



Agricultural
Economics
Report

NUMBER 587
JUNE 1996

1996 MICHIGAN LAND VALUES

By
Steven D. Hanson, Associate Professor
Ralph E. Hepp, Professor
Lynn Harvey, Professor

Department of
Agricultural Economics
MICHIGAN STATE
UNIVERSITY
East Lansing

1996 MICHIGAN LAND VALUES

By

Steven D. Hanson, Associate Professor
Ralph E. Hepp, Professor
Lynn Harvey, Professor

Before 1991 there were three sources of Michigan agricultural land values: the Federal Reserve Bank of Chicago district farmland survey; the USDA-ERS estimate of the value of farmland and service buildings; and the state equalized value (SEV) used for property tax purposes. Both USDA and Federal Reserve Bank surveys provide useful information regarding aggregate land values in the state. However, in many instances, users of land value information desire a more disaggregated measure of land values based on land type. The SEV is set by township assessors at 50 percent of the estimated market value of land using comparative sales studies conducted annually. County equalization directors review assessment rolls of local township assessors and make adjustments based on sales data. SEVs are useful in determining representative land values but are handicapped by the historical sales perspective upon which the appraisals are based.

In an effort to measure disaggregated land values by production use, surveys were conducted by Michigan State University in the spring of 1991-1995 that collected information on values for sugar beet land, irrigated land, and different types of corn-soybean-hay land. A similar survey was conducted in 1996 which asked for information on corn-soybean-hay, sugar beet, and irrigated land values. Information was also collected on land rents for the various types of land, based on production use. The objective of the 1996 survey was to continue to provide information on disaggregated land values in Michigan. The remainder of this paper contains a discussion of the survey, the survey results, and a summary.

Survey Method

The sample consisted of members of the Farm Managers and Rural Appraisers Association, agriculture lender participants in the annual Michigan Farm Credit Conference, and county equalization directors in Michigan. After accounting

for overlap between the three groups the total sample consisted of 463 potential respondents. A total of 129 questionnaires were returned which had land value information reported. The majority of responses were received from the southern half of the lower peninsula although 21 responses were received from the upper peninsula and northern half of the lower peninsula. This is a reasonable correspondence between the location of respondents and the actual geographic distribution of agricultural production in the state.

It should be noted that some respondents may have been reporting as a pool of individuals who received questionnaires, such as a farm credit service branch office or an appraisal group. It is also important to recognize that the survey respondents in many cases were experts on land values in their areas. These people often had access to a significant amount of land appraisal and transaction information.

Each member of the sample received a cover letter, encouraging their participation in the study, and a two page questionnaire asking for land value information and comments on land values. Respondents were promised a summary of the survey results. A follow up letter asking for participation in the survey and a second copy of the questionnaire was sent to non-respondents approximately 4 weeks after the original questionnaire was sent. Copies of the cover letter and questionnaire used in the survey are included in the Appendix.

Information requested on the questionnaire included: the current average value of land; the current range in value; the percent change in value over the last year; the percent change in value expected over the next year; the percent change in the supply of land on the market during the last year; and the average cash rent value of land. The questionnaire requested the information be reported separately

for high quality corn-soybean-hay (CSB-H), low quality C-SB-H, sugar beet, and irrigated land as appropriate for each respondent's area. Five year average historical yields for com, soybeans, and hay were provided on the questionnaire to help respondents distinguish between higher and lower quality land. The respondents were asked to indicate the county or counties to which their information corresponds. In addition, space was provided for comments on the impacts of lower interest rates, higher crop prices, and general comments on land values in Michigan. The questionnaires were mailed at the end of January 1996.

Results for Southern Lower Peninsula

Respondents reporting information on sugar beet and irrigated land were primarily concentrated in the southern lower peninsula while those reporting C-SB-H land information were spread across the state. In order to account for the potential large differences in soil characteristics, the C-SB-H responses were split into two groups: 1) the upper peninsula and northern lower peninsula region (Area 1 in figure 1); and 2) the southern lower peninsula region (Area 2 in figure 1). All sugar beet and irrigated land responses for the state are reported in the Southern Lower peninsula region results.

