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About this Report

Title: 2022 FINBIN Annual Report on Minnesota Farm Finances

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Report Contents

This report provides an overview of the Minnesota farms in the <u>FINBIN</u> database for the 2022 analysis year. This report contains valuable data, figures, and insightful commentary on the farms' profitability, liquidity, solvency, debt repayment capacity, financial efficiency, and family living expenses. Farm type and regional comparisons are also provided.

About the Data

The Minnesota data included in FINBIN is provided by producers who participate in farm business management education programs throughout the state. The majority (2,131 farms) are participants in the Farm Business Management Education programs offered through Minnesota State. Click here for more information on these programs.

Another 109 farms are members of the Southwest Minnesota Farm Business Management Association (SWMFBMA). More information is available on SWMFBMA here.

37 additional 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. Farms that do not meet strict accuracy requirements are excluded. Every effort is made to verify the integrity of each set of farm financial data included in the database. It must be stressed that this is not a random sample of Minnesota farms. These farms pay a fee to be part of these programs and there are likely characteristics of participating farms that distinguish them from other farms in the state.

The 2,277 Minnesota farms included in the FINBIN database represent a broad cross-section of Minnesota production agriculture. These farms represent over 3% of the farms in the state and 15% of commercial farms with sales of over \$250,000². While there is no "typical" Minnesota farm, these farms include a large enough sample to provide a good barometer of commercial farming in Minnesota. Table A compares the farms included in FINBIN to all Minnesota farms based on USDA/NASS data.

Table A: Size of Farms in FINBIN Compared to Minnesota Farm Population

Sales Class (proxy for farm size)	All MN Farms	Number in FINBIN	% in FINBIN
<\$100,000	44,700	205	1%
\$100,001 - \$250,000	7,600	315	4%
\$250,001 - \$500,000	5,900	412	7%
\$500,001 - \$1,000,000	4,800	562	12%
>\$1,000,000	4,100	773	19%

^{1 -} Van Nurden, Brand, Wilts Johnson, and Nordquist are each Extension Economists with the <u>Center for Farm</u>
<u>Financial Management</u> at the University of Minnesota

^{2 -} Minnesota Ag News - Farms and Land in Farms, United States Department of Agriculture, National Agricultural Statistics Service, Washington, D.C., February 17, 2023.

2022 Farm Financial Scorecard Summary

The scorecard below provides a visual summary of the financial performance and position of Minnesota farms in FINBIN in 2022 and how that compares to standard benchmark ranges from vulnerable to strong. The scorecard uses recommended financial measures from the <u>Farm Financial Standards Council (FFSC)</u>. To learn more about these measures, see this document.

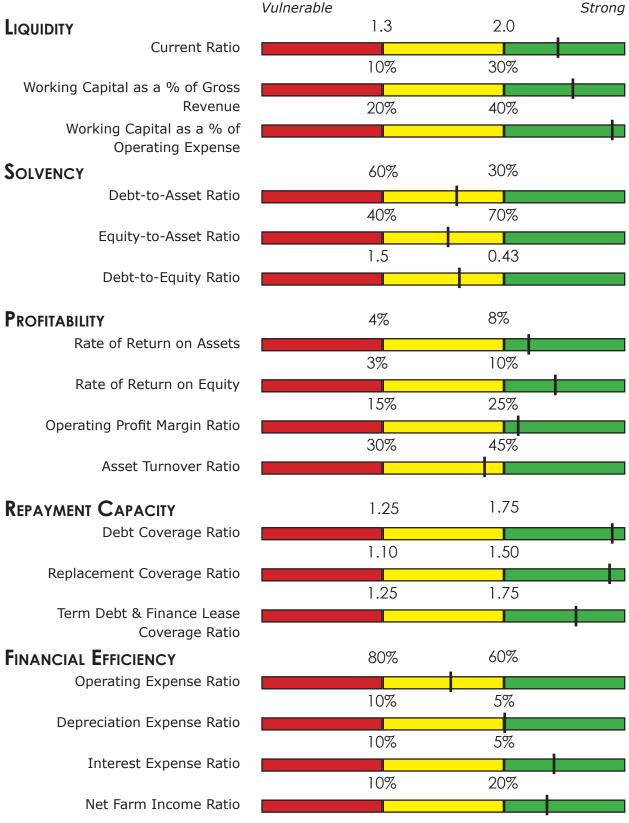


Figure A. 2022 Farm Financial Scorecard Summary

The Year in Brief

Minnesota farms saw continued financial improvement in 2022, despite global uncertainty, inflationary pressures, and lingering drought conditions that affected much of the state during the production year. Median¹ net farm income for Minnesota farms reached \$179,728 in 2022, up from \$165,883 in 2021. This was an 8% increase over the previous year. After adjusting for inflation, 2022 was the 2nd most profitable year for these Minnesota farms in FINBIN that goes back to 1996, eclipsed only by 2012.

Crop farms reported a median net farm income of \$234,853, up from \$210,714 in 2021. Improved profits were primarily due to improved crop prices. Despite widely scattered drought conditions, yields were above 10-year averages for corn, soybeans and wheat.

Dairy farms reported higher earnings in 2022 than 2021. The median net farm income for dairy farms was \$154,903, up 22% from \$127,444 the previous year. Average milk price increased \$5.76 per hundred pounds, while production expenses increased 17%.

Pork producer net income retreated in 2022, with median earnings of \$293,288, down from \$429,421 in 2021. Average price received for wean-to-finish market hogs was \$96 per hundred pounds (carcass), up slightly from \$94. For hogs, feed expense increased by 17%.

Profits improved for Minnesota beef operations, with a median net farm income of \$118,665, up 56% from the median net farm income for beef producers of \$76,057 in 2021. Cow-calf producers continued to struggle, losing \$240 per cow in 2022, this was after losing \$174 per cow in 2021. Likewise, cattle finishers made \$42 per head, down from \$67.

The average Minnesota farm earned a rate of return on assets of 11% (based on adjusted cost or book valuation of assets). This was the same rate of return on assets as 2021. Working capital saw impressive improvement levels for the average farm, increasing by \$145,561. Debt coverage remained very strong in 2022. The average farm had a debt coverage ratio of 3.58:1 in 2022, essentially unchanged from 3.61:1 in 2021.

Government payments were not a large factor in 2022. Payments of all types decreased 57% in 2022, totaling \$26,945 on average for a farm. Most of the payments received in 2022 were actually related to disasters in previous years or the Covid-19 pandemic. Payments related to 2022 crop production support were essentially nonexistent.

The average farm's net worth increased by over \$297,000. 96% of net worth growth resulted from farm and non-farm earnings, with the other 4% of net worth growth resulting from increases in estimated market value of farm assets. With this, the average debt-to-asset ratio decreased slightly to 30%.

Net farm income was up substantially in the northwest and southeast regions. Farms in the west central, southwest, and south central regions of the state saw slightly lower income levels year over year. Profitability decreases were driven by decreased yields in the southwest and west central regions, which were most affected by the drought.

Family living expenses for the average family keeping detailed records averaged \$71,301 in 2022, an increase of 9% from the previous year.

