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**2018 Michigan Land Values
and
Leasing Rates**

Christopher A. Wolf, Professor

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2018 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 and summer of 2018. Results describe average land prices and rental rates for many categories of agricultural land in Michigan.

Survey Methods

The survey sample consists of members of the Farm Managers and Rural Appraisers Association, Michigan Agricultural Lenders, Michigan County Equalization Directors, Michigan State University Extension personnel, 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 May with responses coming in through July 2018. 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 472 potential respondents. A total of 157 responses were generated. In order to account for differences in soil and climate characteristics, information is reported separately for different state regions. Figure 1 displays the total number of responses by state Agricultural Statistics District. Results for Districts 1 through 4 were combined because the relatively few number of responses. Results are only reported throughout the report when at least five responses were received for a reporting area.

Respondents were asked to provide 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, 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.

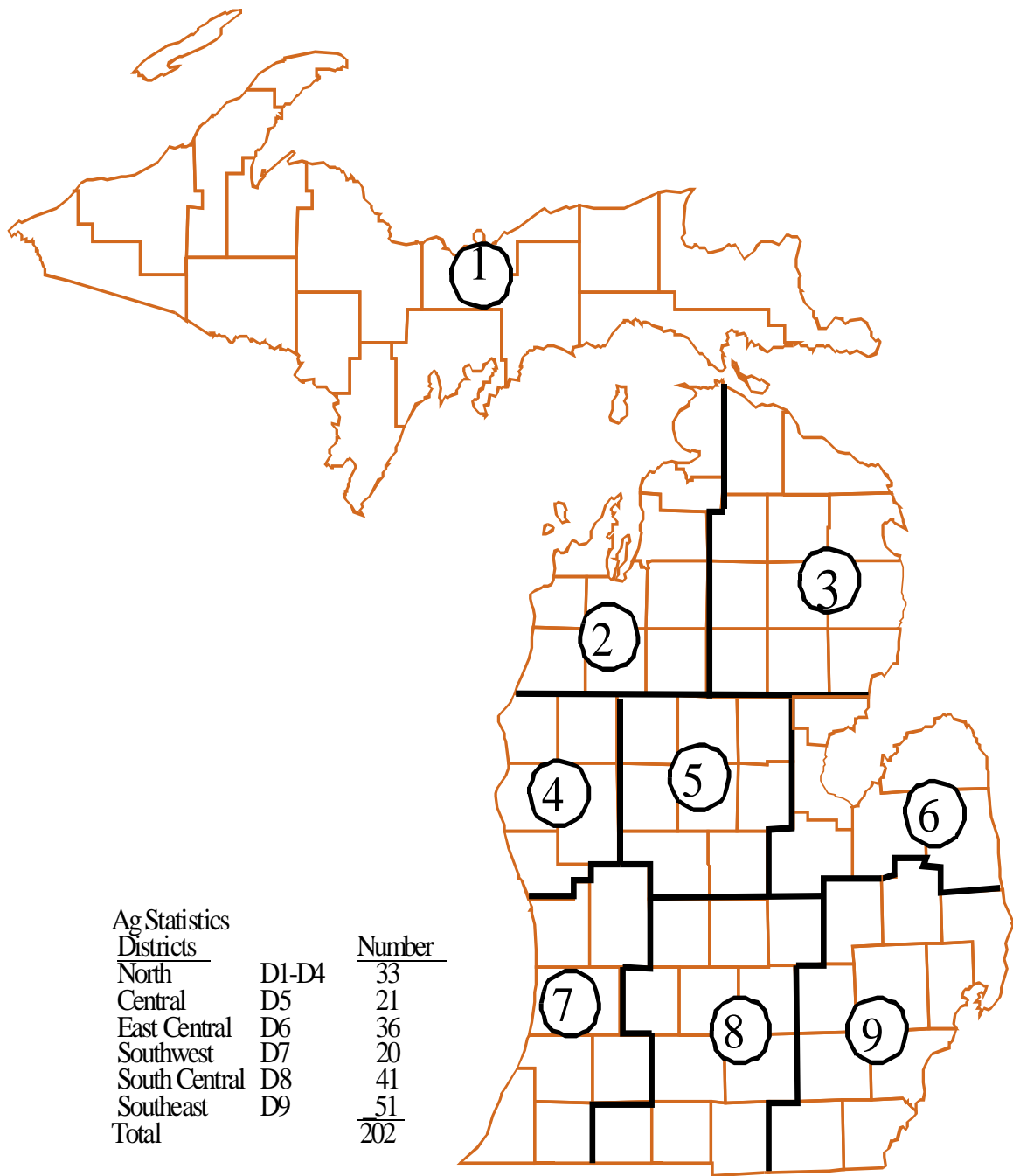


Figure 1. Agricultural Statistics Districts and Number of Respondents

