



# FINBIN

## 2019

### Report on Minnesota Farm Finances

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Center for Farm Financial Management  
UNIVERSITY OF MINNESOTA

# 2019 FINBIN Report on Minnesota Farm Finances

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The 2,304 Minnesota farms included in the FINBIN database represent a broad cross-section of Minnesota production agriculture. While there is no “typical” Minnesota farm, these farms include a large enough sample to provide a good barometer of commercial farming in Minnesota. FINBIN data is provided by farms that participate in Minnesota State Farm Business Management Education programs and the Southwest Minnesota Farm Business Management Association. These farms represent just over 3 percent of the farms in the state and 10 percent of commercial farms with sales of over \$250,000.<sup>1</sup>

## Highlights

- Minnesota farms continued to struggle with low profitability in 2019. Median net farm income was up slightly from the previous year at \$36,211 but was still historically low. Each of the past five years has fallen in the bottom third of historical records tracked in FINBIN over the last 24 years.
- Crop farm earnings saw a slight increase for the year, but earnings were still historically low. The median crop farm earned \$36,600 in 2019, improved from \$32,570 in 2018. Low prices persisted for all major crops. This was coupled with weather challenges statewide, below trendline yields, and trade issues during the year. The federal Market Facilitation Program (MFP) provided much needed relief for Minnesota commodity producers. MFP was the USDA program providing payments to producers of certain commodities impacted by tariffs.
- Dairy farm profits improved the most of any commodity type in 2019. The median dairy farm earned \$64,144 compared to \$15,434 in 2018. The average price received for milk was \$18.64 per hundred pounds, up from \$16.43 in 2018.
- Pork producer earnings improved markedly as well in 2019. The median pork producer earned \$96,245. This is an increase from the \$27,799 median net farm income received in 2018 by producers.
- The median beef producer experienced lower profitability in 2019, as compared to 2018. Beef producers earned a median net farm income of \$3,997 in 2019, compared to \$6,843 in 2018. This low earnings level led to a negative rate of return on equity for these producers.
- The average farm earned a rate of return on assets of 3.3%, up from 1.8% in 2018 (based on adjusted cost or book valuation of assets). Working capital improved for the average farm in 2019, increasing \$17,157. Term debt coverage also improved year over year. The average farm had a term debt coverage ratio of 1.42:1 in 2019, improved from 1:10:1 in 2018. This means the average farm earned enough to cover scheduled debt payments.
- Government payments were up 68% in 2019. The average farm received \$50,830 of government program support in 2019. This increase is again attributed to the USDA’s Market Facilitation Program (MFP). Even with the increased government payment level, these payments represented only 6% of gross revenue.
- The average farm’s net worth increased by about \$86,000. Seventy-eight percent of net worth growth resulted from farm and non-farm earnings, with the other 22% resulting from increases in estimated market value of farm assets. The average farm’s debt to asset ratio increased slightly to 43%.
- Regionally, earnings were mixed. Earnings were highest in Southwest Minnesota. Farms in the North Central/East Central region experienced the lowest levels of profitability.
- The average family spent \$60,434 on living expenses in 2019, an increase of \$1,273 from 2018.

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<sup>1</sup> Minnesota Ag News – Farms and Land in Farms, United States Department of Agriculture, National Agricultural Statistics Service, Washington, D.C., February 20, 2020.

Below are financial trends for these farms over the past three years.

<b>Highlights (MN Average)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Gross revenue (\$)	760,583	754,582	769,557
Total expense (\$)	715,997	717,453	718,393
Average net farm income (\$)	62,005	51,497	78,701
Median net farm income (\$)	28,396	26,940	36,211
Rate of return on assets (%)	2.2	1.9	3.3
Rate of return on equity (%)	0.8	-0.1	2.3
Corn yield (bu.)	203	180	177
Soybean yield (bu.)	48	50	46
Spring wheat yield (bu.)	73	63	61
Corn price received (bu.)	\$3.24	\$3.33	\$3.62
Soybean price received (bu.)	\$9.25	\$9.04	\$8.48
Spring wheat price received (bu.)	\$5.47	\$5.69	\$5.13
Milk cows per dairy farm	204	221	228
Production per cow (lbs)	24,604	23,758	24,156
Milk price received (cwt)	\$17.91	\$16.62	\$18.81
Market hog price / cwt. sold	\$54.56	\$49.75	\$50.22
Wean pig price paid / head	\$41.15	\$42.60	\$42.49
Finished beef price / cwt. sold	\$119.52	\$116.09	\$117.42
Feeder calf price paid / cwt.	\$150.48	\$152.87	\$149.14

Table 1: FINBIN Farm Financial Database Highlights, 2017 - 2019

## **Profitability**

Minnesota farms experienced a seventh consecutive year of low profits in 2019. The median net farm income for all farms was \$36,211, up from \$26,940 in 2018 (Figure 1). There have not been four consecutive years with earnings as low as 2016-2019 (using inflation-adjusted dollars) in the 24 years included in the FINBIN database. For a fourth straight year, over 30% of the farms analyzed lost money.

Average net farm income for all participating farms was \$78,700, up 53% from the previous year. The fact average income was higher than the median (middle) indicates the most profitable farms were

profitable enough to positively skew the average for all farms.

Even with depressed prices, lower yields and weather challenges, some farms were very profitable. The median net income for the most profitable 20% of these farms was \$236,969; however, the median income for the least profitable 20% was -\$49,134. As has been the case in each of the past seven years, some very large operations reported very large losses in 2019.

Earnings levels increased for most of the major farm types in Minnesota in 2019. Crop farm earnings increased from the levels seen in 2018, though the 2019 earnings were still low by normal standards. Five of the last six years have seen extremely low profitability levels for crop farms. Earning levels were significantly higher for dairy and hog producers in 2019. Both farm types experienced much higher levels of profitability. In particular, profits for intensive pork and dairy operations, those that do not also sell significant cash-crops, improved significantly year over year. In contrast, beef operations endured a fifth year of breakeven profit levels in 2019.

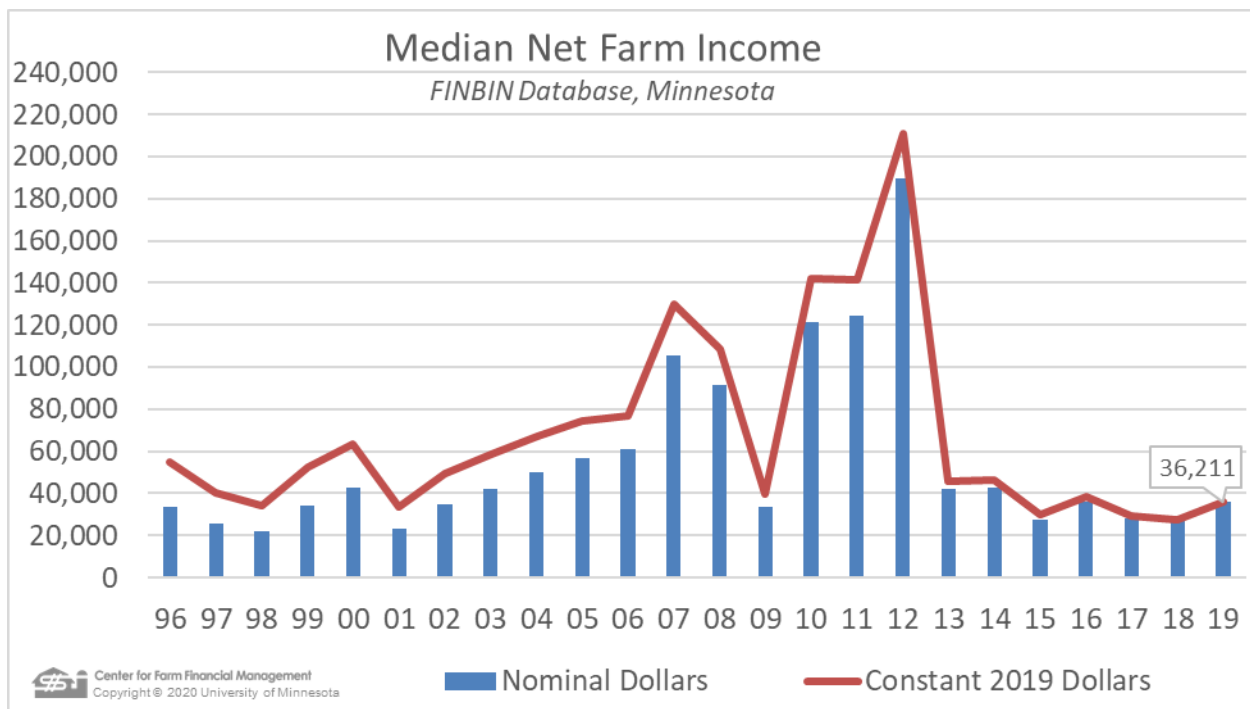


Figure 1: Median Net Farm Income

Government payments increased again in 2019. During this year, producers received a second round of payments for the Market Facilitation Program (MFP). This was the USDA program for commodities directly impacted by foreign retaliatory tariffs. MFP payments comprised the bulk of the government payments received by producers, as there were limited ARC or PLC payments received on crop acres for the year. ARC and PLC payments were reduced due to high yields in 2018 and lower prices used to calculate the benchmark revenue. (Payments included are the cash payments received in 2019 and accrue to the 2018 crop year.) The average farm received \$50,830 in total government payments in 2019, up from \$30,305 in 2018. Government payments represented only 6% of gross farm revenue, but 65% of net farm income.

While Figure 1 may make it look like farm earnings have just reverted to the “normal” returns of the late 1990’s and early 2000’s, it is important to note that today’s farms are managing much larger operations (see Solvency below). The average farm earned a rate of return on assets (ROA) of only 3.3% (with assets

valued at adjusted cost basis<sup>2</sup>). This is an improved profitability level, as compared to the previous four years, but is still much lower than historical standards.

