Credit Analysis: From Cash to Accrual

FINPACK®

COMMERCIAL Credit Analysis

AGRICULTURAL Credit Analysis

Agriculture

- Balance Sheets
- Tax Forms
- Earned Net Worth Analysis
- Schedule F Accrual Analysis
- Cash Flow Projections
- Global Cash Flow
- Risk Rating
- Collateral Analysis
- Loan Presentations

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Commercial

- Balance Sheets
- Tax Forms
- C&I Business Analysis
- CRE Analysis
- Cash Flow Projection
- Global Cash Flow
- Risk Rating
- Collateral Analysis
- Loan Presentations

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Unique Challenges of Ag Lending

- Information Timing
- Market Value Balance Sheets
- Cash Based Accounting

Tools for Business/Credit Analysis

- In a perfect world
  - Financial Soundness
    - Balance sheets with cost and market values
  - Financial Performance
    - Accrual income statement

Tools for Business/Credit Analysis

- In the real world
  - Financial Soundness
    - Balance sheets at mixed market/cost values
  - Financial Performance
    - Schedule F tax statement

How can we measure financial performance in the real world?

The analysis starting point

BALANCE SHEETS

Balance Sheet

A snapshot of the assets and liabilities of a business at specific point in time

- Assets
  - Everything owned or payable to the business
- Liabilities
  - All obligations owed
- Owner's Equity/Net Worth
  - Total assets minus total liabilities

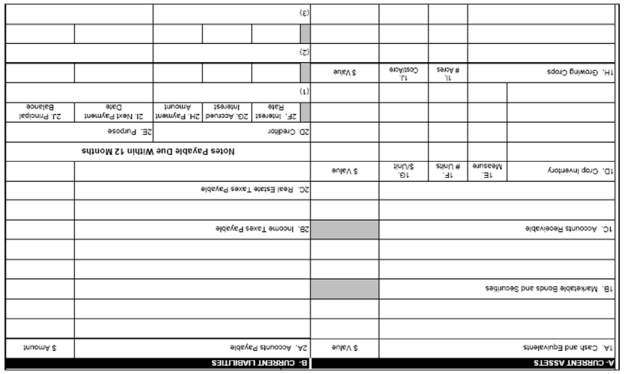
Balance Sheet

Assets	Liabilities
Current (< 1 year)	Current
Intermediate (1–10 yrs)	Intermediate
Long term (> 10 years)	Long term
Personal	Personal
	Total liabilities
	Net worth
Total assets	Total Liabs + Net worth

Balance Sheet

- The foundation upon which the business stands
- How strong is it?

The Customer's Balance Sheet?



Ag Lending Challenge #1

Information Timing

- When is the most useful time to complete balance sheets?
  - End of the business's fiscal/tax year
- Issue #1: Balance sheet timing in ag
  - At year end?
  - Time of renewal?

Balance Sheet Analysis

- Liquidity
  - Current ratio
  - Working capital
- Balance sheet structure
- Solvency
  - Net worth
  - Debt-to-asset ratio
- Net worth change!!!
  - BUT, was the net worth change earned?

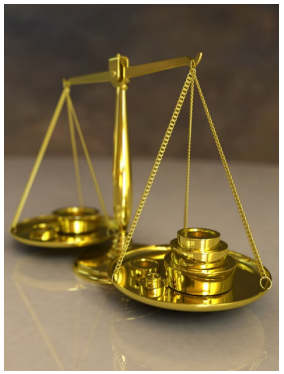
Ag Lending Challenge #2

Asset Valuation

- Market Valuation – assets valued at estimated market value
- Cost Valuation – assets valued at a depreciated value

"Market Value" Balance Sheets

- Current assets
  - Crop and livestock inventories – market
  - Prepaids, supplies – cost
  - Growing crops – cost
- Intermediate assets
  - Breeding livestock – market
  - Machinery – mixed
- Long term assets
  - Real estate – conservative market



Market Value Balance Sheet

Total market value of assets

- Total debts

= Net worth

Market Value

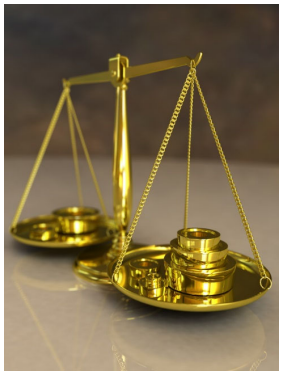
Capital assets valued at estimated fair market value

- **Advantage**
  - Best estimate of solvency - amount remaining if all assets were sold and all debts paid

- **Disadvantage**
  - Mixes net worth changes from earnings with market value changes

Cost Value Balance Sheets

- **Current assets**
  - Crop and livestock inventories – market
  - Prepaids, supplies – cost
  - Growing crops – cost
- **Intermediate assets**
  - Breeding livestock – base value
  - Machinery – depreciated value
- **Long term assets**
  - Land – original cost
  - Buildings – depreciated value



Cost Value Balance Sheet

Total depreciated value of assets

- Total debts

= Retained earnings (Earned Net Worth change)

Cost Value

Capital assets valued at original purchases price minus depreciation

Change in Cost Value Net Worth =

Change in Retained Earnings =

Change in Earned Net Worth

Cost Value

Capital assets valued at original purchases price minus depreciation

- **Advantage**
  - Includes only net worth changes resulting from earnings
- **Disadvantage**
  - Does not provide accurate solvency picture

Cost Value of Machinery & Other Capital Assets

- Option: Tax depreciation
  - too fast
  - too lumpy
- Better Approach: Economic depreciation
  - starts with the original purchase price
  - depreciates over the asset's estimated useful life (with salvage value)
  - common method – depreciate a percentage of the value each year

