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**2017 Michigan Land Values
and
Leasing Rates**

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2017 MICHIGAN AGRICULTURAL LAND VALUES

Michigan State University (MSU) has collected information on land values since 1991 using a mail survey of appraisers, lenders and others involved in Michigan agriculture. The goal of the MSU study is to provide information on the value of land based on agricultural and non-agricultural use. The survey also collects information on land leasing and rental rates. This report contains the results for the MSU land value survey conducted in spring of 2017. Results reveal that average land prices and rental rates for many categories of agricultural land declined from the previous year perhaps searching for a new equilibrium with lower commodity prices.

Survey Methods

The survey sample consists of members of the Farm Managers and Rural Appraisers Association, Michigan Agricultural Lenders, County Equalization Directors in Michigan, and members of the Farm Bureau Advisory Committees on feed grains, oil seeds, wheat, dry beans and sugar beets. These respondents often had access to a significant amount of land appraisal, transaction, and leasing information. Some respondents were reporting for a group of individuals who received the questionnaire, such as a Farm Credit Service branch or an appraisal group.

The survey questionnaire was mailed in April with responses coming in through June 2017. Each potential respondent received a cover letter encouraging their participation in the study and a two-page questionnaire asking for information on farmland prices, values and rental rates. 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 following the original questionnaire.

After accounting for overlap between the different groups, the 2017 sample consisted of 474 potential respondents. A total of 167 questionnaires were returned. In order to account for potentially large differences in soil and climate characteristics, information is reported separately for different state regions. Results are reported for two halves of the state, the southern-lower peninsula and the upper and northern-lower peninsula, which are split along a line running from Oceana County across to Bay County

as shown in Figure 1. There were 134 responses received from the southern half of the Lower Peninsula (Area 2 in Figure 1). The remaining 33 responses were received from the Upper and Northern Lower Peninsula (Area 1 in Figure 1).

Figure 2 shows the total number of responses by the Agricultural Statistics District in the state. Results are also reported for the nine Agricultural Statistics Districts across the state (Figure 2). The results for Districts 1 through 4 were combined because of a low number of responses. In addition, results are only reported for each question when at least five responses were received for a reporting area.

Respondents were asked to provide the current agricultural-use value of the farmland, expected change in value during the next year, and cash rental rate for their geographic area. In addition, information on the non-agricultural-use value of farmland was requested. Estimates on agricultural-use values for farmland were reported separately for tilled (non-irrigated) field crops, non-tiled field crops, fruit, sugar beets, and irrigated land. Price data on non-agricultural use land values were collected for residential, commercial, and recreational development. Respondents were also asked to indicate the counties to which their information corresponds. An opportunity was also provided for each respondent to rank the major agricultural factors influencing land values and cash rents. Similarly, a ranking was requested of the major factors influencing land values in rural areas for land that appears destined to transition to non-agricultural uses.

Efforts were made to gather reports only the value of land in agricultural production. However, it is difficult to separate out non-agricultural influences on land prices, so the agricultural-use values will contain influences from relevant non-agricultural-uses. The magnitude of these influences varies across regions. The influences of non-agricultural factors on farmland values are addressed below.

