PURDUE AGRICULTURAL ECONOMICS REPORT

AUGUST 1997

Land Values Rise Again

J. H. Atkinson, Professor; Alan Miller, Farm Business Management Specialist; and Kim Cook, Research Associate

The Purdue Land Values survey, conducted annually for over 20 years, indicates that the value of an acre of average Indiana cropland was right at $2000 per acre in June 1997, only $100 short of the all-time peak reached in 1981. In each of the past four years, the value of this land has increased from about $100 to over $200 per acre, resulting in an increase of 53% for the period. Cash rents rose from 1996 to 1997 on average land by about 5.3%, to $110 or $4 more per acre than in the peak year of 1981. The increase for the past four years has been 24%.

Statewide Land Values

For the *six months* ending in June 1997, the value of bare tillable land was reported to have increased 5.0% on top land, 4.9% on average land and 4.8% on poor land (Table 1). Most respondents, 68%, reported that some or all classes of land went up from December 1996 to June 1997, down from 78% last year. Only 3.9% of the respondents indicated that some or all classes of land fell in value during that same six month period as compared to 2.1% of the survey respondents the previous year.

The statewide *12 month* increase in average value from June 1996 to June 1997 was 13.1% (Table 1). Top quality land (149 bushel corn yield rating) was estimated to have increased by $275 per acre to $2549 (Table 1). Average land (122 bushel corn yield rating) was valued at $1997 (up $232), while poor land (94 bushel corn yield rating) was estimated to be worth $1493 per acre, up 14.6% for the year. All three classes of land values were within 5% or less of their 1981 peak.

The land value per bushel of corn yield rating also increased substantially. For top quality land, value per bushel of yield was $17.05, up by 11.7%. Average quality land value was $16.36 per bushel, while the poor quality value was $15.83 per bushel (Table 1). The percentage increases were 12% on average land and 13% on poor land. These per-bushel figures are $1.79 higher than last year on top land, $1.77 higher on average land, and $1.82 higher on poor land.

The value of transition land moving into non-farm uses increased 5.8% in the 6-month period ending in June to $5764 per acre. On a year-to-year basis, the averages show a 29.9% increase (Table 1); however, due to the wide variation in estimates (from $1500 to $33,000 in June 1997), the median value may give a more meaningful picture than the arithmetic average. The median increased from $4000 in June 1996 to $5000 in June 1997. There was no change in the median from December 1996, to June 1997. The median value of individual home sites up to 5 acres was $5000 per acre, up from $4000 last year, and sites of 10 acres or more suitable for residential subdivisions were valued at $4000 per acre, the same as last year.

Statewide Rents

Cash rents increased statewide from 1996 to 1997 by $6 per acre on top and average land, and $4 per acre on poor land (Table 2). The estimated cash rent on average land was $110 per acre, $135 on top land, and $84 on poor land. Rent per bushel of estimated corn yield was $.91 on top land, $.90 on average land, and $.89 on poor land, up three to four cents from last year. Cash rent on top land in 1997 was below the record 1981 level of $137 per acre, while rents on average and poor land were a few dollars above.

Statewide, cash rent as a percentage of estimated land value declined for the sixth consecutive year to around 5.5% (Table 2). Greater increases in land values than in cash rents caused these declines, but the percentages statewide are still higher than the 5% levels of 1978-81.

Area Land Values

Increases in the value of farmland in the six different geographic areas of Indiana (Figure 1) from December

Table 1. Average estimated Indiana land value per acre (tillable, bare land), and per bushel of corn yield rating, percentage change by geographic area and land class, selected time periods, Purdue Land Values Survey, June 1997.

			Land Value					Land Value/Bu			Projected Land Value	
			Dollars Per Acre			% Change				% Change		% Change
Area	Land Class	Corn bu/A	June 1996 $	Dec. 1996 $	June 1997 $	6/96-6/97 %	12/96-6/97 %	$ Amount 1996 $	$ Amount 1997 $	6/96-6/97 %	Dec. 1997 $	6/97-12/97 %
North	Top	153	2250	2373	2494	10.8	5.1	15.10	16.35	8.3	2471	-0.9
	Average	120	1626	1725	1788	10.0	3.7	13.78	14.91	8.2	1784	-0.2
	Poor	89	1155	1216	1261	9.2	3.7	13.13	14.18	8.0	1256	-0.4
Northeast	Top	145	2117	2302	2428	14.7	5.5	14.30	16.70	16.8	2481	2.2
	Average	121	1586	1806	1887	19.0	4.5	13.44	15.62	16.2	1924	2.0
	Poor	92	1206	1352	1403	16.3	3.8	13.25	15.21	14.8	1428	1.8
W. Central	Top	156	2496	2722	2821	13.0	3.7	16.21	18.07	11.5	2856	1.2
	Average	129	1993	2206	2307	15.8	4.6	15.69	17.85	13.8	2370	2.7
	Poor	100	1457	1648	1726	18.4	4.7	14.87	17.26	16.1	1749	1.3
Central	Top	155	2614	2758	2886	10.4	4.7	17.08	18.60	8.9	2965	2.7
	Average	129	2155	2225	2354	9.2	5.8	16.84	18.28	8.6	2407	2.3
	Poor	102	1679	1750	1821	8.4	4.0	16.46	17.78	8.0	1864	2.4
Southwest	Top	149	2216	2259	2384	7.6	5.5	14.21	16.00	12.6	2414	1.2
	Average	118	1611	1680	1754	8.9	4.4	13.20	14.82	12.3	1792	2.2
	Poor	91	1020	1144	1214	19.0	6.1	11.21	13.40	19.5	1218	0.3
Southeast	Top	134	1671	1892	2024	21.1	7.0	12.56	15.07	20.0	2082	2.8
	Average	109	1366	1504	1595	16.8	6.1	12.42	14.59	17.5	1649	3.3
	Poor	86	1081	1207	1295	19.8	7.3	12.57	15.10	20.1	1334	3.1
Indiana	Top	149	2274	2428	2549	12.1	5.0	15.26	17.05	11.7	2591	1.6
	Average	122	1765	1903	1997	13.1	4.9	14.59	16.36	12.1	2041	2.2
	Poor	94	1303	1425	1493	14.6	4.8	14.01	15.83	13.0	1520	1.8
	Trans.[1]		4437	5450	5764	29.9	5.8				5965	3.5

1 Land moving out of agriculture

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1996 to June 1997, ranged from 3.7% to 7.3% (Table 1). Areas that reported greater percentage increases for poor land than for top land were the west central, southwest and southeast areas.

For the year ending in June 1997 the greatest increase in top or average farmland was again in the southeast (21.1% on top land) followed by a 19% increase on average land in the northeast and 16 to 17% increases on average land in west central and southeast Indiana (Table 1). Other increases on top and average land ranged from 7.6% to 14.7%. Poor land value increases by area ranged from 8.4% in the central area to 19.8% in the southeast. In several areas, one or more classes of land have approached or exceeded the record levels of 1980-81.

The highest valued top quality land was again in the west central and central areas, around $2800 to $2900 per acre. The next highest values were in the north ($2494), northeast ($2428) and the southwest ($2384). Reported values for average quality land were $2354 in the central and $2307 in the west central areas but only around $1600 to $1900 in the other areas. Part of these area differences in values between land in the same productivity class are associated with differences in respondents' estimates of corn yield ratings. For example, average land in the southeast had a corn yield rating of 109 bushels per acre and in the north, 120 bushels; however, the land values per bushel of corn yield estimates were about the same in both areas.

Land values per bushel of estimated average corn yield (land value divided by bushels) on top land were in the range of $16.00 to $16.70 in the north, northeast and southwest areas (Table 1), $18.07 in the west central area, $18.60 in central Indiana, and $15.07 in the southeast.

