To the extent that land market participants have similar reduced expectations, these lower price expectations will exert downward pressure on land values.

Other important expectations associated with a land purchase include the expected farm mortgage interest rate and the rate of inflation. The estimated interest rate declined this year, dropping a full percentage point. This is the lowest expected interest rate in the series. The decline in interest rates has a positive affect on land values. The expected rate of inflation also declined.

There are several other items that can influence farmland values. Survey respondents were asked to assess the influence of 11 different items on farmland values. These items included:

1. Current net farm income,
2. Expected growth in returns,
3. Crop prices & outlook,
4. Livestock prices & outlook,
5. Current & expected interest rates,

6. Returns on competing investments,
7. U.S. agricultural export sales,
8. U.S. inflation/deflation rate,
9. Current inventory of land for sale,
10. Current cash liquidity of buyers, and
11. Current U.S. agricultural policy.

Respondents were asked to use a scale for a -5 to +5 to indicate the affect that each item had on farmland values. If the item had a major negative influence, it would be given a -5. If the item had a small negative influence, it would be given a -1. Positive influences were assessed in the same way, except positive weights were used. An average for each item was calculated. The results are presented in Figure 3. The numbers on the horizontal axis of the chart indicate the number of the influence in the list above.

Those items with the largest negative influences included current net farm income (1) and the crop

price level and outlook (3). Those with the largest positive influences included current and expected interest rates (8), the current inventory of land for sale (9), and the current cash liquidity of buyers (10).

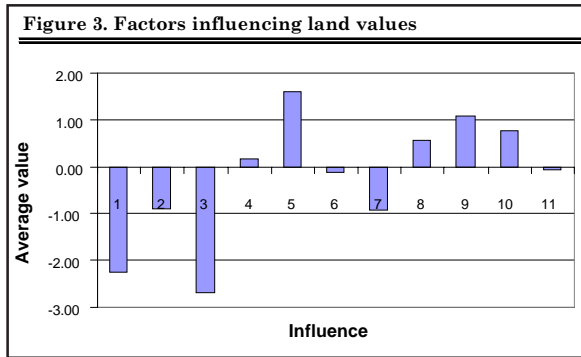
Land Value/Cash Rent Multiples

While the recent change in the value of farmland has a strong influence on land value's future direction, Figure 3 indicates that the current annual return to a land investment and the expected future return also have important influences. One way to assess the relationship between the annual return for a land investment and farmland values is to observe the land value/cash rent multiple. This is similar to the "price/earnings ratio" often referred to by stock market analysts. For example, data from the 2001 Purdue survey indicates a value/rent multiple of 20.0 ($\$2,264 \div \$113 = 20.04$) for average land. Is this figure abnormally high, thus suggesting that land values are too high? To answer this question we need to have an estimate of what is "normal."

For the period 1975 to 2001, the value to rent multiple has ranged

Table 4. Projected Five-Year Average Corn and Soybean Prices, Mortgage Interest and Inflation

Year	Prices, \$ per bu.		Rate, % per year	
	Corn	Beans	Interest	Inflation
1984	\$3.13	\$7.35	13.3%	6.5%
1985	2.70	6.13	12.3%	5.1%
1986	2.32	5.43	11.0%	4.2%
1987	2.16	5.62	10.7%	4.5%
1988	2.50	6.82	10.9%	4.6%
1989	2.48	6.55	11.0%	4.7%
1990	2.61	6.22	11.0%	4.6%
1991	2.47	6.07	10.4%	4.2%
1992	2.52	6.04	9.5%	3.8%
1993	2.35	5.96	8.7%	3.8%
1994	2.48	6.18	8.9%	3.8%
1995	2.50	6.02	9.2%	3.9%
1996	3.01	6.63	9.1%	3.7%
1997	2.72	6.81	9.0%	3.4%
1998	2.54	6.34	8.6%	3.1%
1999	2.31	5.57	8.4%	2.9%
2000	2.28	5.56	9.1%	3.2%
2001	2.12	5.07	8.1%	2.9%
Average	\$2.51	\$6.13	10.0%	4.1%



from a low of 12.4 in 1986 to a high of 20.6 in 1979 (Figure 4). Over the 1975 to 2001 period, the value to rent multiple averaged 16.3, with a standard deviation of 2.6. At a multiple of 20, the value to rent multiple is in a range similar to that in the 1978 to 1981 period. If one assumes that the value to rent multiple is normally distributed, this means there is only an eight percent chance that a higher value will be achieved. Or looking at it from the other side, there is a 92 percent chance of a lower value to rent multiple. Since 1975, the land value to rent multiple has exceeded 19.0 in eight years (1978-1981 and 1998-2001), indicating that the value to rent multiple is more likely to decline than increase.

