FINBIN

2020

Report on Minnesota Farm Finances

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Center for Farm Financial Management
University of Minnesota

2020 FINBIN Report on Minnesota Farm Finances

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The 2,330 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 over 3 percent of the farms in the state and 11 percent of commercial farms with sales of over $250,000.[1]

Highlights

- Minnesota farms saw improved profitability in 2020, despite the challenges COVID-19 created. Much of this increased profitability is related to improved commodity prices in the third and fourth quarters of 2020. Median net farm income for Minnesota farms reached $106,969 this past year. This was a welcome increase after seven years of low profitability.
- Crop farms had solid improvement in profitability in 2020. This was the result of strong yields and improved yearend prices for Minnesota's major crops. Crop farms in the state earned a median net farm income of $109,774 in 2020. Crop farms also benefitted from government program payments related to disasters experienced in the 2018 and 2019 crop years, trade deficit programs, and pandemic related relief. Overall, profitability for crop farms improved almost three fold as compared to 2019's mean net farm income of $36,895.
- Dairy farm earnings continued to improve in 2020. The median net farm income for dairy farms expanded to $173,460 this last year, up from a low of $15,434 in 2018. This improved profitability provided much needed relief for dairy producers in 2020, allowing them to take care of needed deferred maintenance and better their financial footing.
- 2020 was a tumultuous year for Minnesota pork producers. The COVID pandemic was devastating to pork markets for several months, prices plummeted and there were many supply chain issues. The government provided much needed relief for these producers with pandemic related programs. These government programs coupled with improved prices at year end led to Minnesota hog farms having their most profitable year since 2012. The median pork producer earned over $310,000 in 2020.
- Profits rebounded for Minnesota beef operations in 2020. This follows four years of extremely low returns. The median income for beef farms was $42,850. This improved profitability lead to a much improved financial position for beef farms in the state. Beef farms were also devastated by the pandemic and benefitted from the related government program payments and improved market prices at year end.
- The average farm earned a rate of return on assets of 7.8%, up from 3.3% in 2019 (based on adjusted cost or book valuation of assets). Working capital drastically improved for the average farm in 2020, increasing $115,419. Term debt coverage also much improved year over year. The average farm had a term debt coverage ratio of 2.73:1 in 2020, improved from 1:42:1 in 2019. These improved financial measures speak to the stark improvement in Minnesota farm financial footing during the past year.
- Government payments played a crucial support role in 2020 for MN farms. Total government payments were up 123% in 2020. The average farm received $114,335 of government program support in 2020. This increase is attributed to several USDA programs including disasters experienced

[1] Minnesota Ag News – Farms and Land in Farms, United States Department of Agriculture, National Agricultural Statistics Service, Washington, D.C., February 19, 2021.

in the 2018 and 2019 crop years, trade related programs, as well as low market prices and other challenges related to COVID during the year.

- The average farm's net worth increased by about $192,000. Ninety-two percent of net worth growth resulted from farm and non-farm earnings, with the other 8% resulting from increases in estimated market value of farm assets. The average farm's debt to asset ratio decreased slightly to 42%.
- Net farm income was up substantially in every region of Minnesota in 2020. Favorable growing conditions, increased commodity prices, and government payments all attributed to this increase. These increased profits were a welcome change after seven years of challenging profitability for Minnesota producers.
- Family living expenses were virtually unchanged in 2020 for the average Minnesota farm family. Total living expenses for family farms averaged around $60,000 in 2020.

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

Highlights (MN Average)	**2018**	**2019**	**2020**
Gross revenue ($)	754,582	770,958	857,197
Total expense ($)	717,453	718,393	743,045
Average net farm income ($)	51,497	79,055	182,630
Median net farm income ($)	26,940	36,823	106,969
Rate of return on assets (%)	1.9	3.3	7.8
Rate of return on equity (%)	-0.1	2.2	11
Corn yield (bu.)	181	178	200
Soybean yield (bu.)	50	46	53
Spring wheat yield (bu.)	62	61	59
Corn price received (bu.)	$3.33	$3.62	$3.40
Soybean price received (bu.)	$9.04	$8.48	$8.98
Spring wheat price received (bu.)	$5.69	$5.13	$4.96
Milk cows per dairy farm	221	228	239
Production per cow (lbs)	23,758	24,137	24,715
Milk price received (cwt)	$16.62	$18.83	$19.89
Market hog price / cwt. sold	$49.75	$50.22	$47.90
Wean pig price paid / head	$42.60	$42.49	$39.13
Finished beef price / cwt. sold	$116.09	$117.42	$108.67
Feeder calf price paid / cwt.	$152.87	$149.14	$140.12

Table 1: FINBIN Farm Financial Database Highlights, 2018 - 2020

Profitability

In 2020, after seven years of low profits, Minnesota farms experienced the most profitable year since 2012. The median net farm income for all farms was $106,969, up from $36,211 in 2019 (Figure 1). This increased profitability can be largely associated with improved commodity prices in the third and fourth quarters of 2020. Additionally, with improved profitability for livestock producers and the assistance of COVID-19 pandemic related government relief payments, 12% of farms reported a financial loss in 2020. This is much improved from the previous four years where over 30% of the farms analyzed lost money.

Average net farm income more than doubled from $78,701 in 2019 to $182,630 in 2020. The average net farm income for 2020 is higher than the median (middle), indicating that the more profitable farms were profitable enough to positively skew the average for all farms.

Even with depressed prices much of the year and the challenges related to the pandemic some farms were very profitable. The median net income for the most profitable 20% of MN farms in the database was $419,966. However, the median income for the least profitable 20% of farms was -$3,442. In 2019 the median net farm income for the most and least profitable 20% of farms was $236,969 and -$49,134 respectively. Contrary to the losses of the seven years prior, most operations reported positive profits and some very large operations reported very large profits in 2020.

Earnings levels increased for each of the major farm types in Minnesota in 2020. Although many farm types experienced considerable uncertainty for much of the year due to the pandemic, commodity price improvements and the assistance of government payments gave farms very welcomed financial relief. Positive net farm income across all farm types as seen in 2020 has not been realized since 2014.

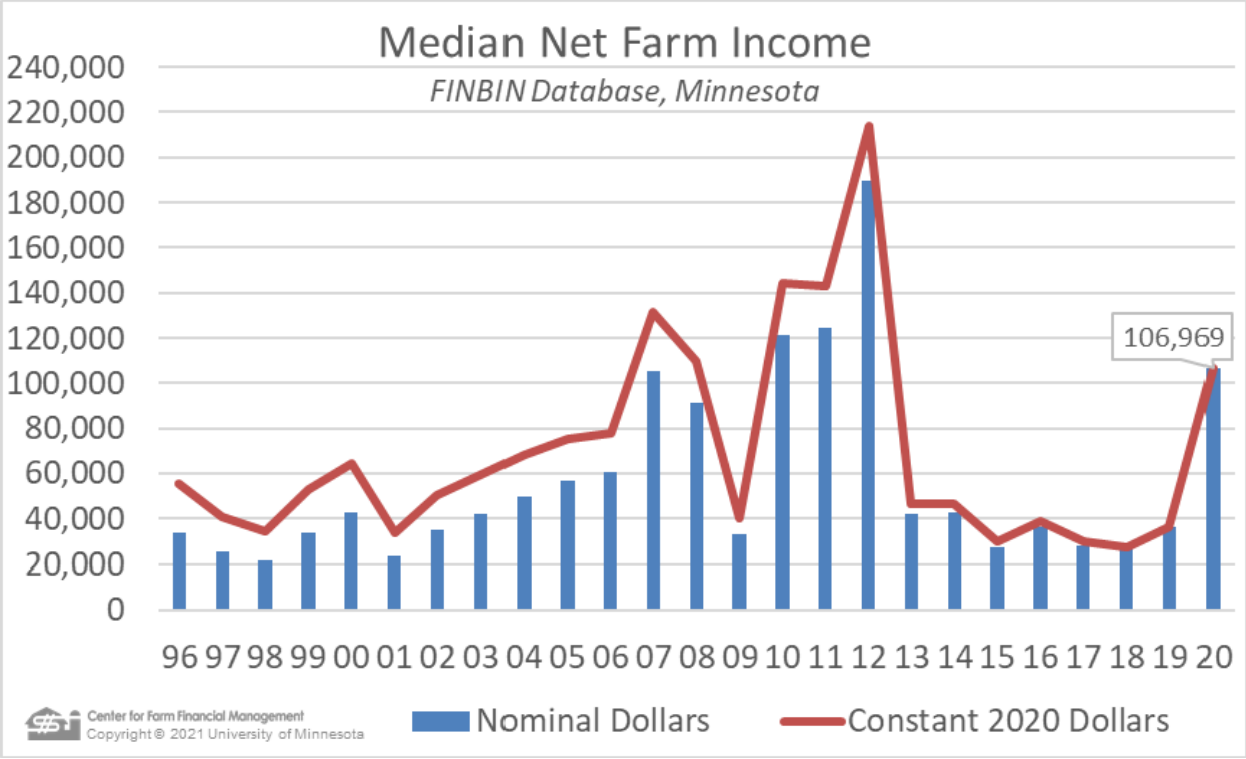

Figure 1: Median Net Farm Income

Government payments increased again in 2020, largely to assist farms through the financial stress that occurred related to the COVID-19 pandemic. Producers also received ARC or PLC payments on crop acres for the year. There were additional program payments related to trade issues for commodities and disasters from previous years as well. The average farm received $106,969 in total government payments in 2020, up from $50,830 in 2019. Government payments represented only 12% of gross farm revenue, but 63% of net farm income.