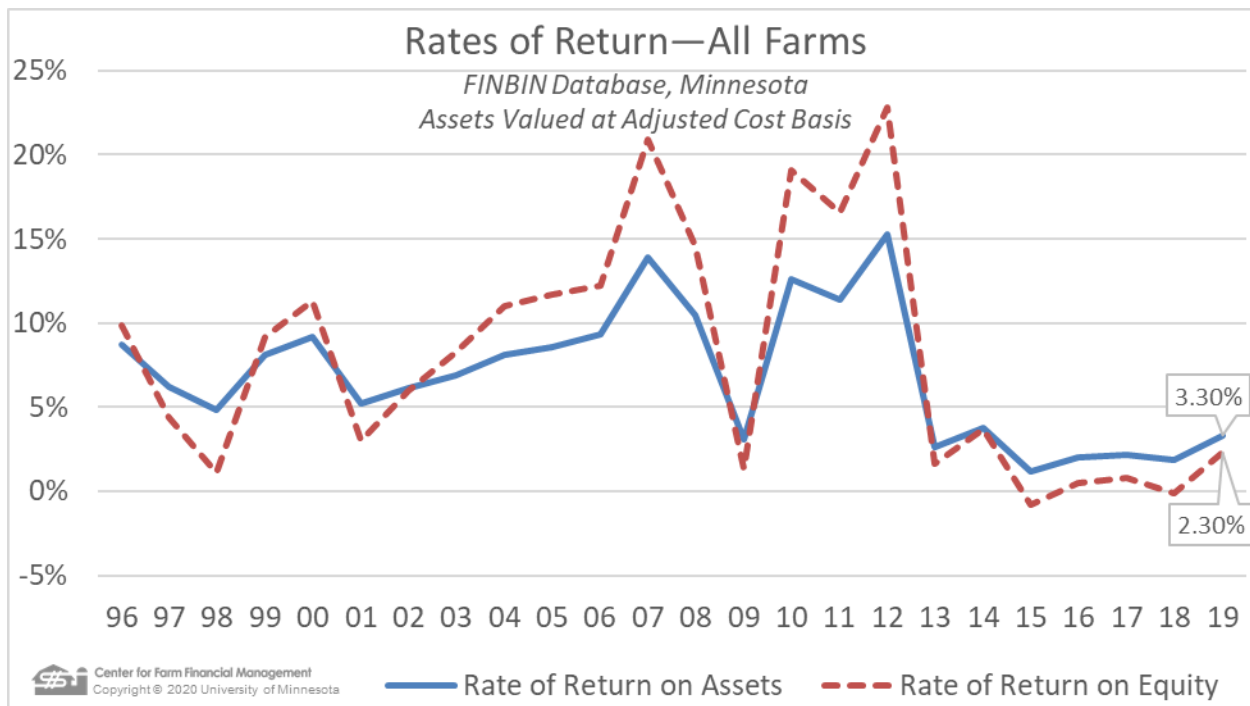


Figure 2: Rates of Return on Assets and Equity (%)

Rate of return on equity (ROE) did improve in 2019 and increased from the negative level experienced in 2018. As with other profitability measures, a 2.3% ROE is well below the typical return on equity producers have experienced over the 24-year time span of this report. Figure 2 shows the historic relationship between ROA and ROE. This relationship is a good barometer of sector profitability. Years when the ROE is higher than ROA are good years. When this is the case, borrowed capital earned more than its cost (ROA was higher than the interest rate paid on borrowed capital). When ROE is lower than ROA, as is again the case in 2019, the average producer lost money on borrowed capital. Current relatively low interest rates somewhat protected highly leveraged operations from the consequences of these low rates of return.

Asset valuation is a major factor in measuring rates of return. Figure 2 is based on the adjusted cost or book value of assets. This provides the best picture of returns on funds actually invested by business owners. When assets are valued at estimated market value, ROA decreases slightly to 3.0%. ROE improves marginally to 2.5%. This includes capitalization of estimated increases in asset values during the year in addition to actual farm earnings.

<sup>2</sup> FINBIN includes assets valued at cost (book) and at their estimated market value. Cost valuation of capital assets is based on “economic depreciation” which depreciates assets at a rate generally slower than allowed by tax law. The profitability measures displayed here are based on the cost value of assets.

## Liquidity

Working capital has been a major focus for producers and ag lenders for the past several years. It is the major financial resource farms have to survive a period of depressed financial conditions like the one currently facing Midwest farmers. These farms built working capital rapidly during the “golden years” of 2007 through 2012. The average farm came into this period of declining profits in outstanding position.

Average working capital (current assets minus current liabilities) increased very slightly in 2019, after declining for six consecutive year (Figure 3). Working capital increased by just over \$17,000 for the average farm. While working capital improved in 2019, these farms have consumed over half of the \$439,000 of working capital they had at the end of 2012.

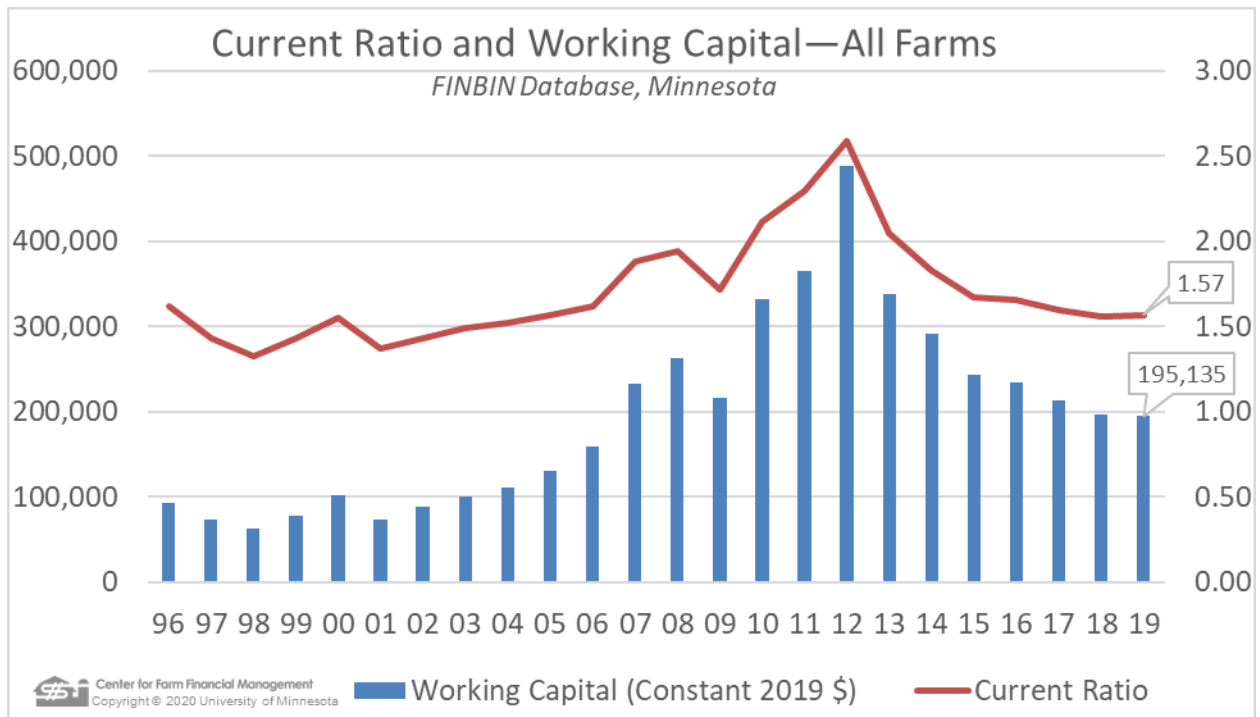


Figure 3: Current Ratio and Working Capital

The current ratio for the average farm was 1.57:1 at the end of 2019 (\$1.57 of current assets to cover each dollar of current debt), virtually unchanged from 2018. The current ratio for MN farms has also declined sharply since 2012; yet, the average farm was still in a relatively strong liquidity position by this measure.

Working capital to gross revenue may be a better measure of liquidity in that it relates the level of liquidity to business size. Figure 4 shows the relationship between working capital and gross revenue by type of farm. By this measure, the liquidity position for crop farms continued its slow decline. The liquidity position for all types of livestock operations improved in 2019. Dairy operations typically have weak liquidity due to the monthly nature of their business. They came into 2019 with the weakest liquidity position seen during the 24-years of the FINBIN database. This contributed to the large numbers of dairy farms that liquidated their herds in the past several years.