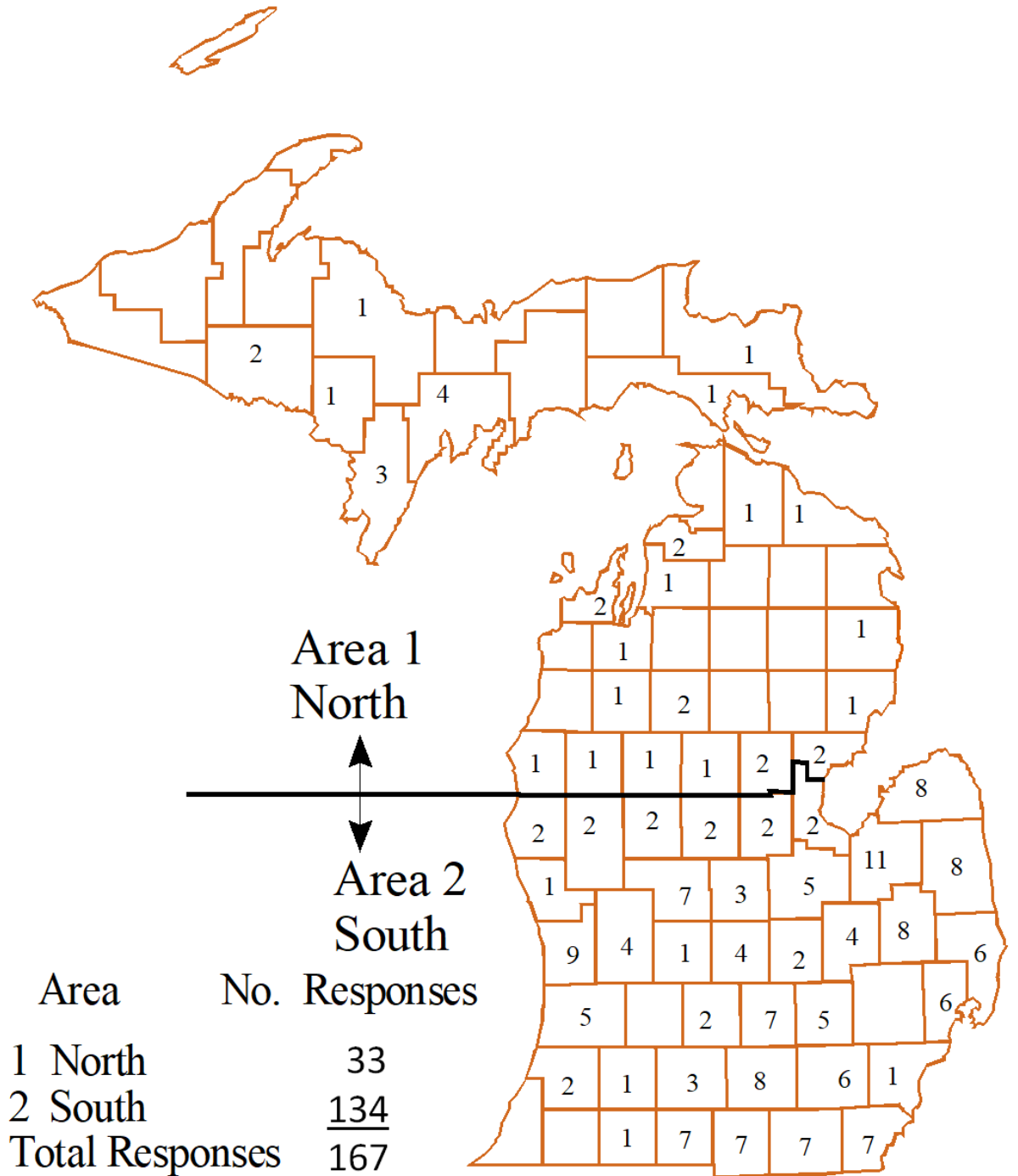


Figure1. Farmland Value Survey Responses

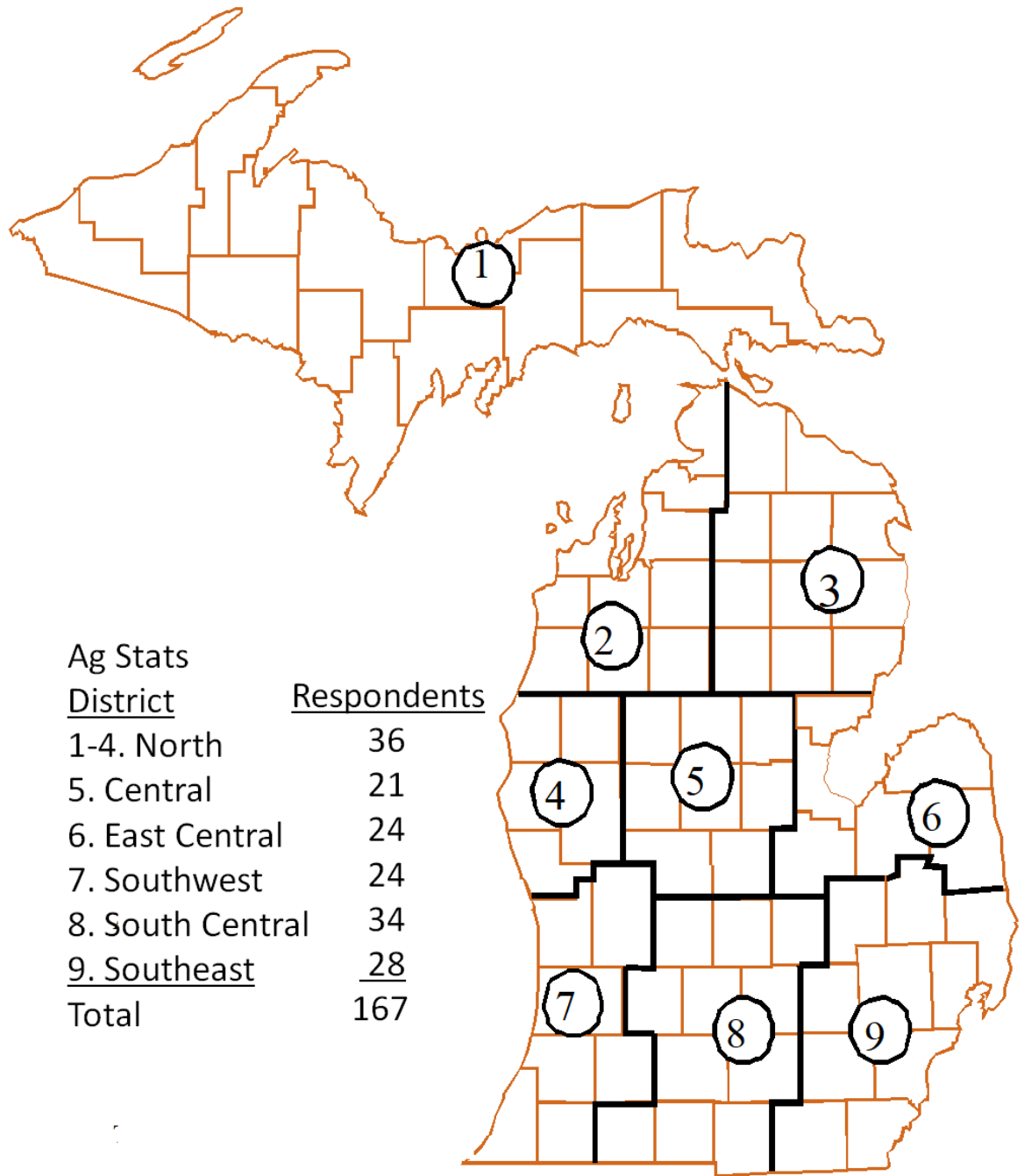


Figure2. Agricultural Statistics Districts and Number of Respondents

Agricultural-Use Farmland Values

Average agricultural farmland values are reported by region in Table 1. In the Southern Lower Peninsula, the average value of tilled field cropland was \$4,707 per acre while non-tilled field cropland averaged \$4,167 per acre. In the Upper and Northern Lower Peninsula tilled and non-tilled field crop land averaged \$2,139 and \$1,742 per acre, respectively.

Table 1. Michigan Average Agricultural Land Values, 2017

Region	Land Type					
	Field Crop Tiled	Field Crop Non-tilled	Sugar Beet	Irrigated	Fruit Trees [#]	Suitable for Fruit
	\$/acre					
Michigan	4,229	3,892	6,182	5,677	7,542	5,573
Southern Lower Peninsula	4,707	4,167	6,231	5,813	7,439	5,614
Upper & Northern Lower Peninsula	2,011	1,741	N/A*	3,689	7,648	5,447
Districts 1-4	2,077	1,820	N/A	3,516	7,810	5,985
District 5	3,458	3,330	N/A	4,750	N/A	N/A
District 6	5,347	4,093	6,643	6,308	N/A	N/A
District 7	5,668	5,197	N/A	5,950	8,375	5,933
District 8	4,573	3,772	N/A	5,294	N/A	N/A
District 9	4,881	3,884	N/A	6,417	N/A	N/A

* Note: Results were only reported when a minimum of five responses were received. These cases are denoted "N/A" in the table.

[#] With bearing trees.

For land primarily producing field crops (e.g., grains), Agricultural Statistics Districts 6, 7, 8 and 9 in Southern Michigan, tilled farmland values averaged \$4,600 to \$5,300 per acre and \$3,800 to \$5,200 per acre for non-tilled land. Land in the Upper Peninsula and Northern Lower Peninsula, Districts 1-5, had lower average prices for field cropland.

Fruit and sugar beets are expected to generate higher gross and net income per acre than general field crops. The highest priced agricultural land in Michigan is capable of producing fruit and located in proximity to Lake Michigan (Districts 2, 4 and 7). Land planted to fruit trees is highly valued not only because of its earnings potential from the harvested fruit but also because of non-agricultural demand due to amenity value and, in particular, proximity to Lake Michigan. Land values reported for fruit tree acres averaged \$7,542 per acre. Fruit tree land in the North (D1-D4) averaged \$7,648 per acre and Southwest District (D7) averaged \$8,375 per acre. Similarly, land suitable for fruit trees was at a premium averaging \$5,573 to \$5,985 per acre depending on region examined.

Land that can support sugar beets in its crop rotation averaged \$6,182 per acre a decrease from the 2016 average value of \$6,547. Sugar beet production is concentrated in the East Central and South East Districts. Irrigated land value in 2016 averaged \$5,677 per acre in the state, an increase of 8.3% over the 2016 value.

Respondents were also asked about expected land price changes during the 12 months ahead. While there was some variation—generally not more than plus or minus 5%—the average expected change was zero. That is, respondents on average thought land prices would be stable for the coming year. Of course, commodity prices, interest rates and other factors will influence general prices while local issues also affect prices.

