



Agricultural Economics Report

**No. NUMBER 594
JULY 1997**

1997 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, MI
48824-1039**

1997 MICHIGAN LAND VALUES

By

**Steven D. Hanson, Associate Professor [hansons@pilot.msu.edu]
Ralph E. Hepp, Professor [hepp@pilot.msu.edu]
Lynn Harvey, Professor [harveyl@pilot.msu.edu]
Michigan State University**

18 pages

1997 MICHIGAN LAND VALUES

There are several sources of information on Michigan farmland values. The Federal Reserve Bank of Chicago reports quarterly farmland values for each state in its district based on a survey of lenders. The USDA estimates the value of farmland and service buildings each year for every state in the US based on a survey of farmers. Both of these surveys provide useful information on aggregate farmland values in the state. However, users of land value information often desire a more disaggregated measure of land values based on land type. The state equalized value (SEV) used to determine property taxes is set by township assessors at an estimated 50 percent of the market value of farmland based on comparative sales studies conducted annually. County equalization directors review the 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.

Michigan State University (MSU) has also collected data on land values since 1991 using mail surveys. The goal of the MSU study has been to provide information on the value of land based on its production use. The survey asked for information on the value of land used to produce sugar beets, irrigated crops, and corn-soybean-hay crops. The study also provides information on lease rates and practices in the state. In addition, this year the study collected information on the non agriculture use value of farmland. The remainder of this paper contains the results of the 1997 survey results for the MSU land value survey.