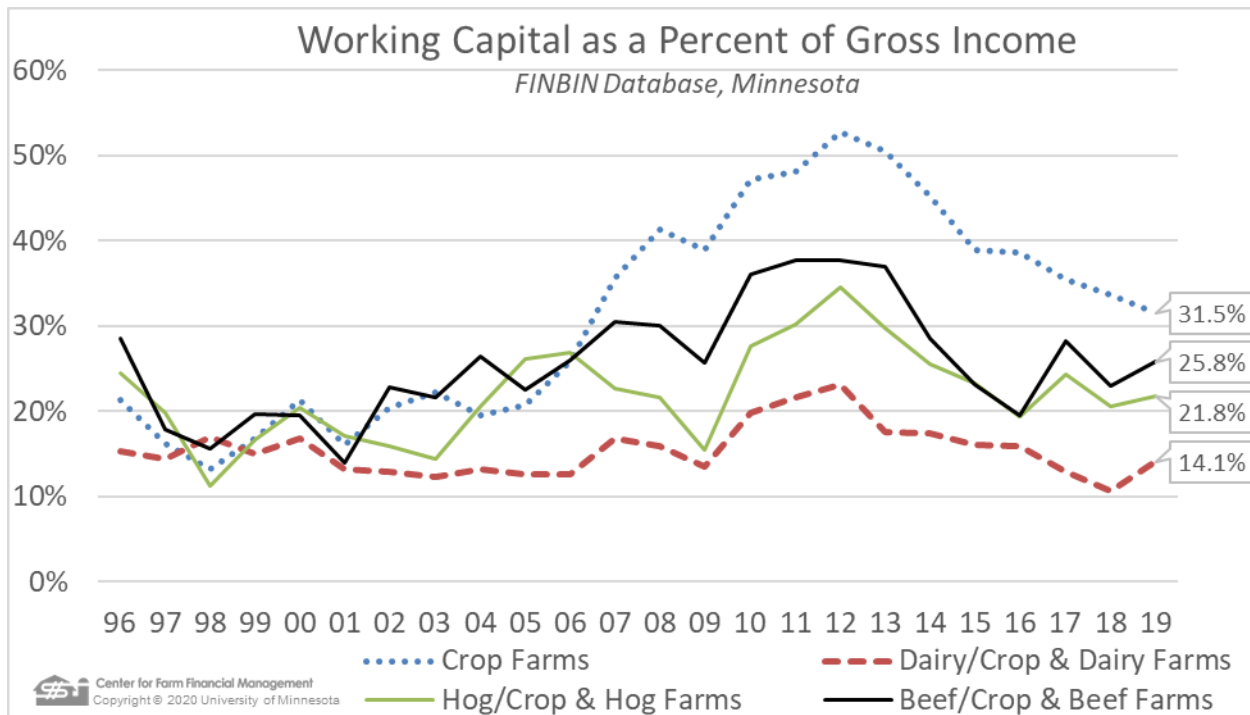


Figure 4: Working Capital to Gross Revenue

The average crop farm still had working capital to gross revenue of over 31% at the end of 2019, down from a peak of 53% in 2012. At 31%, the average crop farm is right at the recommended benchmark of 30%. It is almost certain that these Minnesota crop farms would have fallen below that benchmark level had it not been for government support through the MFP payments.

The average livestock farm, on the other hand, was below the recommended 30% benchmark. Dairy farms in particular, at 14%, are still very vulnerable. Pork and beef farms saw increased liquidity positions in 2019. Both remain much closer to the recommended 30% benchmark than their dairy farming counterparts.

In these very challenging times for agriculture, there are many operations that are in weaker liquidity positions and are more vulnerable to continued low profits than the average farm:

- Forty-five percent (45%) of all farms lost working capital in 2019.
- Twenty-seven percent (27%) of all farms had negative working capital at the end of 2019.

## Solvency

The average farm's net worth increased by over \$86,000 in 2019. Of that, 78% was "earned net worth change," resulting from farm and non-farm earnings exceeding owner withdrawals for family living and taxes. The other portion resulted from changes in the estimated value of farm assets.

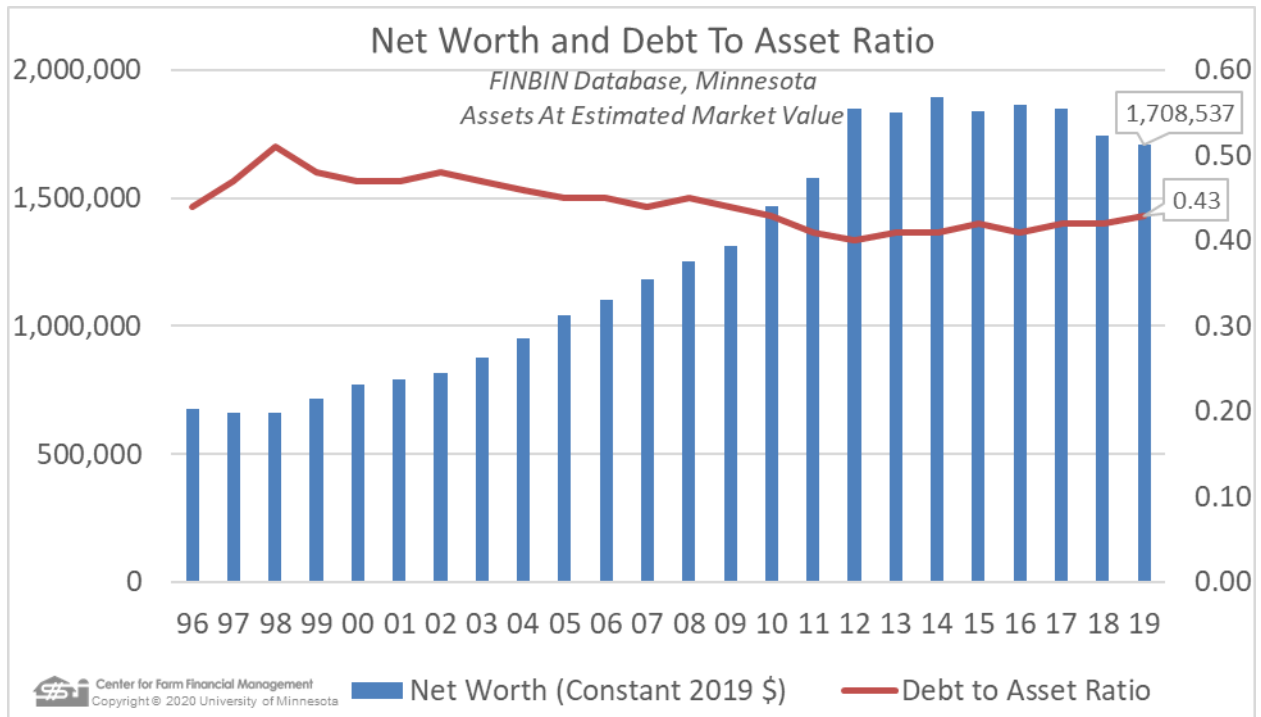


Figure 5: Debt to Asset Ratio (%) and Net Worth

The average farm’s debt-to-asset ratio ticked up in 2019 to 43% when deferred tax liabilities are included. When deferred liabilities are excluded, the ratio was 34%, unchanged from the previous year. The net worth levels depicted in Figure 5 are a bit deceiving in that they appear to show decreases in several recent years. In fact, the average farm has reported a net worth increase every year included in the FINBIN database. Apparent decreases result from changes in the composition of farms analyzed.

<b>Debt to Asset Ratio</b>	<b>Under 40%</b>	<b>Over 60%</b>
Number of farms	932	653
Rate of return on assets	3.0%	2.3%
Rate of return on equity	3.0%	-2.9%
Current ratio	2.8:1	1.1:1
Working capital to revenue	47.40%	2.90%
Term debt coverage	2.08	0.97

Table 2: Impact of Financial Leverage, 2019

Table 2 shows the impact of financial leverage (or debt-to-asset position) on the financial performance of these farms. Highly leveraged farms were slightly less profitable than lower debt farms, based on ROA. That lack of profitability, combined with their debt position, is magnified in their ROE. As seen above, they are much more vulnerable financially based on liquidity and repayment capacity measures.



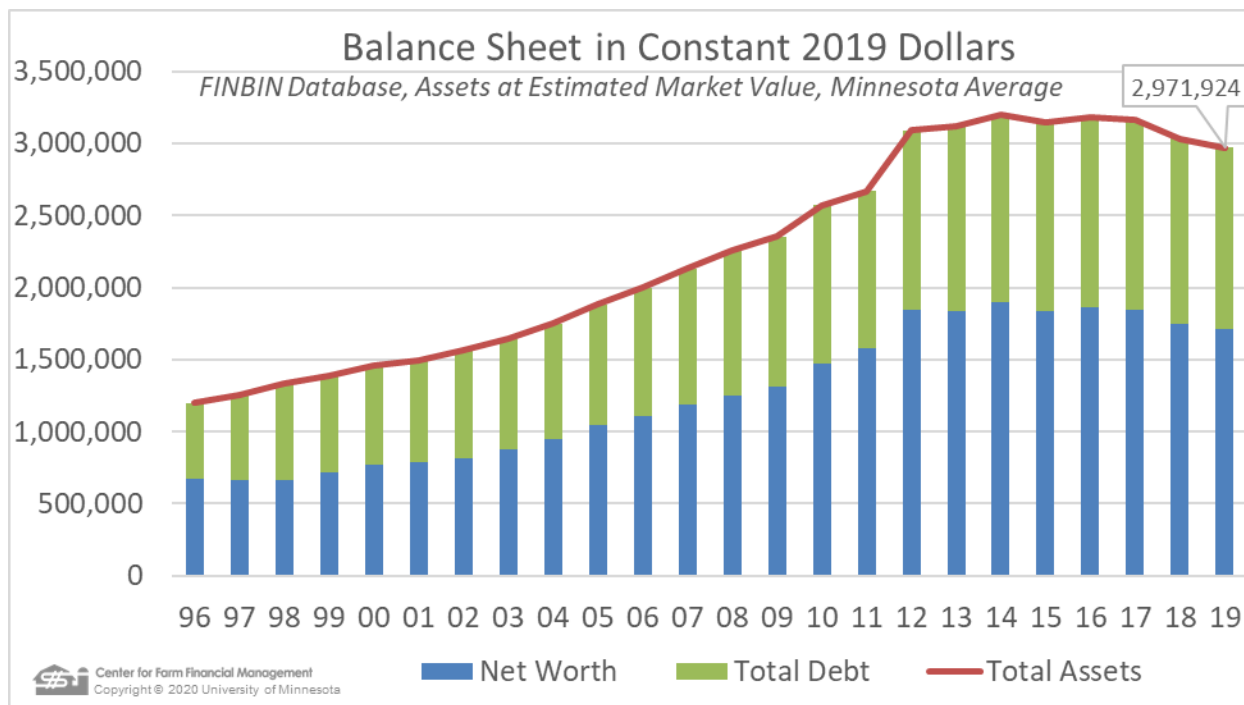


Figure 6: Balance Sheets at Market in Constant 2018 Dollars

While debt-to-asset ratios have not changed a great deal in recent years, there have been major changes in the balance sheets of these Minnesota farms. The average farm has grown rapidly (Figure 6). In constant dollars, total assets have increased by almost \$1.7 million over this period. Total debt increased by almost \$740,000 over the same period. As a result, the average farm has gained over \$1 million of net worth over the past twenty-four years in today’s dollars. This equates to 8% growth in net worth per year.