Valuation of depreciable assets

- Economic depreciation

  Common method used by lenders:
  depreciate percentage of the value annually

  = Beginning value
  + Purchases
  - Sales
  x Depreciation percentage

  - Machinery: 10% per year
  - Buildings: 5% per year

Cost and Market Balance Sheet Example

	Cost	Market
Total assets	$600,000	$800,000
Total liabilities	- 200,000	- 200,000
Deferred liabilities		- 120,000
Retained earnings	**$400,000**	
Valuation equity		*+ 80,000*
Net worth		**$480,000**

Cost Value Balance Sheet

- Getting started with Cost/Book Valuation
  - Start with the asset market values and depreciate going forward
- Remember, it's the change from year to year that counts
  - The absolute value is not important

Tools for Business/Credit Analysis

- In the real world
  - Financial Soundness
    - Balance sheets at mixed market/cost values
  - Financial Performance
    - Schedule F tax statement

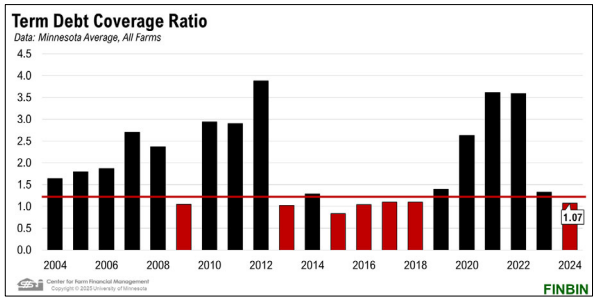
How can we measure financial performance in the real world?

Earned Net Worth Analysis

- Net Worth Change is often your best indicator of financial performance
- Two components on market value statements
  - Earned net worth change
  - Asset valuation change

Earned Net Worth Analysis

- Measure whether earnings exceeded consumption
- **Added benefit:** calculate debt coverage ratio



Earned Net Worth Analysis

- Does Not Require
  - Fiscal year balance sheets
  - Tax forms
  - Accurate family living information

Financial Statements

- Balance sheet
- Income statement
- Statement of owner's equity
- Statement of cash flows

Statement of Owner's Equity

Commercial Business
Beginning shareholder's equity at cost
+ Net income after taxes (income statement)
- Dividends
= Ending shareholder's equity at cost

Retained Earnings = Earned Net Worth Change

Statement of Owner's Equity

Farm Business
Beginning net worth at market
+ Net farm income (accrual)
+ Non-farm income
- Family living expense
- Income taxes
= Ending net worth at market

Retained Earnings = Earned Net Worth Change

Statement of Owner's Equity

Farm Business
Beginning net worth at **market**
+ Net farm income (accrual)
+ Non-farm income
- Family living expense
- Income taxes
+/- Valuation changes
= Ending net worth at **market**

Retained Earnings = Earned Net Worth Change

Earned Net Worth Change

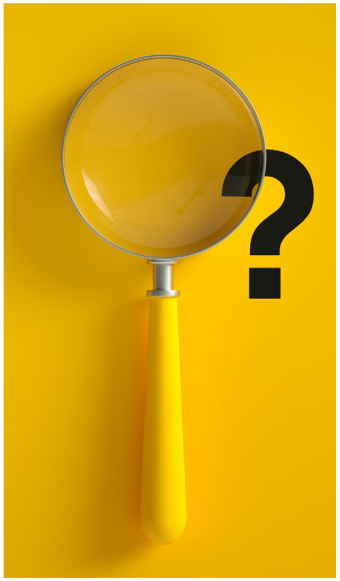
Market Value Statements

Farm Business
Ending net worth
- Beginning net worth
= Net worth change
- Valuation changes
= Earned net worth change

Net farm income
+ Non-farm income
- Owner withdrawals (family living)
- Income taxes

Valuation Changes

- How can we distinguish between:
  - Depreciation *and*
  - Valuation Change



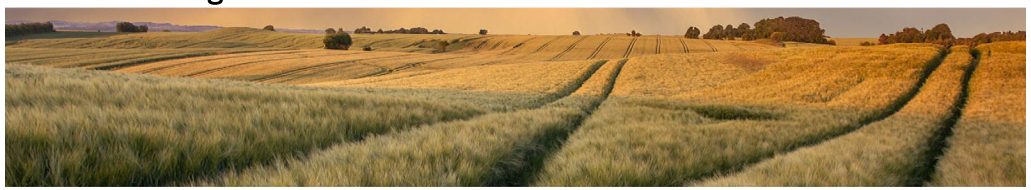
Valuation Changes

- Identifying valuation change is the tricky part:
  - Land
  - Machinery & equipment
  - Breeding livestock

Valuation Changes

- Land

  Ending land value
  + Land Sales
  - Land Purchases
  - Beginning land value
  = Change in Market Value



Valuation Changes

- Machinery and Other depreciable assets
  - Estimate economic depreciation
  - Any change in market value greater or less than depreciation = valuation change

Depreciation Recommendation

- Estimating economic depreciation
  - Lenders have gravitated to using these %:
    - 10% for machinery and equipment
    - 15% for titled vehicles
    - 5% for buildings

How to Calculate Earned Net Worth Change

Earned Net Worth Change Example

Beginning Net Worth	$900,000
- Ending Net Worth	- 950,000
= Net Worth Change	= $50,000

But how do we know if this market valuation change or earned net worth growth?

Step 1.

Calculate any Change in Market Valuation.