^{1 -} The median represents the value separating the data in two equal halves. This can be thought of as the middle value.

Table 1. FINBIN Highlights for Minnesota Farms in 2022 (averages unless otherwise noted)

Table 1. FINBIN Highlights for Minnesota Farms in	i 2022 (avera	ges uniess of	nerwise note	J)	
	2019	2020	2021	2022	% Change '21 to '22
Number of Farms	2,341	2,408	2,463	2,277	-8%
Income and Expenses					
Gross Revenue	\$799,020	\$927,574	\$1,109,344	\$1,252,939	+13%
Total Expense	\$725,680	\$749,024	\$833,218	\$948,702	+14%
Average Net Farm Income	\$79,055	\$182,121	\$279,756	\$314,669	+12%
Median Net Farm Income	\$36,823	\$107,077	\$165,883	\$179,728	+8%
Family Living Expense	\$60,409	\$60,122	\$65,553	\$71,301	+9%
Crop Production and Prices Received					
Corn Yield (bushels per acre)	178	199	187	203	+9%
Corn Price Received (dollars per bushel)	\$3.62	\$3.40	\$4.73	\$6.07	+28%
Soybean Yield (bushels per acre)	46	53	49	53	+8%
Soybean Price Received (dollars per bushel)	\$8.48	\$8.97	\$11.43	\$13.66	+20%
Spring Wheat Yield (bushels per acre)	61	59	52	67	+29%
Spring Wheat Price Received	\$5.13	\$4.96	\$6.78	\$9.02	+33%
Livestock Production and Prices Received					
Number of Milk Cows (per dairy farm)	228	238	269	260	-3%
Lbs. of Milk (per cow)	24,137	24,663	25,030	25,216	+1%
Lbs. of Energy Corrected Milk ¹ (per cow)	22,569	26,421	27,224	27,859	2%
Milk Price Received (\$ per 100 lbs.)	\$18.83	\$19.90	\$18.59	\$24.35	+31%
Market Hog Price Received (\$ per 100 lbs. sold)	\$50.22	\$47.90	\$69.88	\$71.52	+2%
Wean Pig Price Paid (\$ per head)	\$42.49	\$39.13	\$41.83	\$54.29	+30%
Finished Beef Price Received (\$ per 100 lbs.	\$117.42	\$108.67	\$121.86	\$145.96	+20%
sold) Feeder Calf Price Paid (\$ per lbs. pounds)	\$149.14	\$140.12	\$148.89	\$175.09	+18%
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Net Worth	+06.072	+102.000	+205 120	+207.004	. 10/
Change in Net Worth (\$)	\$86,873	\$193,988	\$295,139	\$297,094	+1%
Percentage of Net Worth Change Resulting from Changes in Asset Market Values	22%	9%	7%	4%	-3%
Percentage of Net Worth Change Resulting					
from Farm and Non-Farm Earnings	78%	91%	93%	96%	+3%
Selected Financial Measures					
Current Ratio	1.57	1.97	2.43	2.73	+12%
Working Capital (\$)	\$196,033	\$306,275	\$447,878	\$585,811	+31%
Working Capital to Gross Revenue	25%	33%	40%	47%	+7%
Farm Debt-to-Asset Ratio	45%	44%	43%	43%	-
Rate of Return on Farm Assets	3%	8%	11%	11%	-
Rate of Return on Farm Equity	2%	11%	17%	16%	-1%
Difference Between ROR on Equity & Assets ²	-1%	3%	6%	5%	-1%
Debt Coverage Ratio	1.35	2.47	3.44	3.37	-2%
Term Debt & Finance Lease Coverage Ratio	1.40	2.63	3.61	3.58	-1%
Operating Expense Ratio	79%	71%	67%	68%	+1%
Net Farm Income Ratio	9%	19%	25%	24%	-1%

¹ - Energy Corrected Milk (ECM) determines the amount of energy in the milk based upon fat and protein levels in the milk adjusted to 3.5% fat and 3.2% protein.

^{2 -} A positive difference represents years where borrowed capital earned more than it cost.

Farm Profitability Recap

Near Record Farm Profits in 2022 for Minnesota Farms

Median net income for Minnesota farmers increased in 2022 for the third consecutive year. The median net farm income for all farms was \$179,728, up from \$165,883 in 2021. Exceeded only by 2012, 2022 was the second most profitable year for farms in the FINBIN database since its inception in 1996.

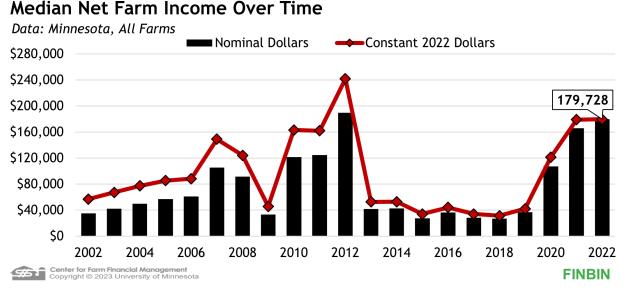


Figure 1. Median Net Farm Income in Nominal and Inflation-Adjusted Dollars from 2002 to 2022

\$179,728 median net income	\$314,669 average net income
+8%	+12%
change in median net income	change in average net income

The average net farm income for 2022 was higher than the median, indicating the more profitable farms were profitable enough to positively skew the average for all farms.

Strong commodity prices and slightly above average yields for the state's major cash crops were a large driver of the strong net incomes in 2022. Improved prices derived from increased demand related to major drought impacts in parts of the US and general global market uncertainty. Much of this global uncertainty stemmed from Russia's war in Ukraine. Prices also increased for milk, pork, and beef as demand increases tightened supplies of livestock products. Additionally, drought conditions in the heartland led to cattle producers reducing their herds.

+28%	+20%	+20%
change in average corn price received for cash sales	change in soybean price received for cash sales	change in spring wheat price received for cash sales
+7%	+8%	+9%

Earnings were strong across the broad cross-section of Minnesota agriculture. Less than 4% of farms reported a financial loss in 2022 compared to 8% in 2021. The median net income for the most profitable 20% of Minnesota farms in 2022 in the database was \$747,042. The median income for the least profitable 20% of farms was \$9,993. Both of these metrics improved from previous years.

Government payments were much less of a factor in 2022 compared to 2019 through 2021. The minimal 2022 payments included disaster payments dating back several years. Government payments comprised only 2% of gross revenue in 2022 (compared to 6% in 2021 and 12% in 2020).

2022 - Another Year of Strong Farm Returns

Rates of return were strong in 2022, but as farms continued to grow last year, the returns were not as strong as in the 'golden years' of 2007 – 2012.

The rate of return on farm assets (ROA)¹ can be thought of as the average interest rate being earned on all investments in the farm. The rate of return on farm equity (ROE) represents the interest rate being earned by the farmer's investment in the farm. This 'interest rate' can be compared to returns available if the farmer had invested their equity elsewhere such as the stock market or a certificate of deposit.

The relationship between ROE and ROA 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 2022. When ROE is lower than ROA, the average producer loses money on borrowed capital.