Net worth change can have two sources – the amount resulting from retained earnings and the amount resulting from changes in the valuation of assets. Over this 24-year period, from 1996 to 2019, 75% of net worth growth for these farms was earned. Retained earnings result when farm and non-farm income exceed the amount consumed by family expenditures and income taxes. The remaining 25% of net worth growth resulted from asset appreciation.

It should be noted that the individual farms included in FINBIN change somewhat each year, as some farms exit, and new farms join the contributing educational programs.

## Debt Repayment Capacity

Debt coverage is a primary measure lenders monitor when extending credit to businesses. The term debt coverage ratio (TDCR) compares dollars available for debt repayment after family living and income taxes versus scheduled payments on term (non-current) debt. A TDCR of 1:1 indicates that income available for debt repayment exactly equaled scheduled payments. While other measures of business soundness, such as current ratio and debt to asset ratio, tend to change very little from year to year, TDCR shows much more variation. Therefore, it is probably a better indicator of year-to-year financial stress.

Debt coverage improved for all types of farm in 2019, averaging 1.4:1 for all farms. This follows a year in 2018 when dairy, hog and beef farms all had TDCRs of less than 1:1. While debt coverage improved on average, almost half of all producers, 46%, had a TDCR under 1:1, indicating that the improvement in

debt coverage was not well distributed across the population of farms.

Only beef farms averaged a TDCR under 1:1 in 2019, at 0.96:1. Dairy farms, which have probably been the most challenged financially in recent years, saw a rebound, with an average TDCR of 1.55:1, up from 0.62. Crop farms averaged 1.4:1, very similar to the previous year. Among the most challenged farms in terms of repayment capacity were very large crop producers, those with more than 2000 acres, whose TDCR averaged 1.1:1.

MFP payments clearly had a huge impact on the repayment capacity for Minnesota farms in 2019. Without MFP payments, many, if not most farms would have consumed working capital to make their payments and it is likely that a number of them would not have survived into 2020.

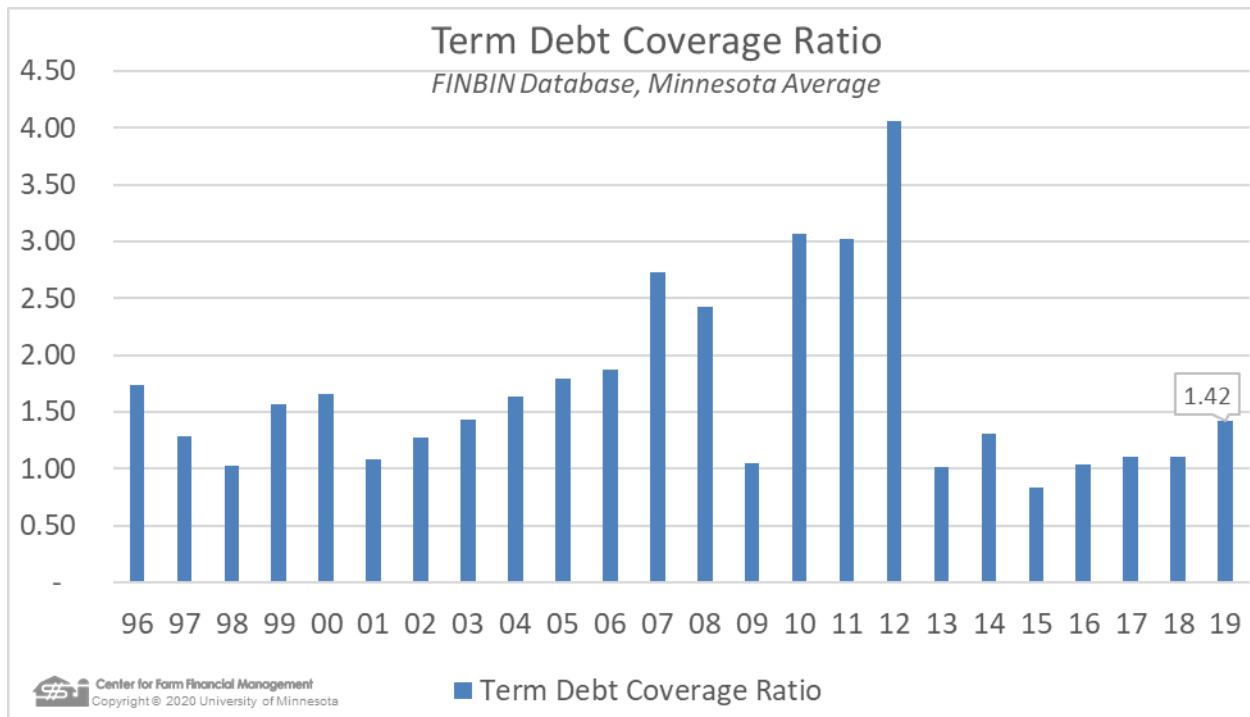


Figure 7: Term Debt Coverage Ratio

## Regional Profitability

Profits were up in every region except Northwest Minnesota. In regions where profits improved, it is important to note how low they were in 2018. Profitability levels were still historically low for all regions in 2019.

Incomes were highest in the Southwest, mostly due to the increased profitability of hog operations in the region. Modest increases in the Southeast, West Central, and East Central/North Central regions were primarily due to the recovery of dairy farms.

The reduction in profitability in Northwest Minnesota reflects the challenges producers in the region had with flooding and saturated fields in 2019. The region relies on cash cropping, with few dairy farms and very few hog farms, and so, did not benefit from the more profitable livestock operations.

Incomes were again lowest in the North Central/East Central region. This is traditionally a low-income region of the state. Other than dairy farms, which showed improved profits, most producers in the region rely on non-farm income as a major source of family income.

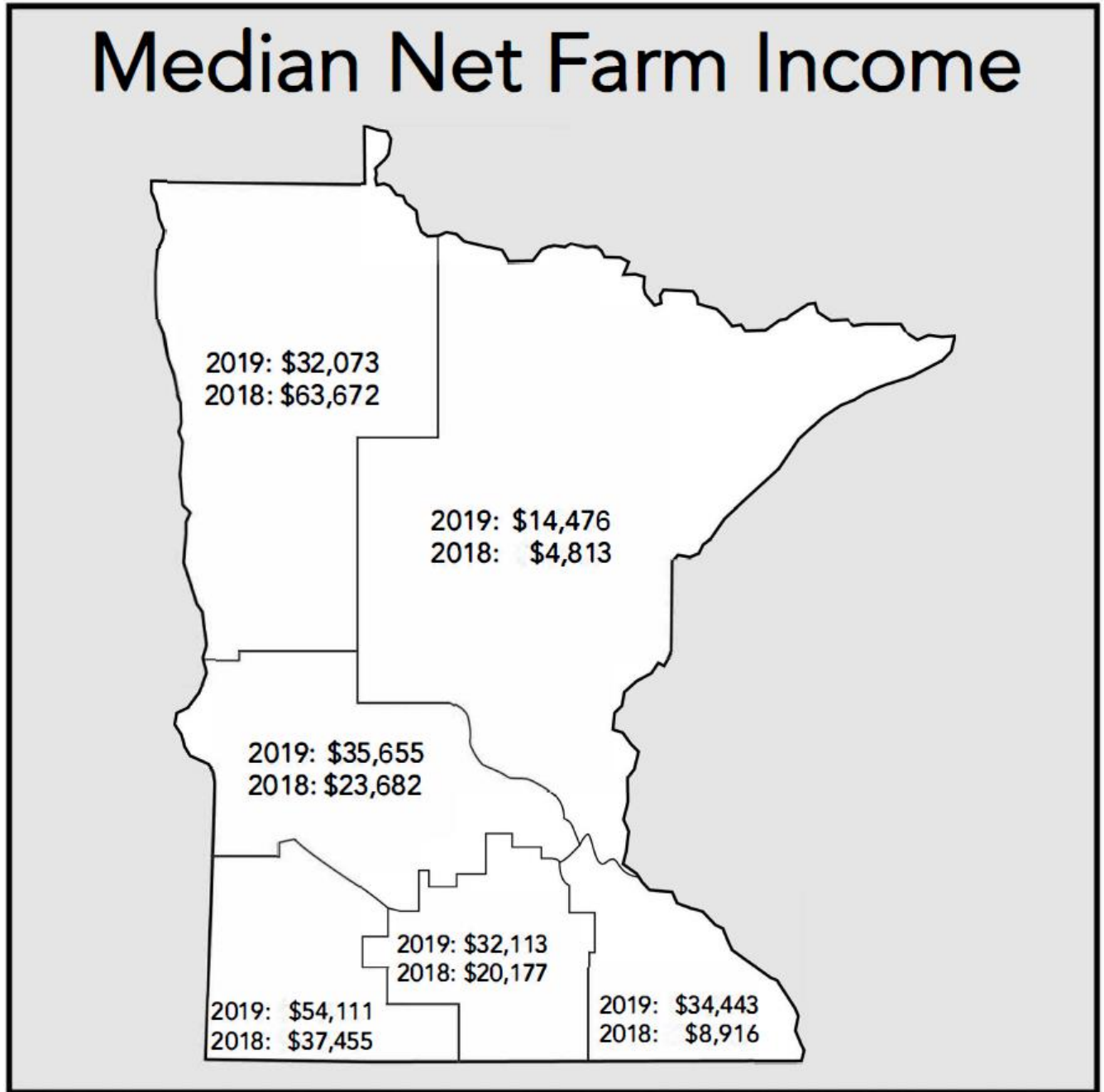


Figure 8: Median Net Farm Income by Region

## Type of Farm<sup>3</sup>

Minnesota farmers will remember 2019 as one of the most challenging years in generations. Weather and trade issues dominated the agricultural news for the entire year. Yet, there were some rays of sunshine. Dairy and pork producers showed improved earnings. Unfortunately, beef farms did not share in the livestock recovery. Cash crop producers had a very difficult production year, but Federal payments to offset trade losses kept 2019 from being a financial disaster for many Minnesota crop farms.