Land values per bushel declined as land quality (corn yield estimates) declined in all areas except the Southeast. These per bushel values have been increasing since 1987, but are much lower than in 1981 when the per bushel estimate for average land in central Indiana was $21.50. This figure dropped to about $9.50 in 1987 and currently is $18.28.

Respondents were asked to estimate rural home sites with no accessible gas line or city utilities and located on a black top or well maintained gravel road. The median values per acre of both small (5 acres or less) and large (10 acres or more) home sites in the west central area was $5000, up from $4000 in 1996. Increases also occurred on small tracts in the north, northeast and southwest where the 1997 estimates ranged from $5000 (north) to $4250 (northeast and southwest). The $4000 estimate in the southeast was the same as last year. Estimated per acre values of the larger tracts ranged from $4250 to $5000 except for the $3500 estimate in the southeast.

The median values for home sites under 5 acres and 10 acres or more in 1996 and 1997 are found in Table 3.

Table 2. Average estimated Indiana cash rent per acre, (tillable, bare land) 1996 and 1997, Purdue Land Values Survey, June 1997.

Area	Class	Corn bu/A	Rent/Acre 1996 $	Rent/Acre 1997 $	Change '96-'97 %	Rent/bu. of Corn 1996 $	Rent/bu. of Corn 1997 $	Rent as a % of June Land Value 1996 %	Rent as a % of June Land Value 1997 %
North	Top	153	132	139	5.4	0.89	0.91	5.9	5.6
	Average	120	103	107	4.2	0.87	0.89	6.3	6.0
	Poor	89	76	78	2.5	0.86	0.88	6.6	6.2
Northeast	Top	145	118	124	5.5	0.80	0.86	5.6	5.1
	Average	121	95	102	7.5	0.81	0.85	6.0	5.4
	Poor	92	70	78	12.0	0.77	0.85	5.8	5.6
W. Central	Top	156	142	152	6.7	0.92	0.97	5.7	5.4
	Average	129	120	129	7.4	0.94	1.00	6.0	5.6
	Poor	100	94	101	7.9	0.96	1.01	6.5	5.9
Central	Top	155	143	152	6.1	0.93	0.98	5.5	5.3
	Average	129	118	125	5.8	0.92	0.97	5.5	5.3
	Poor	102	94	99	4.9	0.92	0.96	5.6	5.4
Southwest	Top	149	128	130	1.6	0.82	0.87	5.8	5.5
	Average	118	97	98	1.2	0.80	0.83	6.0	5.6
	Poor	91	73	69	-5.4	0.80	0.76	7.2	5.7
Southeast	Top	134	98	102	4.1	0.74	0.76	5.9	5.0
	Average	109	77	80	3.4	0.70	0.73	5.6	5.0
	Poor	86	58	61	5.9	0.67	0.72	5.4	4.7
Indiana	Top	149	129	135	5.0	0.87	0.91	5.9	5.3
	Average	122	104	110	5.3	0.86	0.90	5.9	5.5
	Poor	94	80	84	4.6	0.86	0.89	6.1	5.6

Area Cash Rents

Cash rents for top land increased by $10 per acre in the west central area, $9 in central Indiana and $2 to $7 in the other areas. Cash rents increased in all areas and for all three productivity classes except for poor land in the southwest. Increases for average and poor land ranged from minus $4 to $9 (Table 2). The highest percentage increase was for poor land in the northeast (12%).

Cash rents were again highest in the west central and central areas at $152 per acre for top land, and $129 and $125 per acre, respectively, for average land. Cash rents of around $1.00 per bushel were also highest in these areas. The per-bushel rent for top land was 91¢ in the north, 87¢ in the southwest, 86¢ in the northeast, and 76¢ in the southeast. In all areas except the southwest, rates per bushel within areas varied by 4¢ or less by land quality.

Cash rent as a percentage of land value declined again for all land classes in all areas.

This rate on top and average land was in the range of 5.0% to 6.0% in all areas.

Respondents' Outlook

Respondents are less optimistic about further price increases by year-end. Last year, 79% of the survey respondents expected some or all classes of land to increase, but that figure dropped to 54% this year. Only 6% of the respondents expect a decline in values and 38% expect no change, up from 28% last year.

Respondents were also asked about their expectation of land value changes over the next 6 months. Small decreases were expected in the northeast. Expected land value

Table 3. Median estimated Indiana land values for small and large rural homesites, 1996 and 1997, Purdue Land Values Survey, June 1997.

Area	Median Value, $ per acre: Under 5 Acres 1996 $	Under 5 Acres 1997 $	10 Acres & Over 1997 $	10 Acres & Over 1997 $
North	4000	5000	4000	4250
Northeast	4000	4250	4000	4000
West Central	4000	5000	4000	5000
Central	5000	5000	5000	4500
Southwest	4000	4250	4100	5000
Southeast	4000	4000	3000	3500

increases in other areas were mostly under 3% for the 6 months ending in December (Table 1). These projections in the past have been in the right direction but have not been a good indicator of the actual magnitude of change.

When asked about their longer-run expectations over the next 5 years, about 80% of the respondents predicted that land values would increase. The remaining 20% were about equally divided between expecting a decline or no change. On average they expected a modest increase of 10% for the 5 years, which was one percentage point higher than last year's projection.

Respondents were asked to estimate annual average prices over the next five years for corn and soybeans, the farm mortgage interest rate, and the rate of inflation. The projections they have made since 1984 are shown in Table 4.

This is the sixth consecutive year that expected farm mortgage interest rates have remained under 10% and inflation under 4%. A 29¢ decrease occurred in the expected price of corn but the $2.72 per bushel estimate is still the second highest since 1985. The increase of 18¢ in the soybean price estimate would only partially offset the decline in corn price. Gross revenue expectations for 125 bushel corn yields and 45 bushel beans in a 50-50 rotation would decline $14 per acre from last year. To the extent that land market participants have similar reduced expectations, this relatively small reduction in revenue expectations could exert downward pressure on land values. Combined with other factors like an increase in land on the market in response to lower capital gains tax and reduced transition payments, a leveling off or decline in land values might occur.

Land Market Activity

The number of farmland transfers in the 6 months ending in June compared to a year earlier was estimated to be up by 30% of the respondents versus 34% last year. About half of the respondents thought there had been no change in the number of transfers. More land was thought to be on the market now by only 12% of the respondents versus 16% a year ago.

Land Value/Cash Rent Multiples

The fact that average Indiana farmland values surged again in the year ending in June 1997 and have increased about 53% over the past 4 years gives rise to the question, "Are land values too high?" But viewed alone, the fact that land values have risen rapidly is not sufficient justification to suggest that they are too high - returns to land investment must also be considered. Over the

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

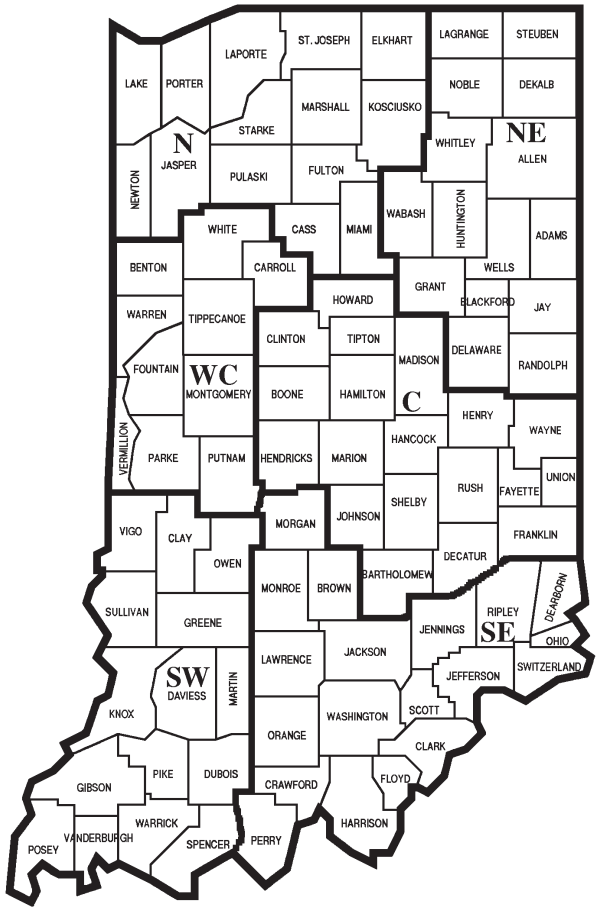


Table 4. Average Expected Corn and Soybean Prices are Interest and Inflation Rates for the next Five years (annual averages), 1984-97 Purdue Land Value Surveys.