Rates of Return On Assets and Equity

Data: Minnesota, All Farms, Assets Valued at an Adjusted Cost Basis

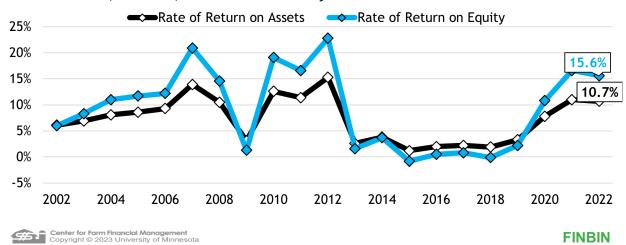


Figure 2. Average Rate of Return on Assets and Equity (ROA and ROE) from 2002 to 2022

10.7% ROA	15.6% ROE
-0.3% change in ROA	-1% change in ROE

^{1 -} ROA presented here has assets valued at an adjusted cost basis. FINBIN includes assets valued at both cost (book) value 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.

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 13.5%. This includes capitalization of estimated increases in asset values during the year in addition to actual farm earnings.

Farm Liquidity Recap

Farms Continued to Improve their Liquidity Position in 2022

Working capital¹, which is a measure of liquidity², is typically a focus for producers and agricultural lenders and is the major financial resource farms rely on to survive during depressed financial conditions. 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.

Working Capital and Current Ratio

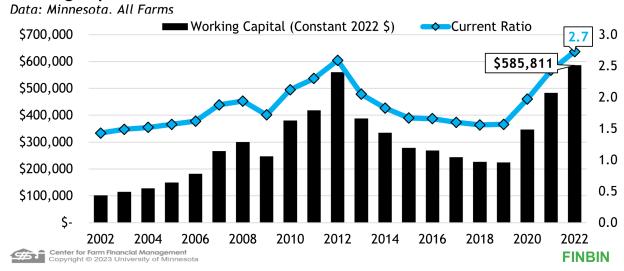


Figure 3. Average Working Capital and Current Ratio from 2002 to 2022

+\$143,238	+0.3 (+12%)
change in working capital	change in current ratio

Average working capital has rebounded over the past three years (Figure 3). Working capital increased by almost \$145,000 for the average of Minnesota farms in 2022. After two very profitable years, average working capital has recovered and surpassed the previous high level reached in 2012.

The current ratio for the average farm was 2.73:1 at the end of 2022, meaning \$2.73 of current assets were available to cover each dollar of current debt. This was up from 2.43:1 in 2021. With the average farm's current ratio nearing 1.5:1 to start 2019, the improvements over the past several years were needed and positioned these farms on much stronger financial footing.

^{1 -} Working capital is the difference between current assets and current liabilities.

^{2 -} Liquidity is the ability of a business to meet financial obligations as they come due.

Working capital-to-operating expense measures the available operating capital against the operating expenses of a farm. A ratio of over 40% is considered to be strong. Working capital-to-gross revenue measures the available operating capital against the size of the business. A ratio greater than 30% is considered strong.

Working Capital Ratios

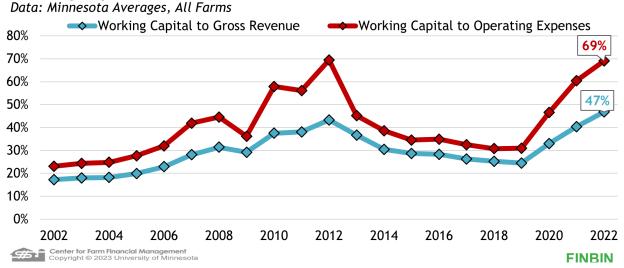


Figure 4. Working Capital Ratios from 2002 to 2022

+9%	+7%
change in working capital-to-operating expense	change in working capital-to-gross revenue

In 2022, the average working capital-to-operating expense jumped to 69%, compared to 60% in 2021. Average working capital-to-gross revenue was 47% in 2022, an increase from 40% the prior year.

Farm Solvency Recap

Minnesota Farms Continued to Grow in 2022

A farm's balance sheet can also inform us about its solvency position. Solvency is the ability of a business to meet all of its debt obligations if the business were sold at the current point in time.

Since the inception of the FINBIN database in 1996, the average Minnesota farm has seen significant changes in their balance sheets. Farms have been growing rapidly.

Figure 5 displays the average Minnesota farm balance sheet since 2002. Note the below figure has assets valued at estimated market values and not cost values. Using estimated market values provides the most accurate estimate of solvency by factoring in what the farm would receive if it were to liquidate assets to pay off debts.

Farm Balance Sheet Over Time (Constant \$)

Data: Minnesota, All Farms, Assets Valued at Estimated Market Values, Excludes Deferred Liabilities

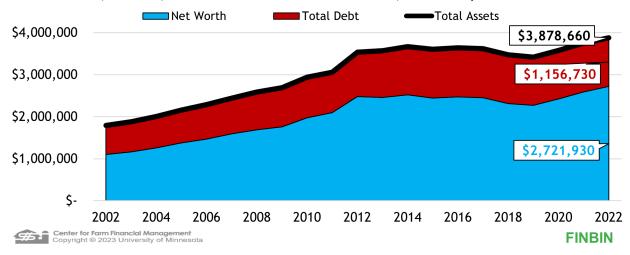


Figure 5. Farm Balance Sheet from 2002 to 2022

+\$129,318 (+3%)	+\$40,112 (+3%)	+\$89,207 (+3%)
change in total assets (inflation adjusted)	change in total debt (inflation adjusted)	change in net worth (inflation adjusted)

In 2022, the average Minnesota farm in FINBIN had total assets of \$3,878,660, total debt of \$1,156,730, and \$2,721,930 of net worth. These figures increased by \$402,160 in assets, \$82,376 in debt, and \$319,785 in net worth. Each category of the balance sheet increased by 8% or more year-over-year. Balance sheet growth is not a new phenomenon for Minnesota farms. In constant dollars, total assets have increased by over \$2 million since 2002. Total debt increased by nearly \$700,000 over the same period. As a result, the average farm has gained over \$1.3 million in constant dollars of net worth since 2002.

Net worth change can have two sources – the amount resulting from retained earnings and the amount resulting from changes in the market valuation of assets. From 1996 to 2022, 81% of net worth growth for these farms was "earned". Retained earnings result when farm and non-farm income exceed the amount consumed by family living expenditures and income taxes. The remaining 19% of net worth growth resulted from asset value appreciation. It should be noted that the mix of individual farms included in FINBIN changes somewhat each year. Some farms exit the program and new farms join the contributing educational programs.

A commonly used metric to evaluate solvency is the debt-to-asset ratio. This figure can be thought of as representing the bank's share of the farm business by comparing total farm debt to total farm assets. A higher debt-to-asset ratio indicates lower financial borrowing capacity and greater financial risk for the farm.

Net worth represents the owner of the farm's equity or share of the farm business.

The average farm's debt-to-asset ratio was 30%, down one percent from 2021, placing the average farm on the edge of the strong solvency position threshold.