Tables 1-4 present the land value information for the southern lower peninsula. Table 1 summarizes the responses corresponding to average prices for the four land types in the southern lower peninsula. Efforts were made to report only the value of land for use in agricultural production. When respondent information suggested the reported values reflected non-agricultural use, the values were removed from the sample. The higher quality C-SB-H land had an average price of \$1,206 per acre. Lower quality C-SB-H land had an average price of \$818

per acre, over \$388 per acre less than the high quality land. Sugar beet land averaged \$1,659 per acre and irrigated land averaged \$1,422 per acre. Clearly the characteristics of land, which determine its production use, have a significant impact on its value.

In order to provide a measure of the dispersion of land values reported by the respondents, standard deviations were calculated for each type of land. The standard deviation measures how spread out the reported land values are from the average value reported. Roughly two thirds of the land values reported will fall within one standard deviation on either side of the average land value, while nearly 95 percent of the reported values will fall within two standard deviations on either side of the average value. The standard deviation for the high quality C-SB-H land was \$385, while lower quality C-SB-H had a standard deviation of \$218. Sugar beet and irrigated land had standard deviations of \$412 and \$534, respectively. Another measure of dispersion is the coefficient of variation (CV) which is calculated by dividing the standard deviation by the average value. The CV provides a "standardized" measure of variability. It can be thought of as the amount of variability as a percentage of the average land value. The CV for sugar beet land is 0.25. High quality C-SB-H and irrigated land have CVs of 0.32 and 0.38, respectively. Low quality CSB- H land has a CV of 0.27. This suggests that sugar beet and low quality C-SB-H land values are relatively less variable than land used to produce other types of commodities. High quality C-SB-H and irrigated land values are generally the most variable of the four classes of land in percentage terms.



FIGURE 1. Designation of State Production Areas.

Table 1. Price Per Acre in the Southern Lower Peninsula

<u>LAND TYPE</u>	<u>AVERAGE</u>	<u>STANDARD DEVIATION</u>	<u>COEFFICIENT of VARIATION</u>
Corn-S.B.-Hay (above avg.)	\$1,206	\$385	0.32
Corn-S.B.-Hay (below avg.)	818	218	0.27
Sugar Beet	1,659	412	0.25
Irrigated	1,422	534	0.38

Table 2 shows the percent change in value during the last 12 months and the expected increase in value during the next 12 months in the southern lower peninsula. High and low quality C-SB-H land increased in value by an average 8.1 % and 6.8%, respectively, during the last year. Irrigated land values increased by 7.3% during the last 12 months, while sugar beet land values showed the strongest gains, increasing by 8.4%. Land value increases are expected to slow during the upcoming year, but increase at a high rate relative to the five year period prior to 1996. High quality C-SB-H land is expected to increase by an average of 5.6% over the next year, while low quality C-SB-H land is expected to increase 5.1 %. Sugar beet and irrigated land values are expected to show average increases of 4.5% and 5.9%.

Table 2. Percent Change in Value in the Southern Lower Peninsula

<u>LAND TYPE LAST</u>	<u>12 MONTHS EXPECTED</u>	<u>NEXT 12 MONTHS</u>
Corn-S.B.-Hay (above avg.)	+8.1%	+5.6%
Corn-S.B.-Hay (below avg.)	+6.8	+5.1
Sugar Beet	+8.4	+4.5
Irrigated	+7.3	+5.9

Table 3 shows the percent change in the supply of land on the market during the last 12 months in the southern lower peninsula. AU land type categories except sugar beet land showed a decrease in the supply of land on the market in the southern lower peninsula. High quality C-SBH land on the market decreased an average 1.7% during the last year and low quality C-SB-H land decreased 1.2%. Irrigated land on the market decreased by 3.5%. On the other hand, the supply of sugar beet land on the market remained essentially unchanged showing a slight 0.2% increase.

Table 3. Percent Change in Land Supply on the Market in the Southern Lower Peninsula

<u>LAND TYPE</u>	<u>LAST 12 MONTHS</u>
Corn-S.B.-Hay (above avg.)	-1.7%
Corn-S.B.-Hay (below avg.)	-1.2
Sugar Beet	+0.2
Irrigated	-3.5

Table 4 shows the average cash rent and value-to-rent multipliers for each type of land. High quality C-SB-H land had an average cash rent of \$73 per acre

compared to \$47 per acre for low quality C-SB-H land. Sugar beet land rented for an average of \$117 per acre while irrigated land rented for \$129 per acre on average. The cash rent values are roughly in proportion to the corresponding values of each land type.