	Respondents' Projections			
	Prices, $/bu.		Rates, %/yr.	
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

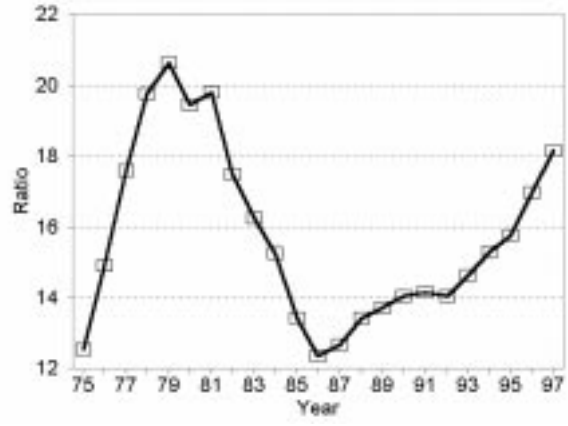
past 4 years, cash rents (a measure of returns) have increased less than half of the percentage increase in land values and in 1997 were under 6% of land values. Stock market analysts often refer to the "price/earnings ratio." In a similar way, a land value/cash rent multiple can be calculated. For example, data from USDA and Purdue indicate a value/rent multiple of $18.3 ($1997/110 = $18.3) of land value per $1 of cash rent for 1997. 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."

Based on USDA and Purdue data, the value/rent multiple moved in the narrow range of 12.8 to 14.7 for the 16 year period ending in 1975. Rents and land values both rose by about the same percentage during this period. From 1975 to 1979, the multiple increased rapidly to more than 20.0 (Figure 2). Land values rose rapidly while cash rent lagged behind (Figure 3).

The value/rent multiple peaked in 1979 two years ahead of the peak in land values and in cash rental rates. Then came the crash in land values - a decline of over 50% from 1981 to 1987. Cash rents declined by less than half this amount. The land value/rent multiple bottomed in 1986, one year ahead of the bottoms for land values and cash rents. Now the multiple is 18.3 - the highest level since 1982. Since 1960, the land value/rent multiple has exceeded 18.3 in only 4 years (1978-1981).

High hopes of continued large grain exports to China have been dimmed, government transition payments will decline in 1998 and the following 4 years, then be discontinued, and $5 corn is only a dream (a bad one for hog farmers!). A decline in farm profits, perhaps next year, would not be surprising. Could this trigger a down-trend in land values which might continue for several years? If so, and if land values declined faster percentage-wise than cash rents, the value/rent multiple would decline toward more "normal" levels. While making a firm prediction of a decline in land values and the multiple based on this analysis may not be justified, it does suggest that more caution than in the past be used in land purchases.

Figure 2. Indiana Average Cropland Value to Rent Multiple, 1975-1977, Purdue Land Values Survey



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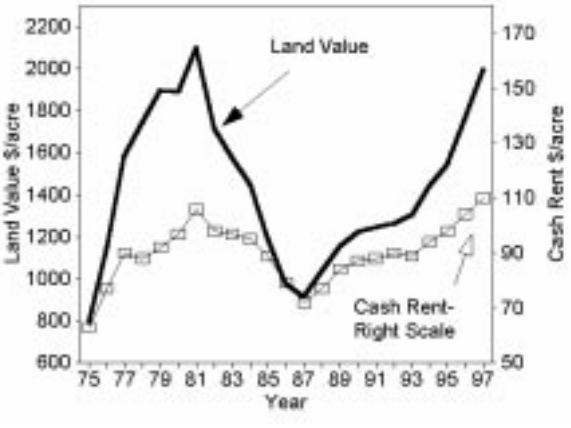
The land values survey was made possible by the cooperation of professional farm managers, appraisers, brokers, bankers, county extension educators, and persons representing the Farm Credit System, the Farm Service Agency (FSA) county offices, and insurance companies. Their daily work requires that they stay well-informed about land values and cash rents in Indiana. The authors express sincere thanks to these friend of Purdue and Indiana agriculture. They provided 350 responses representing most of Indiana's counties. We also express appreciation to Sandy Dottle of the Department of Agricultural Economics for her help in conducting the survey and to Professor Chris Hurt for his review of this report and helpful suggestions.

Figure 3. Estimated Indiana Land Value and Cash Rent, Average Land, 1975-1997, Purdue Land Values Survey



Schedule for 1997 Agricultural Outlook Meetings

You are invited to an Agricultural Outlook meeting sponsored by the **Purdue Cooperative Extension Service**. Meetings will be held throughout the state, so please check below for a location near you.

You will hear the 1998 outlook for corn, soybeans, wheat, forages, trade, policy, cattle, hogs, dairy, land values, and cash rents. In addition, there will be a brief glimpse into the **Food Systems of the 21st Century;** a special long-run outlook project just completed at Purdue. Use this meeting as an opportunity to begin planning for 1998, or just to gain perspective on our incredible world of Agriculture.

County	*Location*	*Date*	*Time*
Adams	Monroe — 4-H building	Sept. 23	6:30 pm
Allen	American Legion — New Haven	Sept. 23	Noon
Bartholomew	Bartholomew Co. Extension Office	Sept. 10	6:30 pm
Benton	4-H bldg. 4-H Fairgrounds — Benton Co.	Sept. 16	7:30 am
Blackford	Jim Dandy Restaurant — Marion	Sept. 22	Noon
Carroll	4-H Fairgrounds — Flora	December	TBA
Cass	Carousel Restaurant	Sept. 17	7:30 am
Clark	Nick's Powder Keg Restaurant	Dec. 2	7:30 am
Clay	Blue Bonnett Restaurant — Brazil	Sept. 15	7:00 am
Clinton	Clinton County Fairgrounds	Sept. 18	7:30 am
Crawford	N. Harrison High School Vo Ag	Dec. 2	6:30 pm
DeKalb	Auburn House Restaurant	Sept. 16	6:30 pm
Dearborn	Case House Brookville (801 Main St.)	Sept. 15	7:30 am
Fayette	Millers Cafateria — Connersville IN	Sept. 16	7:30 am
Franklin	Case House Brookville (801 Main St.)	Sept. 15	7:30 am
Fulton	Fulton Co. Fairgrounds	Sept. 16	7:30 am
Grant	Jim Dandy Restaurant — Marion	Sept. 22	Noon
Hamilton	Hamilton Co. 4-H Fairgrounds	Sept. 24	7:00 am
Hancock	4-H Bldg. Greenfield	Sept. 15	6:30 am
Harrison	N. Harrison High School Vo Ag	Dec. 2	6:30 pm
Hendricks	Hendricks Co. Comm. Bldg — Fairgrounds	Sept. 16	6:30 pm
Henry	Rush Co. Fairgrounds — Root Bldg	Sept. 15	7:30 pm
Howard	Kokomo Shrine Club	Sept. 16	7:30 am
Huntington	Huntington College	Sept. 22	7:00 am
Johnson	Johnson Co. Ext office (Wright Bldg.)	Sept. 23	7:00 pm
Kosciusko	Justice Bldg Mtg. Rm B — Lake Street Warsaw	Sept. 16	7:00 pm
Lawrence	Hickory Hills	Dec. 3	6:30 pm
Montgomery	Montgomery Co. Fairgrounds	Sept. 18	7:00 am
Newton	S. Newton HS — FFA field day	Sept. 23	5:00 pm
Orange	Easterday Implement — Bromer	Dec. 1	7:00 pm
Porter	Pinney Purdue	Sept. 15	7:30 am
Posey	Wadesville — watch for signs	Sept. 17	5:30 pm
Pulaski	Pulaski Co. 4-H Fairgrounds Winamac	Sept. 17	7:30 am
Putnam	Putnam County Fairgrounds	Sept. 15	Noon
Rush	Rush Co. Fairgrounds — Root Bldg	Sept. 15	7:30 pm
Scott	Best Western Scottsburg Inn	Dec. 1	7:30 am
Shelby	Ext Ofc Mtg Room — 1110D Amos Road	Sept. 16	7:00 pm
Tipton	Jim Dandy Restaurant	Sept. 19	7:15 am
Union	Case House Brookville (801 Main St.)	Sept. 15	7:30 am
Warrick	Schnur Farm West edge of Warrick	Sept. 18	6:30 am
Washington	Washington Co. Ext Ofc — Courthouse Annex	Dec. 3	6:30 am
Wayne	Miller Cafe — Richmond	Sept. 16	11:30 am
Wells	Dutch Mill Restaurant — Bluffton	Sept. 23	7:30 am
White	Chalmers Am. Legion Hall	Sept. 16	7:30 am