Net Worth & Debt-to-Asset Ratio

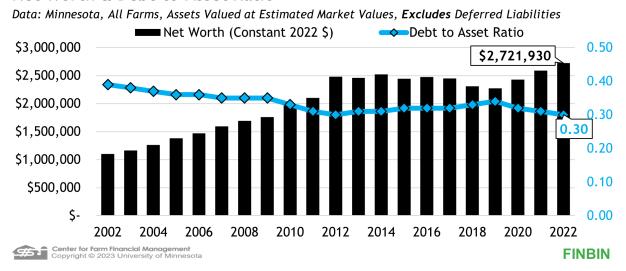


Figure 6. Net Worth and Debt-to-Asset Ratio from 2002 to 2022

The average farm's net worth grew by over \$355,000 in nominal dollars in 2022. Of that increase, 96% was "earned net worth change," resulting from farm and non-farm income exceeding owner withdrawals for family living and taxes. The remaining 4% of the net worth improvement resulted from the increases in the estimated market value of farm assets. Total assets increased by \$402,000. Total liabilities increased by \$82,376 for the average farm.

The net worth levels depicted in Figure 6 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 net worth losses. As noted earlier, the individual farms included in FINBIN change somewhat each year, as some farms exit, and new farms join the contributing educational programs. The average farm has reported a net worth increase every year in FINBIN.

Evaluating the Impact of High Financial Leverage in 2022

Table 2 shows the impact of financial leverage (or the debt-to-asset position) on the financial performance of these farms.

Table 2: Impact of Financial Leverage in 2022

	Farms with Under 40%	Farms with Over 60%	Difference between
	Debt-to-Asset Ratio	Debt-to-Asset Ratio	Highly & Less
	Less Leveraged Farms	Highly Leveraged Farms	Leveraged Farms
Number of Farms	1,054	447	-
Rate of Return on Assets	11%	9%	-2%
Rate of Return on Equity	13%	24%	+11%
Current Ratio	4.72	1.53	-68%
Working Capital to Gross Revenue	65%	23%	-42%
Debt Coverage Ratio	5.04	2.09	-59%
Term Debt & Finance Lease Coverage Ratio	5.24	2.22	-58%

As is always the case in high income years, 2022 was a good year for highly leveraged farms. While they generated a slightly lower ROA, highly leveraged farms generated an ROE of almost 24%, compared to only 13% for the low debt group. In profitable years, like 2022, highly leveraged businesses benefit from earning high returns using borrowed capital. 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-leveraged peers, but they made great progress in 2022.

Debt Repayment Capacity Recap

Farms Maintained Strong Repayment Capacity in 2022

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

Debt coverage remained strong for the average farm in 2022, averaging 3.37:1 for all farms, down slightly from 3.44:1 in 2021. Consistent with income trends, 2022 brought one of the highest average debt coverage ratios for these farms in the history of the FINBIN database, as seen in Figure 7.

Debt Coverage Ratio Over Time

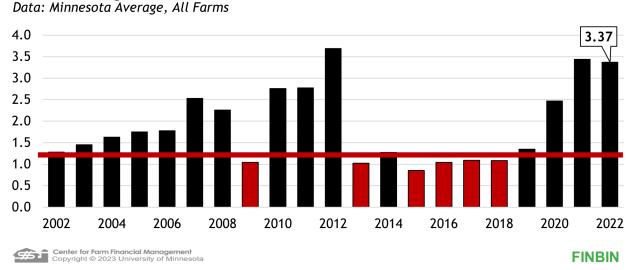


Figure 7. Debt Coverage Ratio from 2002 to 2022

As is always the case, there were still individual farmers 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 2022 came from traditional farm income sources.

Financial Efficiency Recap

Minnesota Farms Retained 24% of Gross Revenue as Net Income in 2022

Financial efficiency metrics show where each dollar of income or revenue generated is spent. Financial efficiency ratios include: the Operating Expense Ratio¹, Depreciation Expense Ratio², Interest Expense Ratio³, and Net Farm Income Ratio⁴.

Financial Efficiency Ratios

Data: Minnesota Average, All Farms

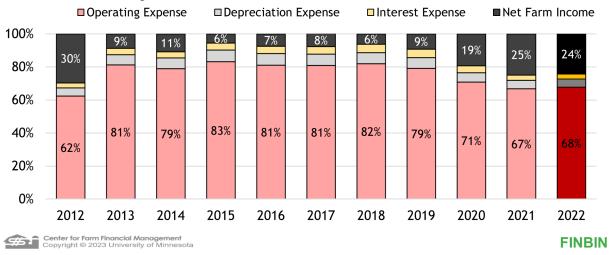


Figure 8. Financial Efficiency Ratios from 2012 to 2022

68%	5%	3%	24%
Operating Expense	Depreciation Expense	Interest Expense	Net Farm Income
Ratio	Ratio	Ratio	Ratio

In 2022, 68% of gross revenue went towards operating expenses for the average Minnesota farm, which was a 1% increase from the prior year. According to standard benchmarks from the Farm Financial Scorecard, this 68% level falls into an acceptable range, being neither vulnerable nor strong. This ratio has been much improved in the past two years as compared to 2013 through 2019.

The shares of gross revenue that went towards depreciation and interest expense remained unchanged from 2021 at 5% and 3% respectively. These ratios have remained relatively stable since 2012. Moving forward in the new higher interest rate environment, it is likely a larger share of gross revenue will go towards interest expense. Meaning it will be more important to monitor this metric than it has been in recent years.

On average, Minnesota farms kept 24% of gross revenue as net farm income in 2022 (down from 25% in 2021). This is above the standard strong benchmark level of 20%, reinforcing the observation that 2022 was quite a profitable year for Minnesota producers.

^{1 -} shows the proportion of farm income used to pay operating expenses, excluding depreciation and interest.

^{2 -} shows the proportion of farm income needed to maintain the capital used by the business.

^{3 -} shows how much of farm income is used to pay interest on borrowed capital.

^{4 -} compares profit to gross income and shows how much is left after all farm expenses are paid, except for unpaid labor and management.