A useful tool for making comparisons among the different sets of land values is the "value-to-rent ratio". Value-to-rent ratios were calculated by dividing average land values by the average cash rents and then averaging over each land type. The average value-to-rent ratio for high and low quality C-SB-H land was 17 and 19 respectively. Sugar beet land showed a value-to-rent ratio of 14 while irrigated land had a ratio of 11.

Value-to-rent ratios are a direct function of the future cash flows the land is expected to generate. Higher expected future cash flows are "capitalized" into the value of the land today, increasing its value relative to the current year's cash flow. In other words, higher expected future cash flows translate into higher value-to-rent ratios. The relatively high value-to-rent ratios for C-SB-H land thus suggest four possible situations: 1) the market actually anticipates that the cash flows for C-SB-H production will grow at a faster rate than sugar beet and irrigated land; 2) the C-SB-H land may be switched to alternative production with higher expected cash flows, e.g. sugar beets, in the future; 3) non-farm uses of the land in the future may provide higher cash flows than those expected from C-SB-H production; or 4) the market views the future cash flows from C-SB-H production to be less risky than the cash flows from sugar beet and irrigated land and is therefore willing to pay a higher price.

Table 4. Cash Rent and Value Multipliers in the Southern Lower Peninsula

<u>LAND TYPE</u>	<u>AVERAGE CASH RENT</u>	<u>AVERAGE VALUE/RENT RATIO</u>
Corn-S.B. –Hay (above avg.)	\$73	17
Corn-S.B.-Hay (below avg.)	47	19
Sugar Beet	117	14
Irrigated	129	11

Note: Average value-to-rent ratios were calculated using only the questionnaires with completed responses to both the average value and average rent per acre questions.

Results for the Upper Peninsula and Northern Lower Peninsula

Tables 5-8 show the information for C-SB-H land in the upper peninsula and northern lower peninsula. It should be emphasized that the total number of responses reported in these regions was only 21 and not all respondents provided information for each question. Table 5 reports the average price per acre. High quality C-SB-H land averaged \$567 per acre while low quality C-SB-H land averaged \$477 per acre. As expected, the average values per acre in the upper peninsula and northern lower peninsula are significantly below those reported for the southern lower peninsula. The difference between average values of high and low quality C-SB-H land in the upper peninsula and northern lower peninsula was around \$90 per acre, about one-fourth the difference in the southern lower peninsula. This suggests there is not much difference between what is viewed as high or low quality land and that most of the land in these areas is "low" quality compared to land in the southern lower peninsula.

The CVs for high and low quality land are 0.58 and 0.51, respectively. This suggests C-SB-H land values in these areas tended to be more variable, as a percentage of average value, than land values in the southern lower peninsula.

Table 5. Price Per Acre in the Upper Peninsula and Northern Lower Peninsula

<u>LAND TYPE</u>	<u>AVERAGE</u>	<u>STANDARD DEVIATION</u>	<u>COEFFICIENT OF VARIATION</u>
Corn-S.B.-Hay (above avg.)	\$567	\$311	.58
Corn-S.B.-Hay (below avg.)	477	245	.51

Table 6 shows high and low quality C-SB-H land in the upper peninsula and northern lower peninsula increased in value 6.4% and 7% during the last year, which is comparable to the values reported for the southern lower peninsula. High quality C-SB-H land is expected to increase in value by 5.3% during the next 12 months, while a 5.5% increase is expected for the lower quality C-SB-H land, about the same as the expected increases for C-SB-H land in the southern lower peninsula.

Table 6. Percent Change in Value in the Upper Peninsula and Northern Lower Peninsula

<u>LAND TYPE</u>	<u>LAST 12 MONTHS</u>	<u>EXPECTED NEXT 12 MONTHS</u>
Corn-S.B.-Hay (above avg.)	+6.4%	+5.3%
Corn-S.B.-Hay (below avg.)	+7.0	+5.5

Table 7 contains the estimated percentage change in supply of C-SB-H land on the market in the upper peninsula and northern lower peninsula. High quality land supply remain relatively steady increasing 0.2% while low quality land supply increased 2% during the last 12 months. The change in supply of low C-SB-H land on the market in the upper peninsula and northern lower peninsula showed an

average increase as opposed to the decreases in supply reported for the southern lower peninsula.