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 \$5,121 per acre while non-tiled field cropland averaged \$4,092 per acre. In the Upper and Northern Lower Peninsula tilled and non-tiled field crop land averaged \$2,443 and \$2,219 per acre, respectively.

Table 1. Michigan Average Agricultural Land Values, 2018

Region	Land Type					
	Field Crop Tiled	Field Crop Non-tiled	Sugar Beet	Irrigated	Fruit Trees [#]	Suitable for Fruit
	\$/acre					
Michigan	4,903	3,873	6,885	5,694	8,061	5,967
Southern Lower Peninsula	5,121	4,092	6,885	5,890	8,750	5,448
Upper & Northern Lower Peninsula	2,443	2,219	NA*	3,660	7,860	6,800
Districts 1-4	2,575	2,372	NA	3,900	7,588	6,612
District 5	5,200	4,605	6,250	5,275	NA	NA
District 6	6,093	4,045	6,890	6,914	NA	NA
District 7	5,775	5,358	NA	6,880	9,250	4,800
District 8	4,360	3,527	NA	5,389	NA	NA
District 9	5,133	3,945	NA	6,775	NA	NA

* Note: Results were only reported when a minimum of five responses were received. These cases are denoted "NA" 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 \$4,300 to \$6,000 per acre and \$3,500 to \$5,400 per acre for non-tiled 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 commercial fruit production 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 with fruit trees averaged \$8,061 per acre. Fruit tree land in the North (D1-D4) averaged \$7,860 per acre and Southwest District (D7) averaged \$9,250 per acre. Similarly, land suitable for fruit trees was at a premium averaging \$4,800 to \$6,800 per acre depending on region examined. Land that can support sugar beets in its crop rotation averaged \$6,885 per acre. Sugar beet production is concentrated in the East Central and South East Districts. Irrigated land value in 2018 averaged \$5,694 per acre across the state.