100 Years of Indiana Agriculture: 1895 - 1995

Stephen B. Lovejoy, Professor

I was recently given a fascinating old book.* It was the forty-fifth annual report of the Indiana State Board of Agriculture, covering the crop years 1895-96. It contains a multitude of interesting facts describing agricultural production systems in 1895. While minutes of various agricultural organizations and state-fair results are presented, the most interesting were the tables on crops produced, yields, animal numbers, and reports on experiments at the then infant Agricultural Experiment Station at Purdue University.

Hoosier farmers in 1895 produced a wide variety of crops, including corn, wheat, oats, barley, rye, flaxseed, buckwheat, sweet potatoes, Irish potatoes, and tobacco. In addition, there was a diverse orchard industry producing apples, peaches, pears, plums, cherries, quinces, and grapes.

In the late 1890s, Indiana had approximately 22 million acres classified as farmland, of which only 7.5 million were actually cropped. In contrast, in the 1990s, Indiana had 16 million acres of farmland with nearly 11 million cropped.

So while farmland acres dropped 36% in the hundred years, actual acres cropped increased from 7.5 million to 11 million, an increase of 47%. At the same time, the number of farms dropped substantially from 222,000 in 1900 down to 62,000 in 1995, a decrease of 72%. Since the decrease in number of farms was even more substantial than the decline in acres in farms, the average-size farm rose from 98 acres to 256 acres, an increase of 160%. The increase in the average cropped acres per farm was even more dramatic, going from 34 acres to 180, a 449% increase.

Table 1 illustrates the diversity of crops produced in 1895 and some of the similarities with 1995. Corn was the dominant crop in both 1895 and 1995, accounting for 48 to 49% of the cropped acres in Indiana. However, other crops show marked differences over the 100 years. Wheat acreage went from 2.7 million acres (36% of cropped acres) down to 660,000 (6% of cropped acres), and acreage in oats went from 1 million acres to 30,000. Acreage in many other crops (e.g., barley, rye, flaxseed, buckwheat, potatoes, and tobacco) was too insignificant to even report in 1995.

The two crops for which acreage increased over the 100 years were corn and soybeans. Corn acreage increased from 3.7 million to 5.3 million, and soybeans increased from 0 to 5 million acres.

Table 1 also indicates the tremendous growth in land productivity. In 1895, the average corn yield was 35 bushes per acre while a hundred years later it had tripled to 113. As a result, while Indiana farmers increased corn acreage 43%, they increased total bushels produced 354%. Even more dramatic has been the increase of small grains: wheat went from 8 bu/A to 60 bu/A and oats from 22 bu/A to 68 bu/A.

In the agricultural statistics of today, we measure fruit crops by the millions of pounds produced and utilized; since the production is so small and dispersed, county figures are not provided. However, back in 1895,

Table 1. Land Productivity in Indiana in 1895 and 1995

	1895		
Crops	**Total Bushels**	**Total Acres**	**Bushels/Acre**
Corn	132,105,983	3,706,146	35.37
Wheat	22,674,101	2,728,210	8.03
Oats	24,601,831	1,098,700	22.50
Barley	659,058	32,222	19.80
Rye	1,972,190	148,899	13.20
Flaxseed	17,732	2,394	7.00
Buckwheat	60,883	3,245	18.70
Irish Potatoes	5,838,857	91,502	64.00
Sweet Potatoes	123,999	2,037	55.37
Clover Hay (tons)	1,185,267	1,098,642	1.08
Timothy Hay (tons)	1,003,758	1,451,272	0.62
Tobacco (lbs.)	10,179,500	9,578	1211.00
TOTAL		**7,533,056**	

	1995		
Crops	**Total Bushels**	**Total Acres**	**Bushels/Acre**
Corn	589,900,000	5,300,000	113.00
Wheat	39,600,000	660,000	60.00
Soybeans	194,220,000	4,980,000	39.00
Oats	2,040,000	30,000	68.00
Clover Hay (tons)	2,400,000	720,000	3.33
TOTAL	**834,760,000**	**10,970,000**	

** The book originally belonged B. D. Latimer who was born in 1860 and died in 1900 of typhoid fever. He was a farmer and land owner in Monroe County Indiana. He owned and farmed the land which is now the site of College Mall in Bloomington Indiana. His sister, Belle Latimer Kelly was one of the first female graduates of Indiana University. B. D. Latimer's son, Clarence was the father of Margaret Latimer Prugh. Mrs. Prugh, who gave me this book, still lives in Bloomington near the site of the "home place".*

Table 2. Number of Fruit Trees in Indiana in 1895 and Counties With Greatest Number of Each Type

Fruit	No. of Trees
Apple	5,226,120
Peach	1,548,502
Pear	407,246
Plum	334,180
Quince	99,690
Cherry	714,681
Grape	1,741,696

County	No. of Trees
Harrison	226,324
Clark	223,696
Harrison	17,341
Gibson	9,057
Jefferson	5,856
Allen	20,645
Clark	161,853

fruit crops were reported by the number of trees in each county. As seen in Table 2, there were more than 5 million apple trees in Indiana, with Harrison County having the most. Harrison County also had the greatest number of pear trees, with 4% of the state's total of 407,000. Clark County had the largest number of peach trees and grape vines. Fruit production was clearly centered in the southern part of the state, except for cherries which were more likely to be grown in the northern-most counties.

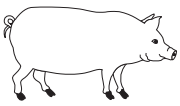
Table 3. Cattle and Sheep in Indiana in 1895

Cattle by Breed	Number
Jersey	49,136
Holstein	9,606
Shorthorn	55,255
All Others	813,495
Milch Cows	468,043
Died	27,011

Sheep	Number
Sheep	1,364,112
Lambs	511,578
Died	62,100
Killed by Dogs	30,724

Wool in 1995: 4,691,883 lbs.

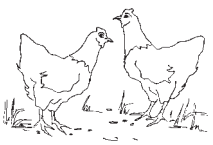
Livestock was a major production category in 1895, as it is today. In 1895, the report listed 1.2 million hogs under three months old and 1.5 million over three months old, with 278,000 hogs having died during the year. This contrasts with the inventory of hogs on December 1, 1995 of 4.1 million. It is difficult to compare these hog numbers since the time from birth to market has been altered substantially.



