



# FINBIN

## 2021 Report on Minnesota Farm Finances

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# 2021 FINBIN Report on Minnesota Farm Finances

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The 2,413 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 12 percent of commercial farms with sales of over \$250,000.<sup>1</sup>

## Highlights

- Minnesota farms saw continued financial improvement in 2021, despite drought conditions that affected much of the state during the production year. Median net farm income for Minnesota farms reached \$166,262 in 2021, up from \$107,077 in 2020. This was a 55 percent increase over the previous year. After adjusting for inflation, 2021 was the second most profitable year for these Minnesota farms in the FINBIN series that goes back to 1996, eclipsed only by 2012.
- Crop farms reported strong profitability in 2021 with a median net farm income of \$210,026, up from \$109,850 in 2020. Improved profits were primarily due to improved prices for Minnesota’s major cash crops including corn and soybeans. Despite widely scattered drought conditions, crop yields were slightly above the 10-year average for corn, soybeans and sugar beets.
- Dairy farms were the only farm type to report lower earnings in 2021. The median net farm income for dairy farms was \$127,444, down 25% from \$170,922 the previous year. The average milk price was down \$1.30 per hundred pounds from 2020 levels, while production expenses increased by 8%.
- Pork producer net earnings continued to rebound with the median producer earning \$429,421, up from \$310,042 in 2020. The average price received for market hogs was \$92 per hundred pounds (carcass), up substantially from \$65 in 2020.
- Profits were also improved for Minnesota beef operations, with a median net farm income of \$77,861, up 82% from the average net farm income of \$42,850 in 2020. Cattle finishers made \$67 per head, up from \$37 in 2020. Cow-calf producers, however, continued to struggle, losing \$166 per cow after losing \$24 per cow in 2020.
- The average farm earned a rate of return on assets of 11%, up from 8% in 2020 (based on adjusted cost or book valuation of assets). Working capital improved impressively for the average farm, increasing by \$157,813. Term debt coverage also much improved year over year. The average farm had a term debt coverage ratio of 3.74:1 in 2021, improved from 2.73:1 in 2020. After many farms struggled to meet their financial obligations from 2013 to 2019, most Minnesota farms are on much stronger financial footing after the last two years.
- Government payments were not nearly as big of a factor in 2021 as they were in Covid-19 impacted 2020. Government payments of all types were down 36%, totaling \$61,188 per farm. Most of the payments received in 2021 were actually related to 2020 and earlier disasters. Government payments related to 2021 crop production were minimal.
- The average farm’s net worth increased by over \$292,000. Ninety-four percent (94%) of net worth growth resulted from farm and non-farm earnings, with the other 6% resulting from increases in estimated market value of farm assets. The average farm’s debt to asset ratio decreased slightly to 31%

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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 18, 2022.

(with deferred liabilities excluded).

- Net farm income was up substantially in every region of Minnesota in 2021. Farms in Southwest Minnesota had the highest median income and the largest increase from 2020. Farms in the North Central/Northeast region had the lowest incomes. Yields in the Northwest region were most affected by the drought. While the lack of moisture severely affected individual farms, the impact was mitigated by the increase in commodity prices.
- Family living expenses for the average family keeping detailed records averaged \$65,544, an increase of 9% from the previous year.

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

<b>Highlights (MN Average)</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Gross revenue (\$)	770,958	860,308	987,258
Total expense (\$)	719,965	745,453	827,515
Average net farm income (\$)	79,055	182,121	278,986
Median net farm income (\$)	36,823	107,077	166,262
Rate of return on assets (%)	3.3	7.8	10.9
Rate of return on equity (%)	2.2	10.8	16.6
Corn yield (bu.)	178	199	188
Soybean yield (bu.)	46	53	49
Spring wheat yield (bu.)	61	59	52
Corn price received (bu.)	\$3.62	\$3.40	\$4.73
Soybean price received (bu.)	\$8.48	\$8.97	\$11.43
Spring wheat price received (bu.)	\$5.13	\$4.96	\$6.80
Milk cows per dairy farm	228	238	269
Production per cow (lbs of milk)	24,137	24,663	25,038
Milk price received (cwt)	\$18.83	\$19.90	\$18.59
Market hog price / cwt. sold	\$50.22	\$47.90	\$69.88
Wean pig price paid / head	\$42.49	\$39.13	\$41.83
Finished beef price / cwt. sold	\$117.42	\$108.67	\$121.86
Feeder calf price paid / cwt.	\$149.14	\$140.12	\$148.89

Table 1: FINBIN Farm Financial Database Highlights, 2019 - 2021

## Profitability

Net income for Minnesota farmers increased for the second consecutive year in 2021, after seven years of low profits from 2013 – 2019. The median net farm income for all farms was \$166,262, up from \$107,077 in 2020 (Figure 1). That made 2021 the second most profitable year for farms in the FINBIN database since its inception in 1996. Strong prices throughout the year for the state’s major commodities enabled Minnesota farms to persevere through the supply chain challenges presented by the ongoing pandemic. Crop yields, despite drought conditions that impacted farms in many areas of the state, were generally above average for the state’s major cash crops. Livestock producers, with the exception of dairy farms, also reported improved earnings.

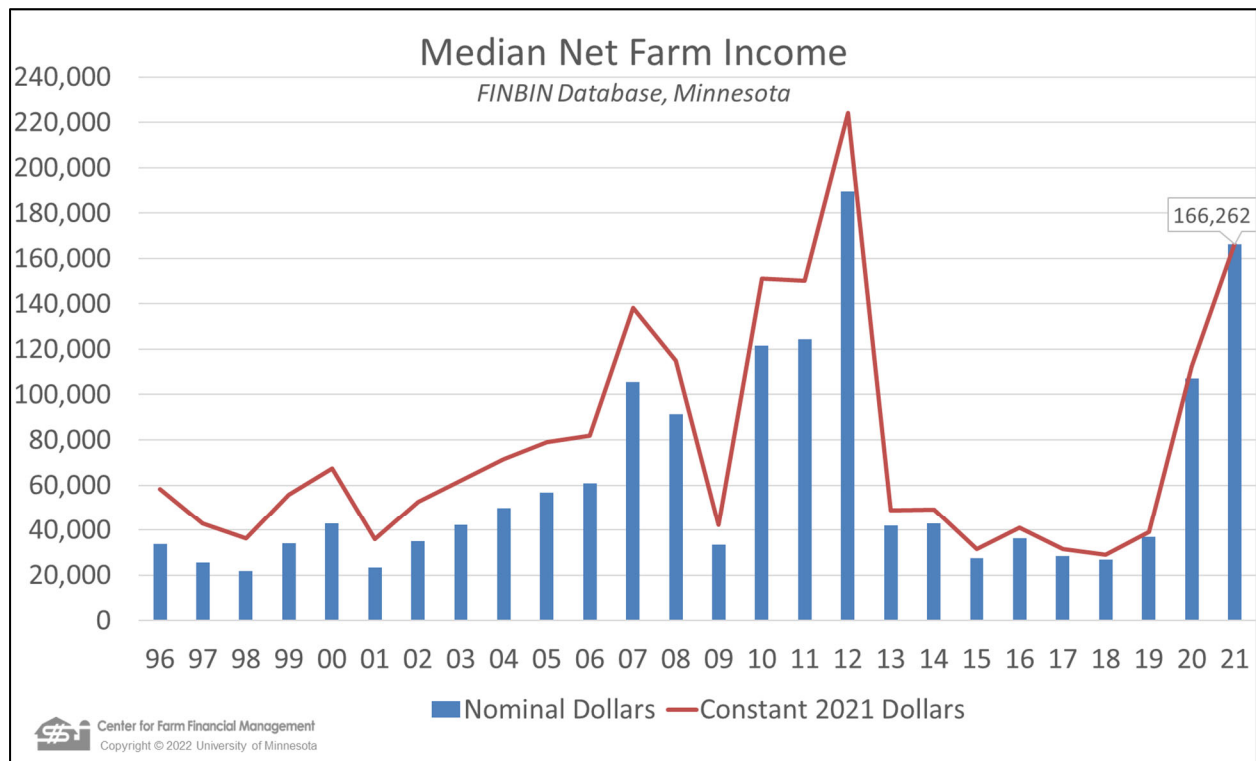


Figure 1: Median Net Farm Income

Higher commodity prices were the major reason for improved profitability. The average price received for corn sales was up almost 40%. Soybean prices were up 27% and spring wheat prices increased by 37%. Prices were up due to strong demand as the world gradually adjusted to the pandemic and the tightening of supplies due to production problems in major commodity producing regions. Prices also increased for pork and beef as demand increases tightened supplies of meat products.

The average farm earned \$278,986, up 53% from \$182,121 in 2020. The average net farm income for 2021 was higher than the median (middle), indicating the more profitable farms were profitable enough to positively skew the average for all farms.