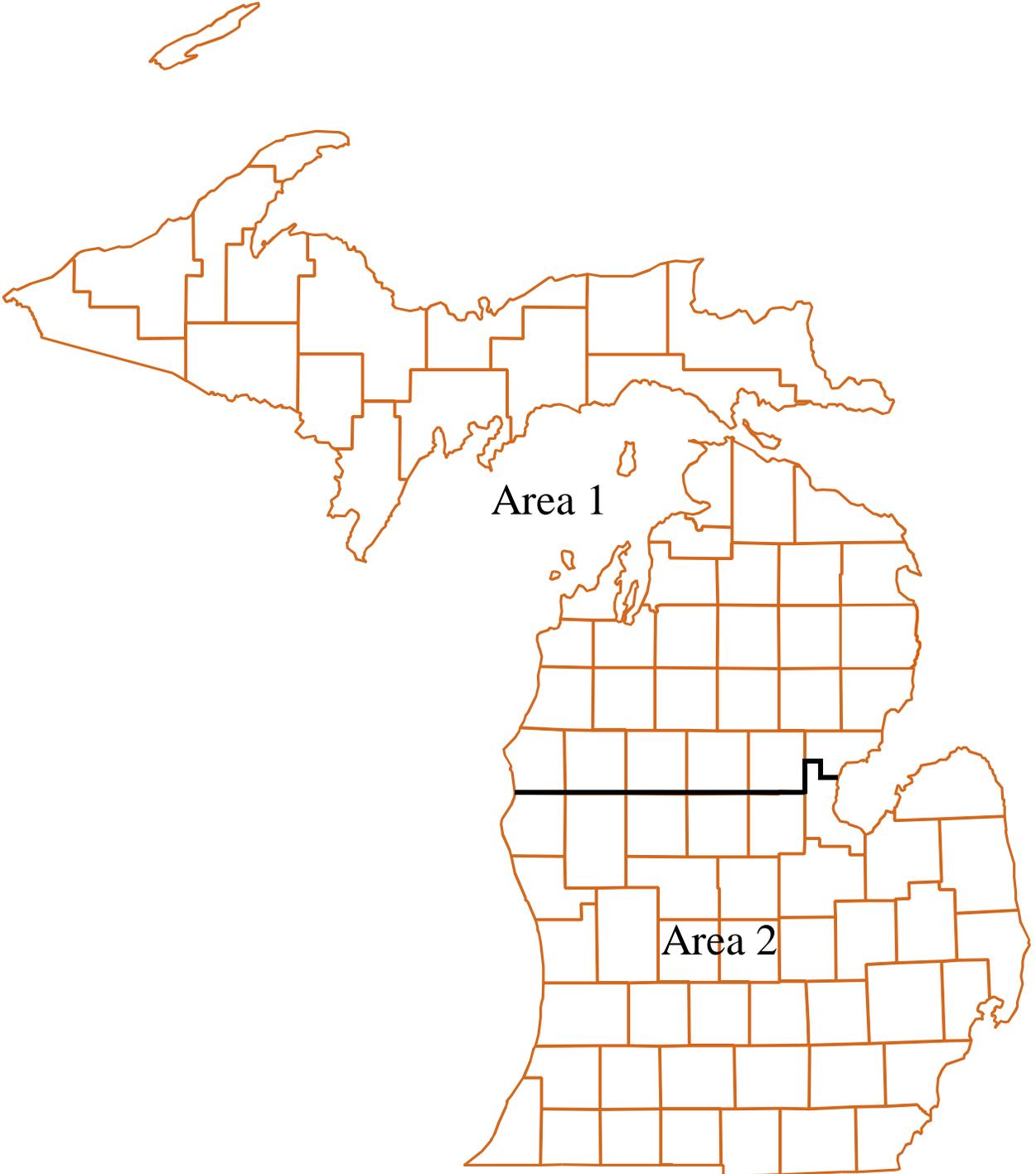
Survey Method

The survey sample consists of members of the Farm Managers and Rural Appraisers Association, agricultural lender participants in the Michigan Farm Credit Conference, county equalization directors in Michigan, and members of the Farm Bureau Advisory Committees on feed grains, oil seeds and wheat, and dry beans and sugar beets. After accounting for overlap between the different groups the total sample consisted of 432 potential respondents. A total of 156 questionnaires were returned with useable information reported on farmland. There were 129 responses received from the southern half of the lower peninsula (area 2 in figure 1). The remaining 27 responses were received from the upper and northern-lower peninsula (area 1 in figure 1). This is a reasonable correspondence between the location of respondents and the geographic distribution of production in the state.

It should be noted that some respondents may have been reporting as a pool of individuals who received the questionnaire, such as a farm credit service branch or an appraisal group. It is also important to recognize 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, transaction, and leasing information.

Each sample member received a cover letter encouraging their participation in the study and a two-page questionnaire asking for information on farmland. 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 four 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 agriculture-use value of the farmland; the change in value during the last year; the expected change in value during the next year; the change in supply of land on the market during the last year; the cash lease rate; and information on share arrangements. In addition, the questionnaire asked for information on the non agriculture-use value of farmland. The questionnaire requested information on agriculture-use be reported separately for high quality corn-soybean-hay (C-SB-H), low quality C-SB-H, sugar beet, and irrigated land. Five-year historical state-average yields for corn, soybean and hay were provided to help respondents distinguish between high and low quality land. Information on non agriculture-use was collected for residential, commercial, and recreational development. The respondents were asked to indicate the county or counties to which their information corresponds. In addition, space was provided for comments on the major factors influencing land values and rental rates in each respondent's area. The questionnaire was mailed in March of 1997.



Agriculture-use Farmland Values

In order to account for the potentially large differences in soil characteristics, information is reported separately for the southern-lower peninsula, and the upper and northern-lower peninsula. In addition, in an effort to provide data that is representative of the sample, results are only reported when at least 10 responses were received. This resulted in a number of unreported results for the upper and northern-lower peninsula region. Efforts were made to report only the value of the land in agricultural production. However, it is difficult to completely remove the impacts of non agriculture influences on values in many areas. The nonagricultural factors will most likely exert upward pressure on farmland values and are addressed in more detail later in the report.

Average farmland values are reported in table 1. In the southern-lower peninsula the average value of higher quality C-SB-H farmland was \$1300 per acre while lower quality C-SB-H farmland averaged \$917 per acre. In the upper and northern-lower peninsula C-SB-H farmland averaged \$593 and \$583 per acre for higher and lower quality land, respectively. There appears to be little distinction between high and low quality land in the upper and northern-lower peninsula. Sugar beet land averaged \$1758 per acre and irrigated land averaged \$1414 per acre. Nearly all of the sugar beet and irrigated land is located in the southern-lower peninsula.