Cattle were and remain another major livestock enterprise in Indiana agriculture. In 1895, numbers of cattle were reported by breed. Table 3 indicates that Jersey and Shorthorn were the predominant pure breeds, but that the majority were classified as "other" or "milch" cows. The 1.4 million cattle inventoried in 1895 was actually larger than the 1.2 million in 1995.

Even more dramatic was the decline in sheep and lamb numbers, from 1.4 million in 1895 to 75,000 in 1995. The 1895 report also indicated that 30,724 sheep and lambs had been killed by dogs.

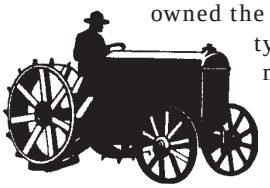
Poultry enterprises were also numerous in 1895 and the number of birds was reported in terms of dozens of chickens, turkeys, geese, and ducks. There were reportedly 838,979 dozen chickens in the state in 1895 (approximately 10,080,000 birds) while in 1995 we had nearly 26 million birds. While the 1895 report did not classify chickens as layers and broilers, it did report that 30,860,797 dozen eggs were produced, or approximately 370 million eggs. In 1995, Indiana layers produced well over 5 billion eggs.



Many crops of today, as in 1895, require assistance in pollination, often through domesticated bees. In 1895, there were, reportedly, 69,998 bee colonies in Indiana while in the middle 1990s, that number had fallen to 12,000 to 13,000 colonies.

Of course, the most dramatic change in livestock over the past 100 years has been the change from animal power to machine power. In 1895, there were more than 800,000 horses and mules in Indiana. Table 4 indicates that the overwhelming majority were listed as other breeds, probably mixed and undistinguishable, although about 3% were apparently purebreds. Most of these horses and mules were work animals.

The state report for 1895 indicates that Hoosier farmers owned the following types of machinery: 64,218 binders, 66,087 mowers, 3,413 threshers, and 1,502 clover hullers. While the state statistician does not report the quantity of machinery in recent compilations, we can safely assume that Hoosier farmers have more self-propelled combines than binders or threshers and have more tractors than draft animals.



In 1895, while Indiana agriculture was more self-sufficient in terms of producing its own seed and fuel for the draft animals, it did purchase some inputs. Purchase of commercial fertilizer in 1895 totaled 45,000 tons, of which 15,000 tons were raw or steamed bone. In 1995, commercial fertilizer purchases in Indiana totaled well over 2 million tons, of which probably very little was raw or steamed bone.

Another interesting figure provided in 1895 that is not computed today is the rods of drainage tile. The 1895 report states that 2,097,356 rods of drain tile were laid that year, bringing the total of drain tile laid in Indiana to 43,069,978 rods. So, as early as 1895, Indiana had nearly 135,000 miles of laid tile.

In addition to providing reports from the various commodity and livestock-breed associations, this 1895 book provides reports from the farmers' reading circle and lists all

the Farmers' Institutes (county educational meetings) scheduled for 1895-96 by month (they were held in December, January, and February) along with the assigned speakers, place of meeting, and chairmen of the institutes. In December 1895, 53 two-day institutes were scheduled, and 39 in January and February. Therefore, each county in the state had an institute in that three-month period and each expected an average of 274 farmers. This meant that more than 25,000 farmers (or over 10% of all farmers) attended institutes.

These institutes contained presentations based on reports on a variety of topics, from hog cholera to hay substitutes to nutrition information to public roads.

The 1895 report ends with Bulletins 55, 56, and 57 from the tural Experiment Station at Purdue University. No. 55 reports on experiments with small fruits, corn, oats, and sugar beets. These experiments included varietal research, planting-date-yield comparisons, and some limited profitability analysis.

Bulletin No. 56 reported on wheat experiments and various attempts to prevent potato scab. Bulletin No. 57 was devoted to the improvement of unproductive black soils found in central and northern Indiana. After four years of experience, the research concluded that drainage problems were the cause of the low productivity. The research report suggests some temporary methods but focuses on placement of tile drains, ditches, and wells to ensure that water-table levels were lowered to at least 42 inches below the surface.

Table 4. Horses and Mules in Indiana in 1895

Cattle by Breed	Number
French Draft	4,270
French Coach	1,395
Clydesdale	7,357
English Shire	7,917
All Others	630,318
Died	22,787
Mules	56,063
Died	1,136
TOTAL	**802,243**

This has been a short tour of Indiana agriculture in 1895. The changes in land use, livestock, and institutions over the past 100 years is striking. It makes us wonder how our production methods will be viewed by agriculturalists at the dawn of the 22nd century.

Federal Pesticide Regulation: Recognizing Economics of Use and Consumer Safety

Gerald E. Shively, Assistant Professor

Pesticides are an important part of our food system from the economic benefits of producer use to the health implications of the food we enjoy. Recent changes are helping to fine tune federal legislation that recognizes the important economic benefits of use and also enhances consumer safety.

Changes in legislation!

The Food Quality Protection Act (FQPA) of 1996 is the most recent Federal legislation directed at food safety. Voted unanimously into law last August, this new legislation (P.L. 104-170) replaces the 1958 Delaney Clause amendment to the Federal Food, Drug, and Cosmetic Act (FFDCA), and also amends the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The old law treated pesticides on processed foods as additives, but exempted certain pesticide residues found in raw foods. The FQPA removes this distinction and establishes a single, health-based standard for pesticide residues in both raw and processed food. Major differences between the old law and the new law are summarized in Table 1.

The new law includes several features that are likely to have far-reaching effects on food producers and consumers over the coming decades. These effects will arise primarily from a shift in regulatory emphasis. Previously, federal law concerned with regulating pesticide residues aimed to distinguish between carcinogens and noncarcinogens in the food supply. The new law will abandon this approach in favor of a broader perspective that identifies "threshold" and "nonthreshold" pesticides, regardless of their cancer-causing potential.

"Overall, most of the chemicals on which farmers previously relied will remain available, and newer and safer products are likely to replace some currently approved pesticides."

The Environmental Protection Agency (EPA) will be given responsibility for interpreting safe threshold levels for all pesticides, not just those that pose a cancer threat. Exact interpretations of what constitutes a safe threshold will likely be the subject of scientific and legislative debate in the years to come. The

new law also requires the development and implementation of a screening program for endocrine disruptors. These estrogen-like substances are suspected of having harmful effects on human reproduction and development.

What can producers expect?

Although the ultimate impact of the new legislation is difficult to predict, it seems clear that most pesticides that were available under the old law are likely to remain available under the new law. The FQPA provides for a review of all existing pesticide tolerances within the next 10 years, with highest priority given to pesticides that may pose the greatest health risks. Faster reviews of new agricultural and antimicrobial pesticides will mean that pesticide manufacturers are likely to seek—and gain—approval to market previously banned pesticides that were found to be carcinogenic but at a small "threshold" level. Over time, this change is likely to increase the number of approved fungicides, herbicides, and insecticides.

In some cases, the new rules may lead to prohibitions on previously approved products, especially if observed residue levels are shown to exceed "threshold" levels of safe exposure. Overall, most of the chemicals on which farmers previously relied will remain available, and newer and safer products are likely to replace some currently approved pesticides. In addition, the new law seeks to enhance incentives for adoption of integrated pest management (IPM) strategies by developing guidelines for the review and registration of pesticides that reduce risk to human health and non-target organisms.

How will consumers be affected?

An important provision of the FQPA adds additional safety factors to ensure that infants and children—who are particularly sensitive to pesticides and other food additives—will be adequately protected from unsafe levels of pesticides. Thus the FQPA is likely to lead to increased testing for pesticide residues—especially on fresh fruits and vegetables. This increased screening is likely to enhance food safety, but may also add to the average household's grocery bill. In addition, the new law requires the EPA to publish information on pesticide risks and benefits for distribution through retail grocers.