Earnings were strong across the broad cross-section of Minnesota agriculture. Only 8% of farms reported a financial loss in 2021 compared to 12% in 2020. This is much improved from the previous four years when over 30% of the farms analyzed lost money. The median net income for the most profitable 20% of Minnesota farms in the database was \$635,026. The median income for the least profitable 20% of farms was \$9,113. Both of these metrics were up from 2020 and a major improvement from the prior seven years.

Unlike 2020, when government payments related to the COVID-19 pandemic were perhaps the major reason for increased profits, government payments were much less of a factor in 2021. The 2021 payments included the last of the 2020 Covid-related payments while others were related to crop disaster payments dating all the way back to 2018. Government payments comprised only 6% of gross revenue in 2021 compared to 12% in 2020.

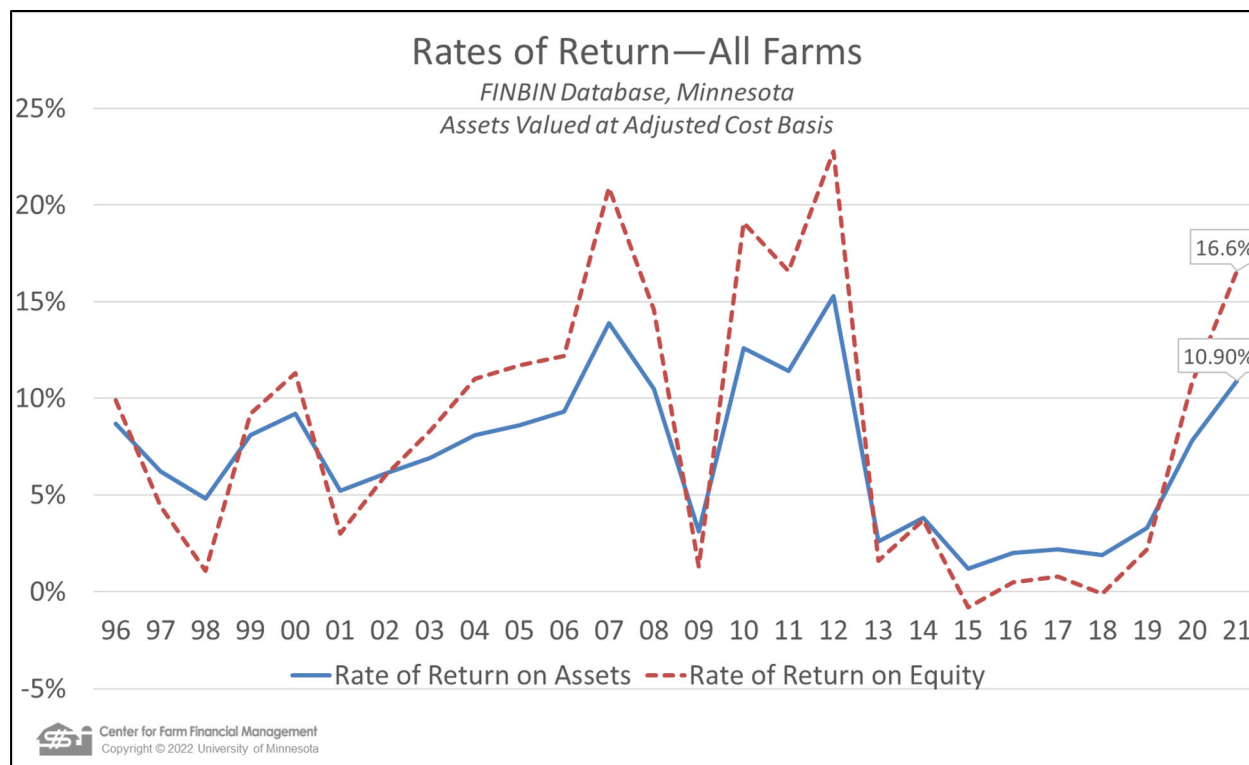


Figure 2: Rates of Return on Assets and Equity (%)

While 2021 was a very profitable year, it is important to note that these farms continue to grow. So rates of return, while strong, were not as strong as several years in the golden years of 2007 – 2012. The average farm earned a rate of return on assets (ROA) of 10.9% (with assets valued at adjusted cost basis<sup>2</sup>), up from 7.8% in 2020.

The average farm earned a rate of return on equity (ROE) of over 16%, up from 11% in 2020. ROE's for 2021 compared favorably with those earned during the 2007 – 2012 time period. Figure 2 shows the historic relationship between ROA and ROE. This relationship is a good barometer of sector profitability. When ROE is higher than ROA, borrowed capital earned more than it cost (ROA was higher than the interest rate paid on borrowed capital). This was the case in 2021. When ROE is lower than ROA, the average producer lost money on borrowed capital.

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 is reduced to 8.8% and ROE declines to 13.6%. 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 rely on to survive periods of depressed financial conditions like the one Midwest farmers faced from 2013 – 2019. Minnesota farms built working capital (current assets minus current liabilities) rapidly during the “golden years” of 2007 through 2012. The average farm consumed about 50% of that working capital over the period of 2013 – 2019.

Average working capital has rebounded nicely over the past two years (Figure 3). Working capital increased by almost \$160,000 for the average of these Minnesota farms in 2021. After two very profitable years, average working capital has rebounded to approach its highest level since the end of 2012.

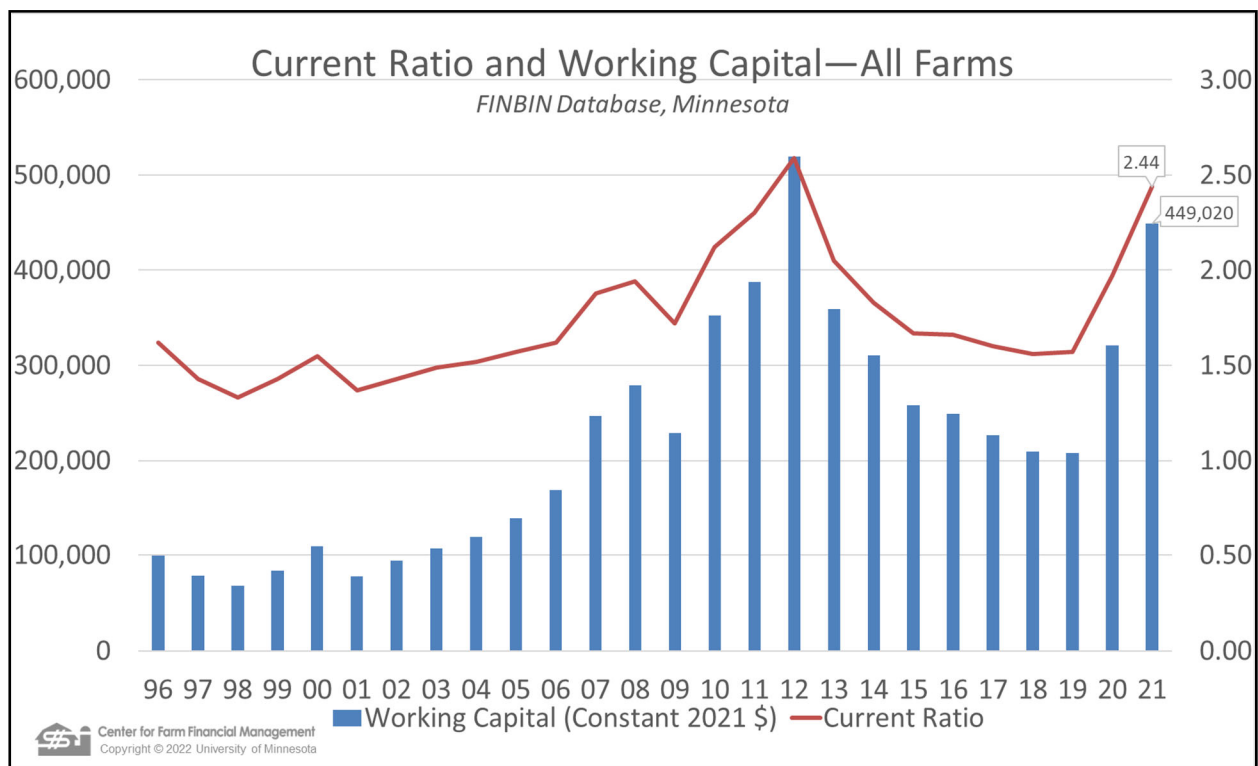


Figure 3: Current Ratio and Working Capital

The current ratio for the average farm was 2.44:1 at the end of 2021 (\$2.44 of current assets to cover each dollar of current debt), up from 1.97:1 in 2020. With the average farm’s current ratio nearing 1.5:1 at the end of 2019, the improvements over the past two years were needed and put these farms on much stronger financial footing.

Working capital to gross revenue relates the level of liquidity to business size. Figure 4 shows the relationship between working capital and gross revenue by type of farm. Crop, beef and hog farms all improved their liquidity position markedly over the past two years. Only dairy farms showed a reduction in liquidity in 2021. 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. While dairy farm liquidity levels decreased slightly in 2021, they are in a much stronger position than three years ago.