Farmland Rent

Table 2 displays average cash rent without bonus, with bonus and percentage of land leased. In Michigan cash rent without bonus was \$133 per acre with 70% of land utilizing cash rent contracts. Cash rent of \$135 with a bonus of \$35 per acre with 20% of land leased. In 2017, an estimated 90% of leased or rented field crop acres were controlled by cash leases (with or without bonuses). Cash rent was the dominant leasing arrangement in all reporting districts of Michigan while 10% of the crop acres were in some a share rental

arrangement. The Upper and Northern Lower Peninsula cash rent without bonus averaged \$46 per acre. District 7 reported the highest average cash rent without bonus was \$181 per acre.

Table 2. Cost of Leased Farmland by Arrangement Type, 2017

Region	Cash Rent without Bonus	% Land Cash Rent	Cash Rent with Bonus	Cash Bonus	% Land Cash Rent with Bonus	Share Rent
	\$/acre	%	\$/acre	\$/acre	%	%
Michigan	133	70	135	35	20	10
Southern Lower Peninsula	142	70	140	36	20	10
Upper & Northern Lower Peninsula	46	80	N/A*	N/A	0	10
Districts 1-4	48	90	N/A	N/A	0	10
District 5	121	70	129	50	20	10
District 6	143	68	162	33	22	10
District 7	181	76	141	35	14	10
District 8	138	70	132	32	20	10
District 9	130	77	127	50	12	11

*Note: Results were only reported when a minimum of five responses were received.

Cash Rent Levels

Cash rent amounts and their relationship to land price are summarized in Table 3. The highest cash rents per acre in Michigan tended to be associated with higher projected per acre income. Cash rents in the Southern Lower Peninsula averaged \$148 per acre for tilled cropland and \$118 for non-tilled cropland. The highest rent levels for field cropland were found in the Southwest (D7) where tilled land commanded an average cash rent of \$170 per acre. Sugar beet land in Michigan rented for an average of \$201 per acre, and irrigated cropland rented for \$225 per acre.

Table 3. Average Cash Rent and Value Multipliers for Michigan Agricultural Land Use, 2017

Region	Land Type							
	Field Crop Tiled		Field Crop Non-tiled		Sugar Beet		Irrigated	
	Rent (\$/acre)	Value/Rent (ratio)	Rent (\$/acre)	Value/Rent (ratio)	Rent (\$/acre)	Value/Rent (ratio)	Rent (\$/acre)	Value/Rent (ratio)
Michigan	133	32	110	35	201	31	225	25
Southern Lower Peninsula	148	32	118	35	204	31	232	25
Upper & Northern Lower Peninsula	51	39	43	40	N/A*	N/A	121	31
District 1-4	51	41	47	38	N/A	N/A	100	35
District 5	119	29	101	33	167	27	193	25
District 6	156	34	105	39	194	34	213	30
District 7	170	33	144	36	N/A	N/A	253	23
District 8	141	33	112	34	N/A	N/A	208	25
District 9	141	35	113	34	244	24	278	23

* Note: Results were only reported when a minimum of five responses were received.

Land Value-to-Rent Multiplier

The value-to-rent ratios were calculated by dividing the land value reported by the corresponding cash rent value reported by each respondent (Table 3). The value-to-rent ratio for tilled field crops in was 32 (i.e., land price was 32 times the rental rate) in Michigan. Southern Lower Peninsula sugar beet land had a value-to-rent ratio of 31, while irrigated land value-to-rent ratio was 25. In the Upper and Northern Lower Peninsula the ratio for field cropland tilled was 24. The value-to-rent ratio calculation and movement is analogous to the price/earnings ratio in stocks and funds traded on national exchanges. Higher value-to-rent ratios indicate potential upward pressure on rents or downward pressure on land price. Lower values indicate the reverse. There is no particular reason that neither all types of land nor all regions should have the same ratio.

Non-Agricultural-Use Values of Farmland

The value of farmland for non-agricultural by use are summarized in Table 4. The average value of farmland being converted to residential development was \$10,230 per acre in the Southern Lower Peninsula and \$2,200 per acre in the Upper and Northern Lower Peninsula. The highest residential development values were found in the Southwest (D7) where the average value was \$13,733 per acre.

The average value for farmland that was converted to commercial use was \$18,211 per acre for the state of Michigan. The value of farmland being converted to commercial use was \$20,683 per acre in the Southern Lower Peninsula and \$6,950 per acre in the Upper and Northern Lower Peninsula. Note, however, that the variance behind these estimated averages was quite high. The recreational development value of farmland averaged \$3,646 per acre in the Southern Lower Peninsula and \$1,737 per acre in the Upper and Northern Lower Peninsula.