### Crop Farms

The 1,211 crop farms in the 2019 group earned a median net farm income of \$36,600, a slight increase from \$32,570 the previous year and a continuation of low earnings over the past seven years. It could have been much worse if it had not been for the Federal Market Facilitation Program which provided cash payments to producers of commodities impacted by retaliatory tariffs on agricultural exports. It is very likely that the median income for Minnesota crop producers would have been negative, a farm loss, had it not been for the MFP payments.

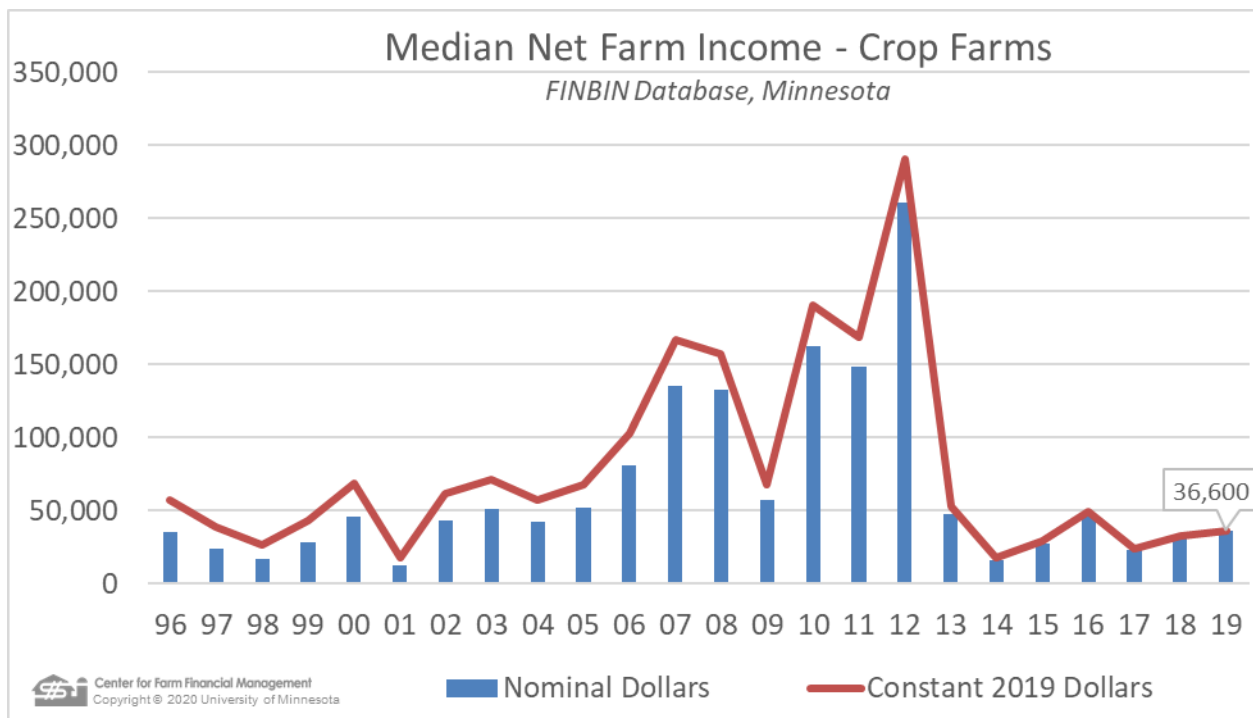


Figure 9: Median Net Farm Income, Crop Farms

<sup>3</sup> Farms are categorized based on 70% of gross receipts from the respective enterprise. For this report, hog, dairy and beef farms were categorized based on 70% of gross receipts from the livestock enterprise or a combination of that enterprise plus crop sales.

<b>Crop Farms</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Median net farm income	\$23,426	\$32,570	\$36,600
Rate of return on assets	1.5%	2.4%	2.6%
Rate of return on equity	-0.2%	1.0%	1.2%
Working capital to gross rev.	36%	34%	32%
Change in working capital	-\$27,125	\$9,172	\$4,490
Term debt coverage ratio	1:1	1.3:1	1.4:1
Net worth change	\$65,824	\$53,368	\$85,004

Table 3: Crop Farm Returns

2019 was a very difficult production year for Minnesota producers. It started raining during planting and for some, it seemed like it never stopped. Most producers struggled to get the crop planted and many fields were planted in poor, wet conditions. A record number of acres went unplanted as producers settled for the Prevent Planting option, which provided reduced crop insurance payments for unplanted acres. Excessive rain continued into fall harvest, further reducing yields and increasing costs. Many corn fields were left unharvested in the Northern regions and a large portion of the sugar beet crop was left in the field in the Red River Valley.

Yields for all of Minnesota's major cash crops were down in 2019. USDA estimated corn yields for the state at 174 bushels per acre. Yields for farms included in FINBIN averaged 178, right at the average yield for the previous 10 years. Soybean yielded 46 bushels per acre, down from 50 in 2018, and one bushel below the 10-year average for participating farms. Spring wheat averaged 61 bushels per acre, also slightly below the 10-year average yield for these farms. Sugar beet yields were substantially reduced at 20 tons per acre, down from 27 tons the previous year.

Prices were mixed, with the average price received by participating farms for corn at \$3.62 per bushel, up from \$3.33 in 2018. Soybeans, more impacted by trade issues, decreased to \$8.48 from \$9.04 in 2018, while spring wheat prices declined to \$5.13 per bushel from \$5.69 in 2018.

Production costs increased very slightly. The cost to produce an acre of corn increased by 2%, to \$711 per acre. Most of the increase was in fertilizer cost. Cash rental rates were unchanged. Cost per bushel of corn increased to \$3.50 from \$3.34 in 2018 due to reduced yields. Soybeans cost per acre was virtually unchanged but cost per bushel increased to \$8.46, from \$7.43, again largely due to reduced yields.

Overall profitability was a mixed bag for common Minnesota crops. With MFP and crop insurance payments included, producers captured a small profit on corn, soybeans and spring wheat production but reported big losses on sugar beets. Corn and soybeans netted just over \$40 per acre and wheat \$22 on cash rented acres. Sugar beet production lost over \$200 per acre. Over \$100 of the \$750 revenue per acre for corn production, came from government payments, crop insurance, or other non-product income.

With the aid of MFP and crop insurance payments, average rates of return on assets improved for Minnesota cash crop farms, working capital remained above the 30% of gross revenue benchmark, and the average farm's net worth increased by over \$85,000. Going into 2020, though, many producers are still facing a high degree of financial stress. For example, the 242 crop farms in the low profit 20% group had negative earnings of \$49,000 in 2019. The low profit group lost an average of \$87,000 of working capital and only has an average of \$32,000 of working capital left.

<b>Corn</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Yield (bu.)	204	181	178
Price received / bu.	\$3.25	\$3.32	\$3.62
Cost of production / bu.	\$3.54	\$3.90	\$3.70
Cost per acre	\$705	\$697	\$711
<b>Soybeans</b>			
Yield (bu.)	47	50	46
Price received / bu.	\$9.25	\$9.11	\$8.47
Cost of production / bu.	\$9.23	\$7.43	\$8.46
Cost per acre	\$441	\$445	\$447
<b>Spring Wheat</b>			
Yield (bu.)	73	63	61
Price received / bu.	\$5.46	\$5.69	\$5.13
Cost of production / bu.	\$4.92	\$5.78	\$5.11
Cost per acre	\$357	\$365	\$377

Table 4: Crop Yields, Prices and Cost of Production for Major Minnesota Crops

## Dairy Farms

Dairy farm earnings rebounded in 2019 from the historical lows of 2018. The median net farm income for dairy farms grew to \$64,144, up from \$15,434 in 2018. The number of participating dairy farms decreased to 297, from 350 in 2018, reflecting the financial stress in the industry. Milk producers continued to struggle with low prices through the first half of the year, but prices picked up in the second half, providing needed relief for most farms. Milk markets have been burdened by overproduction and trade issues for the past several years and many Midwest farms, particularly smaller operations, have liquidated their herds. Average milk price for the year increased by over 13%, averaging \$18.81 per hundred weight (cwt) as compared to \$16.62 in 2018.

<b>Dairy Farms</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Median net farm income	\$43,051	\$15,434	\$64,144
Rate of return on assets	2.6%	0.0%	4.7%
Rate of return on equity	1.4%	-3.7%	4.8%
Working capital to gross rev.	13%	11%	14%
Change in working capital	-\$14,907	-\$39,558	\$52,609
Term debt coverage ratio	1.2:1	0.6:1	1.6:1
Net worth change	\$55,650	\$10,082	\$103,704

Table 5: Dairy Farm Returns

Dairy farms have traditionally carried less working capital than other farm types, providing less buffer for financial downturns. As a result, many dairy farms had little to fall back on over the period of financial stress that started in 2015. The average dairy farm had working capital equal to only 11% of gross revenue coming into 2019. By the end of the year, working capital had grown to 14%, an increase of over \$52,000 per farm, although it is important to recognize that some of the most stressed farms were out of the dairy business by year's end. The solvency position of these farms also turned around, as the average farm's net worth increased by over \$100,000. Debt coverage, after falling below 1:1 in three of the last four years, improved to a much healthier 1:55, meaning the average farm generated \$1.55 to cover each \$1 of scheduled payments.

Dairy farms of all sizes shared in the improved profitability, but profits generally increased with size. The largest herds, those with over 500 cows, averaged an 8% rate of return on assets (ROA), compared to 5% for the next largest herd group. While the largest herds still have liquidity concerns, with only 13% working capital to gross revenue, their average working capital increased by over \$185,000 in 2019. Large herds also had better repayment capacity and stronger balance sheets, with debt-to-asset ratios averaging only 31%. Smaller herds, on average, generated lower profits, had much lower debt coverage ratios, and still face liquidity challenges.