Comparing Regional Median Net Farm Income Across Minnesota

Some Regions of Minnesota Saw Significant Profit Increases While Others Saw Decreases

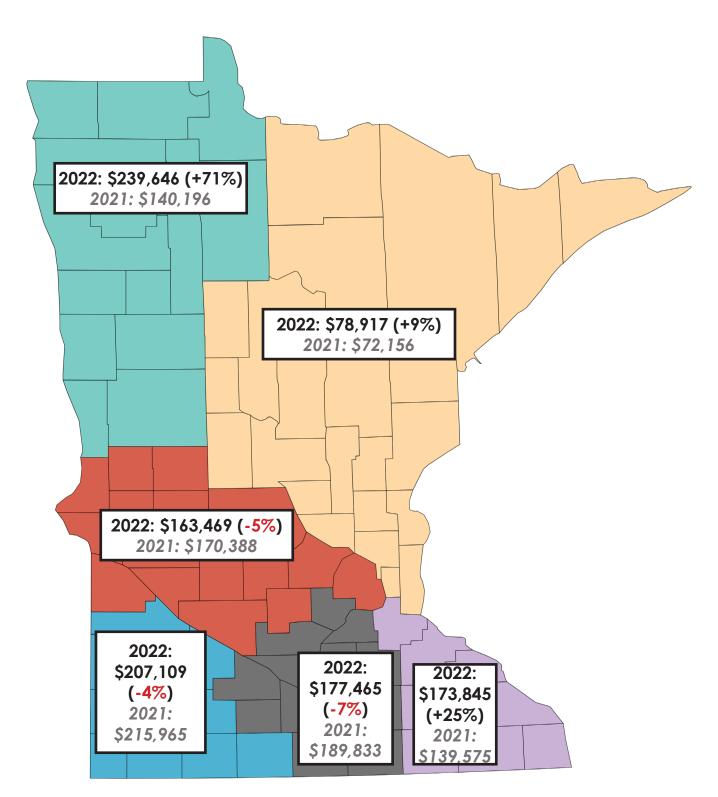


Figure 9. Minnesota Regional Median Net Farm Income in 2022 Compared to 2021

Family Expenses Recap

Family Living Expense Jumped in 2022

Family Living Expense

Data: Minnesota Average, Only includes sole proprietors who kept detailed family living records

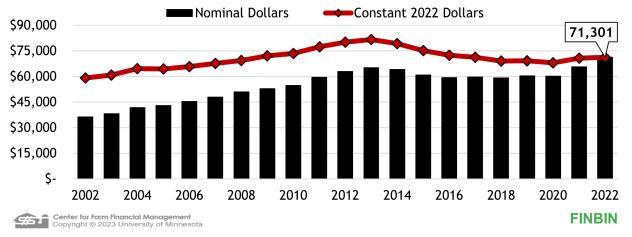


Figure 10. Average Family Living Expense for Sole Proprietor Farms in Minnesota w/ Detailed Family Living Records

\$71,301	+9%	\$19,148	>\$95,000
family living	change in family	income and social	needed to cover family
expense	living expenses	security taxes paid	living and taxes

Family living expenses for the 399 farms that kept detailed living records jumped by almost 9% in 2022. The average of these families spent \$71,301 for family living expenses. Historically, family living expenditures have increased in high income years like 2022. It is likely, however, that this year's increase was more impacted by the general level of inflation than farm income levels.

Food and meals was the highest individual expenditure category at \$10,799, a 9% increase from 2021. The second highest expenditure when added together was medical care and health insurance expense, which was virtually unchanged at \$9,325. These three categories made up 28% of total family living.

Comparisons Across Farm Types¹

SUMMARY COMPARISON ACROSS ALL FARM TYPES

Minnesota crop farms had another very profitable year in 2022, with a median net farm income of \$234,853. Dairy farms also saw improved profits in 2022, with the median farm earning \$154,903 of net farm income. Pork producers had the highest net farm income of any of Minnesota's major farm types with a median net income of \$293,288. Out of the past 20 years included in FINBIN, 2022 was the most profitable year for Minnesota beef farms with the median farm earning \$118,665 of net income.

Median Net Income by Farm Type

Data: Minnesota, Sorted by Farm Type

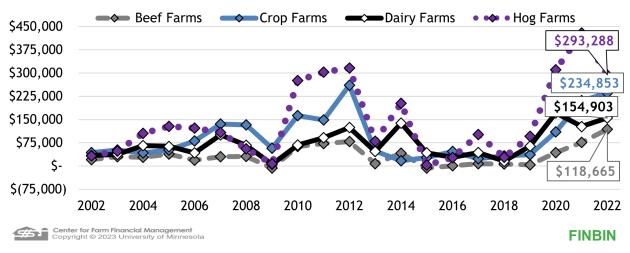


Figure 11. Median Net Farm Income Across Farm Types from 2002 to 2022

\$118,665	\$234,853	\$154,903	\$293,288
(+52%)	(+11%)	(+22%)	(-32%)
net income for beef farms	net income for crop farms	net income for dairy farms	net income for <u>hog</u> farms

Table 3 provides a snapshot comparison across the four major farm types in 2022. Hog farms had the highest net farm income while crop farms had the greatest returns on assets and equity. Dairy farms had the lowest working capital-to-gross revenue while crop farms had the highest. Hog farms had the lowest debt coverage ratio.

Table 3. Snapshot Comparison Across Farm Types in 2022

	Beef Farms	Crop Farms	Dairy Farms	Hog Farms
Median Net Income	\$118,665	\$234,853	\$154,903	\$293,288
Rate of Return on Assets	9%	13%	8%	5%
Rate of Return on Equity	14%	18%	12%	7%
Working Capital to Gross Revenue	44%	59%	23%	32%
Change in Working Capital	+\$127,527	+\$180,550	+\$101,896	+\$27,048
Debt Coverage Ratio	2.7	4.1	2.5	1.9
Net Worth Change	+\$278,417	+\$333,265	+\$286,220	\$305,670

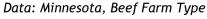
^{1 -} Farm type is determined based on which enterprise type comprises at least 70% of gross revenue.

BEEF FARMS

Minnesota Beef Farms Experienced Highest Profitability in 2 Decades

Out of the past 20 years included in FINBIN, 2022 was the most profitable year for Minnesota beef farms.

Median Net Farm Income - Beef Farms



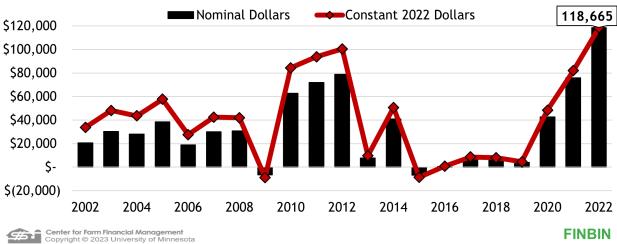


Figure 12. Median Net Farm Income for Beef Farms from 2002 to 2022

9 %	+\$127,527	+\$278,417
ROA for beef farms	change in working capital for beef farms	change in net worth for beef farms

Median profits for beef farms, at \$118,665, increased for the third consecutive year, yet returns for most beef enterprises were meager at best. The average cow-calf enterprise lost money on calf production and the average beef finishing enterprise made a moderate profit.

The average farm added more than \$125,000 of working capital and over \$275,000 of net worth in 2022. Their debt coverage ratio remained essentially the same as 2021 at 2.7:1.

This group of farms includes both cow-calf operators and cattle finishers. For the fifth consecutive year, cow-calf operators lost money on calf production. On average, they lost \$236 per cow in 2022. They lost \$104 per cow in 2021. Prices were up substantially for calf sales, with an average price for calf sales of \$180 per hundred pounds (cwt), up 17% from \$154 in 2021. Unfortunately, costs increased to consume the additional revenue. The average cost of production rose 22% in 2022. Feed costs, up 17%, were only part of the problem. Other costs increased even more. Death loss, averaging 7.6% of calves born, was also an issue. Further, pandemic and disaster related government payments mostly disappeared, down \$14 per cow from 2021.