Estimating Economic Depreciation

Beginning Value
+ Capital Purchases
- Capital Sales
= Total to Depreciate
x Depreciation %
= Economic Depreciation Amount

Calculating: Machinery Valuation Change

Beg. Balance Sheet value	$500,000
+ Capital purchases	+ 60,000
- Capital sales	- 10,000
= Total to depreciate	= $550,000
- Depreciation (10%)	- 55,000
= Calculated ending value	= $495,000
Reported end. bal. sheet value	$525,000
= Change in Market Valuation	+ $30,000

Step 2.

Calculate Earned Net Worth Change.

Earned Net Worth Change Example

Beginning Net Worth	$900,000
- Ending Net Worth	- 950,000
= Net Worth Change	= $50,000
+/- Valuation Change	- 30,000
= Earned NW Change	= $20,000

Earned Net Worth Change Example

Beginning Net Worth	$900,000
- Ending Net Worth	- 950,000
= Net Worth Change	= $50,000
+/- Valuation Change	- 130,000
= Earned NW Change	= -$80,000

Bonus!

Step 3: Calculate Debt Coverage Ratio

Term Debt Coverage Ratio

Term Debt Coverage Ratio
Net farm income (accrual)
+ Non-farm income
- Owner withdrawal (family living)
- Income taxes
+ Depreciation
+ Interest on term debt
= Capital debt repayment capacity
÷ Scheduled term debt payments

= *Earned net worth change*

Term Debt Coverage Ratio

Term Debt Coverage Ratio
Earned Net Worth Change
+ Depreciation
+ Interest on term debt
= Capital debt repayment capacity
÷ Scheduled term debt payments

John Q. Farmer
Earned Net Worth Analysis

Step 1: Market Valuation Change

Change in Market Valuation/Depreciation Worksheet

			Machinery	Buildings	Land	Total
	Beginning balance sheet value		230,017			
	Purchases	+	68,579			
	Sales	-	7,365			
C.	Total value to depreciate	=	291,231	0	0	
	Depreciation rate	*	10%		0%	
D.	Depreciation	=	29,123	0	0	
E.	Ending depreciated value (C - D)		262,108	0	0	
F.	Ending balance sheet value		274,340			
G.	Change in market valuation (F - E)		12,232	0	0	

Step 2: Calculate Earned Net Worth Change

Earned Net Worth Analysis

	Ending net worth (mkt)		
	Beginning net worth (mkt)	-	
	Change in net worth (mkt)	=	0
	Change in market valuation (G)	-	0
	Inheritance, gifts, capital contributions	-	
	Gifts given	+	
A.	**Change in earned net worth**	=	0

Step 3: Calculate Term Debt Coverage Ratio

Repayment Capacity: Term Debt Coverage Ratio

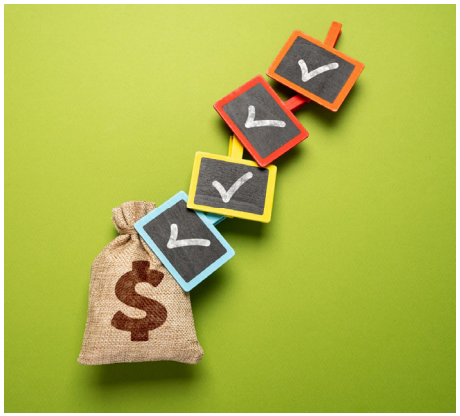
Earned net worth change (A)		0	
Depreciation expense (D)	+	0	
Interest on term debt	+		
Capital debt repayment capacity	=	0	
Scheduled payments on term debt	÷		
Term debt coverage ratio	=		----- 1.25 ---------- 1.75 -----

Earned Net Worth Analysis Spreadsheet

Download at z.umn.edu/EarnedNetWorth

- This link will automatically download the spreadsheet.
- Also available at www.cffm.umn.edu/farm-management-publications

To review…what do you need for this analysis?



- Two balance sheets (about a year apart)
- Capital purchases and sales (for the analysis period)

Measuring financial performance

INCOME STATEMENT

Income Statement

- Measures profitability over a period of time
- Profitability drives growth in equity, liquidity, and repayment over the long term

Income Statement

- Types of income statements in agriculture
  1. Tax Schedules
     - Schedule F
     - Partnership or corporate forms
  2. Accrual Adjusted Statements
  3. Accountant Prepared Statements
     - Usually, accrual
     - How is inventory valued?
     - How is depreciation calculated?

Ag Lending Challenge #3

Cash Based Information

- Problems with tax forms
  - *Cash based*
  - Tax rules that distort income
  - Fast depreciation

Profitability Signals

- Cash income can give the wrong profitability sign
  - 2 to 3 year lag in recognizing decreases or increases in profitability.
  - Smooths out cash flow bumps but doesn't reveal true profitability of the production year.
  - Accrual adjusted income reveals profitability changes faster.
    - Inventory values are adjusted annually – recognizing profitability changes quickly.

The Dilemma with Schedule F Tax Form

Jones Farm	
Gross income	$500,000
Cash expenses	-450,000
Net cash income	50,000
Inventory change	+100,000
Depreciation	-40,000
Net farm income	110,000

Smith Farm	
Gross income	$500,000
Cash expenses	-450,000
Net cash income	50,000
Inventory change	-100,000
Depreciation	-40,000
Net farm income	-90,000

The Accrual Income Statement

- **Includes all INCOME produced during the accounting period, whether sold or not**
- **Includes all EXPENSES incurred during the accounting period, whether paid or not**