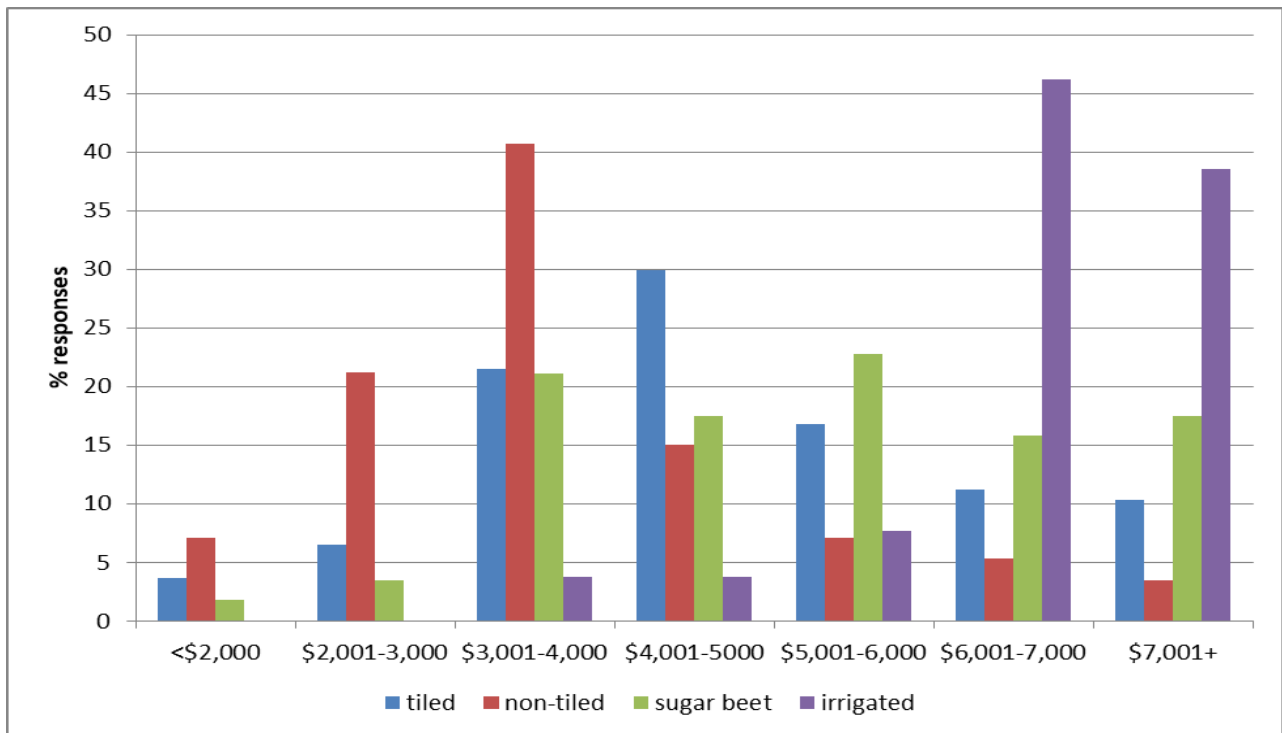


Figure 2. Distribution of Land Values, 2018

Average prices obscure the amount of variation that exists in land value depending on location, geography, soil type and many other factors. Figure 2 displays histograms displaying the percentage of observations in different price ranges for the entire state by land type. In addition to giving some idea about the variation in prices, the figure also demonstrates the relative location of the modal land values. Land suitable for sugar beets and irrigated cropland are consistently more valuable.

Farmland Rental Rates

Table 2 displays average cash rent, cash rent with bonus and percentage of land share rented. In Michigan cash rent without bonus was \$164 per acre with 77% of land utilizing cash rent contracts. Cash rent of \$150 with a bonus of \$36 per acre with 15% of land leased. In 2018, an estimated 92% 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 8% of the crop acres were in some a share rental arrangement. The Upper and Northern Lower Peninsula cash rent without bonus averaged \$69 per acre. District 6 reported the highest average cash rent without bonus was \$190 per acre.

Table 2. Cost of Leased Farmland by Arrangement Type, 2018

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	164	77	150	36	15	8
Southern Lower Peninsula	172	76	150	35	16	8
Upper & Northern Lower Peninsula	69	100	NA	NA	NA	NA
Districts 1-4	77	100	NA	NA	NA	NA
District 5	147	82	157	10	10	8
District 6	190	70	174	24	20	10
District 7	162	93	NA	NA	NA	7
District 8	184	80	132	20	14	6
District 9	155	75	144	40	16	9

*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 \$170 per acre for tilled cropland and \$124 for non-tilled cropland. The highest rent levels for field cropland were found in District 6 where tilled land commanded an average cash rent of \$195 per acre. Sugar beet land in Michigan rented for an average of \$221 per acre, and irrigated cropland rented for \$215 per acre.