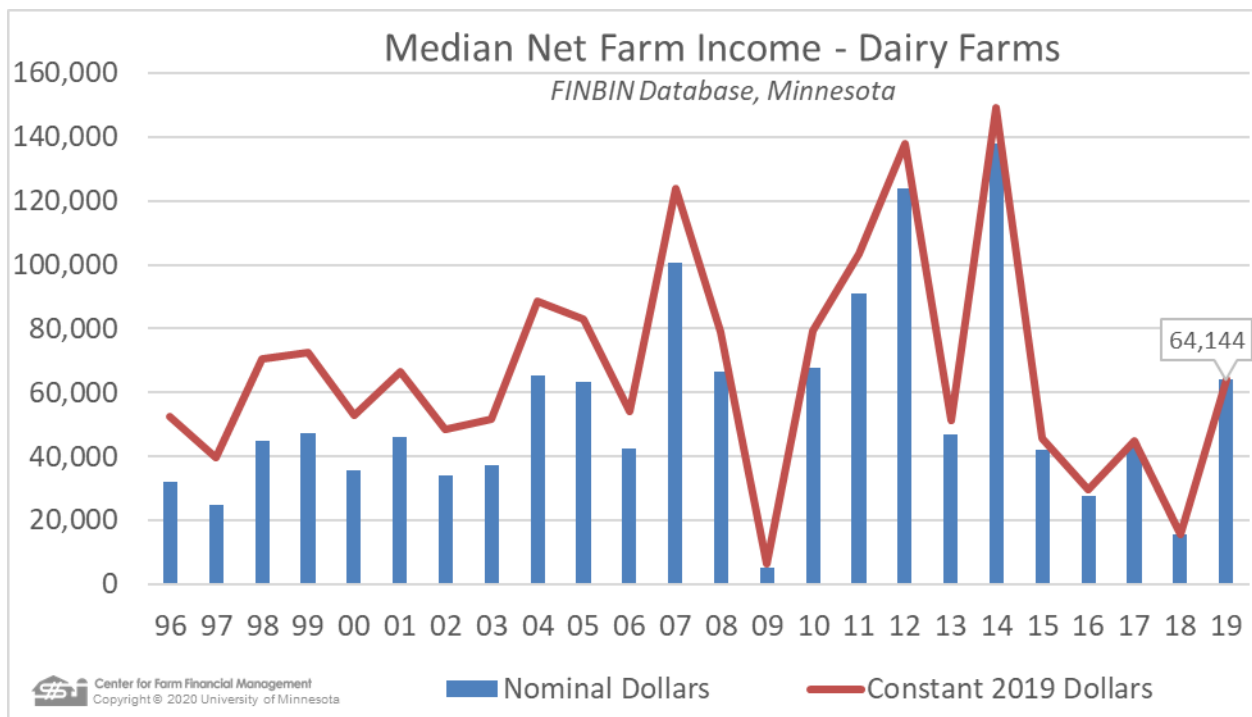


Figure 10, Median Net Farm Income, Dairy Farms

Average production per cow increased to 24,143 pounds after falling in 2018. While prices increased, cost of production increased too, up 43 cents to \$17.84 per cwt. At a price of \$18.81 for milk, the average producer netted just under \$1.00 per hundredweight. Feed costs were up 2% but total cost per cow were up less than 1%. The average farm made almost \$400 per cow in 2019, compared to a loss of almost \$70 in 2018. Dairy profits included government payments, including MFP payments, of \$97 per cow and livestock insurance income of \$11 per cow.



One of the noticeable trends for Minnesota dairy farms in recent years has been the production performance of large operations. While milk production per cow averaged 24,156 pounds across all operations, herds of over 500 cows averaged 26,270 pounds per cow. Large herds also received higher prices, averaging \$19.07 /cwt compared to \$18.34 for all other herds. On the other hand, large herds have higher costs per cow, mainly higher feed and labor costs. Total cost per cow trended from \$2,694 for the smallest herds (1 – 50 cows), up to \$4,117 for those with over 500 cows. But on the bottom line, large herds netted \$527 compared to \$330 for all smaller herds.

<b>Dairy Farm Highlights</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Number of dairy enterprises	405	350	297
Average number of cows	204	221	228
Production per cow (lb.)	24,604	23,758	24,156
Price received / cwt.	\$17.91	\$16.62	\$18.81
Cost of production / cwt.	\$17.22	\$17.41	\$17.84
Cost per cow	\$3,769	\$3,696	\$3,835

Table 6: Dairy Enterprise Highlights

While profits for conventional dairy farms have declined in recent years, organic dairies have been more profitable. That advantage disappeared in 2019. Organic herds netted only \$108 in 2019 compared to \$405 for conventional herds of all sizes. Note that this is based on only 16 organic herds. Organic milk prices increased from \$28.82 to \$30.80/cwt, but costs increased by almost \$300 per cow. The biggest factor contributing to lower returns was lower production per cow, down from 15,700 pounds per cow to just under 14,000 pounds. The median net farm income for organic dairy farms was \$36,495.

Dairy farms have experienced severe financial stress in the past several years. As this is written, milk prices are again severely depressed by the COVID-19 pandemic. It is not possible at this time to predict how that may impact markets as the year progresses, or how much government support dairy farmers might receive to offset losses. If prices remain low, it may lead to another wave dairy producers exiting the business. Small to mid-sized producers, in particular, need milk prices to stay at or above 2019 levels to compete.

## **Pork Farms**

Hog farms have been on an earnings roller-coaster for the past several years. Profits came back up the hill in 2019 after very low earnings in 2018. The median participating pork producer made \$96,245 from farm operations in 2019, up from \$27,799 in 2018. Pork producers were hoping for an even more profitable year, as Chinese producers liquidated over a million pigs to eradicate African Swine Fever. However, Chinese tariffs on imported pork blunted much of that optimism. Pork producers did receive federal aid in the form of Market Facilitation Program (MFP) payments to partially offset this loss of export demand. It appears that much of, if not most of, the increase earnings for these pork producers came from MFP payments.

Note: While these farms are quite large, they are not large by industry standards. The farrowing operations, in particular, are smaller than industry averages and results may not be representative of the industry.

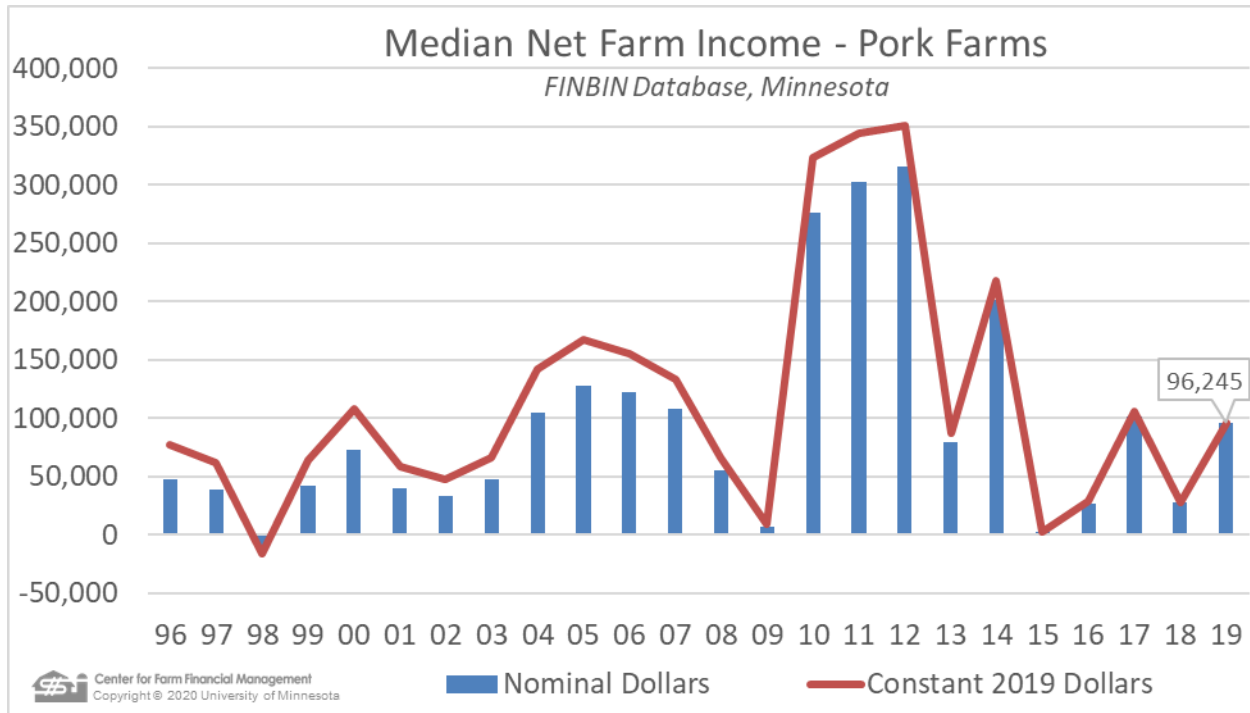


Figure 11, Median Net Farm Income, Pork Farms

Participating pork operations tend to carry more debt than other farm types. The average pork farm’s debt-to-asset ratio stood at 49% at the end of 2019, unchanged from the previous year. After using up over \$80,000 of working capital in 2018, these operations added back about that same amount in 2019. Their term debt coverage ratio also rebounded to a more acceptable 1.6:1 after dipping below 1:1 the previous year. The average operation’s net worth improved by over \$140,000.

<b>Pork Farms</b>	<b>2016</b>	<b>2017</b>	<b>2019</b>
Median net farm income	\$101,307	\$27,799	\$96,245
Rate of return on assets	3.9%	0.0%	4.7%
Rate of return on equity	3.9%	-3.8%	4.9%
Working capital to gross rev.	24%	21%	22%
Change in working capital	\$26,764	-\$85,011	\$80,424
Term debt coverage	1.3:1	0.5:1	1.6:1
Net worth change	\$145,066	\$7,185	\$142,733

Table 7: Pork Farm Returns

The limited number of Minnesota farrow-to-finish operations included in FINBIN lost money on their farrowing operations for a second consecutive year. Participating producers lost \$122 per litter farrowed even though they received over \$75 per litter in MFP payments and other non-product income. The price received increased slightly to \$65.86 per cwt (carcass weight) but costs increased by over \$40 per litter. Feed efficiency declined as pigs were sold at heavier weights, with the average pig sold at 285 pounds, up from 268 in 2018. Total cost per cwt produced increased from \$71.66 to \$81.14.