Table 4. Non-Agricultural-Use Value of Undeveloped Land in Michigan, 2016

Region	Land Use		
	Residential	Commercial/Industrial	Recreational
	\$/acre		
Michigan	9,098	18,211	3,401
Southern Lower Peninsula	10,230	20,683	3,646
Upper & Northern Lower Peninsula	2,200	6,950	1,737
Districts 1-4	3,042	7,164	1,625
District 5	5,714	12,333	3,180
District 6	6,767	15,318	4,253
District 7	13,733	22,200	3,545
District 8	10,146	16,333	4,061
District 9	12,533	48,050	3,054

Factors Influencing Land Values and Rents in Michigan

The survey also solicited opinions about factors driving land values. Respondents were provided the opportunity to indicate their perception of the importance of agricultural-related factors that influenced farmland values and cash rents. Factors including farm expansion, government programs, interest rates, and prices of agricultural commodities were rated on a scale from one to five with one being “Not Important” and five being “Very Important.” The average ratings are presented in Table 5. For Southern Lower Michigan, expansion by farmers, grain prices and milk price were the highest-ranking factor. As commodity prices change, cash flow also changes affecting demand for agricultural land. Expansion by farmers suggests lowering costs of production by exploiting the concept of economies of size or the need for more land to support expansion of the management team associated with the expansion.

Table 5. Rating Importance of Agricultural Factors Affecting Value of Michigan Farmland, 2017

Regions	Expansion by farmers	Government Programs			Prices			
		Conser vation	Ag commodity	Energy/ Fuel	Grain	Milk	Livestock	Fruit
	Average Score							
Michigan	4.2	2.6	2.9	2.5	4.2	4.1	3.6	2.6
Southern Lower	4.3	2.5	2.9	2.6	4.3	4.2	3.7	2.7
Upper & N. Lower	3.5	3.0	2.9	2.0	3.5	3.8	3.3	2.2
District 1-4	3.4	2.9	2.6	1.9	3.5	3.8	3.5	2.5
District 5	4.2	2.4	2.3	2.0	4.2	4.3	3.7	2.4
District 6	4.5	2.3	3.2	2.8	4.3	4.3	3.3	1.5
District 7	4.2	2.7	3.1	2.3	4.4	3.8	3.8	3.9
District 8	4.1	2.6	2.9	2.9	4.0	4.1	3.8	2.8
District 9	4.6	3.6	2.8	2.9	4.6	4.3	3.8	2.5

Note: Response scale was 1= not important, 2=somewhat unimportant, 3=neutral, 4=somewhat important, 5= very important.

Many factors not related to agriculture can influence the value of agricultural land. Table 6 summarizes the non-agricultural factors influencing land values for land in rural areas transitioning out of agriculture. The most important non-agricultural factors influencing Michigan land values were interest rates, home sites, and small farms. This pattern was consistent across districts although hunting and water access were also important in some locations.

Table 6. Rating of Non-Agricultural Factors Affecting Value of Michigan Farmland, 2017

Regions	Interest Rates	Home Sites	Fishing Access	Hunting Access	Development	Small Farms	Wood Lots	Water Access	Energy Prices
	Average Score								
Michigan	4.1	3.7	2.3	3.2	2.2	3.4	2.8	3.1	2.7
Southern Lower	4.1	3.6	2.3	3.1	2.3	3.4	2.7	3.0	2.7
Upper & N. Lower	3.9	3.7	1.9	3.4	1.7	3.2	3.4	3.4	2.9
District 1-4	3.8	3.8	2.0	3.5	1.8	3.3	3.6	3.6	2.9
District 5	3.6	3.6	2.7	3.9	2.0	3.7	2.9	3.6	2.8
District 6	4.5	2.9	1.5	2.3	1.6	2.9	2.2	2.0	3.1
District 7	3.7	4.1	2.5	2.7	2.4	3.2	2.4	3.0	2.0
District 8	4.1	3.6	2.5	3.4	2.3	3.4	2.7	3.1	2.7
District 9	4.3	3.9	2.4	3.5	3.1	4.0	3.1	3.6	2.8

Note: Response scale was 1= not important, 2=somewhat unimportant, 3=neutral, 4=somewhat important, 5= very important.

Long-Term Trends in Michigan Land Prices

Percentage change in land value from 1992-2017 are displayed in Table 7. These percentage changes are related to Southern Lower Peninsula region reported for Field Crop Tiled, Field Crop Non-tiled, Sugar Beet and Irrigated cropland. These values are not adjusted for inflation. The long-term trend has been growth in prices but with periodic, short-term downturns reflecting the influence of commodity prices, interest rates and the general economy. The average price increase over this period was about seven percent for all agricultural use land. At that rate, land prices will double about every 10 years.