The Accrual Income Statement

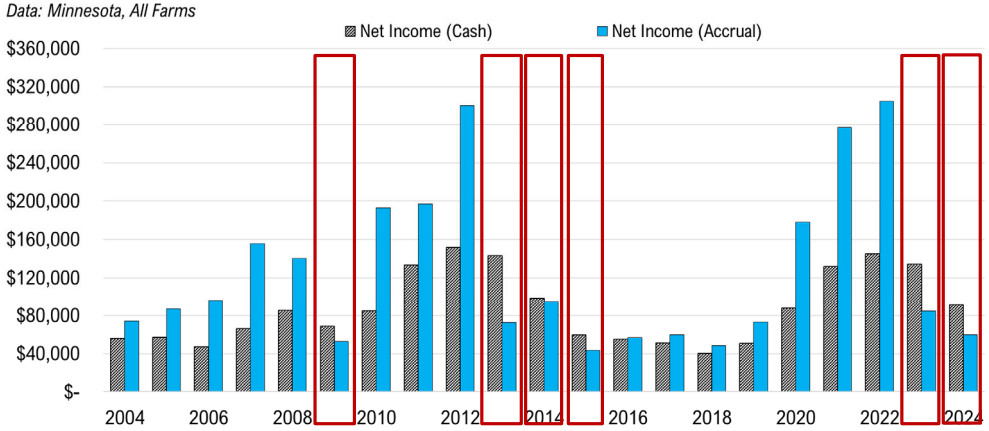
- More detailed information is needed for the analysis:
  - Bookend balance sheets for the tax year.
  - Cash records or Sch. F tax form.

Accrual Adjusted Net Farm Income

Net Farm Income =
Gross cash farm income
- Total cash farm expense
+/- Inventory changes
- Economic Depreciation

Comparing Cash & Accrual Net Farm Income

Data: Minnesota, All Farms



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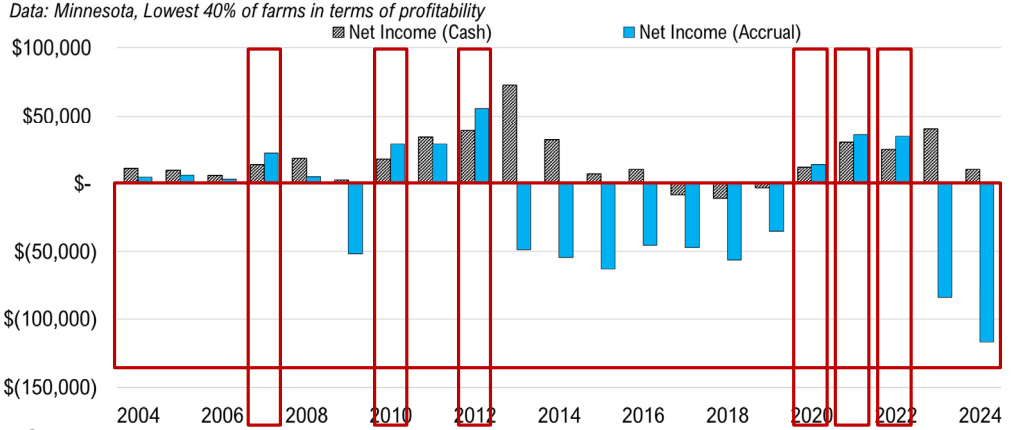
Cash vs Accrual Net Farm Income for Low Profit Farms

Data: Minnesota, Lowest 40% of farms in terms of profitability



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Schedule F vs. Accrual Net Income
% difference for years averaged

Years Averaged	All farms	20-40% in debt	>40% in debt
2002-04	67%	56%	60%
2003-05	41%	56%	61%
2004-06	63%	57%	63%
5-Year			
2002-06	66%	55%	60%

Source: Barnard, F. L., Ellinger, P. N., & Wilson, C. (2010). *Measurement Issues in Assessing Profitability through Cash Tax Returns.* Journal of American Society of Farm Managers and Rural Appraisers, 2010(1), 207-217.

Schedule F Income – What's the cash for this year?

Part I **Farm Income—Cash Method.** Complete Parts I and II (Accrual method. Complete Parts II and III, and Part I, line 9.)

1a	Specified sales of livestock and other resale items (see instructions)	1a					
b	Sales of livestock and other resale items not reported on line 1a	1b	2093459				
c	Total of lines 1a and 1b (see instructions)	1c	2093459				
d	Cost or other basis of livestock or other items reported on line 1c	1d	1221953				
e	Subtract line 1d from line 1c					1e	871506
2a	Specified sales of products you raised (see instructions)					2a	
b	Sales of products you raised not reported on line 2a					2b	498952
3a	Cooperative distributions (Form(s) 1099-PATR)	3a	91	3b	Taxable amount	3b	91
4a	Agricultural program payments (see instructions)	4a	11412	4b	Taxable amount	4b	11412
5a	Commodity Credit Corporation (CCC) loans reported under election					5a	
b	CCC loans forfeited	5b		5c	Taxable amount	5c	
6	Crop insurance proceeds and federal crop disaster payments (see instructions)						
a	Amount received in 2011	6a		6b	Taxable amount	6b	
c	If election to defer to 2012 is attached, check here ▶ ☐			6d	Amount deferred from 2010	6d	
7a	Specified custom hire (machine work) income (see instructions)					7a	
b	Custom hire income not reported on line 7a					7b	
8a	Specified other income (see instructions)					8a	
b	Other income not reported on line 8a (see instructions)					8b	
9	**Gross income.** Add amounts in the right column (lines 1e, 2a, 2b, 3b, 4b, 5a, 5c, 6b, 6d, 7a, 7b, 8a, and 8b). If you use the accrual method, enter the amount from Part III, line 50 (see instructions) ▶					9	1381961

Schedule F Expense – Tax Depreciation

Part II **Farm Expenses—Cash and Accrual Method.** Do not include personal or living expenses (see instructions).