<b>Hog Farm Highlights</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
No. farrow-to-finish farms	9	9	8
Average number of sows	324	256	294
Pigs weaned per sow	16.7	19.5	20.3
Price received / cwt (carcass)	\$71.21	\$64.67	\$65.86
Cost of production / cwt	\$68.98	\$71.66	\$81.14
No. pig finishing enterprises	54	50	54
Number of pigs finished	13,939	12,198	14,132
Price received / cwt (carcass)	\$71.92	\$66.74	\$68.31
Cost of production / cwt	\$70.23	\$72.01	\$68.73

Table 8: Pork Enterprise Highlights

Participating wean-to-finish operators operate on a much larger scale. The average wean-to-finish farm sold over 17,000 pigs. After losing \$8.00 per head in 2018, these operations made \$5.00 per head in 2019. Producers received over \$9.00 per head in government and other non-product income. The price received per hundredweight increased slightly to \$67.52 (carcass weight), up from \$66.78 in 2018. Cost of production decreased by over \$5.00 per cwt, to \$67.68 per cwt as feed efficiency (average daily gain) continued to improve.

Another important segment of the Minnesota pork industry is those producers who contract to grow pigs for larger pork producers. One-hundred-twenty-two (122) producers reported hog contract growing income in 2019. The average wean-to-finish grower reported a net return of over \$4.60 per pig space compared to \$7.32 in 2018. Returns for these enterprises have been consistent for the past several years.

Figure 11 shows the cyclical nature of pork producer profits. It appeared 2017 was the beginning of another profitability upswing, but international trade issues have tempered earnings for the past two years. Now, the COVID-19 pandemic adds another variable to the outlook for 2020. In these uncertain times, it is difficult to see a great deal of optimism in the near-term future.

## **Beef Farms**

Profits for Minnesota beef operations remained very low in 2019. The median net farm income for the 188 beef operations in 2019 was \$3,997, down slightly from 2018, when the median beef farm made \$6,843 (Figure 12). This group of farms includes both cow-calf operators and cattle finishers. In 2019, cow-calf operators suffered major losses while cattle finishing operations made meager profits per head.

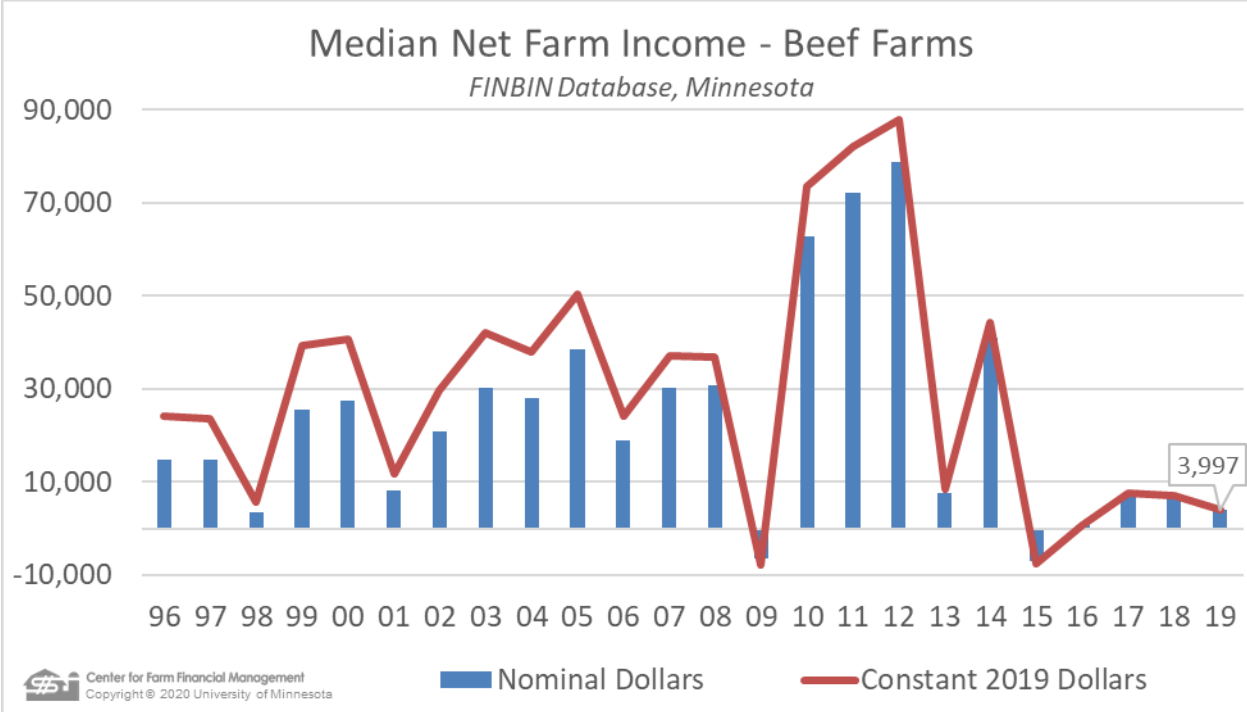


Figure 12: Median Net Farm Income, Beef Farms

With profits limited for beef operations again in 2019, many of these operations rely on non-farm income to add stability to their operations. Beef farms earn more in non-farm income than any other farm type. In 2019, the average beef farm added almost \$43,000 in earnings from off-farm sources. This made it possible for these farms to maintain 1:1 debt coverage and add over \$42,000 to net worth. The average farm’s working capital decreased slightly but remained at a relatively strong 26% of gross revenue. Their average debt-to-asset ratio was relatively high at 47% at year end.

<b>Beef Farms</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Median net farm income	\$7,261	\$6,843	\$3,997
Rate of return on assets	1.7%	1.2%	1.0%
Rate of return on equity	-1.1%	-3.0%	-3.2%
Working capital to gross rev.	28%	23%	26%
Change in working capital	\$18,744	\$1,199	-\$1,718
Term debt coverage ratio	1.0:1	0.9:1	1.0:1
Net worth change	\$41,554	\$17,691	\$42,213

Table 9: Beef Farm Returns

Cow-calf producers experienced significant losses in 2019. They have now lost money for the past four consecutive years. In 2019 they suffered their largest losses, with the average producer losing over \$140 per cow. Calves sold for \$142 per cwt, a decrease from \$152 price in 2018. Costs were up over \$60 per cow, with feed cost up \$50. With a cost of production of \$183, producers lost \$40 per cwt produced when including a charge for operator unpaid labor and management.

<b>Beef Farm Highlights</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
No. of cow-calf enterprises	113	101	131
Number of cows	69	75	90
Calf weaning percentage	87%	85%	85%
Calf sales price / cwt	\$148.09	\$151.80	\$142.14
Calf cost of production / cwt	\$170.64	\$177.20	\$183.78
No. beef finishing enterprises	79	75	71
Number of head finished	213	229	295
Average daily gain	2.78	2.79	2.71
Purchase price per cwt.	\$150.48	\$152.87	\$149.14
Finished beef price / cwt	\$119.52	\$116.09	\$117.42
Finishing cost of production / cwt	\$112.19	\$120.89	\$119.41

Table 10: Beef Enterprise Highlights

Cattle finishers did a little better in 2019, netting \$10 per head after losing almost \$30 in 2019. The average price received was almost unchanged at \$117 per cwt compared to \$116 the previous year. The cost of feeder cattle was \$149 per cwt, down slightly from \$153 in 2018. Cost of production was also slightly lower at \$119 meaning producers lost about \$2.00 per cwt when a charge for unpaid labor and management is included. Feed cost per cwt of gain increased by \$3.00.

The current COVID-19 pandemic has severely reduced beef prices, as beef is very dependent on consumers dining out. Live cattle futures are currently under \$100 per cwt for most 2020 contract months. Feeder cattle futures are under \$130. Given current low prices, the outlook for 2020 is very challenging for beef producers. Producers can hope the current crisis passes quickly, before the summer grilling season. The future is always unknown, but rarely as uncertain as today.

## Size of Farm

Figure 13 shows how farm income varied with farm size. The black line shows the median net income of all farms within each size group, from those that grossed under \$100,000 to those that generated over \$2 million of gross income. The green line shows the median income of the high-income farms, and the red line shows the median of the low-income farms in each size group.