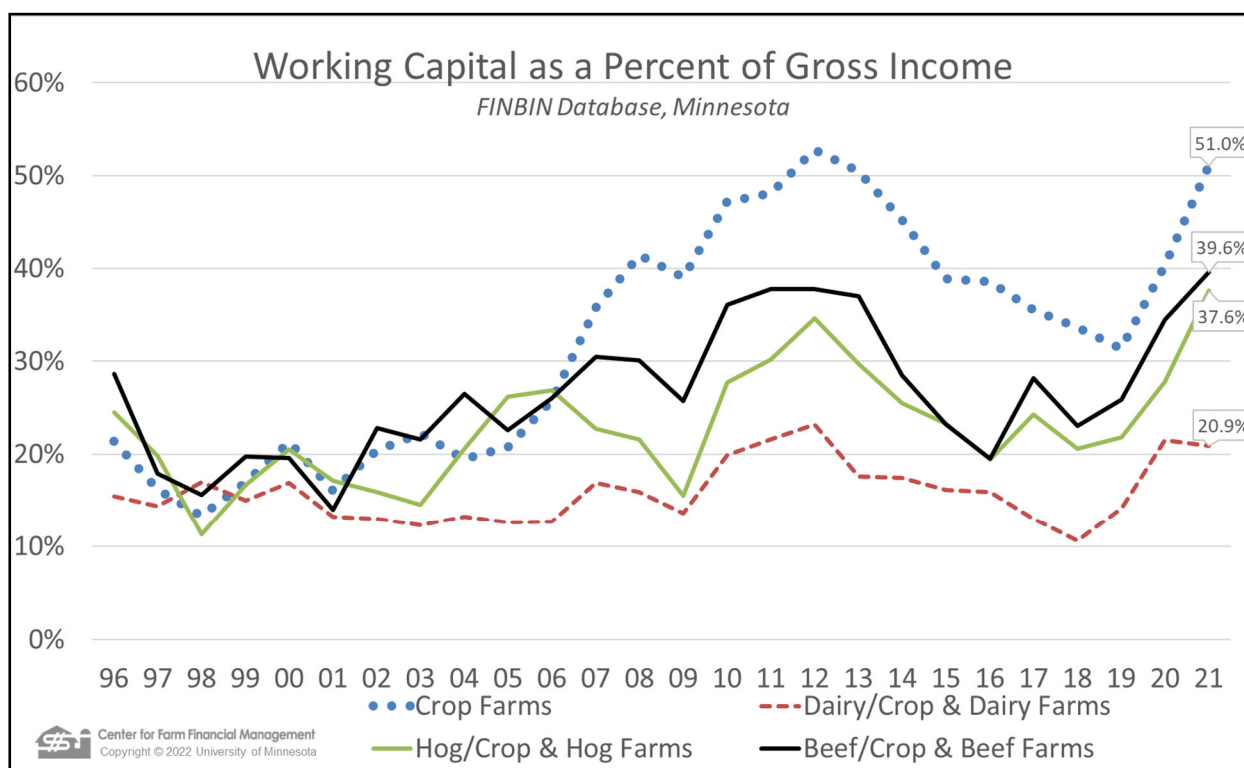


Figure 4: Working Capital to Gross Revenue

Most of the improvement in liquidity came on the asset side of the balance sheet, primarily increased inventories of crops held for sale or feed. Most of that increase was likely price-based rather than an increase in physical inventories. Current liabilities declined slightly and were a very small part of the improved in working capital picture.

## Solvency

The average farm's net worth increased by over \$292,000 in 2021. Of that, 94% was "earned net worth change," resulting from farm and non-farm income exceeding owner withdrawals for family living and taxes. The remaining 6% resulted from the increases in the estimated market value of farm assets. All of this increase was on the asset side of the balance sheet. Total liabilities actually increased by over \$100,000 for the average farm.

The average farm's debt-to-asset ratio was unchanged at 41% when deferred tax liabilities are included. When deferred liabilities are excluded, the ratio was 31%, down a percent from 2020. That puts the average farm in a very strong solvency position. The net worth levels depicted in Figure 5 for 2013 – 2019 are a bit deceiving in that they appear to show decreases in inflation adjusted net worth in several years. Those apparent net worth decreases result from changes in the composition of farms analyzed and not actual losses. The average farm has reported a net worth increase in every year included in the FINBIN database.



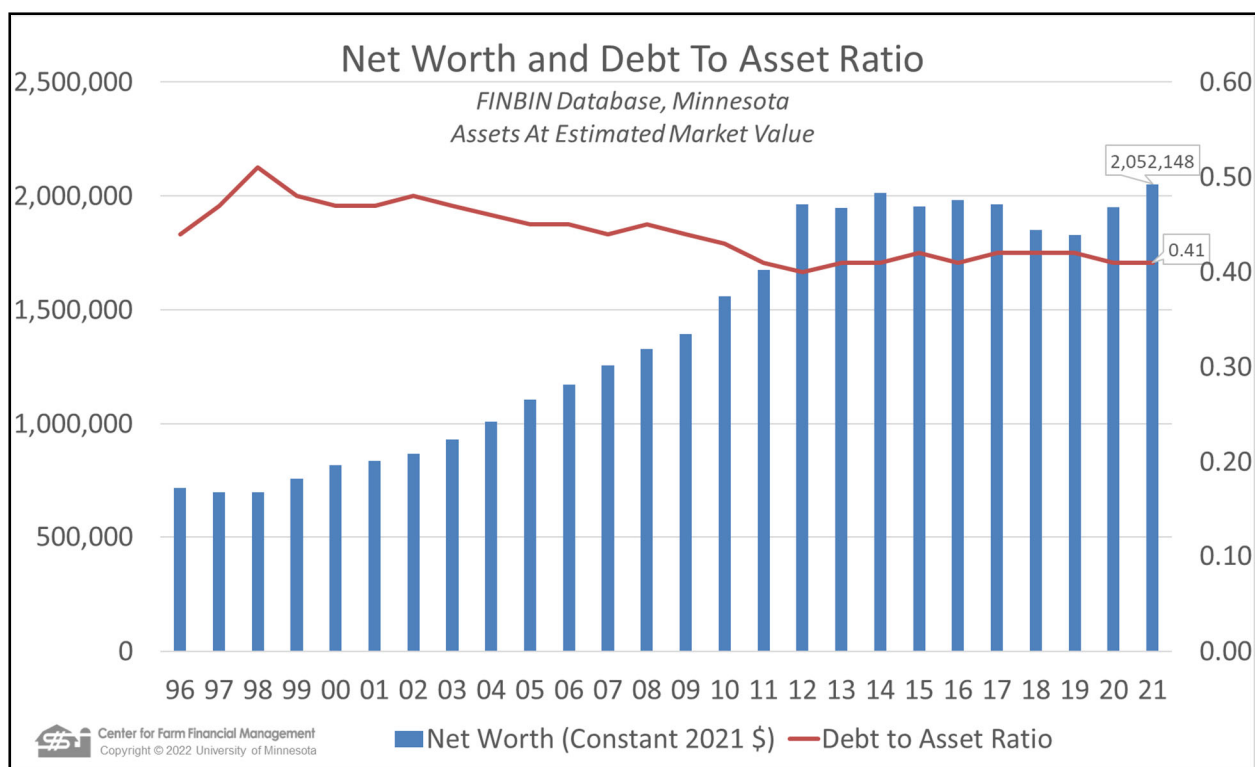


Figure 5: Debt to Asset Ratio (%) and Net Worth

Table 2 shows the impact of financial leverage (or debt-to-asset position) on the financial performance of these farms. As is always the case in high income years, 2021 was a good year for highly leveraged farms. While these segments of the farm population generated about the same ROA, highly leveraged farms generated an ROE of almost 38% compared to only 13% for the low debt group. In profitable years like 2021, high debt businesses benefit from earning high returns using borrowed capital at lower interest rates. Of course, this is a very high-risk strategy. In the five-year period from 2015 – 2019, highly leveraged farms earned negative returns on equity. These highly leveraged farms remain in a much tighter liquidity position than their low-leverage neighbors. But they made great progress in 2021.