Table 1. Key features of the old and new federal pesticide laws

Issue	Old Law	New Law
General standards	For chemicals posing carcinogenic risks, EPA used a "negligible risk" standard. Different standards applied to raw and processed foods.	A single, health-based standard applies to all pesticide residues. Same standards applied to raw and processed foods.
Infants and children	No special provisions	EPA is required to address risks to infants and children and publish specific safety findings before a pesticide tolerance can be established.
Pesticide benefits	Economic considerations had no impact on tolerance decisions.	In some circumstances the new law will allow pesticide residues that exceed the health safety standard, if the economic benefit of the pesticide is high.
Endocrine disruptors	No special provisions	EPA required to develop and implement a screening program for estrogenic effects within three years.
Consumer's "Right to Know"	No comparable federal law	EPA will publish a pamphlet containing consumer-friendly information on pesticide risks and benefits, including EPA-established tolerances.
Uniformity of state standards	States could set tolerances that were stricter than EPA tolerances.	Law generally pre-empts states from establishing tolerances that differ from EPA tolerances.
"Minor use" pesticides	Fragmented regulatory framework.	Enhanced development of regulations for "minor crop" and public health pesticides.
New pesticide review	No previous provisions	EPA is now required to establish criteria for reduced-risk pesticides.
Applicator and service technician training	No specific provisions	States have the authority to require specific training for workers who use or supervise use of pest-control agents.

Legal Aspects of Indiana Farmland Leases

Gerald A. Harrison, Extension Economist

The past year may have been one of the most tumultuous in the farmland lease market in many years. A dramatic farm program change delayed until April of 1996, but effective for the 1996 crop year, left most cash rent tenants with a surprise "transition payment" and the promise of an even larger payment in 1997. Plus, corn and bean price expectations were adjusted upward during 1996. These and other factors set the stage for a rise in rents with tenants out bidding their neighbors, and landowners seeking part of the farm program transition payment. Disputes developed over the rights and obligations under existing leases. Lease termination procedures were common concerns. Some cases have headed for litigation.

What Makes a Legal Lease?

Actually, very few words are needed to have a valid lease. Basics should include the following information:

a. Date of the lease.

b. Names and addresses of the landowner and tenant.

c. Description of the lease property.

d. Beginning and ending dates.**

e. Notice requirement (if any) for termination of the lease.**

f. The cash rent or shares of cash costs and crop share and resource contributions of the landowner and tenant, including whether the landowner is materially participating.

g. When rent is paid or how landowner's share is handled, including tenant hardship provisions, the landowner's right to a security interest in crops or other provisions for insuring the cash rent or crop share.

h. Signatures of the landowner (or landowner's agent) and tenant.

Many other matters are typically spelled-out in a modern farmland lease. These include:

i. Restrictions and requirements for the use of the land and facilities in the face of environmental liability concerns.

j. Circumstances and a formula for reimbursement of the tenant for unused portions of multiple-year applications of crop nutrients in the event a tenant is terminated or decides to give up the lease.

k. Reimbursement guidelines for fieldwork or for a growing crop when a lease is terminated.

l. Provisions for mediation and arbitration of disputes.

Numerous other provisions may be included to fit the need. Certain matters and conduct may be implied by the law and custom of the community and need not be stated in the lease to be applicable, however, it may be wise to include all important considerations and concerns.

Oral Leases

Oral leases of farmland are legal or enforceable in Indiana courts. While transactions in real estate are generally required to be in writing, an Indiana statute permits an oral lease for up to three (3) years. [See IC 32-2-1-1]. That is, should a dispute arise over the terms of an oral lease, if for a duration not exceeding three years, the existence of such an oral lease may be introduced into evidence in an Indiana court.

Proving the specific terms of an oral lease however may be difficult unless there was an unbiased witness to the agreement. When certain matters were not discussed or agreed upon, "custom of the community" may be introduced to settle a dispute, or the court may decide what is "fair." Also, an Indiana trial court may ask that a farm lease dispute be resolved by mediation.

Leases longer than three years must be in writing to be enforceable before an Indiana court. In the case of longer term leases, it may be wise to have the lease recorded to protect the tenant against future lessees, buyers and creditors, or mortgagees of the landowner for the same property.

Since many farmers and landowners may feel "a person is no better than their word," they routinely rent land on a year-to-year basis with an oral agreement. This approach leads to disputes about rights, especially when a lease termination is desired.

Advance Notice for Termination

If the lease (oral or written) includes no notice or termination procedure, an Indiana statute requires a "notice to quit" be delivered three months prior to the end of the lease year. Historically, the crop year is thought to begin on March 1. Thus, under the three month rule, if the lease year ends on the last day of February, the notice would be timely if delivered before December 1st of the preceding year.

While many leases may have been terminated by an oral notice, the law appears to require a written notice when a notice is required. What should be included in a notice is in the Indiana law at IC 32-7-1-4. It may be wise to have an attorney draft and properly deliver the notice.

** *Items d. and e. are not essential to have in a valid (lease) contract—once it is signed by the parties to the lease. In fact, if the lease could be interpreted as a term lease by setting-out the specific dates for its **term**, no notice may be required for the lease to automatically expire at the end of the term.*

Date for End of the Lease Year

Indiana Code does not provide the date for the end of the lease year. A lease ending date may be determined from the original lease or from what was understood between the landlord and tenant. The custom of the March 1st possession date may be difficult to support. Thus, it is wise to have a written agreement covering the lease term and the need for an advance notice.

A notice of five to six months before the traditional March 1st date may be fair to the tenant and the landowner and promotes good management. Ample advance notice of a termination allows a tenant to make appropriate farm management decisions.

A notice date that is after harvest may be favored by many landowners. A busy tenant may not harvest the field on which a share lease has been terminated until after his or her other fields are harvested. Tenants may be wise to bargain for an early date.

Term Leases

Leases may be for a specific term, usually for a year, and require no termination notice. [See Indiana Code Section 37-7-1- 7] Term leases are often in writing, but they may also may be oral. The term lease makes clear that it is for a specified period.

It may be wise to emphasize that a lease is for a specified term and that no termination notice is required. A term lease may encourage a discussion about needed adjustments in a lease for the coming year, since the understanding is that no lease for the following year exists until there is a new agreement.

If it is unclear that an existing lease is a term lease, and a tenant remains in possession of the leased property, they may have a lease on the same terms as the prior year. In subsequent years, the tenant may be entitled to a three month advance notice to terminate, unless they agree to a “term lease” in a subsequent agreement.

Tenant's Rights to Growing Crops

According to Indiana case law, a former (outgoing) tenant has a right to emblements or growing crops if three conditions are present:

a. The tenancy was of an uncertain duration.

b. The tenant was terminated without fault.

c. The crop was planted by the terminated tenant.

Right to harvest fall seeded wheat or to a share of the crop revenue is a common problem. The “doctrine of emblements” says the tenant who planted the wheat and then was legally terminated before the crop matures has (1) a right to harvest the crop for his or her share under the lease, or (2) be provided the returns from the crop less the expenses of harvest and transport of the crop to market.

However, the law does not reward the tenant who plants or performs activity toward a crop after a notice to terminate has been delivered.

Even though the doctrine of emblements may relate to a growing crop when the tenant loses possession, the law might also support the tenant who leaves mature crops at the end of the lease if they have a good excuse. Unusual weather or tenant disability may support a diligent, good-faith tenant under this doctrine. Another legal doctrine, “unjust enrichment,” might also favor the tenant. This doctrine is built on the premise that one party should not benefit at the expense of another.

Lien or Security Interest in a Tenant's Crops

In case of a tenant's financial stress, and potential bankruptcy, a landowner with a share lease has a clear right to his or her portion of the crop as opposed to other creditors who may have a security interest in the tenant's crops. While there may be support for the notion that the tenant's creditor cannot take a security interest (lien) in the landowner's share without the landowner granting such, it is clear in the common law that a tenant owns the entire crop until it comes out of the field even for a share-lease situation. Indiana is a “common law” state.