Cattle finishers did somewhat better than cow/calf herds. They netted \$42 per head, down from \$67 in 2021. The average price received for fed cattle was \$146 per hundredweight, up from \$122 in 2021. On average, it cost \$147 to produce a hundredweight of beef, up from \$120 in 2021. The purchase price of feeders was up from \$149 per cwt in 2021 to \$175 in 2022. Feed costs increased by \$137 per head, an increase of 23%.

Table 4. Beef Farm Summary Table

lable 4. Beer Farm Summary Table	2019	2020	2021	2022	% Change from `21 to `22
Whole Farm Highlights					
Median Net Income	\$4,040	\$42,850	\$77,057	\$118,665	+54%
Rate of Return on Assets	1%	5%	9%	9%	-
Rate of Return on Equity	-3%	7%	15%	14%	-1%
Working Capital to Gross Revenue	26%	35%	40%	44%	+4%
Change in Working Capital	-\$1,641	+\$75,008	+\$107,667	+\$127,527	-
Debt Coverage Ratio	1.0	1.9	2.8	2.7	-4%
Net Worth Change	+\$43,119	+\$147,154	+\$205,694	+\$278,417	-
Production Highlights					
Beef Cow-Calf Enterprises					
Number of Cow-Calf Enterprises	95	97	101	85	-16%
Average Number of Cows	83	79	61	67	+10%
Calf Weaning Percentage	84%	85%	87%	83%	-4%
Calf Sales Price per cwt	\$145.96	\$158.89	\$154.34	\$180.27	+17%
Calf Cost of Production per cwt	\$205.90	\$170.84	\$207.07	\$248.01	+20%
Beef Finishing Enterprises					
Number of Finishing Enterprises	71	81	88	87	-1%
Number of Head Finished	295	257	324	230	-29%
Average Daily Gain	2.71 lbs	2.67 lbs	2.50 lbs	2.60 lbs	+4%
Purchase Price per cwt	\$149.14	\$140.12	\$148.89	\$175.09	+18%
Finished Beef Price per cwt	\$117.42	\$108.67	\$121.86	\$145.96	+20%
Cost of Production per cwt	\$119.41	\$108.24	\$120.31	\$146.78	+22%

Outlook for Minnesota Beef Farms in 2023

The price outlook for beef at the producer level, based on futures markets, is strong for the foreseeable future. With persistent drought in the plains states resulting in poor pasture production, there has been continued pressure on producers in those states to reduce herd size. The major challenge facing Minnesota livestock producers in 2023 will again be higher feed costs. Cow-calf producers have had a tough spring calving season so far, given cold temperatures and late snowstorms. That may dim the prospects for a strong rebound for cow-calf producers. Cattle finisher returns are always impacted by the relationship between feeder and fed cattle prices. At this point, given current prices, there is optimism that 2023 may be another strong year for beef farms.

CROP FARMS

Minnesota Crop Farms Experience Another Strong Year in 2022

Minnesota crop farms had another very profitable year in 2022. The 1,388 crop farms in FINBIN in 2022 earned a median net farm income of \$234,853, up from \$210,714 the previous year. This was the third consecutive profitable year after struggling with low net income over the previous seven years. Profits were driven by very strong commodity prices coupled with higher yields, which more than offset a significant increase in expenses. Government payments were less than half the 2021 amount and accounted for only 2.4% of gross revenue. Most of the government payments received in 2022 were related to production disasters in previous years.

Median Net Farm Income - Crop Farms

Data: Minnesota, Crop Farm Type

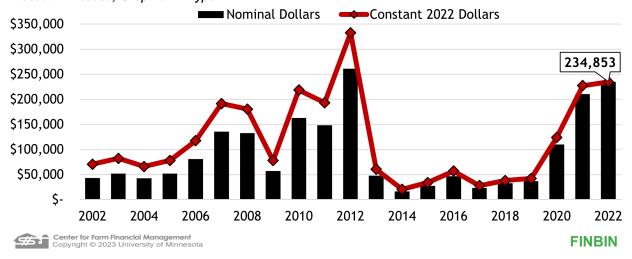


Figure 13. Median Net Farm Income for Crop Farms from 2002 to 2022

13%	+\$180,000	+\$330,000
ROA	change in working capital	change in net worth
for crop farms	for crop farms	for crop farms

The average crop farm earned an ROA of 13%, very similar to 2021 and higher than the 8% benchmark for strong profitability. Crop farms were again able to grow working capital and net worth. The average crop farm added over \$180,000 in working capital and over \$330,000 of net worth in 2022. Overall, these farms ended 2022 with strong balance sheets, putting them in a strong position to withstand potential financial shocks in the coming years.

Crop farms across the spectrum were profitable in 2022. Smaller crop farms, those that grossed under \$250,000, were slightly less profitable, earning 9% ROA. Yet they added almost \$38,000 to their working capital and \$111,000 to net worth. The most profitable size group based on ROA were those crop farms that grossed between \$1 million and \$2 million. Their average ROA was 14%.

Although there was significant drought stress across the central part of the state throughout the growing season, 2022 was a good production year for most crop farmers.

203 bushels	53 bushels	67 bushels	26 tons
Average corn yield per acre	Average soybean yield per acre	Average spring wheat yield per acre	Average sugarbeets yield per acre

USDA estimated corn yields for the state at 195 bushels per acre, up from 177 bushels in 2021. Corn yields for farms included in FINBIN were higher than USDA's estimates, averaging 203 bushels per acre. Soybeans in FINBIN yielded 52.5 bushels per acre on average, up from 48 bushels in 2021. Spring wheat averaged 67 bushels per acre in FINBIN, significantly higher than 52 bushels the previous year. Sugar beets saw a slightly reduced yield at 26 tons per acre, down from 29 tons in 2021.

The average corn price received by participating farms increased 28% to \$6.07 per bushel compared to 2021. Soybeans, at an average of \$13.66, improved 20%, while spring wheat prices received increased 33% to \$9.02 per bushel. Global economics and uncertainty were the main driver for higher prices.

Production costs also saw a significant increase compared to 2021. The cost to produce an acre of corn increased by 24% to \$920 per acre on cash rented land. Virtually every expense item increased somewhat but fertilizer had the biggest impact with a 57% increase, while cash rent for corn land rose 13% to \$227 per acre. The total cost to produce a bushel of corn increased 17% to \$4.82 per bushel. The cost of production per bushel for soybeans was \$11.04, up from \$9.71 in 2021. Despite explosive growth in production costs, the good yields and very strong prices delivered the highest returns per acre since 2012.