Table 3. Average Cash Rent and Multipliers for Michigan Agricultural Land Use, 2018

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	165	30	118	33	221	31	215	26
Southern Lower Peninsula	170	30	124	33	221	31	221	27
Upper & Northern Lower Peninsula	70	35	60	37	NA	NA	72	51
District 1-4	86	30	65	36	NA	NA	129	30
District 5	160	33	146	32	162	39	208	25
District 6	195	31	136	30	237	29	254	27
District 7	157	38	125	43	NA	NA	245	28
District 8	155	28	113	31	205	NA	210	26
District 9	160	32	112	35	176	NA	218	31

* 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 30 (i.e., land price was 30 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 26. In the Upper and Northern Lower Peninsula the ratio for tilled field cropland was 35. 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.

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, 2018

Region	Land Use		
	Residential	Commercial/Industrial	Recreational
	\$/acre		
Michigan	7,190	12,590	3,191
Southern Lower Peninsula	7,000	13,295	3,288
Upper & Northern Lower Peninsula	8,756	5,670	2,624
Districts 1-4	8,561	5,892	2,535
District 5	6,600	12,000	2,938
District 6	7,031	13,642	4,328
District 7	9,172	17,400	2,250
District 8	5,675	11,970	3,142
District 9	7,775	10,000	3,000

Factors Influencing Land Values and Rents in Michigan

The survey 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 the state and all districts in Michigan, expansion by farmers, grain prices and milk price were the highest-ranked agricultural factors influencing land prices. 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. Several respondents mentioned the demand for land to spread manure by large dairy farms.

Table 5. Importance of Agricultural Factors Affecting Value of Michigan Farmland, 2018

Regions	Expansion by farmers	Government Programs			Prices			
		Conser vation	Ag commodity	Energy/ Fuel	Grain	Milk	Livestock	Fruit
Average Score								
Michigan	3.98	2.64	2.82	2.58	4.18	4.01	3.59	2.54
Southern Lower	3.96	2.57	2.79	2.54	4.23	4.04	3.57	2.45
Upper & N. Lower	4.14	3.20	3.00	2.87	3.73	3.79	3.08	3.50
District 1-4	4.27	2.88	3.00	2.88	2.88	3.94	4.00	3.60
District 5	4.64	2.09	2.09	2.36	4.09	4.09	3.75	2.43
District 6	3.71	2.68	3.00	2.73	4.06	3.97	3.23	1.70
District 7	3.74	2.42	2.68	2.37	3.74	3.32	3.42	3.71
District 8	4.19	2.90	3.17	2.79	4.44	4.42	4.07	2.76
District 9	3.75	2.63	2.47	2.13	4.60	4.05	3.15	1.59

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

Many factors not related to agriculture also influence the value of agricultural land. Table 6 summarizes the non-agricultural factors influencing land values for land. The most important non-agricultural factors influencing Michigan land values were generally interest rates, home sites, and small farms. This pattern was consistent across districts although hunting and water access were also important particularly in the Upper and Northern Lower Peninsula.

Table 6. Non-Agricultural Factors Affecting Value of Michigan Farmland, 2018

Regions	Interest Rates	Home Sites	Fishing Access	Hunting Access	Development	Small Farms	Wood Lots	Water Access	Energy Prices
	Average Score								
Michigan	3.71	3.54	1.98	2.98	2.04	2.98	2.63	2.69	2.57
Southern Lower	3.73	3.48	1.87	2.94	2.01	2.89	2.52	2.57	2.56
Upper & N. Lower	3.57	3.94	2.73	3.19	2.27	3.64	3.46	3.53	2.67
District 1-4	3.60	4.24	2.69	3.76	2.19	3.63	3.57	3.56	2.54
District 5	3.29	3.00	2.09	2.64	1.70	2.60	2.53	3.00	2.73
District 6	3.87	2.50	1.57	2.57	1.52	2.23	2.20	2.07	2.83
District 7	3.42	4.16	2.16	2.47	1.94	3.00	2.12	2.82	1.94
District 8	3.86	3.67	2.18	3.48	2.38	3.45	3.11	3.04	2.86
District 9	3.79	3.95	1.44	2.78	2.53	3.16	2.50	2.86	2.20

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 1992-2018 are displayed in Table 7 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 downturns reflecting the influence of commodity prices, interest rates and the general economy. The average price increase over this period was 6.5 percent for all agricultural use land. At that rate, land prices will double about every 11 years.