The best strategy may be for the landowner to obtain a Uniform Commercial Code (UCC) security interest in the crop to be grown on his or her land as a condition of the cash rental arrangement. Under rules in force since December 1986, there is a requirement to give the potential buyers of the tenant's crop notice of the UCC lien to insure that a check for a sale of crops be made-out jointly to the tenant, the secured landowner, and other creditors who have given notice of lien in the crops.

The tenant may have other creditors with a lien in the crop grown on the lessor's land. The landowner may require the tenant's other creditor(s) to subrogate to the landowner's interest in return for a lease on his or her land.

Alternatively, he or she may require a letter of credit (which guarantees payment of the rent) from the tenant's banker or other primary lender when the above alternatives are not practical or do not provide sufficient assurances. Of course, a landowner may require an advance payment of the entire cash rent.

Landlord's Lien

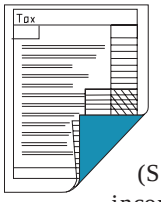
When a landowner in Indiana expects the rent may be in jeopardy, he or she may obtain a “landlord's lien” under an Indiana statute [See IC 32-7-1-18]. This statute requires a courthouse filing at least 30 days before the crop matures but during the year the crop is growing. This lien will have priority over liens filed later, including subsequent UCC liens. It will be inferior to prior UCC liens and will be avoided in bankruptcy.

Obtaining a landlord's lien is a good idea for an insecure landowner who cannot get a tenant to grant a security interest which is required for a UCC lien. The landlord's lien does not require the consent or knowledge of the tenant.

Clearly, the landlord's lien is better than no lien at all and may be adequate protection if the tenant does not go into bankruptcy. When the tenant (or landowner) anticipates or incurs financial stress, both the landowner and the tenant may need legal counsel.

Tax Implications: Leases and Material Participation

Generally, the tenant will report farm income and expenses to the Internal Revenue Service on Schedule F. A sole proprietor/tenant will pay self-employment (SE) tax on net farm income.



Material participation (MP) was originally placed into the tax law as a criteria by which to establish whether the landowner was liable for or allowed to pay self-employment tax on the annual, net returns from a farm lease or rental activity. (See the Farmer's Tax Guide, IRS Publ. #225 for the alternative material participation tests).

For example, the landowner may satisfy one of the MP tests with a share lease with which the landowner reserves certain authority over the decisions to be made throughout the lease (such as what to plant and whether to treat for a crop insect infestation). When materially participating, the landowner has veto power over key production decisions. In addition, the landowner must also inspect and observe production activities periodically. An agent (e.g., a farm manager) cannot perform these MP tasks for the landowner. However, the professional manager may assist the landowner. Landowners who materially participate in a farming business, will report income and expenses on Schedule F and pay the Self-Employment (SE) tax.

It should be stressed that a crop-share lease need not involve material participation by a landowner. If it does not, the landowner with a crop-share lease reports the farm income and expenses on the Form 4835, and there is neither a requirement nor an entitlement to pay the SE tax.

Earned Income in Social Security Retirement

One of the widely circulated myths about Social Security (SS) retirement is that it is necessary for the retiring landowner to rent land for cash. Clearly, a crop-share will be okay as long as it is clear that the retiree does not materially participate. MP income is active income for SS retirement purposes while non-MP crop share income is not — just as cash rent income generally is not MP income.

A landowner's MP income counts toward the maximum amount of income that may be earned before Social Security retirement benefits will be reduced under the "annual earnings test." This test applies until the SS retiree reaches age 70. [There is a "monthly test" for the first year of a Social Security retirement. A prior year's crop sold from inventory does not count as income for the monthly test though the sales may be subject to the SE tax.] After the individual on Social Security reaches age 70, earned (active) income does not cause an offset against annual, SS retirement benefits. However, the requirement to pay SE tax on earned income never ends.

In contrast, the cash rent lease arrangement generally is not a materially participating arrangement. The income to the cash rent landowner is unearned income and is reported on a Schedule E for federal income tax purposes. Just as for a non-materially participating landowner with a crop-share lease, SE tax is not required, nor payable on cash rent income.***

When non-material participation status is desired, a crop-share lease should clearly indicate that the landowner does not have farm operating or other decision-making powers throughout the production period. However, not materially participating does not prevent the landowner from dictating in the terms of a rental agreement or crop-share lease much of what will happen on his land during the course of the crop year.

The following list contains other publications that may be useful in arriving at farm lease arrangements including Harrison's complete "Legal Aspects of Farmland Leases" paper. For copies contact Gerald Harrison at (765)494-4216; Email: harrison@agecon.purdue.edu or call your county Purdue Cooperative Extension Office for assistance.

Atkinson, J.H., "Indiana Cash Farm Lease," EC-257, 10 pp.

Atkinson, J.H., "Indiana Crop Share Lease Form," 5 pp. 1995.

Doster, D.H., et al. "Annual Purdue Crop Guide," ID-166, 2 pp. Jan. 1997.

Doster, D.H., "Indiana Custom Rates for Power Operated Farm Machines," a periodic survey, 2 pp., EC-130.

Doster, D.H., "What's the Right Rent?," EC-708.

Doster, D.H., et al., "Tillage Economics, One-Planter Farms: A Comparison of Expected Revenues and Costs, Six Tillage Systems, Two Crop Rotations, Three Representative Indiana Soils," 15 pp., ID-191

Harrison, G., "Legal Aspects of Indiana Farmland Leases." Unpublished paper, 11pp., Dec. 1996.

Harrison, G., "Cropland Leases: Is Minimum Tillage Changing Share Lease Terms?" 30 pp., 9/94.

"Indiana Livestock Share Lease," EC-207, 22 pp., 1/72, with an updated lease form.

Pershing, Don & J.H. Atkinson, "Figuring Rent for Existing Farm Buildings," EC-451, 7 pp., Rev. June 1989.

This paper is intended as a source of information which is believed to be accurate. Individuals and businesses with problems should seek the services of legal counsel, other experts, and additional references.

*** *It is possible for a landowner to have a cash rental payment yet still satisfy an alternative material participation test. This may be done by providing sufficient (100 hours or more over at least five weeks in activities connected with the production of crops) labor and/or management on the rental land. However, this is not a common situation in Midwestern farming arrangements though in some cases this may be a satisfactory arrangement for a "retired" farmer who wishes to stay involved in farming activity.*

Farmland Leases: Truths, Part-Truths, and Un-Truths

D. Howard Doster, Associate Professor and J.H. Atkinson, Professor

Farmland leases are the agreements between landowners who do not farm their land and tenants who desire to farm the land but do not own it. The ability to match landlords and tenants is critical to keeping our food system productive. While leases are common in all farming communities, the understanding of how rents are determined is not. Here we discuss a number of concepts about rents and lease arrangements and provide our opinions of whether the concept is valid or not.

The Truths

Rent is the expected excess return above costs? True. To illustrate this point, assume land has no alternative use and rent is paid only in terms of its use for crop production. If a likely tenant expects crop revenue to just equal variable production costs for seed, fertilizer, chemicals, fuel, repairs, plus machinery replacement costs, plus personal opportunity costs for their time, then the rent would be zero. In fact this could be the definition of marginal land, where the revenues will just pay for the costs of cropping. If the likely operator expects revenues to more than cover the production costs this amount would be bid to the landlord as rent. Thus, expectations of returns in excess of costs tend to be bid into rent. Alternatively if expected revenues are less than costs, this land is subject to move out of crop production, especially after several years of negative returns.

Economic conditions change the level of excess returns? True. Economic conditions improved dramatically in the early 1970's and many acres were switched to cropland from pasture and from government set-aside. Economic conditions changed again in the early 1980's as revenue from crops dropped. As a result, land use changed on the lowest quality acres including low quality acres being placed in the 10-year Conservation Reserve Program. Economic conditions appear to have improved again in the mid-1990s.