Table 5. Crop Farm Summary Table

lable 5. Crop Farm Summary Table					
					% Change
	2019	2020	2021	2022	from '21 to '22
Whole Farm Highlights					
Median Net Income	\$36,895	\$109,850	\$210,714	\$234,853	+11%
Rate of Return on Assets	3%	7%	13%	13%	-
Rate of Return on Equity	1%	9%	20%	18%	-2%
Working Capital to Gross Revenue	31%	40%	50%	59%	+9%
Change in Working Capital	+\$3,585	+\$109,874	+\$202,346	+\$180,550	-
Debt Coverage Ratio	1.3	2.5	4.2	4.1	-2%
Net Worth Change	+\$87,915	+\$186,777	+\$345,283	+\$333,265	-
Production Highlights					
Corn					
Yield (bushels /bu.) per acre	178	199	188	203	8%
Price Received (\$ per bu.)	\$3.62	\$3.40	\$4.73	\$6.07	+28%
Cost of Production (\$/bu.)	\$3.69	\$3.33	\$4.12	\$4.82	+17%
Cost of Production per acre	\$709	\$700	\$743	\$920	+24%
Soybeans					
Yield (bushels /bu.) per acre	46	53	49	53	+8%
Price Received (\$ per bu.)	\$8.48	\$8.97	\$11.43	\$13.66	+20%
Cost of Production (\$/bu.)	\$8.45	\$7.68	\$9.71	\$11.04	+14%
Cost of Production per acre	\$445	\$446	\$474	\$551	+16%
Spring Wheat					
Yield (bushels /bu.) per acre	61	59	52	67	+29%
Price Received (\$ per bu.)	\$5.13	\$4.96	\$6.78	\$9.02	+33%
Cost of Production (\$/bu.)	\$5.13	\$5.52	\$6.74	\$7.89	+17%
Cost of Production per acre	\$377	\$372	\$382	\$506	+32%

Outlook for Minnesota Crop Farms in 2023

Crop futures prices remain high for most major Minnesota cash crops. Some production expenses have decreased slightly. At this point, 2023 looks to be another strong year for Minnesota crop producers. As always, there are concerns that a time will come when prices fall. Production expenses will likely remain inflated for a period of time after prices fall. That transition period is always concerning. At this point though, there are no indications that 2023 will be the transition year.

DAIRY FARMS

Profits Improved for Minnesota Dairy Farms in 2022

Dairy farms also saw improved profits in 2022.



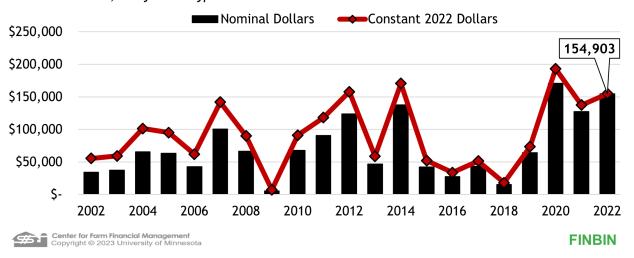


Figure 14. Median Net Farm Income for Dairy Farms from 2002 to 2022

The median net farm income for the 310 participating dairy farms in FINBIN was \$154,903, up from \$127,444 in 2021. Increased milk prices more than offset the rise in cost of production. The average milk price per hundredweight (cwt) jumped to \$24.35, up from \$18.59 in 2021. With increases in feed and other operating expenses, the average producer spent \$22.33 to produce a hundred pounds of milk, a 21% increase from the previous year.

In 2021, dairy producers benefited from Covid-19 related and other government payments of around \$250 per cow. Government payments were down to \$32 per cow in 2022.

8%	+\$101,896	+\$286,220
ROA for dairy farms	change in working capital for dairy farms	change in net worth for dairy farms

Dairy farms have traditionally carried less working capital than other farm types, providing less buffer for financial downturns. Dairy farms were able to grow working capital in 2022 through strong profits, adding just over \$100,000 of working capital per farm. Yet the average dairy farm had working capital equal to only 23% of gross revenue at the end of 2022. While this is much improved from the working capital to gross revenue position of 11% at the end of 2018, 23% it is still relatively weak compared to other farm types.

The solvency position of these farms also continued to improve. The average farm's net worth increased by \$28,000 in 2022. Debt coverage improved to a very healthy 2.5:1, meaning the average farm generated \$2.50 to cover each \$1 of debt payments. With an average debt-to-asset ratio of 32% (excluding deferred tax liabilities), the average participating dairy farm has a relatively strong balance sheet.

Dairy profits generally increased with farm size. The smallest dairy farms, those that generated gross income of less than \$250,000 were not profitable in 2022, earning a -1% rate of return on assets and a -6% return on equity. The largest farms, those that grossed over \$2 million, earned a 10% ROA and a 14% ROE. Liquidity, based on working capital to gross revenue, was relatively weak for the largest producers at 21%, compared to around 30% for mid-sized producers. Debt coverage ratios generally increased with farm size, ranging from under 1.0 for the smallest herds to 2.9 for the largest operations.

Average production per cow across all 310 participating farms increased to 25,216 pounds, a slight increase from 2021. On average, it cost \$22.33 to produce a hundred pounds of milk, an increase from the previous year of almost \$4.00 per cwt. Feed costs were up \$1.80 per hundredweight. With milk prices increasing \$5.76 per hundredweight though, the average producer netted \$692 per cow, up from \$220 in 2021.

Continuing past trends, the largest herds on average produced more milk per cow than smaller herds. However, this did not provide as much of an advantage as it has in years past. Herds with over 500 cows earned a net return of \$735 per cow, only slightly higher than other herds. Even though they had the highest feed costs per cow, larger herds had the lowest cost of production per hundred pounds of milk. This was largely because they produced more milk per cow.

Profits were down for **organic dairies**. The median organic dairy farm earned \$61,923 in 2022 compared to \$88,564 in 2021. Organic dairies earned an ROA of only 3.2%. Organic herds averaged a \$616 net return per cow, slightly less than the average conventional herd. Since organic herds are smaller than conventional herds in FINBIN, averaging only 90 cows per herd, they did not benefit from volume as much as the average conventional farm. Organic milk prices were up slightly at \$30.58 per cwt but it cost \$29.61 to produce a hundredweight of organic milk. Production per cow was down for organic herds. The average organic herd produced 15,311 pounds per cow, down from 16,014 in 2021.

Table 6. Dairy Farm Summary Table

Table 6. Daily Farm Summary Table					
	2019	2020	2021	2022	% Change from `21 to `22
Whole Farm Highlights					
Median Net Income	\$64,144	\$170,922	\$127,444	\$154,903	+22%
Rate of Return on Assets	5%	11%	6%	8%	+2%
Rate of Return on Equity	5%	16%	8%	12%	+4%
Working Capital to Gross Revenue	14%	22%	21%	23%	+2%
Change in Working Capital	+\$52,283	+\$164,846	+\$30,029	+\$101,896	-
Debt Coverage Ratio	1.5	2.8	2.0	2.5	+25%
Net Worth Change	+\$103,328	+\$293,814	+\$180,527	+\$286,220	-
Production Highlights					
Number of Dairy Enterprises	298	306	297	261	-12%
Average Number of Milk Cows	228	238	269	260	-3%
Pounds of Milk Produced Per Cow	24,137	24,663	25,030	25,216	+1%
Price Received (\$ / cwt milk)	\$18.83	\$19.90	\$18.59	\$24.35	+31%
Cost of Production per cwt of Milk	\$17.86	\$16.83	\$18.38	\$22.33	+21%
Cost of Production per Cow	\$3,836	\$4,150	\$4,304	\$5,019	+17%

Outlook for Minnesota Dairy Farms in 2023

So far in 2023, prices are down and futures prices do not offer much room for optimism. With continued high feed costs, higher interest rates, and persistent cost inflation, 2023 looks to be a challenging year for Minnesota dairy operations.