Table 7. Southern Lower Peninsula Percentage Change in Land Value, 1998-2017

Year	Land Type			
	Field Crop Tiled ¹	Field Crop Non tiled	Sugar Beet	Irrigated
	% Change			
1992	0.9	7.1	5.8	0.0
1993	-3.6	1.4	-12.1	-3.4
1994	15.0	8.2	13.5	21.8
1995	-2.5	0.8	6.1	7.1
1996	13.3	11.7	8.7	5.5
1997	7.8	12.1	6.0	-0.6
1998	16.9	18.1	15.5	21.1
1999	12.0	6.7	-3.0	11.4
2000	8.0	12.9	-1.9	19.1
2001	7.8	9.7	-1.5	-0.9
2002	8.2	14.7	13.5	3.9
2003	12.4	3.8	2.5	9.7
2004	7.5	14.1	9.2	5.9
2005	10.1	9.6	5.6	24.5
2006	-0.4	-1.4	6.2	-5.9
2007	9.8	12.4	12.7	4.6
2008	16.3	13.0	17.9	23.3
2009	0.4	-7.4	-5.6	-7.6
2010	-8.2	-4.4	10.5	4.1
2011	12.4	12.9	15.4	17.3
2012	9.3	7.4	10.6	11.2
2013	17.7	21.3	36.8	9.1
2014	5.1	3.9	0.0	0.9
2015	-2.2	-6.5	21.6	9.6
2016	0.6	-5.9	-14.0	-8.1
2017	-6.1	11.4	-9.6	1.8
Average	6.5	7.2	6.6	7.1

¹ Beginning with the 1998 Survey, the question on agriculture land values and cash rents referred to "Field-crop tilled" and "Field-crop non-tiled." Previously the similar categories were referred to as Corn-Soybean-Cropland – above average and below average.

Figure 3 displays the average per acre price of land in Southern Michigan. In general, the land prices have increased in price when inflation is not considered. Average price for sugar beet land had increased at a high rate from 2012 to 2015 but has adjusted downward in the past couple of years.