Table 1. Agriculture-Use Value Per Acre

Land Type	Southern Lower Peninsula		Upper and Northern Lower Peninsula	
	Average	Coefficient of Variation	Average	Coefficient of Variation
Corn-Soybean-Hay (above average land)	\$1300	0.32	\$593	0.40
Corn-Soybean-Hay (below average land)	917	0.35	583	0.23
Sugar Beet	1758	0.29	n/a	n/a
Irrigated	1414	0.47	n/a	n/a

Note: n/a indicates less than 10 responses were received.

Table 1 also shows 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 and can be thought of as the amount of variability in proportion to the average land value. The smaller the CV the closer the responses tend to be the average land value. This means the smaller the CV, the more representative the average value is of land prices reported by respondents. The higher quality C-SB-H farmland in the upper and northern-lower peninsula and irrigated farmland show the largest CV values at 0.4 and above. Sugar beet land and lower quality C-SB-H land in the upper and northern-lower peninsula show the lowest CV levels both under 0.30; while C-SB-H land in the southern-lower peninsula shows CV levels between 0.3 and 0.35.

The change in the value of farmland during the last 12 months is reported in table 2. High and low quality C-SB-H land increased in value by an average of 8.4% and 8.1%, respectively, during the last year in the southern-lower peninsula. In the upper and northern-lower peninsula higher quality C-SB-H land showed a similar change, increases in value by an average of 7.6%. Sugar beet land rose in value by an average of 5.3% during the last 12 months, while irrigated land showed the strongest gains, increasing by 10%.

Table 2. Change in Farmland Value

Land Type	Southern-Lower Peninsula		Upper and Northern-Lower Peninsula	
	Last 12 Months	Expected Next 12 Months	Last 12 Months	Expected Next 12 Months
Corn-Soybean-Hay (above average land)	+8.4%	+5.6%	+7.6%	+8.5%
Corn-Soybean-Hay (above average land)	+8.1	+5.3	n/a	n/a
Sugar Beet	+5.3	+4.5	n/a	n/a
Irrigated	+10.0	+4.2	n/a	n/a

Note: n/a indicates less than 10 responses were received.

Table 2 also shows the expected change in farmland values during the next year. Values are expected to show strong gains during the upcoming year but the increases are generally expected to be below those experienced last year. High quality C-SB-H land is expected to increase by 5.6% in the southern-lower peninsula and by 8.5% in the upper

and northern-lower peninsula during the year. Lower quality C-SB-H land in the southern-lower peninsula is expected to rise by 5.3%. Sugar beet and irrigated land are expected to show average increases of 4.5% and 4.2%, respectively, during the upcoming year.

Table 3 shows the change in the supply of land on the market during the last 12 months. Higher and lower quality C-SB-H land in the southern-lower peninsula experienced small increases in the amount of land on the market of 0.7% and 1.2%, respectively. Sugar beet land on the market also increased by around 0.7% last year. Irrigated land on the market declined by 1.4% and higher quality C-SB-H land on the market in the upper and northern-lower peninsula declined by 6.4%.

Table 3. Change in Land Supply on Market During Last 12 Months

Land Type	Southern-Lower Peninsula	Upper and Northern-Lower Peninsula
Corn-Soybean-Hay (above average land)	+0.7%	-6.4%
Corn-Soybean-Hay (below average land)	+1.2	n/a
Sugar Beet	+0.7	n/a
Irrigated	-1.4	n/a

Note: n/a indicates that less than 10 responses were received.

Farmland Leasing

A significant portion of Michigan farmland is controlled by leases. Table 4 provides information on the characteristics of the leasing arrangements in Michigan reported by the survey respondents. In the southern-lower peninsula 44% of crop acres

are controlled by leases; while only 17% of the crop land in the upper and northern-lower peninsula is leased. Of the leased crop land in the southern-lower peninsula, 74% is in the form of a cash lease and 26% is shared leased. Not enough responses were received in the upper and northern-lower peninsula to report information on share and cash leases.

Table 4. Characteristics of Leased Farmland

	Southern Lower Peninsula	Upper and Northern Lower Peninsula
Crop Acres Leased	44%	17%
Leased Land Under Cash Lease	74	n/a
Landlord/Tenant Output Share		
1/4 - 3/4	18	n/a
1/3 - 2/3	60	n/a
1/2 - 1/2	16	n/a

Note: n/a indicates less than 10 responses were received.