10	Car and truck expenses (see instructions). Also attach Form 4562	10		23	Pension and profit-sharing plans	23	
11	Chemicals	11	34162	24	Rent or lease (see instructions):		
12	Conservation expenses (see instructions)	12		a	Vehicles, machinery, equipment	24a	
13	Custom hire (machine work)	13	3850	b	Other (land, animals, etc.)	24b	192719
14	Depreciation and section 179 expense (see instructions)	14	211414	25	Repairs and maintenance	25	32677
				26	Seeds and plants	26	101458
15	Employee benefit programs other than on line 23	15		27	and warehousing	27	2809
16	Feed	16	275173	28	Supplies	28	27913
17	Fertilizers and lime	17	91416	29	Taxes	29	1680
18	Freight and trucking	18	28516	30	Utilities	30	6849
19	Gasoline, fuel, and oil	19	27212	31	Veterinary, breeding, and medicine	31	11647
20	Insurance (other than health)	20	33728	32	Other expenses (specify):		
21	Interest:			a	Marketing	32a	7877
a	Mortgage (paid to banks, etc.)	21a	43662	b	Dues & Prof Fees	32b	1195
b	Other	21b	67388	c	Misc	32c	1643
22	Labor hired (less employment credits)	22	24939	d		32d	
				e		32e	
				f		32f	
33	**Total expenses.** Add lines 10 through 32f. If line 32f is negative, see instructions ▶					33	1229927
34	**Net farm profit or (loss).** Subtract line 33 from line 9					34	152034

Depreciation Recommendation

- Economic depreciation
  - Any method that depreciates assets over their useful life
  - Lenders have gravitated to using:
    - 10% - machinery & equipment
    - 15% - titled vehicles
    - 5% - buildings & improvements
  - Any change greater than economic depreciation is Valuation Change

Converting Cash to Accrual Adjusted Income Statement

Jones Farm	
Gross cash income	$500,000
Cash expenses	-450,000
Net cash income	50,000
Inventory change	+100,000
Econ. Depreciation	-40,000
Net farm income	110,000

John Q. Farmer

Sch F Cash to Accrual Analysis

Schedule F Income

Part I **Farm Income—Cash Method.** Complete Parts I and II. (Accrual method. Complete Parts II and III, and Part I, line 9.)

1a	Sales of purchased livestock and other resale items (see instructions)			1a				
b	Cost or other basis of purchased livestock or other items reported on line 1a			1b				
c	Subtract line 1b from line 1a						1c	
2	Sales of livestock, produce, grains, and other products you raised						2	347,464
3a	Cooperative distributions (Form(s) 1099-PATR)	3a	128	3b	Taxable amount		3b	128
4a	Agricultural program payments (see instructions)	4a	15,033	4b	Taxable amount		4b	15,033
5a	Commodity Credit Corporation (CCC) loans reported under election						5a	
b	CCC loans forfeited	5b		5c	Taxable amount		5c	
6	Crop insurance proceeds and federal crop disaster payments (see instructions):							
a	Amount received in 20Y6	6a		6b	Taxable amount		6b	
c	If election to defer to 20Y7 is attached, check here ☐			6d	Amount deferred from 20Y5		6d	
7	Custom hire (machine work) income						7	
8	Other income, including federal and state gasoline or fuel tax credit or refund (see instructions)						8	46,565
9	**Gross income.** Add amounts in the right column (lines 1c, 2, 3b, 4b, 5a, 5c, 6b, 6d, 7, and 8). If you use the accrual method, enter the amount from Part III, line 50. See instructions						9	409,190

Calculating Accrual Adjusted Income

Gross Income (Schedule F, line 9)	$409,190
+ Cost of feeder livestock sold (line 1b)	0
- Crop insurance reported (line 6b)	0
+ Crop insurance received (line 6a)	0
- Crop insurance deferred (line 6d)	0
+ Cull livestock income	11,043
Gross Cash Income	$420,233

Calculating Accrual Adjusted Income

Gross Cash Income			$420,233
	End Inv	- Beg Inv	
Crops and feed	63,390	58,385	5,005
Livestock held for sale	900	1,400	-500
Accounts receivable	1,100	0	1,100
Hedging accounts			
Other inventory			
Gross Revenue (accrual)			**$425,838**

Schedule F Expenses

Part II **Farm Expenses—Cash and Accrual Method.** Do not include personal or living expenses. See instructions.

10	Car and truck expenses (see instructions). Also attach **Form 4562**	10		23	Pension and profit-sharing plans	23	
11	Chemicals	11	14,676	24	Rent or lease (see instructions):		
12	Conservation expenses (see instructions)	12		a	Vehicles, machinery, equipment	24a	
13	Custom hire (machine work)	13	15,488	b	Other (land, animals, etc.)	24b	4,130
14	Depreciation and section 179 expense (see instructions)	14	62,562	25	Repairs and maintenance	25	23,285
15	Employee benefit programs other than on line 23	15		26	Seeds and plants	26	8,726
16	Feed	16	122,895	27	Storage and warehousing	27	
17	Fertilizers and lime	17	170	28	Supplies	28	26,528
18	Freight and trucking	18	5,467	29	Taxes	29	4,161
19	Gasoline, fuel, and oil	19	19,906	30	Utilities	30	12,353
20	Insurance (other than health)	20	9,875	31	Veterinary, breeding, and medicine	31	15,055
21	Interest (see instructions):			32	Other expenses (specify):		
a	Mortgage (paid to banks, etc.)	21a	38,433	a	Marketing	32a	5,233
b	Other	21b		b	Dues	32b	577
22	Labor hired (less employment credits)	22	13,225	c		32c	
				d		32d	
				e		32e	
				f		32f	
33	**Total expenses.** Add lines 10 through 32f. If line 32f is negative, see instructions					33	402,745