Debt to Asset Ratio	Under 40%	Over 60%
Number of farms	1095	497
Rate of return on assets	10.8%	10.5%
Rate of return on equity	13.2%	37.7%
Current ratio	4.1:1	1.5:1
Working capital to revenue	58.4%	20.4%
Term debt coverage	5.4	2.5

Table 2: Impact of Financial Leverage, 2021

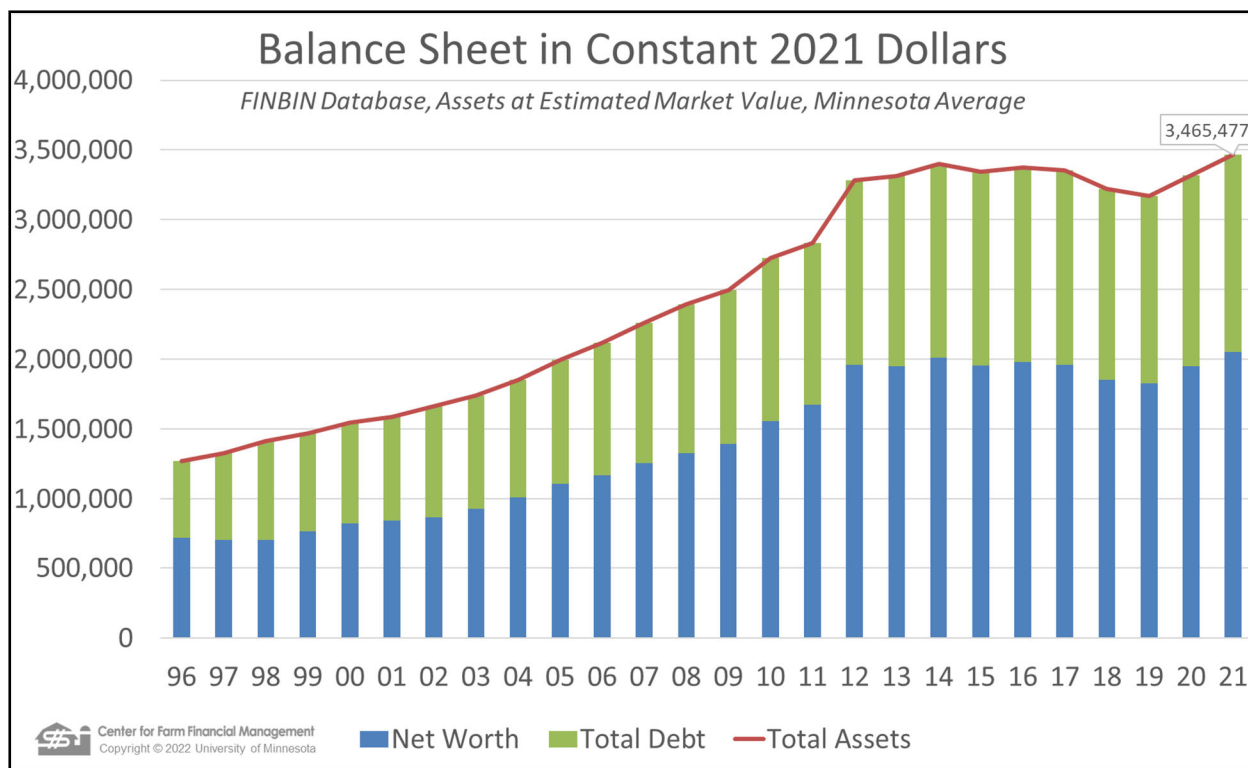


Figure 6: Balance Sheets at Market in Inflation Adjusted Dollars

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 over \$2 million over this period. Total debt increased by over \$850,000 over the same period. As a result, the average farm has gained over \$1.3 million of net worth over the past twenty-six years in today's dollars.

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 2021, 79% 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 21% 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 the average farm in 2021, averaging 3.74:1 for all farms, up from 2.73 in 2020. Consistent with income trends, that is the second highest average debt coverage ratio for these farms in the history of the FINBIN database.

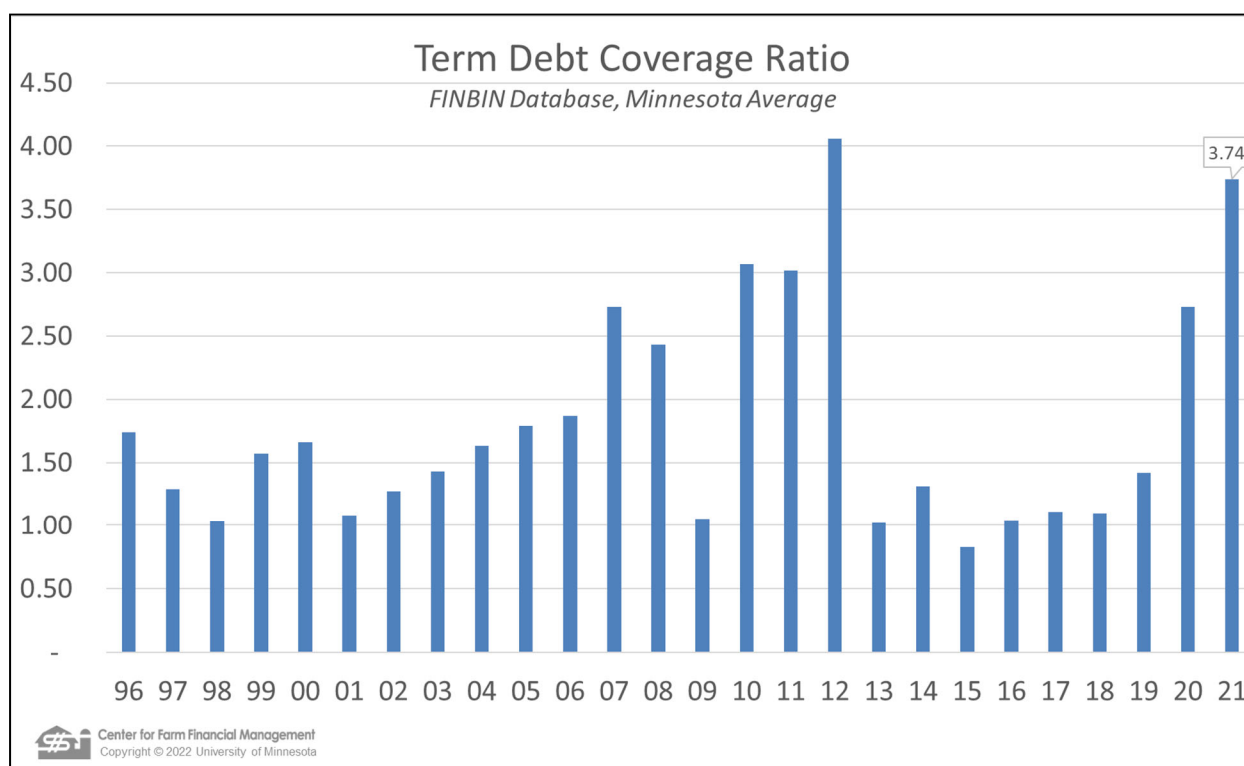


Figure 7: Term Debt Coverage Ratio

The dairy farms reported reduced repayment capacity, but their TDCR was still a relatively healthy 2.0:1. As is always the case, there were still individual farms who struggled to make their payments. Eleven percent (11%) of the farms had a debt coverage ratio under 1:1.

Unlike 2020, when COVID relief and other government payments provided a major share of the cash needed to make payments, most of the repayment capacity generated in 2021 came from traditional farm income sources. It is important to remember that this is an accrual measure and that a major share of the earnings included for 2021 were still in inventory at year's end.

## Regional Profitability

Net farm income was up in every region of Minnesota in 2021. Farms in Southwest Minnesota had the highest median income and the largest increase from 2020. Farms in the Northcentral/Northeast region had the lowest incomes. Widespread drought significantly reduced corn and soybean yields in the Northwest. However, sugar beet profits in the Red River Valley were up from recent trends.

Despite locally reported drought-stress, the rest of the state had, on average, good yields. Yields for corn and soybeans were good to excellent in Southern Minnesota. Good yields combined with high commodity prices resulted in excellent earnings for crop producers across Southern Minnesota. Profits were also up in the North Central and Southeast regions, the traditional dairy belt. Given that dairy farm profits were down, it appears that cash-crop operations lifted the average earnings for these areas.