For the land that is share leased in the southern-lower peninsula several output-share arrangements were used. The most common output-share split is 1/3 landlord:2/3 tenant. Sixty percent of the share leases use this 1/3:2/3 split. The other common share arrangements are a 1/4:3/4 split and a 1/2:1/2 split. The 1/4:3/4 split comprises 18% of the share leases while the 1/2:1/2 split accounts for 16% of the share leases. The remaining 6% of the share leases use some other output split.

A potentially important determinant of the share split is the amount of inputs supplied by the landlord. Typically in a share lease the landowner will supply the land and the tenant the machinery and labor. The responsibility for the remaining inputs is often negotiated between landlord and tenant and may impact the resulting output share split. In the 1/4:3/4 and 1/3:2/3 share leases, the tenant supplied fertilizer, seed, and

pesticide 90% and 82% of the time, respectively. However, in the 1/2:1/2 share lease the tenant supplied fertilizer, seed, and pesticide only 26% of the time. In the 1/2:1/2 share lease the landlord and tenant typically share the costs of fertilizer, seed, and pesticides. Other factors influencing the share arrangement include things like the quality of the farm land. Other things equal, the higher the quality of the farmland, the higher the output share the landowner can demand.

Table 5 reports cash rent information for the southern-lower peninsula. There was insufficient information to report cash rents for the upper and northern-lower peninsula. High quality C-SB-H land rented for an average of \$71 per acre while lower quality C-SB-H land rented for \$48 per acre in the southern-lower peninsula. Sugar beet land rented for an average of \$110 per acre and irrigated land commanded the highest average cash rent at \$122 per acre.

Table 5. Average Cash Rent and Value Multipliers

Land Type	Southern-Lower Peninsula		Upper and Northern-Lower Peninsula	
	Cash Rent	Value/Rent Ratio	Cash Rent	Value/Rent Ratio
Corn-Soybean-Hay (above average land)	\$71	19	n/a	n/a
Corn-Soybean-Hay (below average land)	48	21	n/a	n/a
Sugar Beet	110	16	n/a	n/a
Irrigated	122	12	n/a	n/a

Note: n/a indicates less than 10 responses were received. Average value-to-rent ratios were calculated using only the questionnaires with completed responses to both the average value and an average rent per acre questions.

Table 5 also shows the “value-to-rent” multipliers for each type of land. Value-to-rent ratios were calculated by dividing the average land value reported by each respondent by the corresponding cash rent value reported by the same respondent. High and low quality C-SB-H land had average value-to-rent ratios of 19 and 21 respectively in the southern-lower peninsula. Sugar beet land had a value-to-rent ratio of 16 and irrigated land had the lowest value-to-rent ratio at 12.

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 lands 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.

Non Agriculture-Use Value of Farmland

In recent years, the pressure of non agriculture influences on farmland values appears to have increased in some areas. These factors typically include pressures to develop farmland for residential, commercial, or recreational use. In many areas it is

difficult to completely remove the option value of future development from the agriculture-use value of farmland. The farmland values reported in table 1 are the respondents' best estimate of the value of farmland in a particular area but the values may also reflect the value of the future development. In an effort to gain a better understanding of the impacts of these non agriculture development factors on farmland values, we asked for information on the development value of farmland.

Table 6 is a summary of the development value of farmland in the state. These values are, in many cases, significantly above the agriculture-use value of the land and, consequently, tend to exert upward pressure on the value of surrounding farmland. The average value of farmland converted to residential development is \$4,568 per acre in the southern-lower peninsula and \$1,045 per acre in the upper and northern-lower peninsula. The value of farmland converted to commercial or industrial development averaged \$10,897 in the southern-lower peninsula and \$3,638 in the upper and northern-lower peninsula. Farmland converted to recreational uses was valued at an average of \$2,096 and \$750 in the southern-lower peninsula and upper and northern-lower peninsula, respectively.