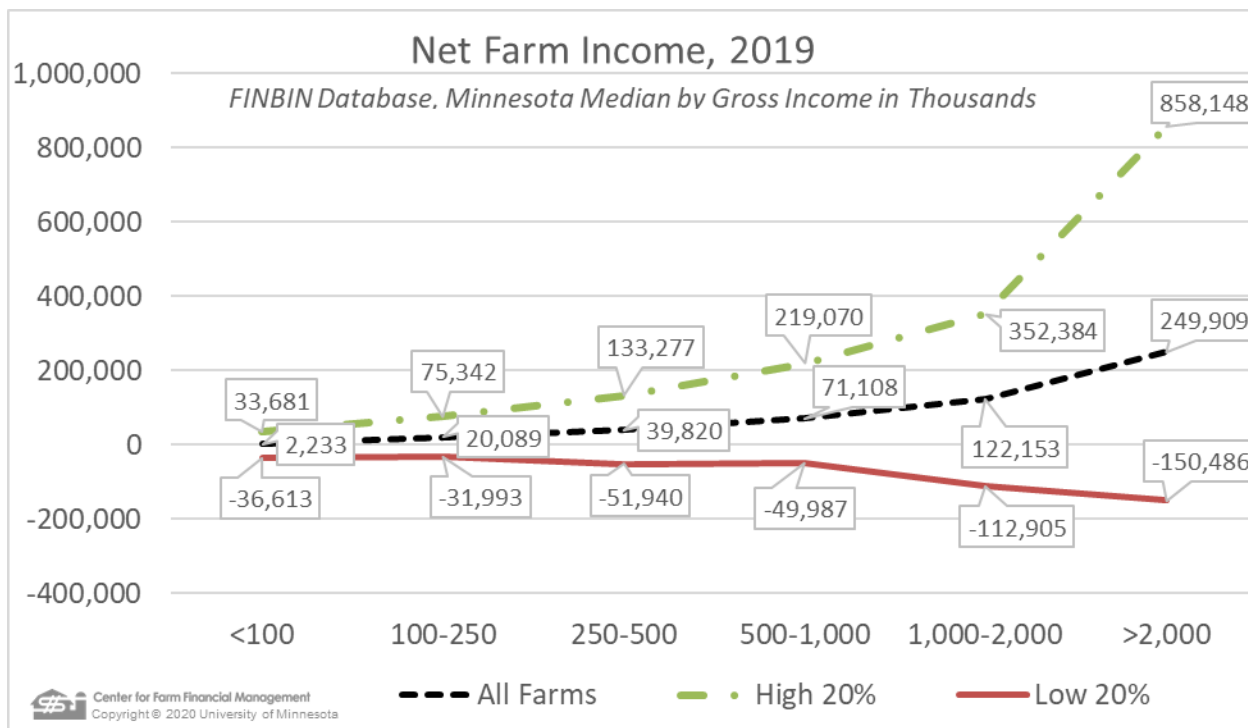


Figure 13: Net Farm Income by Farm Size

As Figure 13 shows, there were large numbers of farms within each size group that were very profitable. But there were also large numbers in each group that experienced substantial financial losses and those losses increased with farm size. The one change from previous years was the profitability of the high-income large farms. In 2019 the profits of this group soared. Part of the reason for this may be commodity related, as pork farms were more profitable and they are, on average, larger than other farm types.

Every year there are producers who, for various reasons, suffer financial losses. It is not unusual for small operations that may rely on non-farm earnings for most of their living needs to have small farm losses. What has changed in recent years is the size of losses suffered by larger operations. In each of the past six years, many large farms have not only lost money, but they have lost a lot of money. On the other extreme, there are still many large operations that are very profitable, even in these challenging financial times. In 2019, as in previous years, this pattern held across all enterprises, crop farms, dairy farms, and pork producers.

In profitable years, large farms' incomes are multiplied by volume. In low income years, size can work against operations as losses are multiplied. While this was not the case for all large operations in 2019, it does appear to have been the case for a subset of large operations of every farm type.

We have tracked this contrast between large farms that are very profitable versus those large operations that are struggling financially for the past six years, particularly for crop farms. Generally, the data indicates that profitable farms have performed a little better in several different areas, including production, capital investment, cost control, and marketing. When combined, all of those small differences add up to major whole farm advantages.

Table 11 shows the characteristics of low profit and high profit farms among the largest crop farms (those that grossed over \$1 million). This table is, for the most part, consistent with the previous several years. The difference in balance sheet position has increased over the years, indicating differences in liquidity and solvency may be a result of financial performance rather than a cause.

<b>Crop Farms with Greater Than \$1,000,000 Gross Sales</b>	<b>Low Income Farms</b>	<b>High Income Farms</b>
Gross sales	\$1,935,000	\$2,211,000
Median net farm income	\$-153,000	\$469,000
Debt to assets (excludes deferred liabs)	38%	26%
Current ratio	1.2:1	2.4:1
Working capital to gross revenue	15%	57%
Change in working capital	\$-244,000	\$147,000
Term debt coverage (accrual)	-0.2:1	3.1:1
Asset turnover rate	33%	36%
Operating profit margin	-10%	20%
Age of principal operator	53	48
Total crop acres	3,055	2,935
Percent crop acres owned	14%	22%
Corn yield	175	191
Soybean yield	44	50
Corn price	\$3.61	\$3.70
Soybean price	\$8.34	\$8.52
Machinery investment per acre	\$590	\$544

Table 11: High Income vs Low Income Large Minnesota Crop Farms, 2019

Some characteristics have held in each of the past six years. Based on asset turnover rates, the low-income group is not over-invested compared to their high-income neighbors. The big difference has been in the operating profit margin. The high profit farms appear to be controlling costs across the board more effectively than the low profit group. Small cost savings per unit make a big difference in operations of this size.

It must be remembered that farms move in and out of these categories from year-to-year. Just because a farm is in the low profit group this year does not mean that they will struggle next year. But in general, these low profit farms face much higher financial risks.

## Family Expenses

Family living costs were virtually unchanged 2019 for the 443 farms that keep detail family living records. Total living expenses have averaged around \$60,000 for each of the past five years, although in inflation-adjusted dollars, living expenses have decreased. Following the farm income collapse of 2012, family living costs have decreased by almost \$10,000 per family, after adjusting for inflation. Approximately one-fifth of the families included in the Minnesota FINBIN database keep detailed family living records in addition to their farm financial records. The average of these farms spent \$60,434 on family living expenses in 2019 when family consumption of farm produce is included (Figure 14). Medical care and health insurance, when added together, were the highest single expenditure at \$9,253. Food and meal expenses, at \$8,571, was the second largest expense.



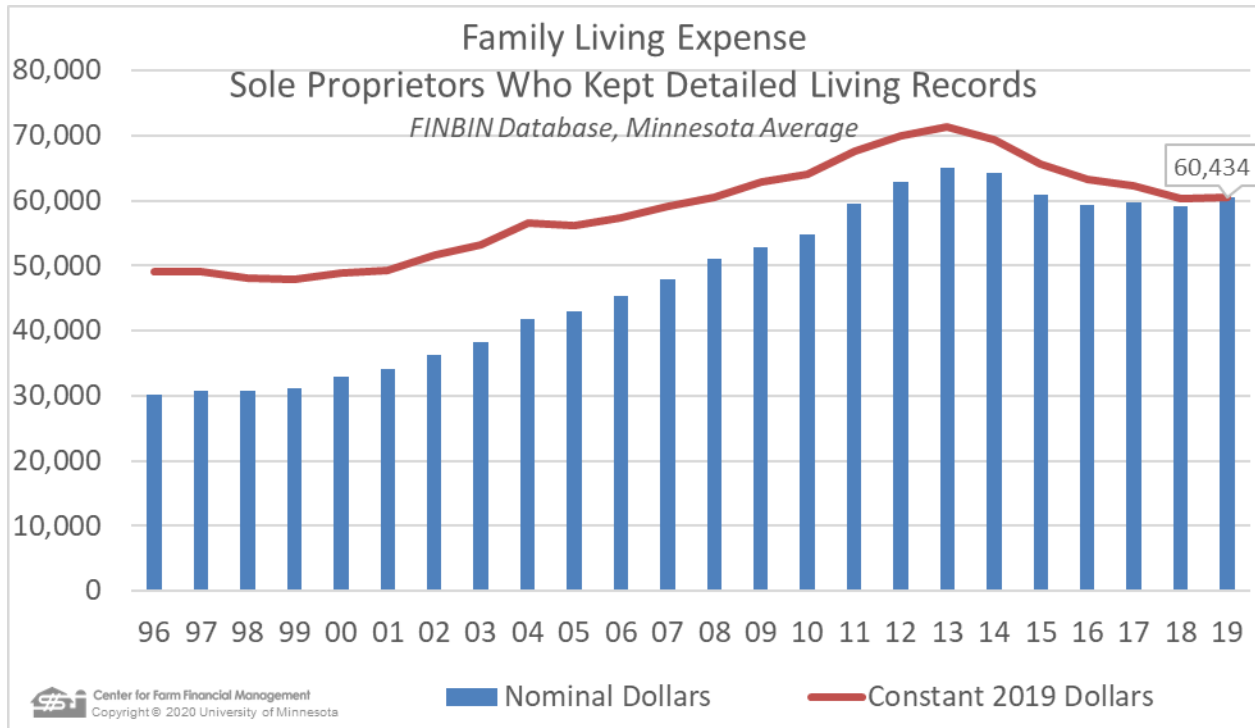


Figure 14: Family Living Expense

In addition to family living, the average family paid income and social security taxes of \$13,770 and another \$6,261 for household furnishing, non-farm vehicles, and other non-farm, non-real-estate capital purchases. In total, the average family needed to earn over \$80,000 from farm and nonfarm sources to cover family consumption and taxes, and thereby grow net worth.

## Data Sources

The Minnesota data included in FINBIN is provided by producers who are participants in farm business management education programs throughout the state. The majority of the farms included (2,167) are participants in the Farm Business Management Education programs offered through Minnesota State. More information is available on these programs at <https://agcentric.org>.

Another 106 farms are members of the Southwest Minnesota Farm Business Management Association. More information is available on SWMFBMA at: <http://swroc.cfans.umn.edu/ag-programs/swmfbma>.

Fifty-one farms were contributed by other affiliated groups.

FINBIN data is not survey data. Participating producers complete a comprehensive financial analysis of their operation at the end of each year, with the help of a farm management educator. The farm financial data is processed through several rounds of screening for accuracy and completeness. Every effort is made to verify the integrity of each set of farm financial data included in the database.

<b>Sales Class</b>	<b>Total Minnesota Farms</b>	<b>Number of Farms in FINBIN</b>	<b>Percent in FINBIN</b>
< \$100,000	45,400	296	0.7%
\$100,001 – \$250,000	7,700	499	6%
\$250,001 – \$500,000	5,800	515	9%
\$500,001 – \$1,000,000	4,800	545	11%
> \$1,000,000	4,300	499	12%

Table 12: Size of Farms included in FINBIN vs. Minnesota Farm Population

The FINBIN database includes a substantial share of Minnesota commercial farms. Table 12 compares the farms included in FINBIN to all Minnesota farms based on USDA/NASS data. Based on these figures, FINBIN includes 11% of Minnesota farms that grossed over \$250,000 and a lower percentage of smaller Minnesota farms. It must be stressed, however, that this is not a random sample of Minnesota farms. These farms choose to be involved in Farm Management programs and there may be characteristics of farms that participate in these educational programs that make them different from other farms in the state.

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