# Median Net Farm Income

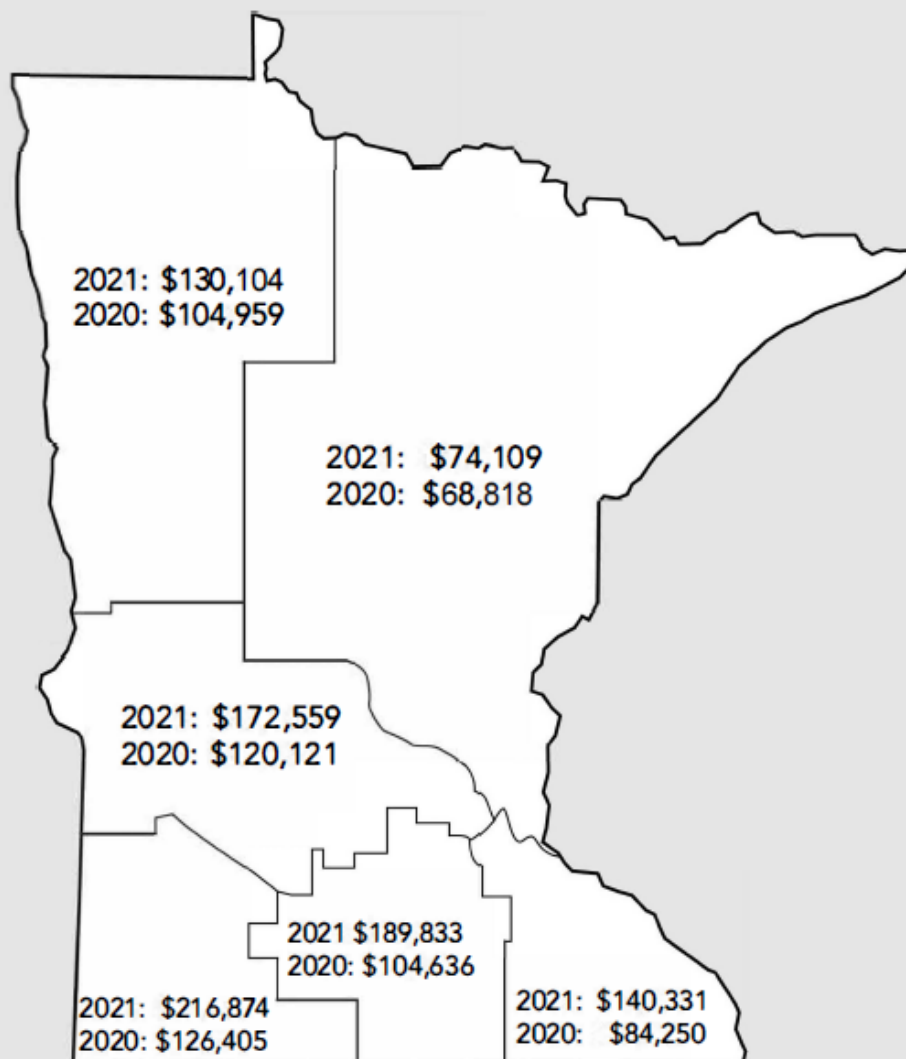


Figure 8: Median Net Farm Income by Region

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

### Crop Farms

Minnesota crop farms had an exceptionally profitable year in 2021. The 1,390 crop farms in the 2021 group earned a median net farm income of \$210,026, up from \$109,850 the previous year. They had their second consecutive profitable year after struggling with low net incomes over the previous seven years. Profits were driven by very strong commodity prices coupled with surprising yields given drought conditions scattered broadly across the state. Government payments, which were a big contributor to crop farm profits in 2020, were not nearly as much of a factor in 2021, although many farms collected cash payments in 2021 that accrued to production disasters in previous years.

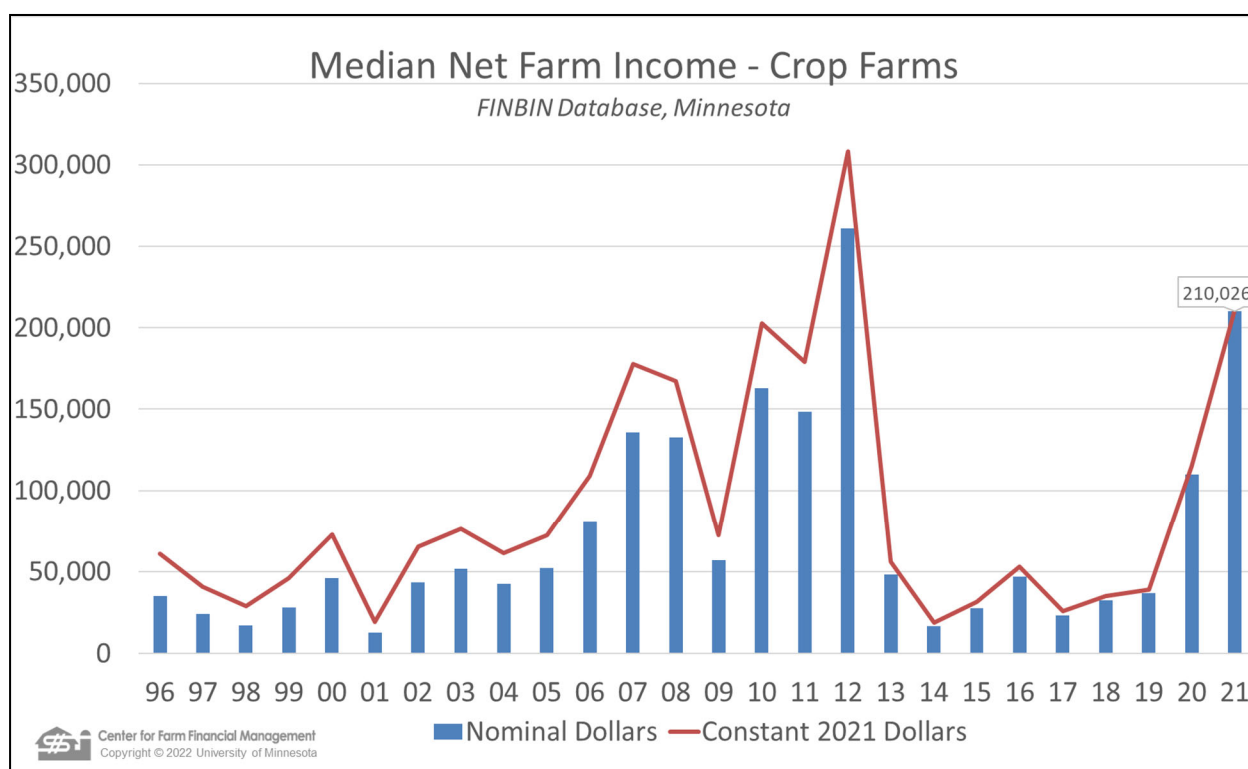


Figure 9: Median Net Farm Income, Crop Farms

The average crop farm earned an ROA of 13%. Coupled with low interest rates, this resulted in an outstanding ROE of almost 20%. The average farm added over \$200,000 of working capital and over almost \$340,000 of net worth. Overall, these farms ended 2021 with very strong balance sheets and in a very strong position to withstand potential financial shocks in the coming year or years.

Crop farms across the spectrum were profitable in 2021. Crop farms in the bottom 20% based on net farm income were generally smaller and had a median income of only \$25,530. Yet those farms added \$10,800 to their working capital and almost \$92,000 to net worth. The most profitable farms were larger (almost \$2,000,000 in average sales) and netted a median income of over \$690,000. On average, they added almost \$580,000 to working capital and over \$780,000 to net worth.

<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.

Net farm income generally increased directly with size of business. Yet average rates of return on assets were stable across size groups once they reached sales of over \$250,000. All size groups over that level of sales averaged about a 13% ROA. Smaller farms earned somewhat lower rates of return.

USDA estimated corn yields for the state at 178 bushels per acre, down from 191 in 2020. Yields for farms included in FINBIN averaged 188, above the average yield of 180 bushels per acre for the previous 10 years. Soybeans yielded 49 bushels per acre, again better than the 10 year average yield of 47 bushels per acre for participating farms. Sugar beet yields were also improved over the previous year, averaging 29 tons per acre. Spring wheat averaged 52 bushels per acre, significantly below the 10-year average of 62 bushels per acre for these farms. The relatively low yield for spring wheat reflects the drought stress that occurred in the primary spring wheat production area of Northwestern Minnesota.

<b>Crop Farms</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Median net farm income	\$36,895	\$109,850	\$210,026
Rate of return on assets	2.6%	7.0%	12.9%
Rate of return on equity	1.2%	9.4%	19.8%
Working capital to gross rev.	31%	40%	51%
Change in working capital	\$3,585	\$109,764	\$201,001
Term debt coverage ratio	1.4:1	2.8:1	4.8:1
Net worth change	\$87,915	\$186,777	\$339,709

Table 3: Crop Farm Returns

Cash prices received by farms were up for virtually all of Minnesota's major cash crops. The average price received by participating farms for corn was up 39% at \$4.73 per bushel. Soybeans, at an average price of \$11.43, were up 27%, while spring wheat prices received were up 37% at \$6.80 per bushel. Prices for most commodities rallied even more in the last months of the year, resulting in a large increase in inventory values which contributed to net farm income for the average farm.

Production costs were also up. The cost to produce an acre of corn increased by 6% to \$745 per acre on cash rented land. Virtually every expense item increased somewhat but energy related costs were most affected. Fertilizer was up 11% and fuel and oil was up 10%. Cash rent for corn land increased 4% to \$202 per acre. Partially due to lower yields, the cost of production per bushel of corn increased by 24% to \$4.12 per bushel. Soybean costs per acre were also up 6% at \$474 per acre. The cost of production per bushel for soybeans was \$9.70, up from \$7.68, also impacted by the lower yield per acre.

Government payments related to pandemic relief were a big part of the profitability for crop farms in 2020. They were not nearly as important in 2021. Government payments directly related to crop production (ARC and PLC) were very rare in 2021. In 2020, they contributed \$33 per acre to corn profits.