Table 7. Percent Change In Land Supply on the Market in the Upper Peninsula and Northern Lower Peninsula

<u>LAND TYPE</u>	<u>LAST 12 MONTHS</u>
Corn-S.B.-Hay (above avg.)	+0.2%
Corn-S.B.-Hay (below avg.)	+2.0

Table 8 shows the cash rent and value-to-rent ratio for high and low quality C-SB-H land in the upper peninsula and northern lower peninsula. High quality C-SB-H land had an average cash rent of \$40 per acre while the average cash rent for low quality C-SB-H land was \$24 per acre, both significantly below the values reported for the southern lower peninsula which is consistent with the relative land values in each area. The value-to-rent ratios for high and low quality C-SB-H land were 17 and 27, respectively. These values suggest high growth rates in expected cash flows for C-SB-H production or the anticipation of some more profitable future use of the land.

Table 8. Cash Rent and Value Multiplier in the Upper Peninsula and Northern Lower Peninsula

<u>LAND TYPE</u>	<u>AVERAGE CASH RENT</u>	<u>AVERAGE VALUE/RENT</u>
Corn-S.B.-Hay (above avg.)	\$40	17
Corn-S.B.-Hay (below avg.)	24	27

Interest Rates

Interest rates fell during 1995 and survey respondents were asked to comment on what impact lower interest rates were having on land values. With a few exceptions, the general consensus is that the relatively lower interest rate levels have not impacted land values significantly at this point, since interest rates have been low for several years. A number of respondents felt that the lower rates have increased land transactions in some areas. Several respondents suggested that land prices are being influenced more by higher commodity prices than interest rates and that the demand for recreational and developmental uses for land have a greater impact on land values than interest rates.

Higher Commodity Prices

Most respondents indicated that the higher commodity prices have had measurable impact on rising land prices and land rents. The higher returns on cash grain and field crop farms have caused a general "good times" feeling about agriculture. Some are comparing the current period to twenty years ago when land prices started the rapid increases as a result of the higher crop prices during that time period. While others are saying that farmers are more cautious now than in the 1970's. The survey respondents did not see much change in activity on the land market as many farmers are trying to get their financial houses in order, especially with their lenders, before making any major capital purchases. They comment that many are looking at updating machinery first, because of the higher prices for land, and renting additional ground as it becomes available.

There is a general conclusion that demand for land is up due to commodity prices and alternative uses for land, but there is not an increase in the supply of land on the market. Therefore, the price of land increases. However, most respondents

believe that most farmers think commodity prices will fall again in the future and therefore are reluctant to pay high prices for land and be saddled with high payments in the future. Farmers are expanding with rental ground, and this pressure is causing cash rents to increase at a rate greater than land values.

General Comments

The survey respondents were also asked to provide general comments on land values in their area or in the State. A strong general theme existed in the respondent's comments related to non-agriculture use for farmland. Purchase of agriculture land for residential and/or recreation land uses is significant in many areas and is exerting upward pressure on land prices. The strong Michigan economy is putting upward pressure on the demand for land in residential and commercial uses in the southern part of the state. While recreational uses for land are strong in the upper peninsula and northern lower peninsula. Development pressure appears to be increasing rapidly and extending further into rural areas along the urban fringe in many areas. Many areas are seeing farmland being purchased and then split into 1 to 10 acre plots for home site development. It is becoming more common for nonfarm investors to purchase land for future speculative development purposes and then rent the land to farmers in the short run. The general feeling was the land values for agriculture-use have generally been increasing modestly in recent years, but the rate of change in prices has accelerated due to the strong general economy, and improved returns to crop production.

Conclusions

Land values in Michigan continued to trend upward based on results of the 1996 survey. C-SB-H land in the southern lower peninsula showed gains of 6.8% for low quality land and 8.1 % for high quality land during the last year. Irrigated land rose at a rate of 7.3%, while sugar beet land saw a strong gain of 8.4%. Rental rates in the southern lower peninsula averaged \$47, up from \$41, per acre for low quality C-SB-H land and \$73, up from \$66, per acre for high quality C-SB-H land. Sugar beet and irrigated land had comparable average rental rates of \$117 and \$129 per acre. Cash rents were \$113 and \$115 per acre in the previous year for sugar beet and irrigated land.