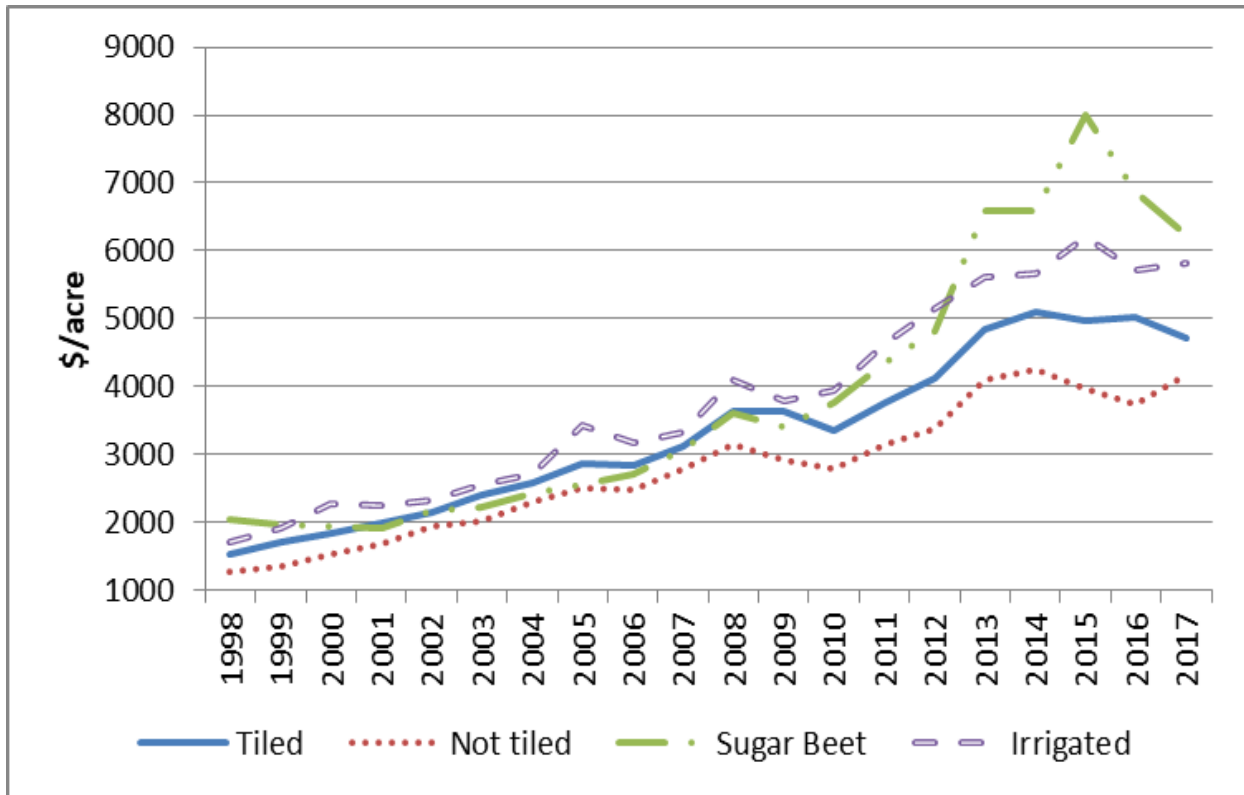


Figure 3. Average Price of Southern Lower Michigan Agricultural Land by Type, 1998-2017

Figure 4 displays the average land price and rental rate for tilled field cropland in the southern lower peninsula of Michigan from 1991 through 2017. The series move together over that time period with a correlation between the two series is 97 percent.

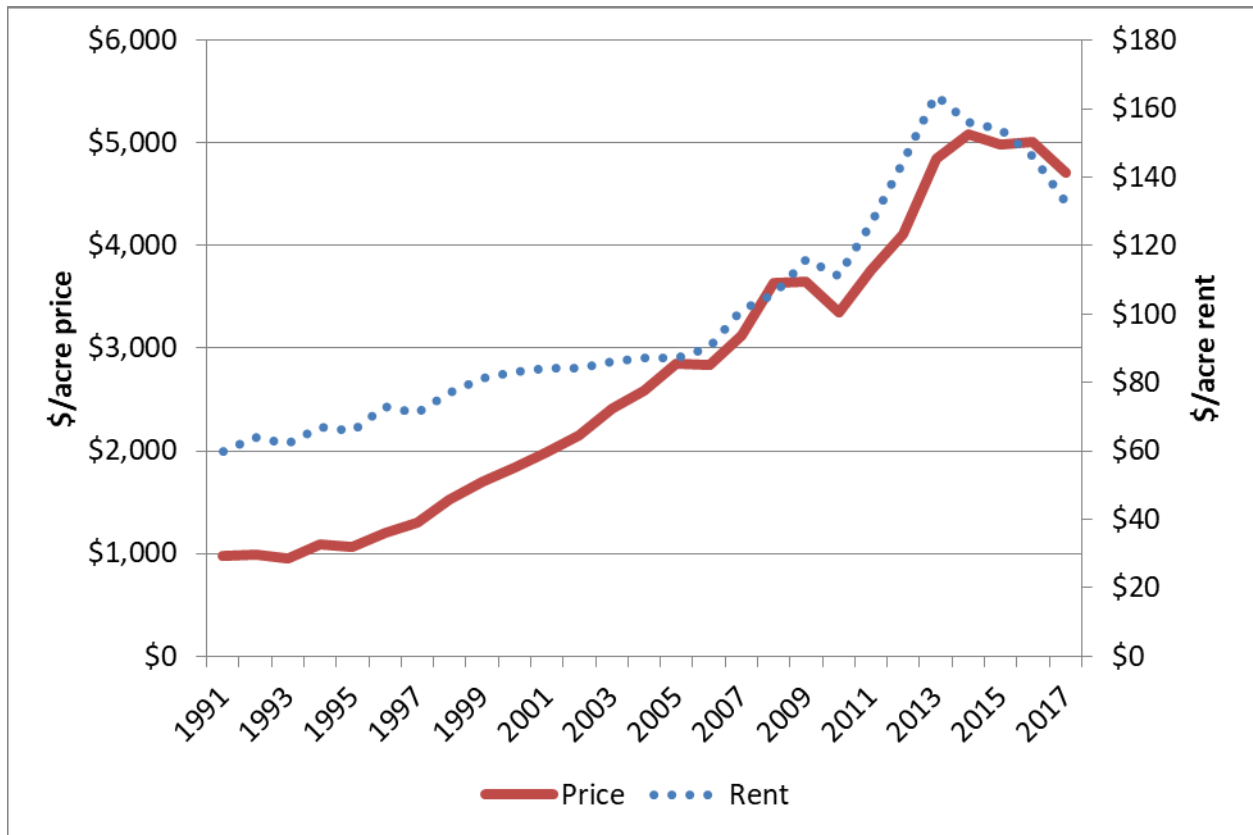


Figure 4. Michigan Average Farmland Prices and Rental Rates, 1991-2017

To further examine Michigan land prices, consider a simple model of capitalized farmland values where farmland value is expressed as a function of returns in perpetuity. In this case

$$\text{Value of farmland (V) (\$/acre)} = (\text{return per acre})/(\text{discount rate}),$$

where return per acre is equal to cash rent and the discount rate is set equal to the 10 year constant maturity treasury (CMT) rate. For example, in 2017 $V = (\$133/\text{acre})/(2.24\%) = \$5,938/\text{acre}$.