While Figure 1 may make it look like farm earnings have reverted to the returns in 2007 and 2008, 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 7.8% (with assets valued at adjusted cost basis[2]). This is a much improved profitability level, as compared to the previous seven years.

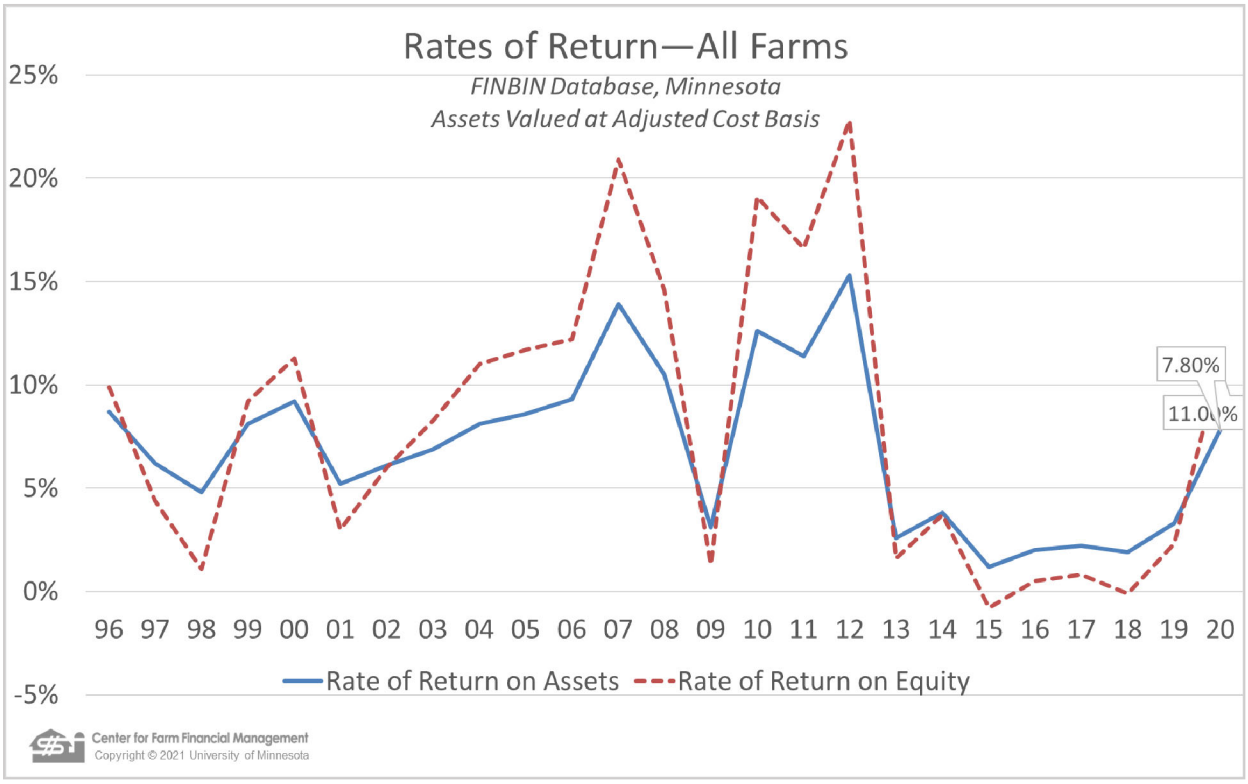

Figure 2: Rates of Return on Assets and Equity (%)

Rate of return on equity (ROE) improved significantly in 2020 from 2019. As with other profitability measures, an 11.0% ROE is near the typical return on equity producers have experienced over the 25-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. A higher ROE than ROA means that farms were profitable enough that borrowed capital earned more than it cost, as seen in 2020, (ROA was higher than the interest rate paid on borrowed capital). When ROE is lower than ROA, the average producer loses money on borrowed capital.

[2] 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.

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 to 6.3%. ROE also reduces to 8.8%. This includes capitalization of estimated increases in asset values during the year in addition to actual farm earnings.

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 rely on to survive a period of depressed financial conditions like the one Midwest farmers just faced. Minnesota 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 significantly in 2020, after declining for six consecutive years from 2012 to 2018 and increasing slightly in 2019 (Figure 3). Working capital increased by just over $111,527 for the average farm. This 57% increase in working capital was a critical increase after the extremely weak liquidity positions the many farms faced in recent years.

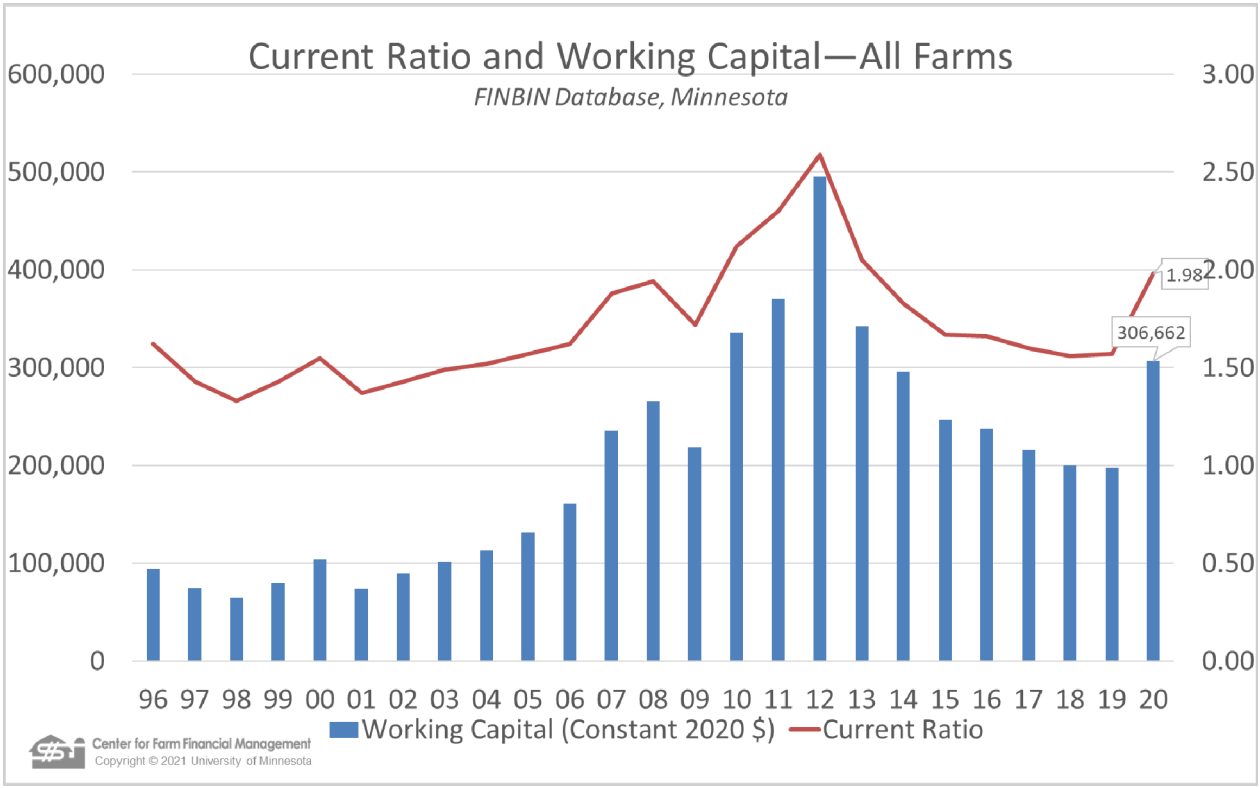

Figure 3: Current Ratio and Working Capital

The current ratio for the average farm was 1.98:1 at the end of 2020 ($1.98 of current assets to cover each dollar of current debt), a 26% increase from 2019. The increase in current ratio was a welcomed change for Minnesota farmers, as it represents the strongest liquidity position that Minnesota farms have seen since 2013.

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 as well, we see the liquidity position for all Minnesota farm types improved in 2020. Dairy operations typically have weak liquidity due to the monthly nature of their business. They entered 2019 with the weakest liquidity position seen during the 25-years of the FINBIN database. This weak liquidity position was a contributing factor to the large numbers of dairy farms that liquidated their herds in the past several years. Fortunately, dairy farms saw a welcomed improvement to liquidity in 2020, along with all other Minnesota farm types.