Hog Farms

Profits Lower, But Still Strong for Minnesota Hog Farms in 2022

Profits for Minnesota pork producers were down in 2022 after an extremely profitable 2021, yet in absolute dollars, pork producers still had the highest net farm income of any of Minnesota's major farm types.

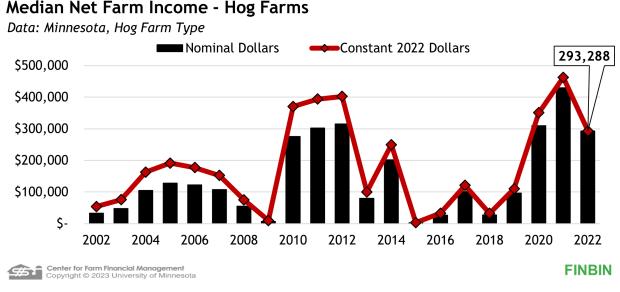


Figure 15. Median Net Farm Income for Hog Farms from 2002 to 2022

The median income for pork producers was \$293,288. However, comparing pork producer profits to other farm types is dangerous. Most Minnesota pork farms are much larger than other farm types. While they produced positive returns, they were the least profitable farm type based on rates of return on investment.

5%	+\$27,048	+\$305,670
ROA for hog farms	change in working capital for hog farms	change in net worth for hog farms

Participating pork operations earned a 5% ROA and a 7% ROE, slightly below suggested benchmarks for strong profitability of 8% and 10% respectively. The average farm added just \$27,048 to working capital. Their liquidity deteriorated slightly in 2022 based on working capital to gross revenue; yet the average pork producer was still in a relatively strong liquidity position at the end of the year. The average pork farm's debt-to-asset ratio stood at 34% (excluding deferred liabilities) at the end of 2022, up 4% from the previous year. Even with these financial challenges, the average pork producer's net worth increased by over \$300,000.

Pork finishing operations sold pigs at the second highest price in the past 20 years. Yet, on average they lost money on pig sales. Table 5 shows selected metrics for pig finishers (operations that purchase pigs and sell them at market weight). This includes both wean-to-finish operations and feeder pig finishing operations. While sale prices increased by 4 percent compared to 2021, cost of production increased by 12%. Feed costs increased by almost 20%. At net, wean-to-finish enterprises lost about one dollar per head after profiting almost \$20 per head in 2021.

Another important segment of the Minnesota pork industry are those producers who contract to grow pigs for larger pork producers. Eighty-six (86) producers reported hog contract finishing in 2022. Contract grower income has been very consistent over the years. The average wean-to-finish grower reported a net return of over \$6.17 per pig space in 2022, down slightly from \$8.11 the previous year.

There were not enough farrow-to-finish operations in FINBIN in 2022 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 piglets to producers who raise the pigs or who contract with growers to provide facilities and labor to raise the pigs.

Table 7. Hog Farm Summary Table

	2019	2020	2021	2022	% Change from '21 to '22
All Hog Farms Highlights					
Median Net Income	\$96,245	\$310,042	\$429,421	\$293,288	-32%
Rate of Return on Assets	5%	9%	13%	5%	-8%
Rate of Return on Equity	5%	14%	20%	7%	-13%
Working Capital to Gross Revenue	22%	28%	38%	32%	-6%
Change in Working Capital	+\$80,424	+\$313,747	+\$477,927	+\$27,048	-
Debt Coverage Ratio	1.5	2.9	4.3	1.9	-56%
Net Worth Change	+\$142,733	+\$411,384	+\$638,368	+\$305,670	-
Finishing Enterprise Highlights					
Number of Finishing Enterprises	54	41	41	31	-24%
Number of Pigs Finished	14,132	16,016	17,979	17,754	-1%
Price Received per cwt (carcass)	\$68.31	\$64.51	\$92.05	\$95.43	+4%
Cost of Production per cwt	\$68.73	\$58.72	\$86.77	\$97.52	+12%

Outlook for Minnesota Hog Farms in 2023

Figure 14 shows the cyclical nature of pork producer profits. The traditional hog cycle has been interrupted in recent years by domestic and international animal disease problems, international trade issues, and recently by the Covid pandemic. At this point, based on futures markets, prices are forecasted to be lower in 2023 than in 2022. With high projected feed prices and continued inflation, it is hard to be optimistic for hog producers in the coming year.

About the FINBIN Database

See the Data for Yourself

The information contained in this report is available for all to access at https://finbin.umn.edu/. This page provides a brief overview of how to query the database. Three primary types of reports are available in FINBIN. Table B briefly describes each report type and their use or value. More information on the various report types can be found here.

Table 8. Overview of FINBIN Report Types (hyperlinks will take you to that particular report type page in FINBIN)

Report Type	Description	Use(s)
Summary	Display the average results for the farms or enterprises you select. Whole Farm reports look at the farm as a whole. Crop and Livestock reports summarize a specific crop or livestock enterprise.	This type of report is an excellent guide to use when you are examining costs to produce a crop or even preparing a budget for your operation.
Benchmark	Display the range of results for a specific peer group for the whole-farm, or crop or livestock enterprise level.	Help producers identify where they are performing better than other like producers and where they may be able to improve.
Compare Your Farm	Uses standard ratios to compare your farm to farms included in FINBIN. When you first select this report type you can either choose to enter your farm's financial ratios or you can choose to calculate the ratios.	Allows anyone, even those who did not contribute data to FINBIN, to compare their farm's financial ratios to FINBIN.

Minimum Sample Sizes for Reports in FINBIN

To ensure data security and privacy, the reports in FINBIN have minimum sample sizes that are needed in order generate. For enterprise summary reports, the minimum number of observations is 5. For benchmark reports, 30 observations are necessary.

Filtering Reports in FINBIN

FINBIN reports can be filtered by the items/categories below.

- States
- Groups
- Farm Type
- Total Crop Acres
- Gross Farm Income
- Net Farm Income
- Total Farm Assets
- Debt-to-Asset Ratio
- Debt-to-Asset Ratio
- Age of Operator
- No. of Years Farming

Panel Reports in FINBIN

Panel reports are available in FINBIN. Panel reports contain the same set of farms over multiple years. To generate panel reports, check the box under the *Panel Data Reporting* header that is labeled "Create a report using only farms that are in every year."

Bibliography

FINBIN, Center for Farm Financial Management, University of Minnesota, www.finbin.umn. edu.

Minnesota Ag News – Crop Production, National Agricultural Statistics Service, United States Department of Agriculture, January, 2023.

Minnesota Ag News – Farms and Land in Farms, United States Department of Agriculture, National Agricultural Statistics Service, Washington, D.C., February, 2023.

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United States Department of Agriculture National Institute of Food and Agriculture

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