Crop prices have rallied to even higher levels since the beginning of 2022. Even with much higher costs, especially for fertilizer, crop budgets project profitability for 2022 crop producers. For individual producers, much will depend on when they price their crops and when they purchased inputs. Risk management strategies might reduce prices for some farms but those who priced fertilizer and other inputs early will benefit.

<b>Corn</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Yield (bu.)	178	199	188
Price received / bu.	\$3.62	\$3.40	\$4.73
Cost of production / bu.	\$3.69	\$3.33	\$4.12
Cost per acre	\$709	\$700	\$745
<b>Soybeans</b>			
Yield (bu.)	46	53	49
Price received / bu.	\$8.48	\$8.97	\$11.43
Cost of production / bu.	\$8.45	\$7.68	\$9.70
Cost per acre	\$445	\$446	\$474
<b>Spring Wheat</b>			
Yield (bu.)	61	59	52
Price received / bu.	\$5.13	\$4.96	\$6.80
Cost of production / bu.	\$5.13	\$5.51	\$6.76
Cost per acre	\$377	\$372	\$382

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

## Dairy Farms

Dairy farms were the only one of Minnesota's major farm types that had lower earnings in 2021. The median net farm income for the 357 participating dairy farms was \$127,444, down from \$170,922 in 2020. Milk producers experienced lower prices and slightly higher costs in 2021. The average milk price per hundred weight (cwt) dipped to \$18.59, down from \$19.90 in 2020. With higher feed and other rising costs, it cost the average producer \$18.38 to produce a hundred pounds of milk, leaving only a small margin to support family consumption and growth.

In 2020, dairy producers benefited from Covid-19 related government payments of around \$550 per cow. Government payments were down about \$300 per cow in 2021.

Dairy farms have traditionally carried less working capital than other farm types, providing less buffer for financial downturns. The average dairy farm added \$30,000 to working capital in 2021. Yet, the average dairy farm had working capital equal to only 21% of gross revenue at the end of 2021. While this is much improved from the end of 2018, when these producers had only 11% working capital to gross, it is still relatively weak compared to other farm types.

The solvency position of these farms also continued to improve, as the average farm's net worth increased by \$181,000. Debt coverage, after falling below 1:1 in 2018, improved to a very healthy 2:1, meaning the average farm generated \$2.00 to cover each \$1 of scheduled payments. With an average debt-to-asset ratio of 33% (excluding deferred tax liabilities), the average participating dairy farm has a relatively strong balance sheet.



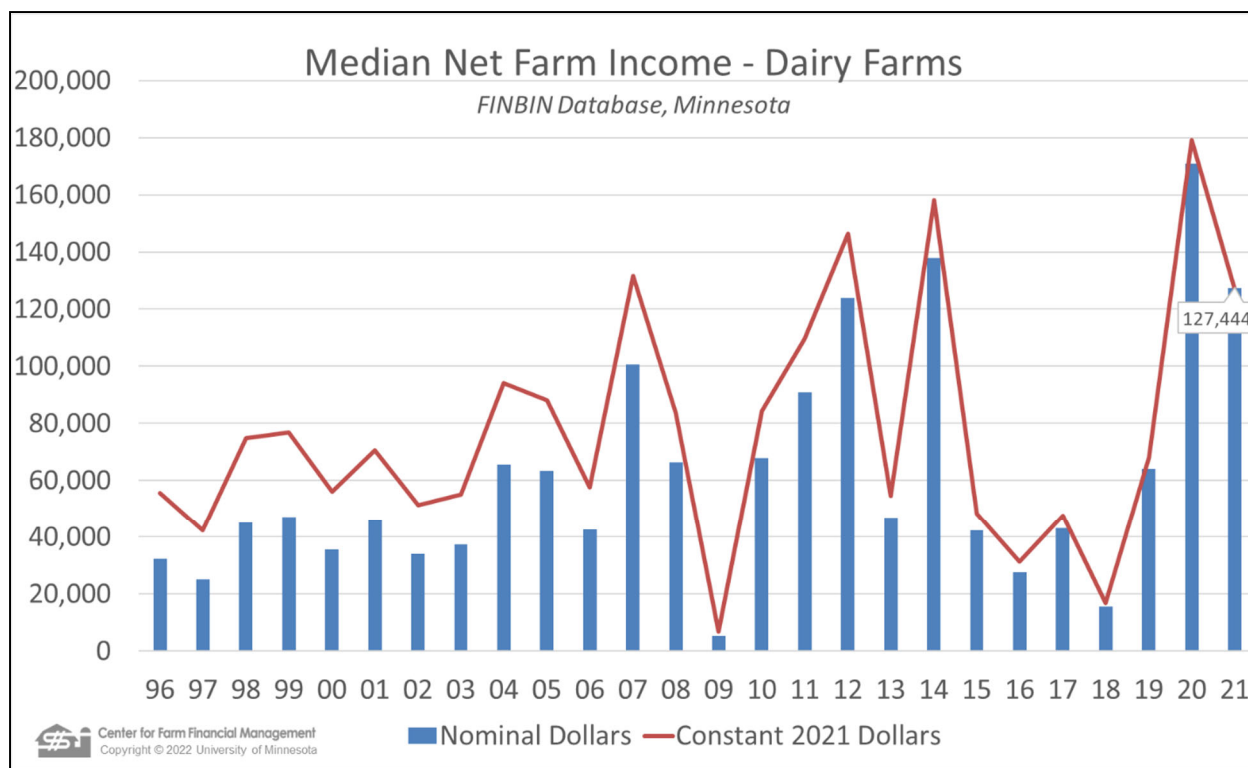


Figure 10, Median Net Farm Income, Dairy Farms

Profits generally increased with farm size. The smallest farms, those that generated gross income of less than \$250,000 earned a 0% rate of return on assets and a negative rate of return on equity. All other size groups earned an ROA between 5% and 7%. Larger dairy farms operated on a much smaller margin with 84% of revenue going to pay operating expenses, compared to 72% for mid-sized producers. But larger producers benefited from volume, with a 49% asset turnover ratio compared to approximately 33% for mid-sized operations. Liquidity, based on working capital to gross revenue, was a relatively weak 17.6% for the largest producers compared to around 30% for mid-sized producer. Herds of all sizes except the smallest farms generated a term debt coverage ratio of greater than 1.7:1.

Dairy Farms	2019	2020	2021
Median net farm income	\$64,144	\$170,922	\$127,444
Rate of return on assets	4.7%	11.0%	6.0%
Rate of return on equity	4.8%	16.0%	7.6%
Working capital to gross rev.	14%	22%	21%
Change in working capital	\$52,283	\$164,846	\$30,234
Term debt coverage ratio	1.6:1	2.9:1	2.0:1
Net worth change	\$103,328	\$293,814	\$181,345

Table 5: Dairy Farm Returns

Average production per cow increased to 25,038 pounds, a slight increase over 2020. On average, it cost \$0.36 more to produce a hundred pounds of milk, before adjusting for government payments. Feed costs were up \$0.82 per hundredweight. With tightening margins, the average producer netted \$219 per cow,

down from over \$940 in 2020. Again, the reduction of Covid-19 related government payments was a big part of this loss in margin.

One of the noticeable trends for Minnesota dairy farms in recent years has been the production performance of large operations. For several years, larger operations have produced much more milk than their smaller neighbors. This was not as big of a factor in 2021. Larger operations, those with over 500 cows, did producer 26,344 pounds of milk per cow, slightly more than 200 – 500 cow herds. But their net return per cow was the lowest of any size group at \$177 per cow compared to the overall average of \$219. This was largely due to the fact that larger operations received \$130 less in government payments per cow than the average farm.

<b>Dairy Farm Highlights</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>
Number of dairy enterprises	298	306	296
Average number of cows	228	238	269
Production per cow (lb.)	24,137	24,663	25,038
Price received / cwt.	\$18.83	\$19.90	\$18.59
Cost of production / cwt.	\$17.86	\$16.83	\$18.38
Cost per cow	\$3,836	\$4,150	\$4,305

Table 6: Dairy Enterprise Highlights

Unlike in 2020, there was an advantage to organic production for dairy producers. Organic herds averaged a \$634 net return per cow compared to \$208 for conventional herds. Organic dairy returns were very similar to 2020, but in 2020 conventional herds were more profitable. Organic prices were down slightly this past year at \$28.59 per cwt, down from \$29.46 in 2020. It cost organic producers \$26.86 to produce a hundredweight of milk, down \$0.31 from the previous year. The biggest change year-over-year was production. The average organic herd produced 16,131 pounds per cow, up from 14,086 in 2020.

The year ahead is filled with uncertainty for dairy farms. To date, milk prices are up substantially but expenses are up too. Given high corn and soybean prices, feed costs will be a major factor in profitability of all of Minnesota's livestock operations in 2022.