Calculating Accrual Adjusted Expenses

Total Expense (Sched F, line 33)			$402,745
Purchases of feeder livestock & other resale items			0
Depreciation (-)			- 62,562
Asset Accounts	**Beg Inv**	**- End Inv**	
Prepaid exp. & supplies	13,985	2,400	+ 11,585
Growing crops	0	0	0
Liability Accounts	**End Inv**	**- Beg Inv**	
Accounts payable	41,218	29,167	+ 12,051
Accrued expenses	2,124	1,259	+ 865
Total Operating Expense (accrual)			**$364,684**

Calculating Accrual Adjusted Net Income

Gross Revenue (accrual)						$425,838
Total Operating Expense (accrual)						364,684
Depreciation	Beg inv	+ Purch	- Sales	= Value	% Depr	
Machinery	230,017	68,579	7,365	291,231	10%	+ 29,123
Vehicles					15%	
Buildings	423,473			423,473	5%	+ 21,174
Breeding livestock replacements						-
Total Expense (accrual)						**$414,981**
Net Farm Income (accrual)						**$10,857**

Cash to Accrual & Ratio Analysis Spreadsheet

Download at z.umn.edu/CashtoAccrual

- This link will automatically download the spreadsheet.
- Also available at www.cffm.umn.edu/farm-management-publications

John Q. Farmer
Ratio Analysis

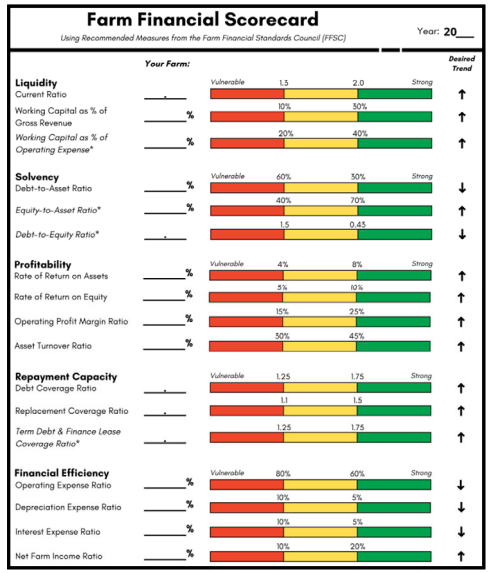
Analyze the Numbers

Farm Financial Standards Measures

LIQUIDITY	Current Ratio	**SOLVENCY**	Debt-to-Asset Ratio
	Working Capital as % of Gross Revenue		Equity-to-Asset Ratio*
	Working Capital as % of Operating Expense*		Debt-to-Equity Ratio*
PROFITABILITY	ROR on Assets	**REPAYMENT CAPACITY**	Debt Coverage Ratio
	ROR on Equity		Replacement Coverage Ratio
	Operating Profit Margin Ratio		Term Debt & Finance Lease Coverage Ratio*
	Asset Turnover Ratio		
FINANCIAL EFFICIENCY	Operating Expense Ratio	Interest Expense Ratio	
	Income from Operations Ratio	Depreciation & Amortization Expense Ratio	

Farm Financial Scorecard

z.umn.edu/Scorecard



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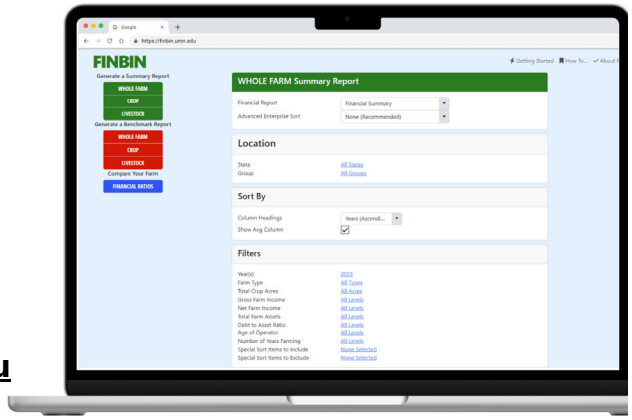
FINBIN is the largest and most accessible source of farm financial and production benchmark information in the country. It places detailed reports right at your fingertips.

- Nearly 3,500 farms annually across several states
- Numerous whole-farm and crop/livestock enterprise reports available
- Accrual-adjusted financial statements using economic depreciation methods
- Multiple, thorough data integrity and quality checks
- Free, open access for querying

https://finbin.umn.edu



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DATA PROVIDERS

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Liquidity

- The ability to meet financial obligations as they come due, without disrupting business operations.
- Ratios:
  - Current Ratio
  - Working Capital
  - Working Capital to Gross Revenue

Who Has More Liquidity?

	Farm A	Farm B
Current Assets	$75,000	$200,000
Current Debt	25,000	100,000
Current Ratio	3:1	2:1
Working Capital	50,000	100,000

Who Has More Liquidity?

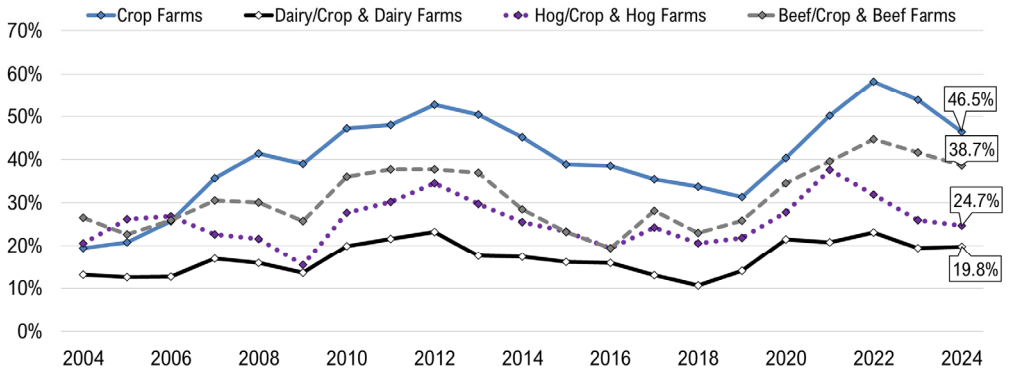
	Farm A	Farm B
Current Assets	$75,000	$200,000
Current Debt	25,000	100,000
Current Ratio	3:1	2:1
Working Capital	50,000	100,000
Gross Income	200,000	1,000,000

Who Has More Liquidity?