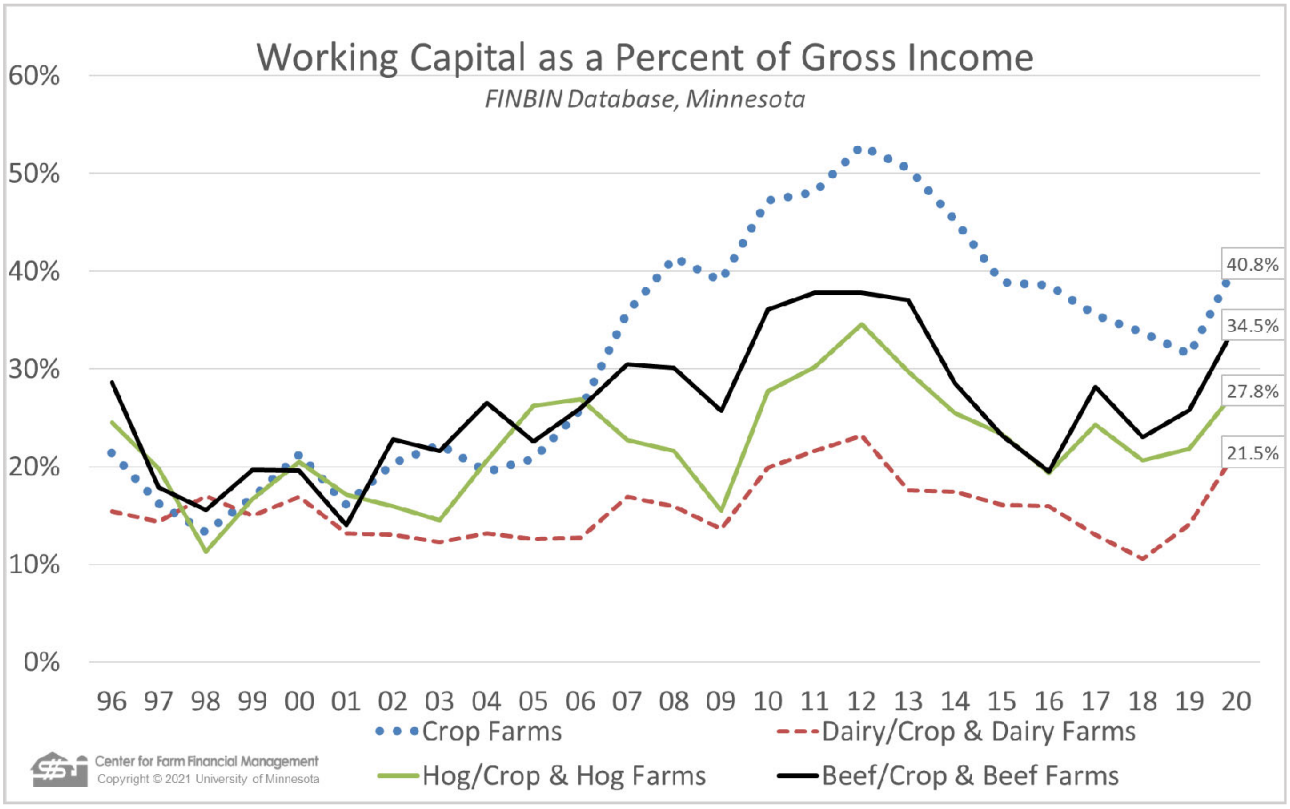

Figure 4: Working Capital to Gross Revenue

The average crop farm had working capital to gross revenue of 40.8% at the end of 2020, up almost 10% in 2019. At 40.8%, the average crop farm is in a very comfortable liquidity position. End-of-year working capital improved for crop farms because strong yields, improved post-harvest prices, and increased government payments.

The average beef farm is in a good liquidity position with 34.5%. The average hog farm and average dairy farm, on the other hand, were below the recommended 30% benchmark. Dairy farms, at 21.5%, are still fairly vulnerable. While all livestock farms saw increased liquidity positions in 2020, hog farms remain much closer to the recommended 30% benchmark than their dairy farming counterparts.

Due to the ideal growing conditions and the rally of commodity prices in the third and fourth quarters of 2020, nearly all farms gained working capital in 2020, compared to 2019 when 45% of all farms lost working capital. While 2020 was a refreshing financial year for farmers, many are still dealing with financial stress of the past couple years which were very challenging times for agriculture.

Solvency

The average farm's net worth increased by over $192,000 in 2020. Of that, 92% 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 market value of farm assets.

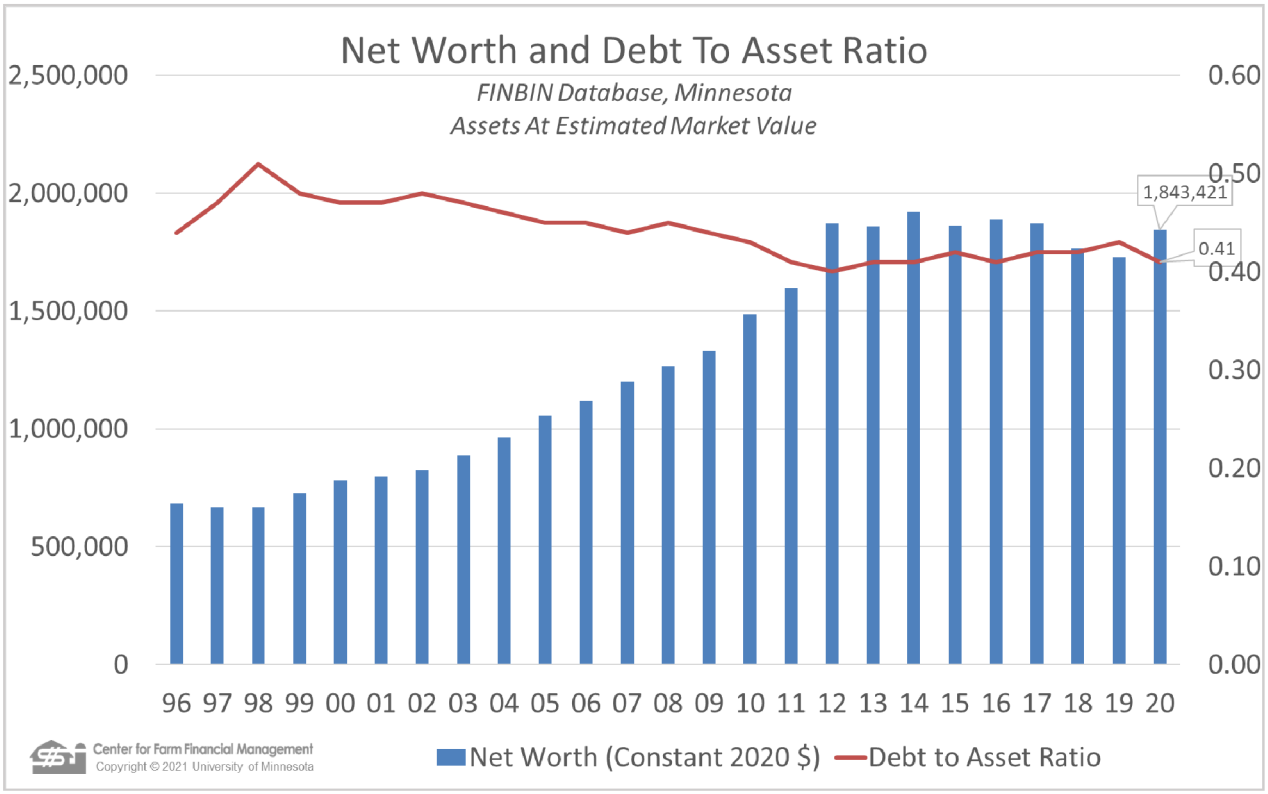

Figure 5: Debt to Asset Ratio (%) and Net Worth

The average farm's debt-to-asset ratio went down slightly in 2020 to 41% when deferred tax liabilities are included. When deferred liabilities are excluded, the ratio was 32%. The net worth levels depicted in Figure 5 are a bit deceiving in that they appear to show decreases in several recent years, other than 2020. Apparent net worth decreases in Figure 5 result from changes in the composition of farms analyzed. However, the average farm has reported a net worth increase every year included in the FINBIN database. Net worth increases were even more significant in 2020 than in recent years.

Debt to Asset Ratio	Under 40%	Over 60%
Number of farms	1026	605
Rate of return on assets	5.7%	7.2%
Rate of return on equity	8.8%	21.7%
Current ratio	3.5:1	1.3:1
Working capital to revenue	53.40%	13.60%
Term debt coverage	3.96	1.91

Table 2: Impact of Financial Leverage, 2020

Table 2 shows the impact of financial leverage (or debt-to-asset position) on the financial performance of these farms. Highly leveraged farms showed greater profitability than lower debt farms, based on ROA and ROE. This can be somewhat deceiving though, as higher leveraged farms have less equity. This fact can then skew the ROE calculation. For example, in profitable years like 2020, high debt businesses benefit form earning high returns using someone else's money. Of course, this is a very high-risk strategy. In each of the previous five, the highly leveraged group of farms earned negative returns on equity. This is a stark contrast to 2019 when the lower debt farms showed much greater profitability than the highly leveraged farms. However, as seen above, higher debt farms are much more vulnerable financially based on liquidity and repayment capacity measures.