## **Pork Farms**

Minnesota pork producers had their most profitable year in the 26 years covered by the FINBIN database in 2021 based on median net farm income. Based on rates of return, it was the fourth most profitable year, slightly less profitable than the 2010 – 2012 time period. No matter the measure used, 2021 was a very good year for Minnesota hog pork producers. The median pork producer in FINBIN earned almost \$430,000 in 2021, up from \$310,000 in 2020.

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 2021, they also had more invested per farm than any other farm type. These pork operations are quite large compared to typical Minnesota farms, but they are not large by pork industry standards.

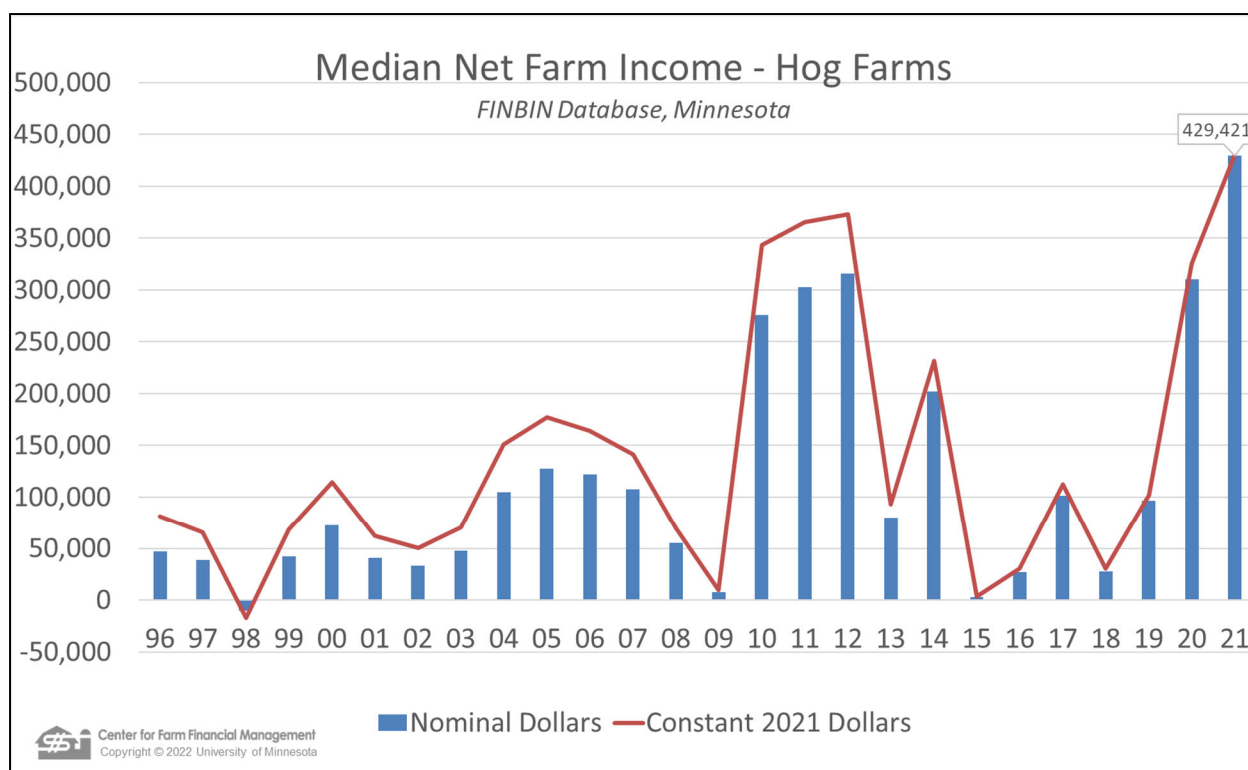


Figure 11, Median Net Farm Income, Pork Farms

Participating pork operations earned a 13% rate of return on assets (ROA) and a 20% return on equity (ROE), marking their second consecutive year of strong rates of return. The average farm added over \$475,000 of working capital, further shoring up liquidity levels that tightened from 2015 – 2019. The average pork farm’s debt-to-asset ratio stood at 30% (excluding deferred liabilities) at the end of 2021, an almost unprecedented improvement of 7% in one year. The average farm’s working capital to gross revenue improved to 38%, up from 28% the previous year and above the 30% benchmark goal for a strong level of liquidity. The average pork producer’s net worth increased by almost \$640,000.

<b>Pork Farms</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Median net farm income	\$96,245	\$310,042	\$429,421
Rate of return on assets	4.7%	9.0%	13.2%
Rate of return on equity	4.9%	14.0%	19.7%
Working capital to gross rev.	22%	28%	38%
Change in working capital	\$80,424	\$313,747	\$477,927
Term debt coverage	1.6:1	3.2:1	4.8:1
Net worth change	\$142,733	\$411,384	\$638,368

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. Most pigs are now produced by large networks that sell pigs to producers who raise the pigs or who contract with growers to provide facilities and labor to raise the pigs.

<b>Hog Farm Highlights</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
No. finishing enterprises	54	41	41
Number of pigs finished	14,132	16,016	17,979
Price received / cwt (carcass)	68.31	64.51	92.05
Cost of production / cwt	68.73	58.72	86.77

Table 8: Pork Finishing Enterprise Highlights

Table 8 shows some metrics for pig finishers (operations that purchase pigs and sell them at market weight). This includes both wean-to-finish operations and feeder pig finishers. Both prices and expenses were up substantially in 2021. The composite price received for both types of operations was up 43%. However, the composite cost to produce 100 pounds of pork was up by 48%. Feed costs for wean to finish operators increased by 35%. At net, feeder pig finishers made \$9.59 per head, down from \$12.75 in 2020. Wean to finish operators did better, netting \$19.74 per head, up from \$16.45 the previous year. While government payments were a primary factor for profits in 2020 (\$19 per head), they were a negligible factor in 2021.

Another important segment of the Minnesota pork industry is those producers who contract to grow pigs for larger pork producers. Eighty-nine (89) producers reported hog contract growing income in 2021. The average wean-to-finish grower reported a net return of over \$8.11 per pig space compared to \$6.73 in 2020. Returns for these enterprises have been fairly 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, futures prices are still high for lean hogs in 2022. But feed and other costs are also up again. China continues to increase pork production after fighting disease for several years. Given the unrest in international markets, inflation, and other outside forces, the coming year is filled with uncertainty for pork producers.

## Beef Farms

Profits were up for the second consecutive year for Minnesota beef operations. Yet beef producers still earned lower median profits than any other major Minnesota type of farm. The median income for the 200 beef farms was \$77,861, up from \$42,850 in 2020 (Figure 12). Given this increased profitability, the financial position of these farms improved dramatically. The average farm added more than \$100,000 of working capital and almost \$200,000 of net worth. Their term debt coverage increased from 2.1:1 to 3.3:1.

This group of farms includes both cow-calf operators and cattle finishers. In 2021, most of the profitability was driven by cattle finish operations. Cow-calf operators suffered from lower calf prices and, in many cases, poor pasture and forage production due to the drought. On average, they lost \$166 per cow after losing \$24 in 2020. Cow-calf producers have not made money on calf production since 2015.