	Farm A	Farm B
Current Assets	$75,000	$200,000
Current Debt	25,000	100,000
Current Ratio	3:1	2:1
Working Capital	50,000	100,000
Gross Income	200,000	1,000,000
Working Cap/Gross	25 %	10 %

Working Capital to Gross Revenue by Farm Type

Data: Minnesota, Sorted by Farm Type



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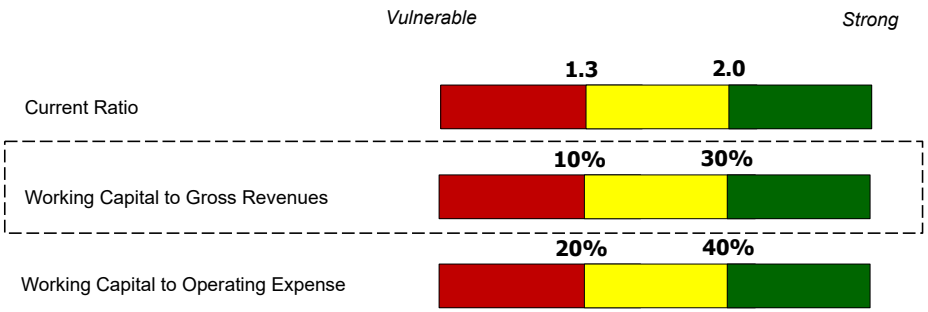
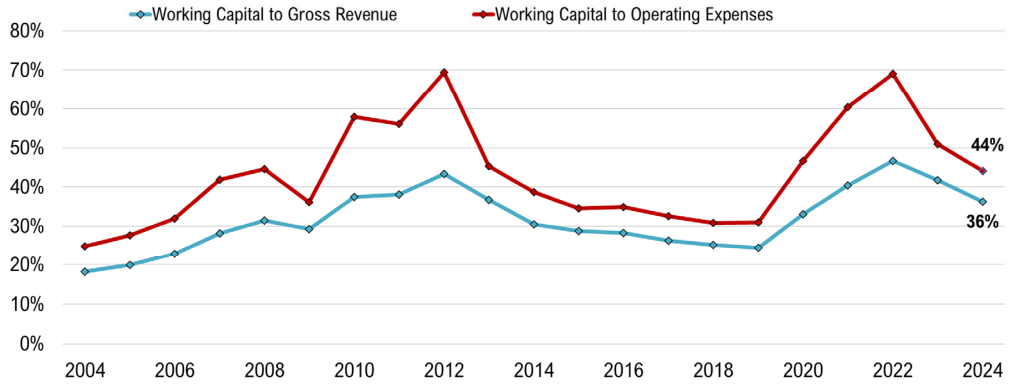
Liquidity Measures



Working Capital Ratios

Data: Minnesota Averages, All Farms



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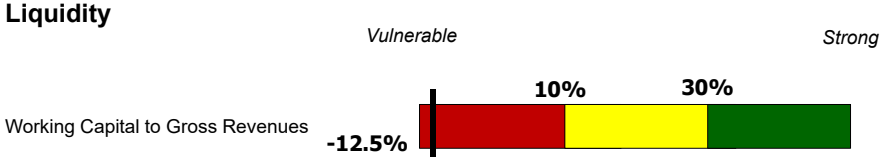
LIQUIDITY

How does John Q measure up?

How can he maintain or improve his liquidity position?

Case Farm – John Q Farmer

Liquidity



Maintaining & Improving Liquidity

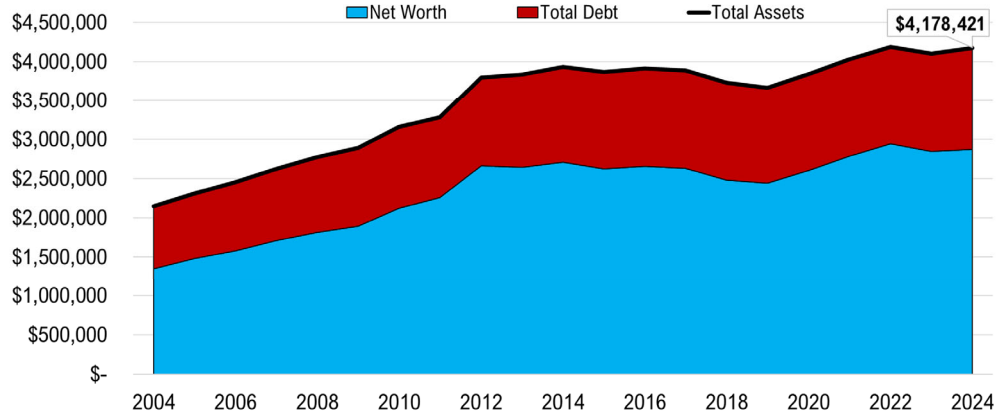
- **Make Money**
  - Business profits drive liquidity
- **Don't spend all of it**
  - Major drains on liquidity:
    - High family living costs
    - Purchasing long-term assets with cash
- **Refinance / Restructure Debt**
  - Term out operating debt
  - Restructure term debt to lessen annual payments