The point is that revenues and expenses do change over time and land that was once farmed may become sub-marginal land, moving out of crop production. Improved economic conditions may cause this same land to move back into crop production. In the 20th century the federal government has greatly assisted the process of moving crop land out of, or into production.

"We discuss a number of concepts about rents and lease arrangements and provide our opinions of whether the concept is valid or not."

Some tenants can pay higher rents? True. There are large differences in production and marketing skills among farmers. With similar resources, some can produce 15 bushels of corn yield per acre or more than their neighbors. In addition, some expand their businesses to reduce per unit costs particularly on overhead items, and larger size may also allow them to acquire superior technology. With higher revenue potential and lower costs, they can bid higher rents.

Tenants must also consider the riskiness of expected returns? True. When positive changes in the economic outlook occur, prospective tenants are willing and able to bid most of the expected contribution margin (yield times price minus variable costs) increase into higher land rents. However, because of the increased price variability currently, and continued large yield variability, tenants should not bid all of the expected increase into rents. Thus, prospective tenants will likely bid only part of the expected increase into land rent.

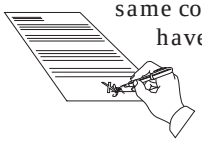
Land rent markets are far from perfect? True. Finding the "right rent" or a "fair rent" can be tricky. Rental auctions may provide a way for tenants and landowners to identify what the current market rent is. While rental auctions tend to provide an opportunity for a number of tenants to compete in an open market, there is generally a lack of these auctions to provide a good reading on rental values for various locations and land types.

Another imperfection is that rents are "sticky." This means that rents may not change as quickly as market forces that alter revenues and costs. The reasons are easy to find as some landowners retain the same tenants and the same leases over a number of years. In addition, the costs for making tenant and lease changes may be perceived by the landlord to be greater than the benefits.

As a consequence of these this less than perfect market situations, the average rent across a community often may not fully reflect current economic conditions. In fact, this average rent will tend to change more slowly than economic conditions, thus it tends to lag the true market value. Consequently, those who use average rents will tend to lag the true market. Suggestions for how to adjust rents to better take into consideration highly variable factors such as yields, costs, and prices are covered in a new publication "What's the Right Rent?." This is Publication Number EC-708 and is available from Howard Doster or through your county's Purdue Cooperative Extension Service Office.

Rents and lease terms can be affected by government policy? True. Government policy has been an important determinant of rents for many decades. In the mid-1980's, when governmental payments were high, the amount of corn base acres relative to soybeans was important. In the recent 1996 Farm Bill the question of who could receive the transition payments once again was important. In general it can be said that transition payments tend to be bid into cash rents and to land values.

There is often a set of community standards regarding lease arrangements? True. Leases in the same community often have similar terms. For example, landowners may have 50/50 crop share leases. The landowners may supply the land and provide for one-half of the cost of the seed, fertilizer, and chemicals, and receive one-half the crop. In some areas of Indiana, the 60/40 lease is common the tenant pays 60% of specified costs and receives 60% of revenues.



The Part-Truths

The landowner sets the rent? The landowner decides on the rental terms, including the amount of rent payment; however, a tenant must be found who will accept this agreement. Otherwise, the landowner must make changes in proposed rental terms to attract a tenant. But, rents may also be greatly influenced by prospective tenants who are aggressive to rent a new farm. In this case some landlords may change tenants by accepting the offer, or may permit their present tenant to match the prospective tenant's offer.

Tenants and landowners should know their costs before negotiating land rents? The statement is true, but misleading if the implication is that you'll get to rent a farm only if you have an accurate budget. If prospective tenants cannot produce competitive performances, they likely won't be able to pay competitive rent. By preparing a budget, a prospective tenant can calculate what rent to offer. The budget should consider each individual farm as well as a whole-farm budget that examines the implications of the new rental on the entire operation. The budget will help provide guidelines for how much rent can be paid. However, landlords differ greatly in their perception of acceptable lease terms. Many tenants rent from several landlords. Because of quite different lease terms, the variation in expected rents can be large. In a survey of our July 1997 Purdue Top Farmer Crop Workshop participants, we found $50 per acre variation in the expected returns they received from their most and least profitable lease arrangements. It is important to identify what a specific landlord wants, and try to match the offer to these desires.

You get higher returns from farming better quality land? This would not be true in a perfect land rental market because higher return potential would be bid into higher rents. However, as we have discussed, land rental markets are far from perfect. It reality it may be true that tenants do make more money on high yielding land. One reason is because in any specific community, leases for farms with greatly different soil types tend not to reflect the true difference in soil productivity. Often, the lease on the high quality land favors the tenant; the lease on the low quality land favors the landowner. A second reason tenants appear to make more money on high quality land may be that the most highly skilled tenants can outbid less skilled operators. Thus the best tenants get higher yields from the best soil and they earn more themselves even after paying more rent.

However, the important point is that tenants should not just seek certain qualities of land, but should examine opportunities in their community on various land qualities. The business goal is to maximize returns to their resources. Sometimes that may be accomplished by farming below average land.

Market rents are set by competing prospective tenants. If the market worked perfectly, tenants would be indifferent as to the type land they rented.

Rents should be adjusted for exceptional events? It's true that landlords and tenants sometimes make adjustments in the rent for next year because of performances realized this year; however, there is no economic justification for this action, except that it may enhance the personal relationship between the two parties. Either party can terminate their lease at the end of the current period. Thus, there is no opportunity in their contract for making any adjustments unless, on their own, they wish to do so. If they do wish to do so, they may want to formalize the adjustment terms and include them in their lease? For example, the parties can write in their lease how they will share in changes in returns from a base budget they made at the beginning of the lease.

A crop-share lease, like a 50/50, automatically adjusts for unexpected changes? This is true to the extent that these changes can be considered as occurring randomly over time. If so, these changes may "averaging out" over time. However changes which are perceived as being permanent or occurring for a longer duration, should tend to encourage changes in lease agreements. For example, when fundamental economic conditions improve, tenants will offer to pay more rent. They may alternatively offer to provide more services for free, or to pay more than 50% of specified costs, or to pay a cash privilege payment.

The Un-Truths

Property taxes have increased therefore rent must increase? Untrue. Property taxes have no effect on rent. However, an increase in property taxes may cause land values to drop. For example, a $6 per acre increase in taxes might cause land prices to drop $100 per acre due to lower earnings potential for the land owner.

Mortgage interest rates have increased therefore rent must be increased? Untrue. Higher farm mortgage interest rates have no effect on rent. However, they may

affect land values. On the other hand, changes in interest rates paid by tenants for production and machinery loans may impact rents. In this situation, higher interest rates tend to reduce rents, and lower interest rates have the opposite impact.

When crop prices are high, a share lease tenant won't lose a rented farm? Untrue. The landowner may be willing to accept a change in share lease terms, a privilege payment, or a switch to cash rent in order to realize more rent. If the present tenant doesn't offer to adjust the rent or the terms, the landowner may accept an offer from a prospective tenant.

50/50 share leases automatically adjusts for wide differences in land quality? The market recognizes this statement as untrue. In some parts of Indiana on lower productivity soils, tenants receive 60% of revenues and pay 60% of specified costs. Highly productive soils may also be rented on a 60/40 sharing but with the higher percentage applied to the landlord. A tenant with a 50/50 share lease on low quality, near marginal land likely will be unable to realize an acceptable margin. If the landowner and tenant wish to share yields and seed, fertilizer and chemical costs 50/50 on this low quality land, the landowner will need to pay the operator in cash and/or for services such as combining, grain hauling, spraying, etc. The tenant must at least anticipate covering variable costs, replacing machinery, and some return for personal opportunity cost.

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