Table 6. Non Agriculture-Use Value of Undeveloped Land

Type of Development	Southern Lower Peninsula	Upper and Northern Lower Peninsula
Residential	\$4,568	\$1,045
Commercial/Industrial	10,897	3,638
Recreational	2,096	750

Comments on Factors Impacting Farmland Values

Many respondents felt the largest impact on farmland values in many areas comes from development pressures that are not related to the agriculture use of the land. Farmland prices in many areas experience upward pressure from possible future residential, commercial, industrial, or recreational development. Residential development was the most often cited source of development pressure followed by recreational development and then commercial and industrial development.

A number of factors were indicated to have a significant impact on the agriculture-use value of farmland across the state. The recent profitability of the commodities produced in a given area were thought to have a significant impact on farmland values. Many respondents felt there has been a strong correlation between crop and, to a lesser extent, livestock prices and the value of farmland.

The consolidation of farm businesses is believed to have been increasing the competition for farmland in a number of areas, placing upward pressure on land values. A number of respondents felt these larger farms are purchasing more land in an attempt spread fixed costs over more acres. In some areas expansion in livestock operations were believed to be causing upward pressure on land prices as these operations attempt to obtain additional land to provide feed inputs and/or dispose of animal wastes.

Specialty crops were also believed to be impacting the value of farmland in some areas. The land used to produce crops such as potatoes, tomatoes, seed corn, and snap beans has been valued at a premium in some areas and also was able to command high rental rates. Another factor believed to have significant impact on farmland values is whether the land is adequately tilled and/or irrigated. Irrigated land often commands a

large premium in areas where some type of specialty crop can be produced. In addition, the supply of land for agriculture-use purposes was believed to impact the value of farmland in a number of areas. Other factors that were mentioned as impacting farmland prices including government programs, Proposal A, weather, location, and the size of the field.

Conclusions

Farmland values in Michigan continued to show a strong upward trend based on the results of the 1997 land value survey. In the southern-lower peninsula, C-SB-H land values showed gains of 8.1% for lower quality land and 8.4% for higher quality land. Sugar beet land values rose 5.3% while irrigated land values saw a strong gain of 10%. Rental rates in the southern-lower peninsula averaged \$48 for per acre for lower quality C-SB-H land and \$71 per acre for higher quality C-SB-H land. Sugar beet land rented for \$110 per acre while irrigated land commanded the highest rent, averaging \$122 per acre.

Land values in Michigan have experienced strong growth rates over the last four year. Table 7 shows the percentage change in land values for the 1991-1997 period in the southern-lower peninsula. Average farmland values have shown increases each year during the period. In general, the last several years have produced relatively strong gains. Low quality C-SB-H land values increased at a simple average rate of 4.0% during the period while higher quality C-SB-H land experienced a simple average growth rate of 5.0%. Sugar beet and irrigated land values increased at simple average rates of 5.5% and 5.4%, respectively.

Table 7. Percentage Change in Land Value from 1991-97 in the Southern-lower Peninsula

Year	Land Type			
	C-SB-H Below Average	C-SB-H Above Average	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
1997	8.1	8.4	5.3	10.0

APPENDIX

February 1997

Dear :

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.

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. In addition, this year we are asking for information regarding the non agriculture-use of land in areas where development and recreation land uses are impacting values. The survey results are used in research extension, and teaching programs at Michigan State and other institutions. The results also 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 Hanson (517) 353-1870 or Hepp at (517) 353-7185.

Sincerely,

Steve Hanson
Associate Professor

Ralph Hepp
Professor

Enclosure

FARM LAND VALUE QUESTIONNAIRE

February 1997

Make the best estimates you can for your area. Complete only the sections applicable to 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 corn, soybeans and hay in Michigan are: **111** bushels per acre for corn; **37** bushels per acre for soybeans; and **3.94** tons per acre for hay.

Agriculture-Use Value

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 12 Months	Expected in Next 12 Months		
	\$/acre	\$/acre	\$/acre	% Change	% Change	% Change	\$/acre
A. Corn-S.B.-Hay							
Above Average							
Below Average							
B. Sugar Beet (if applicable)							
C. Irrigated (if applicable)							

Non Agriculture-Use Value

Undeveloped Land*	Current Average Value \$/acre	Current Range in Value	
		High \$/acre	Low \$/acre
A. Residential			
B. Commercial/Industrial			
C. Recreational			

* Land that may be in agricultural use but the land value is being influenced by residential, commercial or recreational development pressure.

(over)