Land values in Michigan have shown steady growth throughout the 1990s. Table 9 shows the percentage change in land values, by land type, for the period 1991-96 in the southern lower peninsula. Land values for each type of land have shown increases each year during the period. Low quality C-SB-H land increased at a simple average rate of 3.4% during the period. High quality C-SB-H land and irrigated land rose at simple average rates of 4.4% and 3.8%, respectively during the period. Sugar beet land showed the most volatility in terms of rate of increase, but had a simple average rate of growth of a strong 5.6% during the 6 year period.

The rate of increase during the last year is about twice the rate of the previous years. The survey respondents report increasing prices of land due to strong commodity prices and demand for non-agricultural uses. They reported that lower interest rates on land mortgages had a minor impact of prices. While land prices are increasing, the supply of land offered for sale is decreasing, causing further upward pressure on prices. These conditions are expected to prevail into the next 12 months with a projected 4.5 to 5.9% increase in prices during the next year.

Table 9. Percentage Change in Land Value from 1991-96 in the Southern Lower Peninsula

Year	Land Type			
	C-SH-H Below	C-SB-H Above	Sugar Beet	Irrigated
1991	3.0%	5.0%	9.0%	-
1992	1.6	2.5	3.0	3.4%
1993	1.4	2.0	1.9	3.6
1994	4.1	4.6	4.8	5.4
1995	3.3	4.3	6.2	2.8
1996	6.8	8.1	8.4	7.3

MICHIGAN STATE
UNIVERSITY

APPENDIX

February 1996

Address~

Dear salutation:

Enclosed is the annual land value survey for Michigan farmland. If you have provided data in the past, thanks; we appreciate your continued effort. If you have not responded to our requests in the past, we welcome your valued opinion.

Land values are an important indicator of the economic strength of the economy. To help provide this information, we are asking you to take a few minutes and give us your estimates on the value and rental rates of farmland used to grow corn, soybeans, hay, and/or sugar beets in your area. The survey results are used in research extension, and teaching programs at Michigan State and other institutions. In addition, the results provide reference information for bankers, appraisers, and land owners across the state. **We will send a survey summary to all those who respond to the questionnaire.**

While your participation in the survey is purely voluntary, we do value your opinion and would appreciate a prompt response. Your participation will be strictly confidential and you will remain anonymous on the report of the survey findings. We thank you for your voluntary agreement to participate by completing and returning the questionnaire. Enclosed is a self-addressed, stamped envelope in which you can return the survey. Thanks for your help.

If you have any questions, please call Harvey (517) 353-1619, Hanson (517) 353-1870, or Hepp at (517) 353-7185.

Sincerely,

Lynn R. Harvey,
Professor

Steve Hanson,
Associate Professor

Ralph Hepp,
Professor

rmg

Enclosure

FARM LAND VALUE QUESTIONNAIRE
January 1996

Make the best estimates you can for your area.

Indicate which county or counties you are reporting on. _____

Above Average and Below Average refers to land you expect to produce yields above or below the state average respectively. Five year averages (1991-1995) for com, soybeans and hay in Michigan are:

	<u>Average</u> <u>Yield/Acre</u>
Corn	111 bu.
Soybeans	37 bu.
Hay	3.94 tons

Type of Land	Current Average Value	Current Range in Value		Percent Change in Value (Indicate + or -)		Percent Change in the Supply of Land on the Market in Last 12 Months (Indicate + or -)	Average Cash Rent
		High	Low	Last 12Months	Expected in Next 12 Months		
A. Corn-S.B.- Hay	\$/acre	\$/acre	\$/acre	%	%	% Change	\$/acre
Above Average							
Below Average							
B. Sugar Beet (if applicable)							
C. Irrigated (if applicable)							

Please comment on the impact that lower interest rates and higher crop prices are having on the demand for land and land prices in your area and across the state:

General Comments on land values in your area and Michigan:

Would you like a summary of the survey results?

Yes
No

If you are interested in a copy of the survey results, please provide your name, address and telephone number.

Address:

Phone: _____