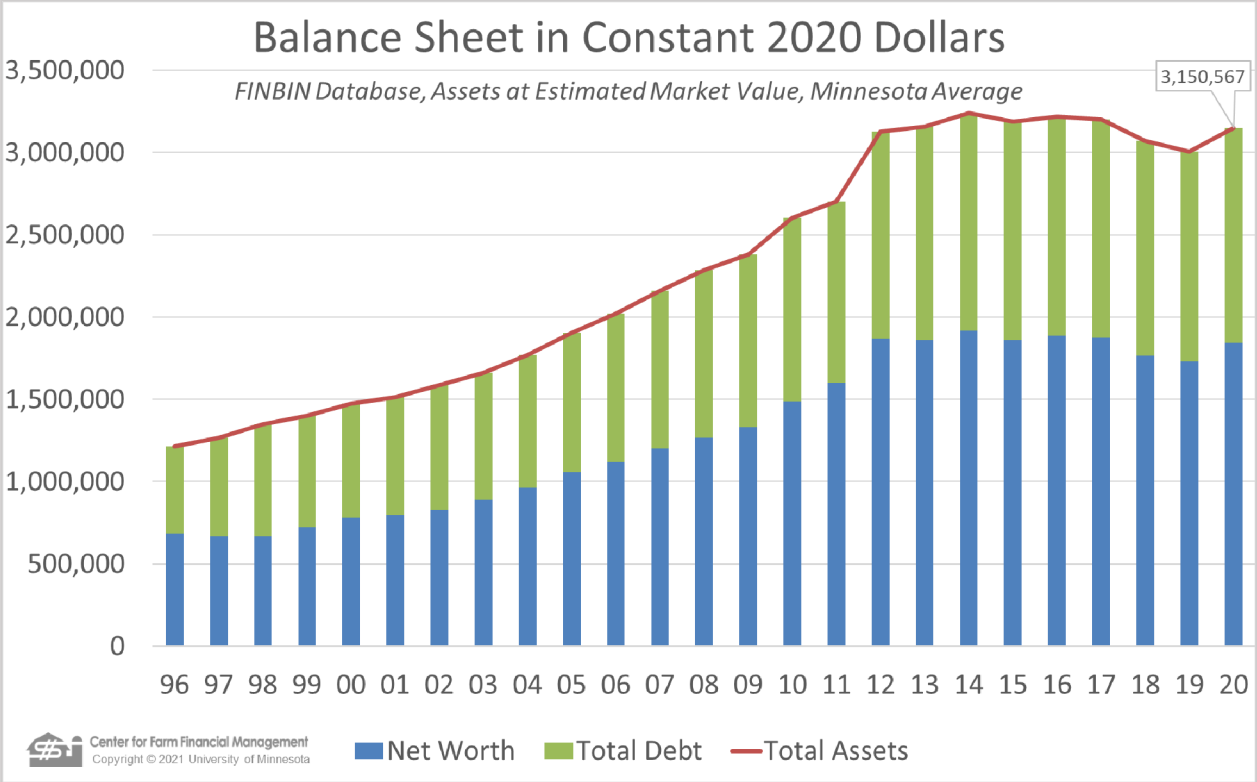

Figure 6: Balance Sheets at Market in Constant 2018 Dollars

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 $1.75 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-five years in today's dollars. This equates to 4% net worth growth 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 25-year period, from 1996 to 2020, 77% 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 23% of net worth growth resulted from asset appreciation. It also 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 used by lenders 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 significantly improved for all types of farms in 2020, averaging 2.73:1 for all farms. In fact, only the bottom 20% of profitability farms showed a TDCR below 1.75:1, signifying that most farms had a very strong repayment capacity. This follows the 2019 year when almost half of all producers, 46%, had a TDCR under 1:1.

Livestock farms and crop farms alike averaged good TDCR benchmarks. Beef farms averaged a TDCR of 2.32:1 and hog farms averaged 3.23:1, both significant increases from 2019. Dairy farms, which have probably been the most challenged financially in recent years, saw a rebound, with an average TDCR of 3.06:1, up from 1.55 in 2019. Crop farms averaged 2.84:1.

COVID relief and other government payments clearly had a huge impact on the repayment capacity for Minnesota farms in 2020. Without government payments in 2020, many, if not most farms would have consumed working capital to make their payments. The combination of increased commodity prices late in the year and the presence of government payments provided farmers with the financial relief they needed to survive what could have been the eighth year of agricultural economic strife.

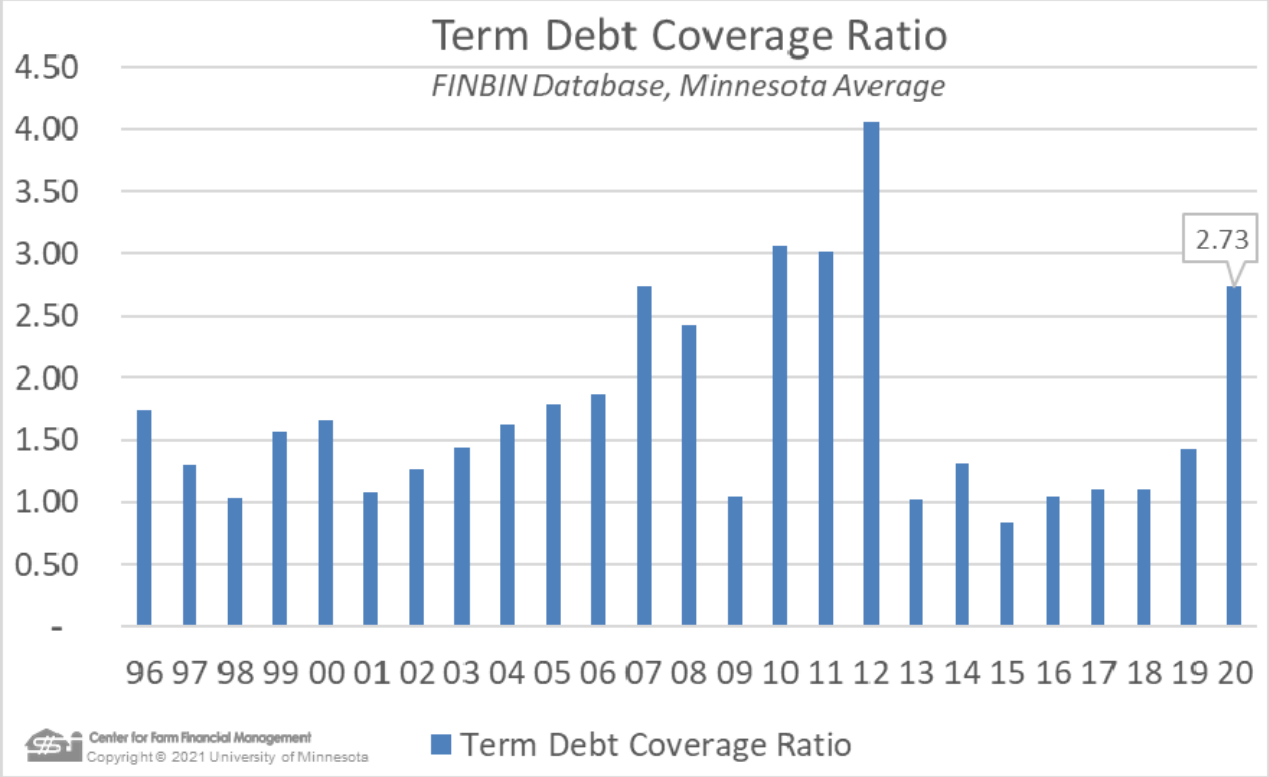

Figure 7: Term Debt Coverage Ratio

Regional Profitability

Profits were up substantially in every region of Minnesota. Improved commodity prices late in the year and near ideal growing conditions for 2020 were major contributors to increased profits. Additionally, COVID related government relief payments and other government program payments were big factors. Comparing 2019 profitability to 2020 may seem like a drastic increase, but it is important to note that profitability levels were historically low in 2019.

Incomes were highest in the Southwest and West Central regions and were lowest in the North Central/East Central region. This is traditionally a low-income region of the state. Most producers in the region rely on non-farm income as a major source of family income.