Table 7. Southern Lower Peninsula Change in Average Land Value, 1992-2018

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
2018	8.8	-1.8	10.5	1.3
Average	6.5	7.2	6.6	7.1

Figure 3 displays the trend in average per acre price of land for 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.

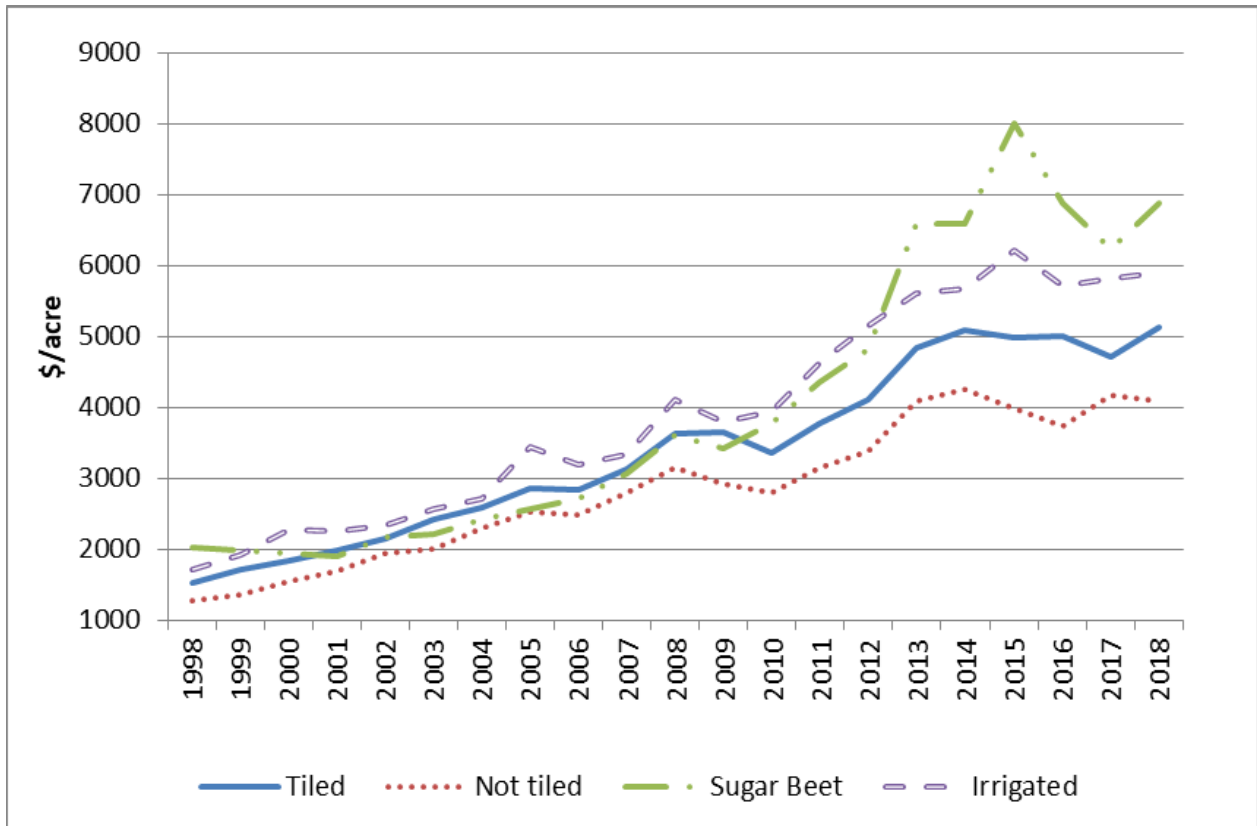


Figure 3. Average Price of Southern Lower Michigan Land by Type, 1998-2018

Figure 4 displays the average land price and rental rate for tilled field cropland in the southern lower peninsula of Michigan from 1991 through 2014. The series move together over that time period with a correlation between the two series is 97 percent.