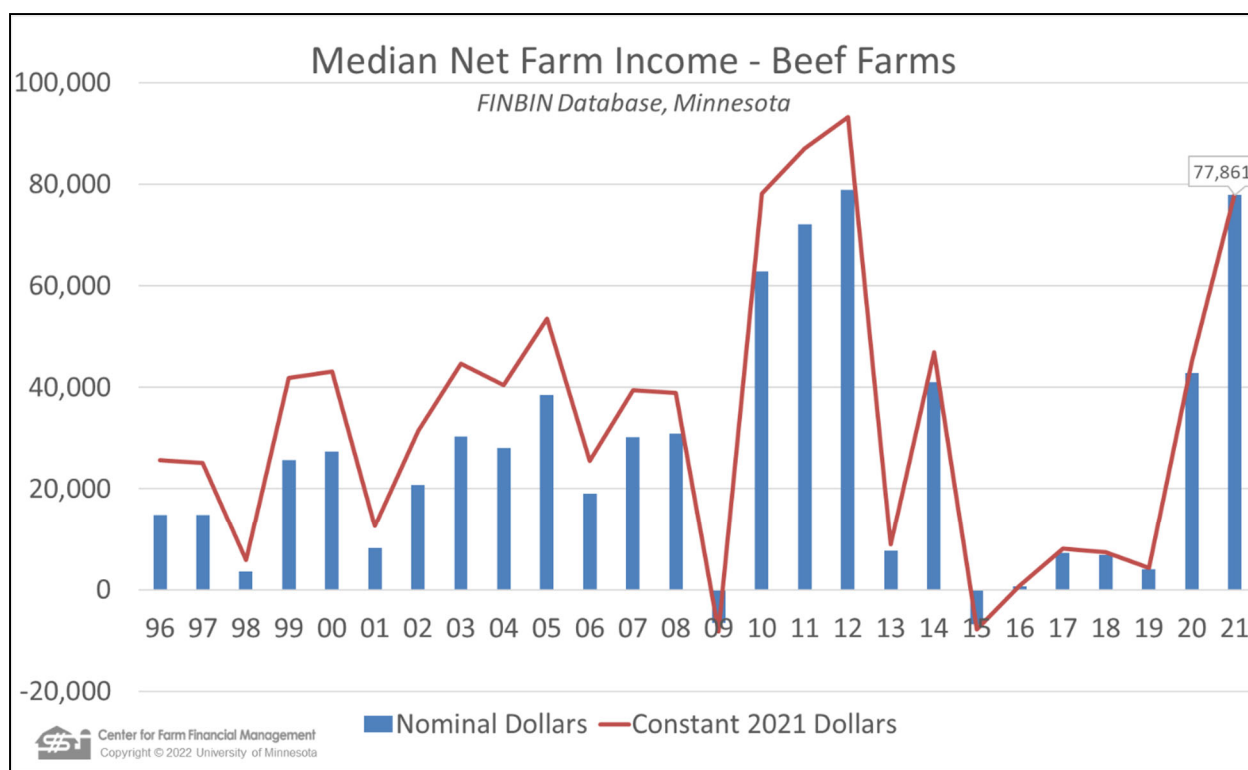


Figure 12: Median Net Farm Income, Beef Farms

Profitability also varied by region of the state, with beef producers in the Northwest region, which experienced the worst of the drought, earning the lowest returns. Profits were also highly impacted by cropping returns, as most cattle producers also produce cash crops. Again, this varied by region, with producers in the Northwest showing a reduction in crop inventories at year's end while those Southern Minnesota reported increased crop inventory values. Government payments were down by 46% but still contributed 28% of beef farm profits.

Beef Farms	2018	2019	2021
Median net farm income	\$4,040	\$42,850	\$77,861
Rate of return on assets	1.0%	5.1%	8.9%
Rate of return on equity	-3.2%	6.5%	14.9%
Working capital to gross rev.	26%	35%	40%
Change in working capital	-\$1,641	\$75,008	\$107,667
Term debt coverage ratio	1.0:1	2.1:1	3.3:1
Net worth change	\$43,119	\$147,154	\$205,694

Table 9: Beef Farm Returns

Feed costs were the major reason for losses for cow-calf producers. The price for beef-calves was down slightly at \$154 per hundredweight (cwt), from \$159 in 2020. At the same time, cost of production increased from \$171 to \$205 per hundredweight. Given poor grazing and hay production, pasture and feed costs were up \$117 per cow. The other major change was the reduction of Covid-related government support. Government payments directly related to beef production went down from \$105 per cow to \$17 in 2021.

<b>Beef Farm Highlights</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
No. of cow-calf enterprises	95	97	102
Number of cows	83	79	61
Calf weaning percentage	84%	85%	87%
Calf sales price / cwt	\$145.96	\$158.89	\$153.79
Calf cost of production / cwt	\$205.90	\$170.84	\$205.03
No. beef finishing enterprises	71	81	88
Number of head finished	295	257	324
Average daily gain	2.71	2.67	2.5
Purchase price per cwt.	\$149.14	\$140.12	\$148.89
Finished beef price / cwt	\$117.42	\$108.67	\$121.86
Finishing cost of production / cwt	\$119.41	\$108.24	\$120.31

Table 10: Beef Enterprise Highlights

Cattle finishers had a better year despite higher feed costs and lower government supports. They netted \$67 per head, up from \$37 in 2020. The average price received for fed cattle was \$122 per hundredweight, up from \$109 in 2020. On average, it cost \$120.31 to produce a cwt of beef, up from \$108.24 in 2020. The purchase price of feeders was up from \$140 per cwt in 2020 to \$149 in 2021. Feed costs were up \$170 per head, an increase of 41%. Government payments went down from \$113 per head to \$3.45 per head.

The major challenge facing Minnesota livestock producers in 2022 will again be 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 feed costs. Cow-calf producers are hoping that the drought has ended with high levels of precipitation over the winter, especially in the Northwest. 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 2022.

## Family Expenses

As usually happens in higher income years, family living costs increased in 2021 for the 413 farms that kept detailed family living records. Total living expenses increased to \$65,544 after averaging around \$60,000 for each of the past five years. Following the farm income collapse of 2012, family living costs decreased by almost \$10,000 per family after adjusting for inflation. After adjusting for inflation, living expenses in 2021 were still not as high as during the 2012-2015 period. Food and meals flipped with health insurance/medical care to be the highest expense at \$9,886, up 9%. Medical care and health insurance cost \$9,416, virtually unchanged from the previous year. Approximately one-fifth of the families included in the Minnesota FINBIN database keep detailed family living records in addition to their farm financial

records.

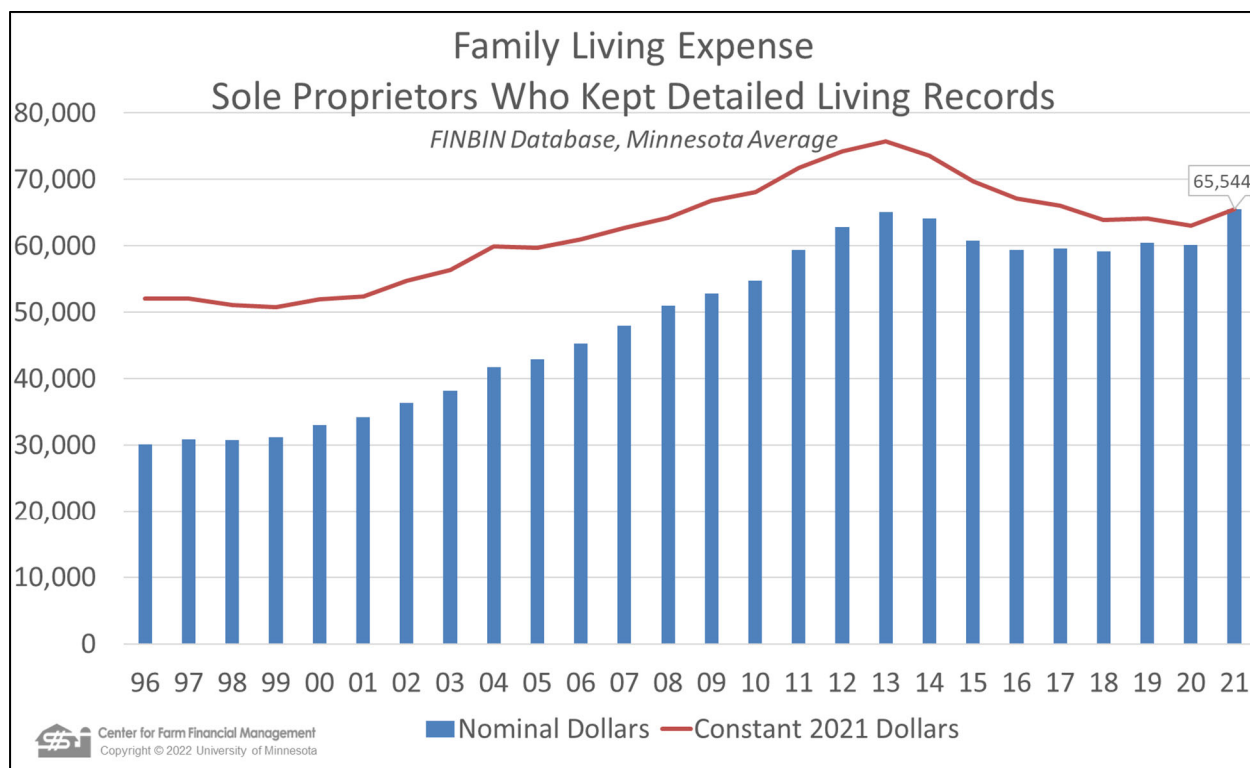


Figure 14: Family Living Expense

In addition to family living, the average family paid income and social security taxes of \$16,384 and another \$6,580 for household furnishing, non-farm vehicles, and other non-farm purchases. In total, the average family needed to earn over \$88,000 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 (2,263) 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 108 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 business 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	44,900	223	0.5%
\$100,001 – \$250,000	7,700	388	5.0%
\$250,001 – \$500,000	5,900	480	8.1%
\$500,001 – \$1,000,000	4,800	619	12.9%
> \$1,000,000	4,100	703	17.1%

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. There may be characteristics of farms that participate in farm business management programs that distinguishes them from other farms in the state.

## Bibliography

FINBIN, Center for Farm Financial Management, University of Minnesota, [www.finbin.umn.edu](http://www.finbin.umn.edu).

Minnesota Ag News – 2021 Crop Production, National Agricultural Statistics Service, United States Department of Agriculture, January, 2022.

Minnesota Ag News – Farms and Land in Farms, United States Department of Agriculture, National Agricultural Statistics Service, Washington, D.C., February, 2022.

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