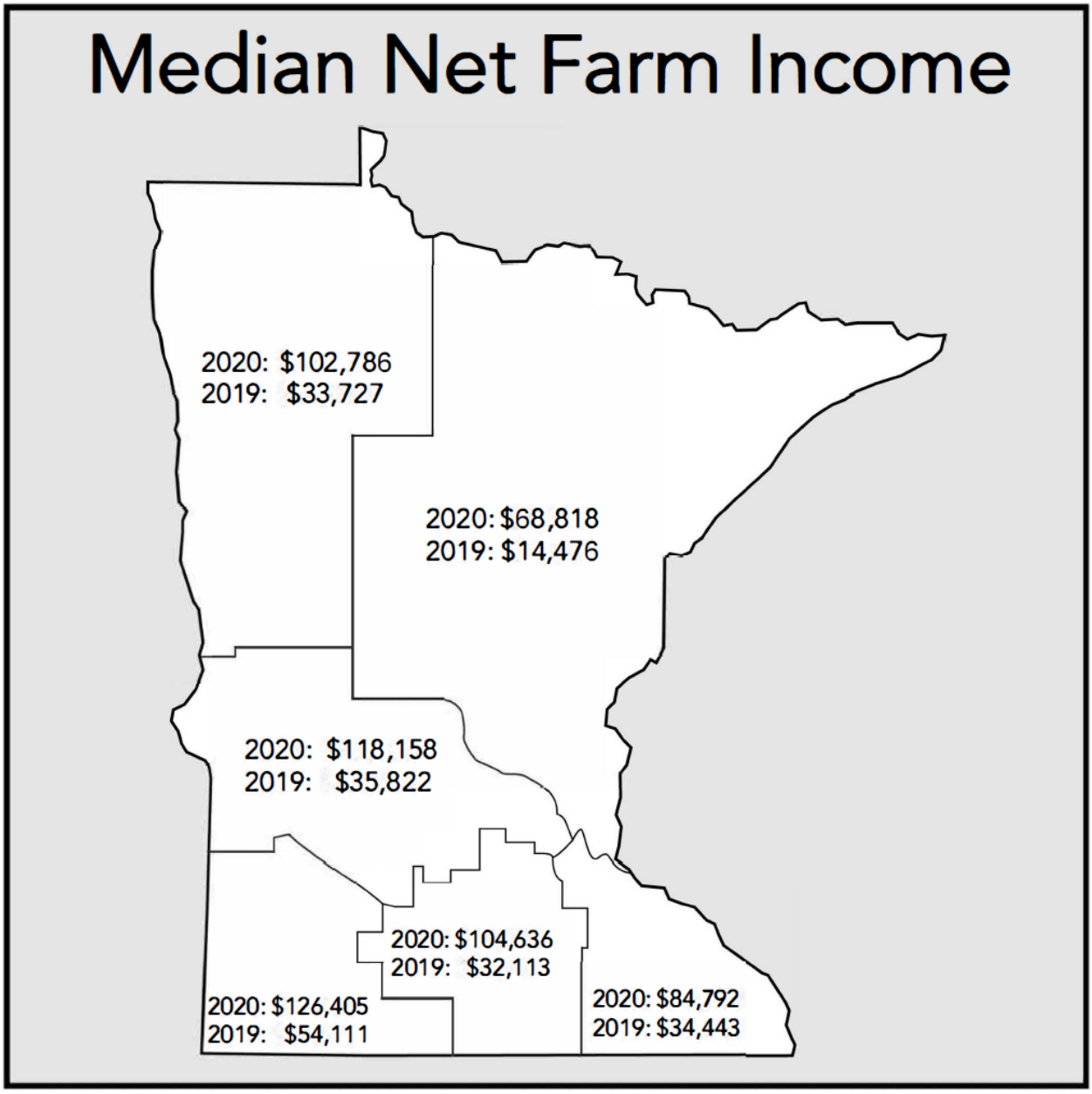

Figure 8: Median Net Farm Income by Region

Type of Farm[3]

Minnesota farmers will remember 2020 as one of the most challenging years in generations. The COVID-19 pandemic created much uncertainty and many challenges throughout the year for Minnesota farms. These affects were felt throughout the entire agriculture supply chain. Commodity prices did improve during the third and fourth quarters of 2020, helping all farm types experience positive net farm income for the year. Many different types of Federal payments assisted farms throughout the year as they managed through the pandemic related challenges. Without the commodity price improvements and government payments received, Minnesota farms would have experienced an eighth year of low profits.

Crop Farms

The 1,294 crop farms in the 2020 group earned a median net farm income of $109,774, a welcome increase from $36,895 the previous year. Crop farms struggled with low earnings over the previous seven years. This solid improvement in profitability in 2020 was the result of strong yields and improved year-end prices for Minnesota's major crops. Crop farms also benefitted from government program payments during the 2020 year. Payments received related to disasters experienced in the 2018 and 2019 crop years, trade related programs, as well as low market prices related to COVID during the year.

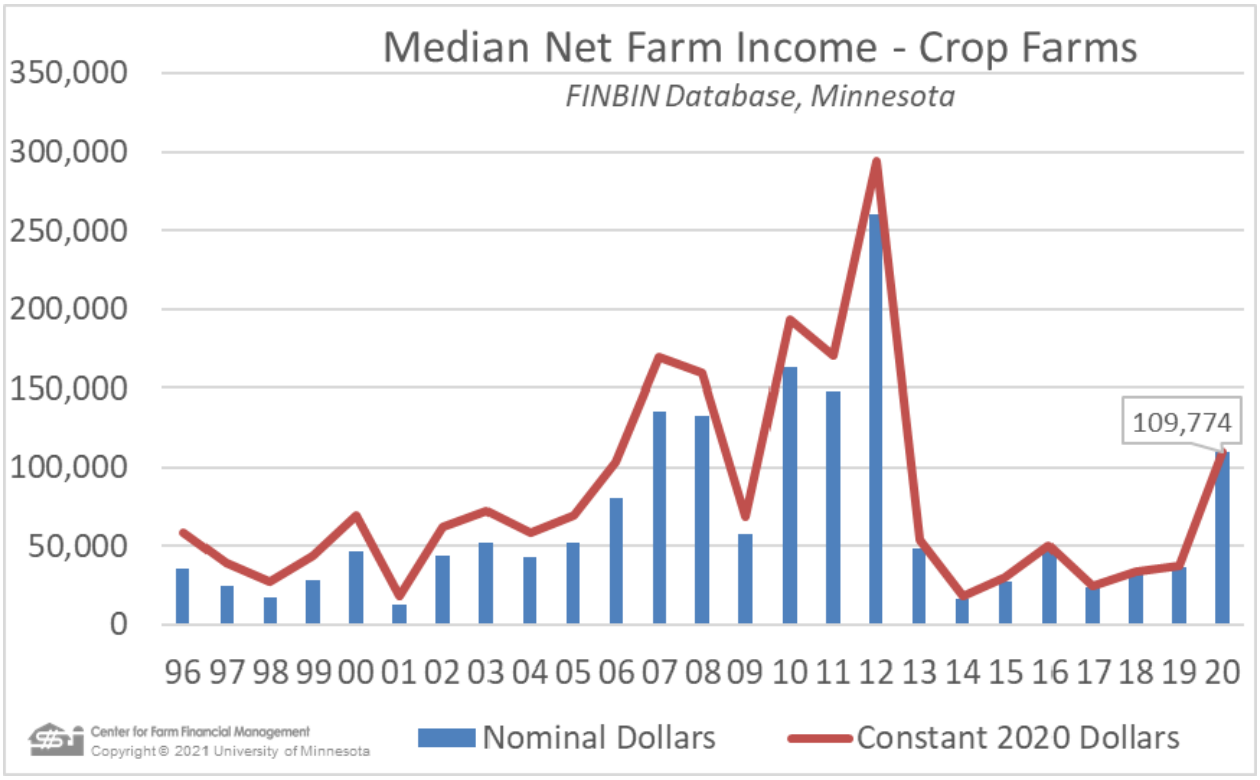

Figure 9: Median Net Farm Income, Crop Farms

[3] 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.

Crop Farms	2018	2019	2020
Median net farm income	$32,570	$36,600	$109,774
Rate of return on assets	2.4%	2.6%	7.1%
Rate of return on equity	1.0%	1.2%	9.6%
Working capital to gross rev.	34%	32%	41%
Change in working capital	$9,172	$4,490	$111,955
Term debt coverage ratio	1.3:1	1.4:1	2.8:1
Net worth change	$53,368	$85,004	$183,156

Table 3: Crop Farm Returns

2020 was a strong production year for Minnesota producers. Yields for Minnesota's major crops of corn, soybeans, and sugarbeets were all above trendline. Timely rains and nice weather in the production season were coupled with good planting and harvesting conditions. Many producers in the state were blessed with near perfect conditions throughout the growing season. After several years of prevented plant and other weather challenges, the conditions of 2020 were needed for Minnesota's crop farms.

USDA estimated corn yields for the state at 192 bushels per acre. Yields for farms included in FINBIN averaged 201, well above the average yield of 180 bushels per acre for the previous 10 years. Soybeans yielded 53 bushels per acre, again better than the 10 year average yield of 48 bushels per acre for participating farms. Spring wheat averaged 59 bushels per acre, slightly below the 10-year average yield for these farms. Sugar beet yields were also improved over the previous year, averaging 27 tons per acre. This was 2 tons per acre better than the 10 year average for sugar beets.

Cash prices received by farms were mixed, with the average price received by participating farms for corn at $3.40 per bushel, down from $3.62 in 2019. Soybeans began to see price improvement earlier in 2020. The cash price received increased to $8.98 in 2020. This was $0.51 better per bushel than the average 2019 price of $8.47. Spring wheat prices declined year over year and averaged to $4.96 per bushel in 2020, as compared to $5.13 in 2019. Overall, commodity prices rallied in the third and fourth quarters of 2020. But pricing opportunities were limited much of the year based on continued trade issues and the impacts of the pandemic.