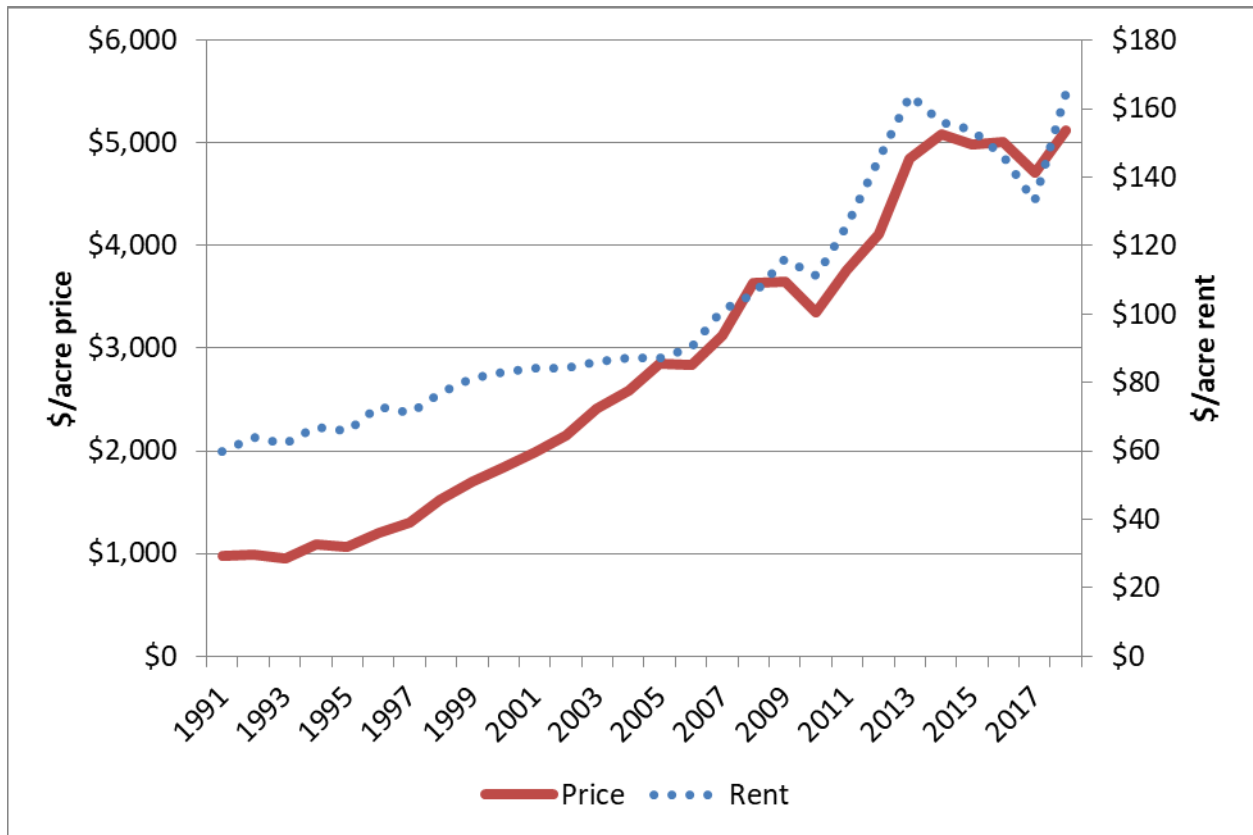


Figure 4. Michigan Average Farmland Prices and Rental Rates, 1991-2018

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 2018 $V = (\$165/\text{acre})/(2.8\%) = \$5,893/\text{acre}$. 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 greater than capitalized value consistently from 1998-2008. Since 2009, price has consistently been below capitalized value reflecting an expectation of higher interest rates, decreased returns, or increased land prices. The run up in land rents reflected the high commodity prices and the desirability of growing rather than buying feed. The gap between the two series narrowed in 2017 and 2018.