Concluding comments

In spite of continued low grain prices, land values and cash rents continue to be strong or even increase. Survey respondents' revised downward their expected intermediate term grain prices and production costs continue to increase. This places downward

pressure on land values and cash rent. However, intermediate term crop yields continue to increase, the federal government continues to provide emergency financial assistance, and long-term interest rates are declining. How much longer will land values continue to hold steady or rise in the face of dim income prospects? There are several possible answers to this question. Here are three for your consideration.

First, farmland values and cash rent will remain at about their current levels as long as the federal government continues to provide emergency income support payments to farmers and tie these support payments to land. While survey respondents view the current farm program as having a slightly negative influence on land values and cash rents, agricultural economists continue to argue that annual emergency government payments and loan deficiency payments have prevented land values and cash rents from adjusting downward. While these payments are made to farm operators, much of the payment

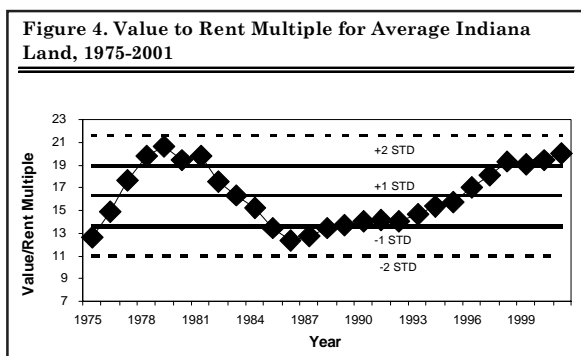
has been quickly capitalized into land values or bid into cash rents.

"Freedom to Farm" will expire in 2002. The discussion of alternatives has begun. While the exact form of the future program is not known, nearly everyone expects there to be some form of farm income support and that the level of support will continue at current levels. While this "conventional wisdom" may be correct, there is uncertainty associated with political processes. This may be a good time to begin the development of contingency plans in case the "conventional wisdom" is wrong.

Second the strong nonfarm economy has created a strong real estate development demand. It has also resulted in a strong demand for country homes and recreational land. To avoid paying taxes on land sold to developers, many sellers of farmland have made a tax-free real estate exchange. This has created strong demand for farmland away from cities and towns. With the slowing of the nonfarm economy, the development demand for farmland is expected to slow, reducing the demand for farmland needed for tax-free exchanges.

Finally, expectations are an important part of the farmland market. Many view the current low grain prices as the departure from the norm rather than the norm. As long as operators expect grain prices to improve in the near term, they are often willing to bid a little extra to gain control of land - hoping short-term losses will be offset by long-run gains. In the short-run, this often results in operators accepting less than full payment for their contributed labor, management, and capital. There is also an expectation that farmland values will increase over time. When asked where they expect farmland values to be five years from now, 65 percent of the survey respondent said higher. Twenty-one percent indicated they would be the same and 14 percent indicated that land values would be lower. The overall expected percentage change was 8.1 percent.

How much influence can expectations have on market values?



Remember the Internet stock boom? Market values for these companies rose steadily in spite of large losses because market participants expected (hope for) future profits. After all, these were companies associated with the new economy. Investors in these companies considered it acceptable for these new companies to have losses as long as there was a plan for becoming profitable. Eventually investors became weary of waiting and there was a major correction in this market. How will the farmland market react if market participants decide that \$2.00 is the normal price for a bushel of corn and there is little expected increase in land values? What are your plans if such a correction should occur?

A strong demand for the quantity of land that is supplied to the market, the provision of emergency government payments, good yields, low interest rates, the desire of operators to expand the size of their business, and expanding non-agriculture economy, and the expectation that prices and farm profitability will improve are factors that have allowed land values and cash rents to remain strong. Until something changes in this picture, the recent trend of steady to slowly increasing cash rents and land values is likely to continue.

The land values survey was made possible by the cooperation of

professional farm managers, appraisers, brokers, bankers, Purdue Extension educators, and persons representing the Farm Credit System, the Farm Service Agency (FSA) county offices, and insurance companies. Their daily work requires that they stay well-informed about land values and cash rents in Indiana. The authors express sincere thanks to these friends of Purdue and Indiana agriculture. They provided 353 responses representing nearly all Indiana counties. We also express appreciation to Carolyn Hunst of the Department of Agricultural Economics for her help in conducting the survey.