Production costs remained fairly static for the year. The cost to produce an acre of corn decreased by 1%, to $703 per acre. Most of the decrease was in energy related costs. Cash rental rates were up just over $5 per acre. Cost of production per bushel of corn decreased substantially though to $3.33 from $3.70 in 2019 due to much improved yields. Soybeans cost per acre was virtually unchanged but cost per bushel decreased to $7.68, from $8.46, again largely due to improved yields. These decreases in cost of production are also the result of additional revenue received from government programs.

Overall profitability was much improved for Minnesota's major crops. With improved yields and prices; stagnant input costs; and government program support payments corn and soybean producers netted over $150 per acre on average. Wheat producers also saw positive profits, with average returns of $15 per acre. Sugar beet producers experienced increased expenses and therefore a -$50 net return per acre. Government program payments again aided Minnesota crop producers in 2020, adding to the per acre profitability.

With the aid of several government programs and improved prices and yields, the average rates of return on assets were much improved for Minnesota cash crop farms. Working capital also improved and remained well above the 30% of gross revenue benchmark, and the average farm's net worth increased by over $160,000. This improved profitability and financial standing has helped Minnesota farms mitigate the financial stress experienced over recent years. Not all crop farms experienced such a strong financial rebound. The 258 crop farms in the low profit 20% group had negative earnings of $10,000 in 2020. The low profit group simply maintained working capital levels and saw limited net worth increases last year.

Corn	**2018**	**2019**	**2020**
Yield (bu.)	181	177	201
Price received / bu.	$3.33	$3.62	$3.40
Cost of production / bu.	$3.90	$3.69	$3.33
Cost per acre	$697	$709	$703
Soybeans			
Yield (bu.)	50	46	53
Price received / bu.	$9.04	$8.48	$8.98
Cost of production / bu.	$7.43	$8.45	$7.68
Cost per acre	$445	$445	$448
Spring Wheat			
Yield (bu.)	63	61	59
Price received / bu.	$5.69	$5.13	$4.96
Cost of production / bu.	$5.78	$5.13	$5.51
Cost per acre	$365	$377	$372

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

Dairy Farms

Dairy farm earnings continued to improve in 2020, after farms experienced historical lows in 2018. The median net farm income for dairy farms expanded to $173,460, up from $15,434 in 2018. The number of participating dairy farms stabilized in 2020. There were 304 participating dairy farms in this past year, which is down by just over 100 farms in the past four years. This is very reflective of the financial stress experienced by dairy farms over the past number of years. 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.

Milk producers experienced better prices in 2020, with an average milk price per hundred weight (cwt) of $19.89. This is the highest average milk price received since 2014. This provided much needed relief in 2020, allowing dairy producers to take care of needed deferred maintenance in their operations and better their financial footing, especially their liquidity position.

Dairy Farms	2018	2019	2020
Median net farm income	$15,434	$64,144	$173,460
Rate of return on assets	0.0%	4.7%	11.0%
Rate of return on equity	-3.7%	4.8%	16.0%
Working capital to gross rev.	11%	14%	22%
Change in working capital	-$39,558	$52,283	$165,616
Term debt coverage ratio	0.6:1	1.6:1	3.0:1
Net worth change	$10,082	$103,328	$296,700

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. Working capital for these farms improved by over $165,000 year over year, equating to the average dairy farm having working capital equal to only 22% of gross revenue at the end of 2020. This is a much improved level as compared to the end of 2018, when Minnesota dairy farmers only had 11% working capital to gross revenue position. It should be noted this liquidity position is much improved, but still is considered to be a fragile level for farms. The solvency position of these farms also continued to improve, as the average farm's net worth increased by nearly $300,000. Debt coverage, after falling below 1:1 in 2018, improved to a very healthy 2.95, meaning the average farm generated $2.95 to cover each $1 of scheduled payments.

Dairy farms of all sizes shared in the improved profitability, but profits increased with operation size. The largest herds, those with over 500 cows, averaged a 15% rate of return on assets (ROA), compared to 11% for the next largest herd group. Liquidity, profitability, solvency, and repayment metrics were much improved for herds of all sizes in the state in 2020. Herds of all sizes had greater than a 2.4 term debt coverage ratio; more than 15% change in earned net worth year over year; ended the year with over a 2.0 current ratio; and 8% or more rate of return on assets.

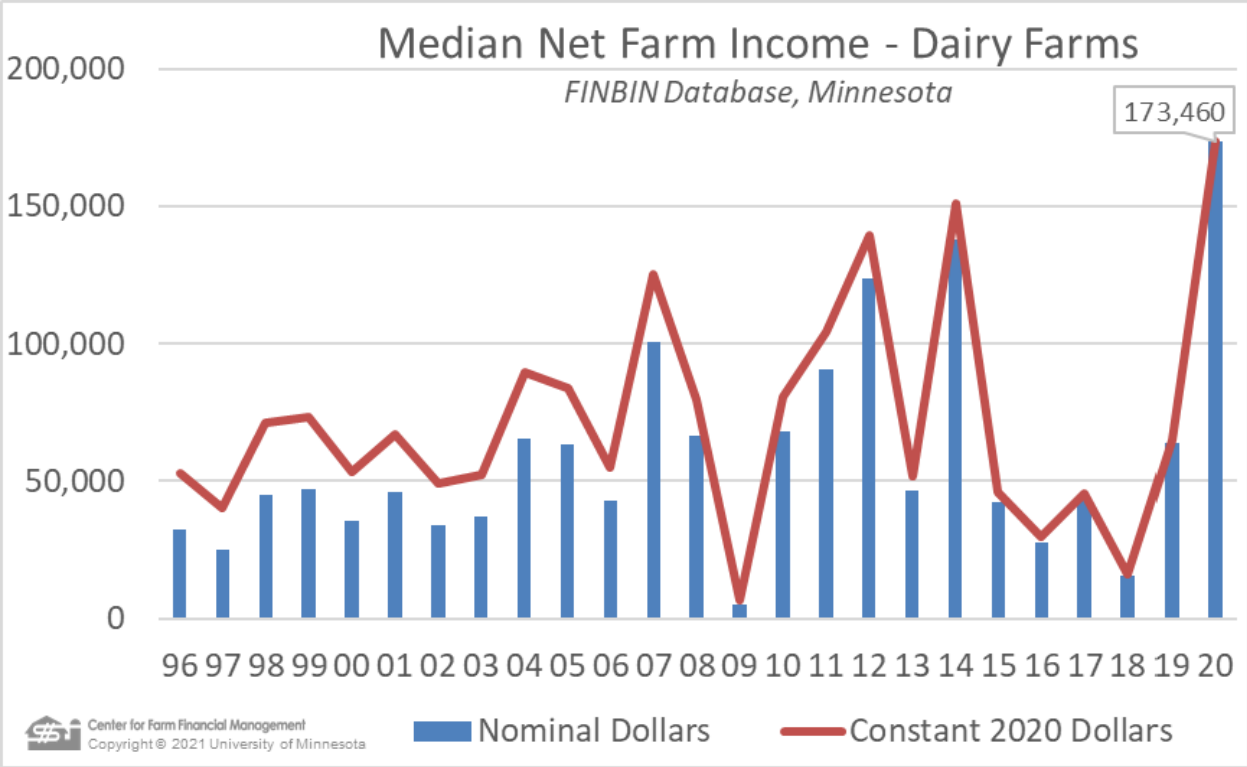

Figure 10, Median Net Farm Income, Dairy Farms

Average production per cow increased to 24,715 pounds, a slight increase over 2019. Cost of production decreased overall by $1.04 per hundred pounds of milk, partially because some costs were offset by government payments. With the strong milk prices, the average producer netted over $3.00 per hundredweight in 2020. Costs were up for the year though. Feed costs made up the bulk of this increase, as they were up 8%. The average farm made $750 per cow in 2020. This is much improved over the $192 loss per cow experienced in 2018 and the over $400 profit the average farm made in 2019. Dairy profits included government payments, including CFAP 1 and 2 payments, of $560 per cow and livestock insurance income of $26 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 24,715 pounds across all operations, herds of over 500 cows averaged 27,202 pounds per cow. Large herds received similar milk prices as other sized herds. Large herds average milk price was $19.86 in 2020, compared to $19.89 for the average herd. On the other hand, large herds have higher costs per cow, mainly higher feed and labor costs. Total cost per cow trended from $2,874 for the smallest herds (1 – 50 cows), up to $4,518 for those with over 500 cows. Bottom line, large herds netted $868 per cow compared to $265 for small herds.

Dairy Farm Highlights	2018	2019	2020
Number of dairy enterprises	350	298	304
Average number of cows	221	228	239
Production per cow (lb.)	23,758	24,137	24,715
Price received / cwt.	$16.62	$18.83	$19.89
Cost of production / cwt.	$17.41	$17.86	$16.82
Cost per cow	$3,696	$3,836	$4,157

Table 6: Dairy Enterprise Highlights

Again in 2020, there was not an advantage to organic production for dairy producers. Organic producers were profitable in 2020, but less profitable than their conventional counterparts on a per cow basis. Organic herds averaged a $329 net return per cow. The average conventional dairy producer had a net return of $750 per cow. Milk prices were higher for organic herds, averaging $29.50 per hundredweight in 2020. Organic herds did experience lower feed costs in 2020 and lower total costs overall as compared to 2019. The biggest factor contributing to lower returns was lower production per cow which averaged just over 14,000 per cow. The median net farm income for organic dairy farms was $94,827.