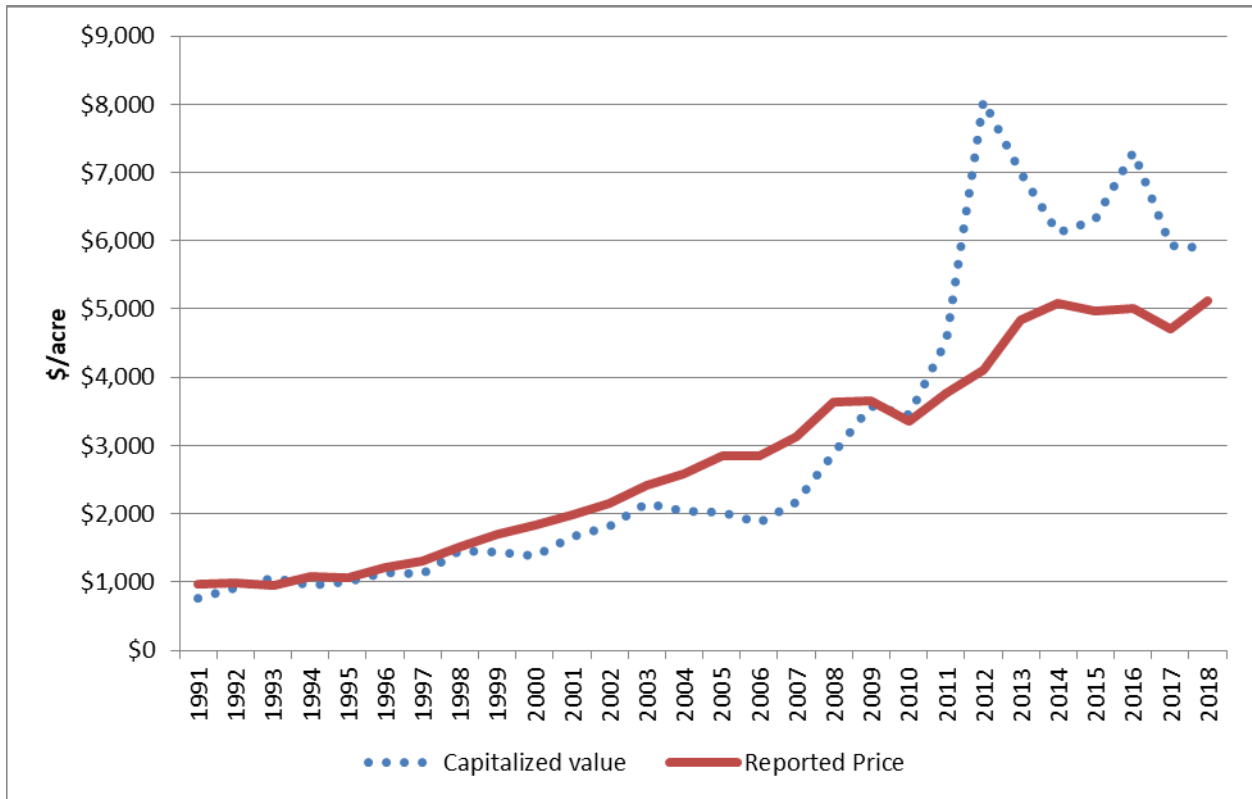


Figure 5. Michigan Farmland Prices and Capitalized Values, 1991-2018

Conclusions

Average farmland values in Michigan for 2018 were mixed compared to 2017 depending on land type and region examined. For the state of Michigan, field crop tilled land increased by 8.8%, non-tiled land decreased 1.8% sugar beet cropland increased by 10.5%, and irrigated cropland increased by 1.3%. Rental rates in the southern Lower Peninsula averaged \$170 per acre for tilled ground and \$124 per acre for non-tiled ground.