If price is greater than capitalized value (V), then land price is too high or there is an expectation of either increased returns (land rents) or lower interest rates. If price is less than capitalized value, then price is too low or there is an expectation of either decreased returns (rent) or higher rates.

As Figure 5 displays, price was less than capitalized value consistently from 1998-2008. Beginning in 2009, price has consistently been below capitalized value reflecting an expectation of higher

interest rates or decreased returns. The gap between the two series narrowed in 2017 with lower land rents.

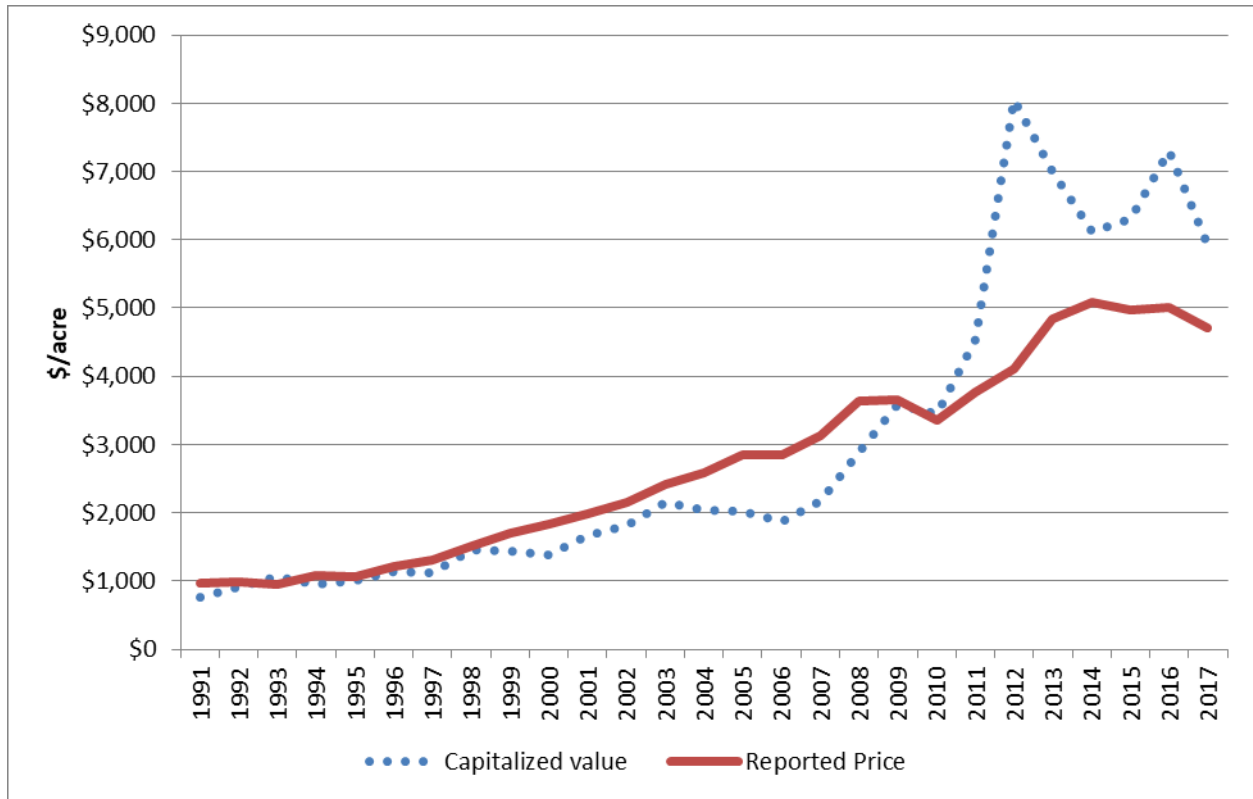


Figure 5. Michigan Farmland Prices and Capitalized Values, 1991-2017

Conclusions

Average farmland values in Michigan for 2017 were mixed compared to 2016 depending on land type and region examined. For the state of Michigan, field crop tilled land increased by 9.6%, non-tiled land increased 11.4% sugar beet cropland decreased by 5.6%, and irrigated cropland increased by 8.9%. Other states in the Upper Midwest/Corn Belt have witnessed agricultural land price declines following lower grain prices. Rental rates in the southern Lower Peninsula averaged \$148 per acre for tilled ground and \$118 per acre for non-tiled ground, a increase of \$15/acre for tilled and decrease of \$6/acre for non-tiled ground over 2016. A simple model of land value reveals that current prices were below capitalized value reflecting an expectation of higher interest rates or lower returns.