Dairy farms saw strong profits in 2020. This was thanks to improved milk prices towards the end of the year, strong production, and government support payments during the stress of the pandemic. In early 2021, milk prices have remained stable, but feed prices are up. It is expected profits for dairy producers will decrease in 2021 because of higher feed and energy related costs and lower government payments.

Pork Farms

Minnesota pork producers had their most profitable year since 2012 in 2020. Prior to 2020, profits were low for five consecutive years. The median pork producer in FINBIN earned over $310,000 in 2020, up from $96,000 in 2019. The COVID pandemic was devastating to the pork markets for several months during the year, as processing facilities closed down and producers had nowhere to deliver their hogs. Prices plummeted and some pigs even had to be euthanized. As processing resumed and pigs began to move through the system again, prices gradually improved. The government responded with the Coronavirus Food Assistance Programs (CFAP) to support farmers and the Paycheck Protection Program (PPP) to support all small businesses. Without these programs, it is likely that 2020 would have been a sixth consecutive year of relatively low profits for Minnesota pork producers.

Comparing pork producer profits to other farm types is dangerous because most Minnesota pork farms are much larger than other farm types. While pork producers were the most profitable farm type in 2020, they also had more invested per farm than any other farm type. While these farms are quite large compared to typical Minnesota farms, they are not large by pork industry standards.

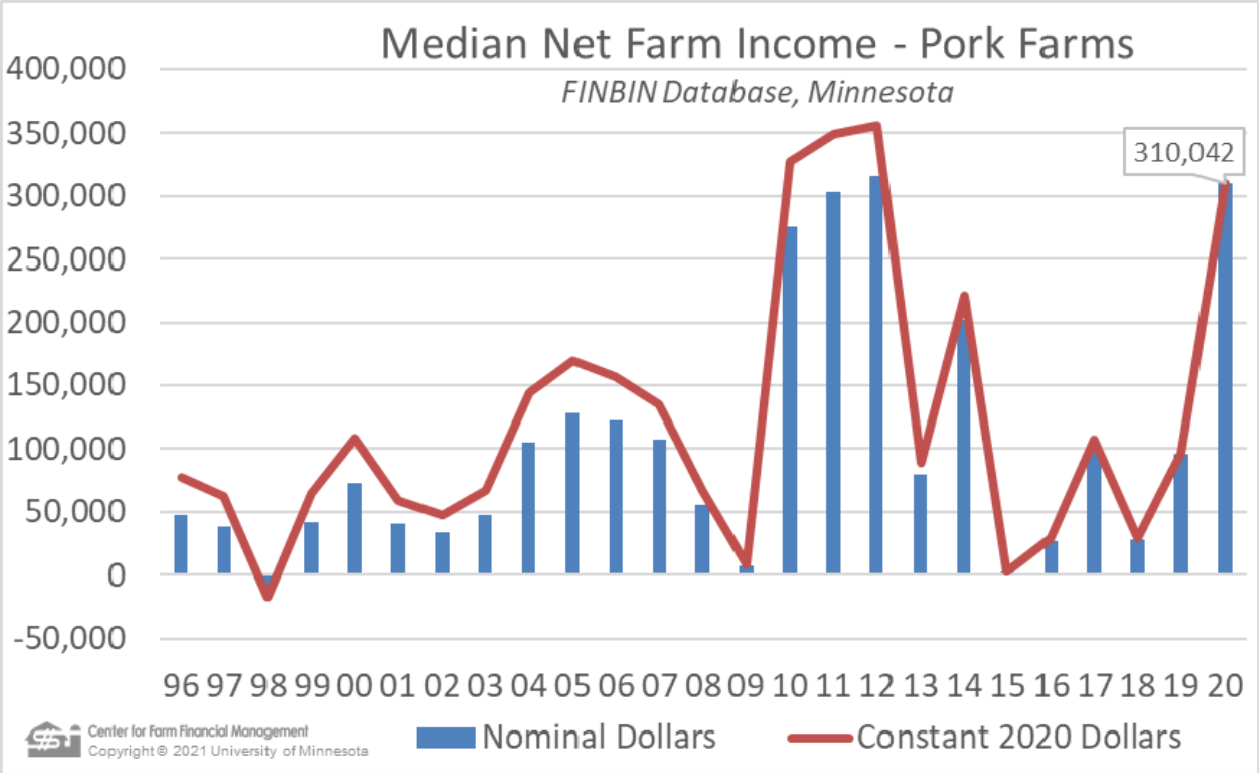

Figure 11, Median Net Farm Income, Pork Farms

Participating pork operations earned a 9% rate of return on assets (ROA) and a 14% return on equity (ROE), much higher returns than they have seen for several years. The average farm added over $300,000 of working capital, shoring up liquidity levels for many farms. The average pork farm's debt-to-asset ratio stood at 49% at the end of 2019, unchanged from the previous year. It should be noted that hog farms tend to carry more debt than other farm types. The average farm's working capital to gross revenue was over 27%, still under the 30% benchmark goal but much improved compared to recent years. The average pork producer's net worth increased by over $400,000.

Pork Farms	2018	2019	2020
Median net farm income	$27,799	$96,245	$310,042
Rate of return on assets	0.0%	4.7%	9.0%
Rate of return on equity	-3.8%	4.9%	14.0%
Working capital to gross rev.	21%	22%	28%
Change in working capital	-$85,011	$80,424	$313,747
Term debt coverage	0.5:1	1.6:1	3.2:1
Net worth change	$7,185	$142,733	$411,384

Table 7: Pork Farm Returns

There were not enough farrow-to-finish operations in FINBIN to summarize, a sign of how the Minnesota pork industry has changed over the past many years.

Hog Farm Highlights	2018	2019	2020
No. farrow-to-finish farms	9	8	n/a
Average number of sows	256	294	n/a
Pigs weaned per sow	19.5	20.3	n/a
Price received / cwt (carcass)	64.67	65.86	n/a
Cost of production / cwt	71.66	81.14	n/a
No. pig finishing enterprises	26	29	20
Number of pigs finished	15,366	17,624	23,634
Price received / cwt (carcass)	66.78	67.52	64.68
Cost of production / cwt	72.79	67.68	58.24

Table 8: Pork Enterprise Highlights

Participating wean-to-finish operators generally operate on a large scale. The average wean-to-finish farm sold over 23,000 pigs. After making $5.00 per head in 2019, these producers made over $16 per head in 2020. Digging into the numbers, though, revenue would have been down had it not been for government payments. The average price received per 100 pounds (carcass weight) decreased from $67.52 to $64.68. At the same time, costs were up over $3 per head. Had it not been for the COVID support, finishing farms would have lost money on a per head basis.

Another important segment of the Minnesota pork industry is those producers who contract to grow pigs for larger pork producers. One-hundred-seventeen (117) producers reported hog contract growing income in 2020. The average wean-to-finish grower reported a net return of over $7.32 per pig space compared to $4.60 in 2019. Returns for these enterprises have been consistent for the past several years.

Figure 11 shows the cyclical nature of pork producer profits. The traditional hog cycle has been interrupted in recent years by animal disease problems here and abroad, international trade issues, and now a global pandemic. At this point, prices are up substantially in 2021. The coming year is shaping up to be a profitable year for Minnesota pork producers but, given the tumult in the industry in the past several years, there is still a great deal of uncertainty.

Beef Farms

Profits rebounded for Minnesota beef operations in 2020 following four years of extremely low returns. The median income for the 175 beef and crop/beef farms was $42,850, up from only $3,997 in 2019 (Figure 12). Given this increased profitability, the financial position of these farms improved dramatically. The average farm added more than $75,000 of working capital and almost $150,000 of net worth. Their term debt coverage increased from below the breakeven of 1:1 to over 2.1:1.

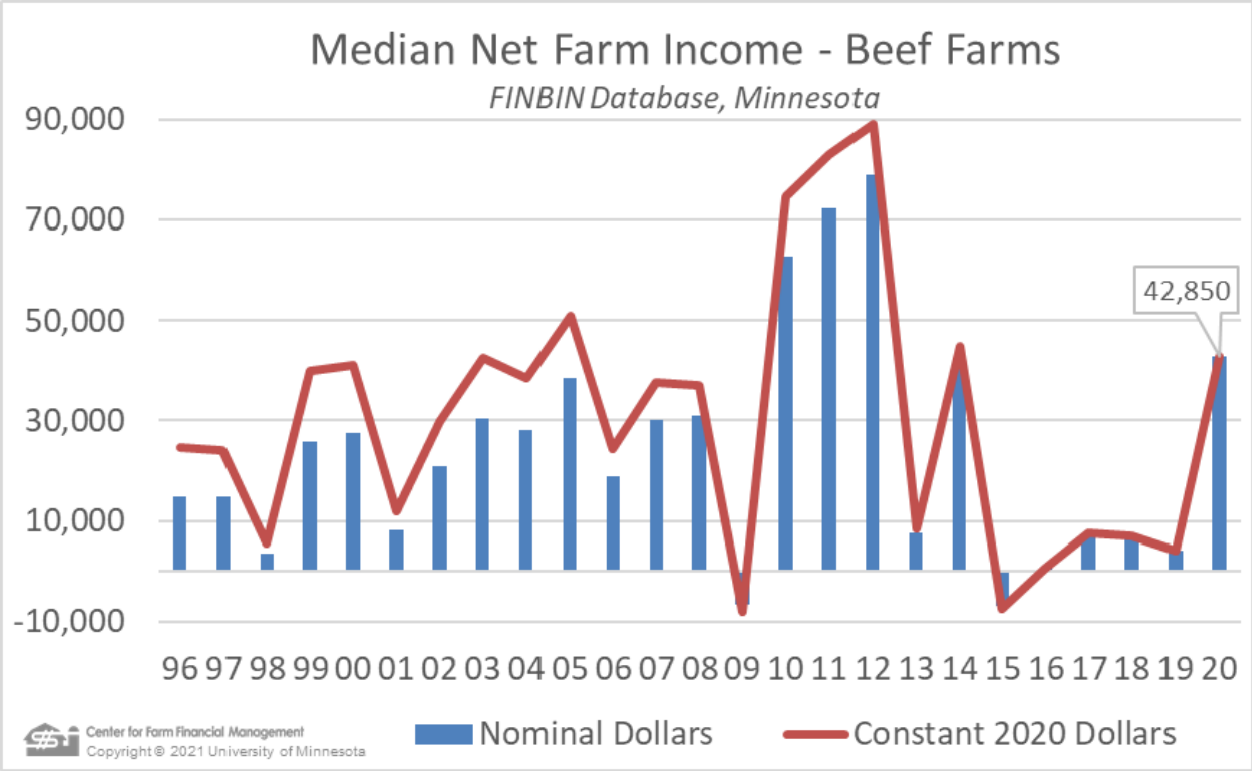

Figure 12: Median Net Farm Income, Beef Farms

Like the hog market, beef markets collapsed with the onset of the COVID pandemic in late spring and early summer, 2020. By year end, futures prices had not fully regained their pre-pandemic levels. Increased profits for beef producers were chiefly driven by government payments and the increased values of year-end inventories. Without government support to offset markets lost to the pandemic, profits would have been similar to the previous four, low-income years.

This group of farms includes both cow-calf operators and cattle finishers. In 2020, cow-calf operators saw slightly better than break-even returns while cattle finishing operations made slightly improved profits. While profits increased for beef farms, they still had the lowest profits of the major Minnesota farm types. They also represent the smallest farms, on average, based on total sales and total assets.

Beef Farms	**2018**	**2019**	**2020**
Median net farm income	$6,843	$3,997	$42,850
Rate of return on assets	1.2%	1.0%	5.1%
Rate of return on equity	-3.0%	-3.2%	6.5%
Working capital to gross rev.	23%	26%	35%
Change in working capital	$1,199	-$1,718	$75,008
Term debt coverage ratio	0.9:1	1.0:1	2.1:1
Net worth change	$17,691	$43,213	$147,154

Table 9: Beef Farm Returns

Cow-calf producers made $6.40 per cow in 2020 following a disastrous 2019 when they lost almost $150. The improved returns were primarily due to increased revenues, including $122 per cow in COVID related government payments. Calves sold for $149 per cwt, up from $142 price in 2019. Costs were down $15 per cow, primarily due to a reduction in overhead costs. Feed costs were unchanged.

Beef Farm Highlights	2018	2019	2020
No. of cow-calf enterprises	101	131	136
Number of cows	75	90	84
Calf weaning percentage	85%	85%	86%
Calf sales price / cwt	$151.80	$142.14	$149.27
Calf cost of production / cwt	$177.20	$183.78	$154.79
No. beef finishing enterprises	75	71	81
Number of head finished	229	295	257
Average daily gain	2.79	2.71	2.67
Purchase price per cwt.	$152.87	$149.14	$140.12
Finished beef price / cwt	$116.09	$117.42	$108.67
Finishing cost of production / cwt	$120.89	$119.41	$108.24

Table 10: Beef Enterprise Highlights

Cattle finishers did a little better, netting $37 per head, up from $10 in 2019. However, returns would have been much lower had it not been for $113 per head in COVID related government payments. The average price received was down at $108 per cwt compared to $117 the previous year. The purchase price of feeders was also down, from $149 per cwt in 2019 to $140 in 2020. Expense were up slightly primarily driven by an increase of $23 per head in feed costs.

The major change facing Minnesota livestock producers in 2021 will be significantly higher feed costs. The price outlook for beef is slightly improved but at this point is unclear whether increased revenues will offset increases in energy and protein costs. This will be a bigger factor for cattle finishers who feed a lot of corn and purchased feeds. Cow-calf producers, who rely more on pasture and hay, should be less impacted. And of course, cattle finisher returns are always impacted by the relationship between feeder and fed cattle prices. At this point, there is too much uncertainty to speculate on the profitability of the beef sector in 2021.

Family Expenses

Family living costs were virtually unchanged in 2020 for the 447 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 $60,122 on family living expenses in 2020 when family consumption of farm produce is included (Figure 14).

Medical care and health insurance, when added together, were the highest single expenditure at $9,428. Food and meal expenses, at $9,077, was the second largest expense.

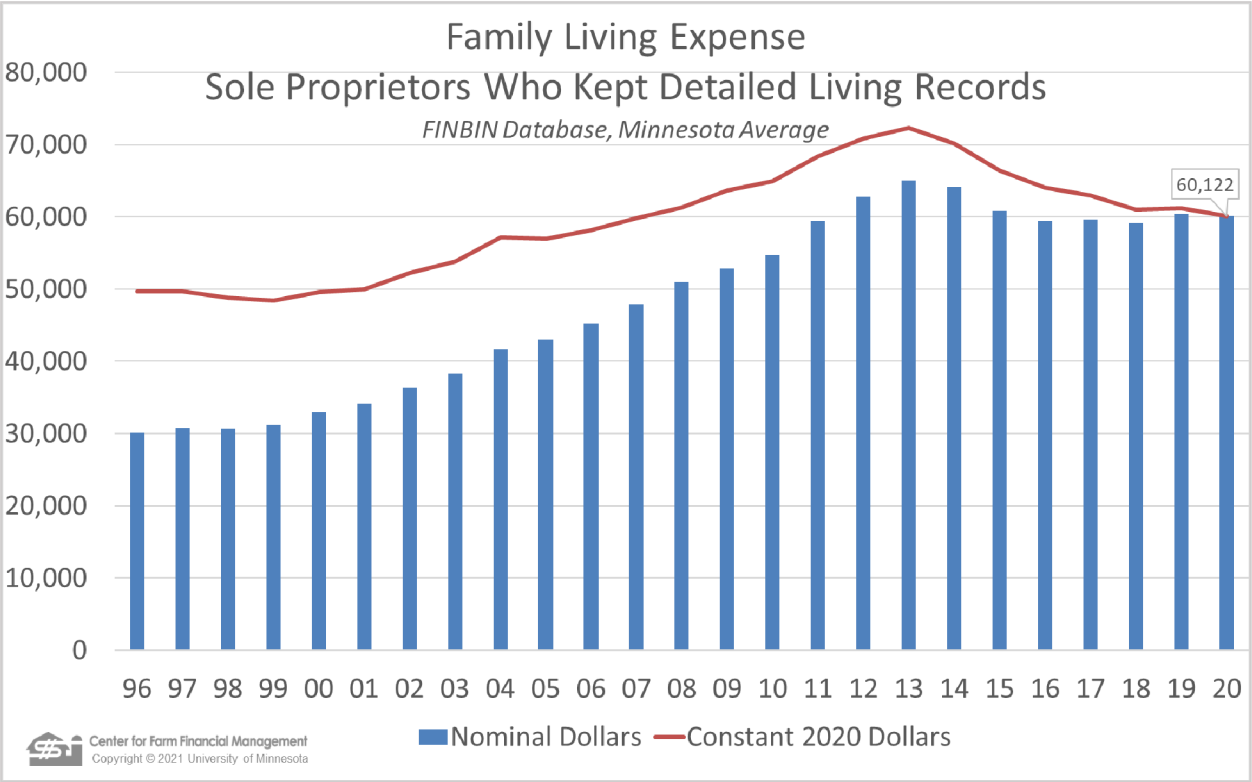

Figure 14: Family Living Expense

In addition to family living, the average family paid income and social security taxes of $12,922 and another $4,232 for household furnishing, non-farm vehicles, and other non-farm, non-real-estate capital purchases. In total, the average family needed to earn over $77,000 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 participate in farm business management education programs throughout the state. The majority of the farms included (2,225) 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 105 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.

Forty-two (42) 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.

Sales Class	Total Minnesota Farms	Number of Farms in FINBIN	Percent in FINBIN
< $100,000	45,000	276	0.6%
$100,001 – $250,000	7,700	412	5.4%
$250,001 – $500,000	5,800	534	9.2%
$500,001 – $1,000,000	4,800	570	11.9%
> $1,000,000	4,200	580	13.8%

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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