Solvency

- The ability to pay all debts if the farm business was sold today.
- Ratios:
  - Debt to Asset Ratio
  - Equity to Asset Ratio
  - Debt to Equity Ratio

Farm Balance Sheet (Constant $)

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



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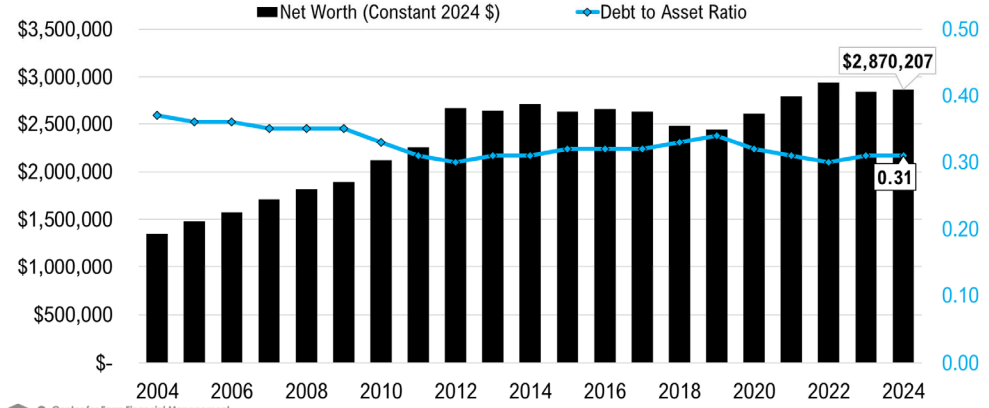
Net Worth & Debt-to-Asset Ratio

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



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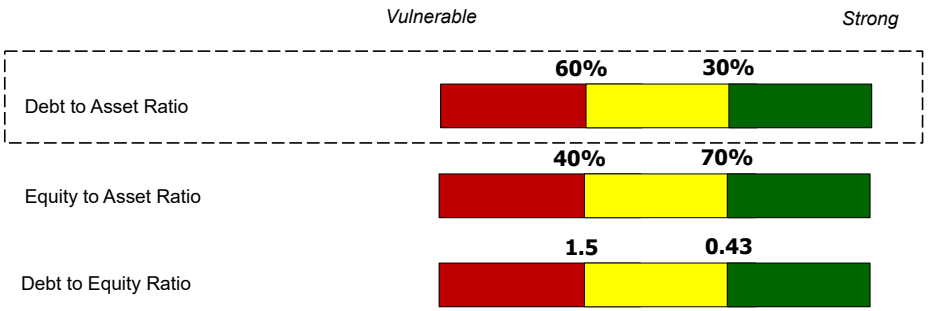
Solvency Measures



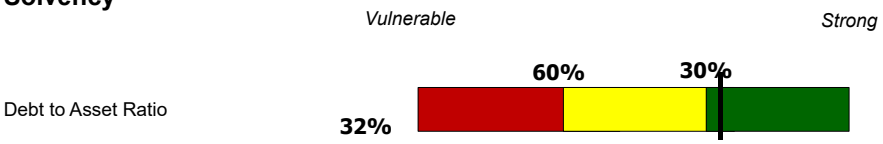
SOLVENCY

How does John Q measure up?

How can he maintain or improve his solvency position?

Case Farm – John Q Farmer

Solvency



Maintaining & Improving Solvency Position

- **Increase the net earnings of the farm**
  - Keep profits in the farm operation
- **Minimize family living expenses from the farm**
  - Increase off-farm income if needed
- **Invest in productive, profitable farm assets**
  - Avoid purchases solely for tax purposes
- **Sell unneeded assets and use funds to reduce debt**
  - Avoid buying "toys"

Profitability

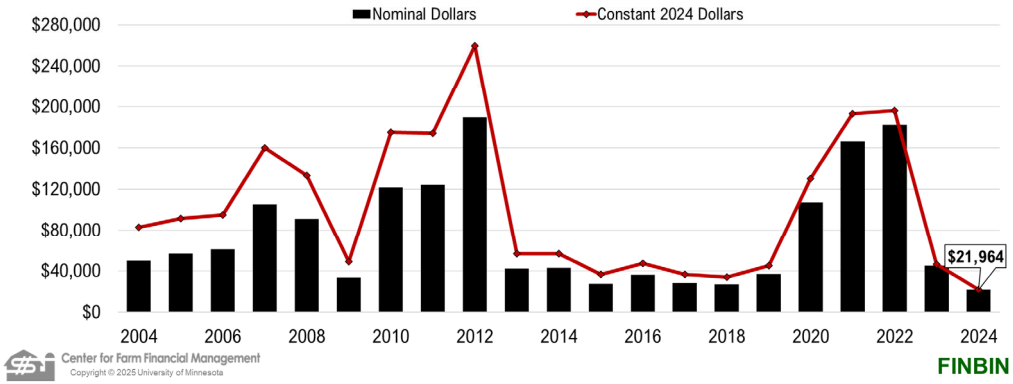
- Is the farm business making money?
- Ratios and Measures:
  - Net Farm Income (accrual)
  - Rate of Return on Assets (ROA)
  - Rate of Return on Equity (ROE)
  - Operating Profit Margin
  - Asset Turnover Rate

Net Farm Income

- Return to unpaid labor, management, and owner's equity
- Available for family living, taxes, and net worth growth (debt repayment or asset acquisition)

Median Net Farm Income

Data: Minnesota. All Farms



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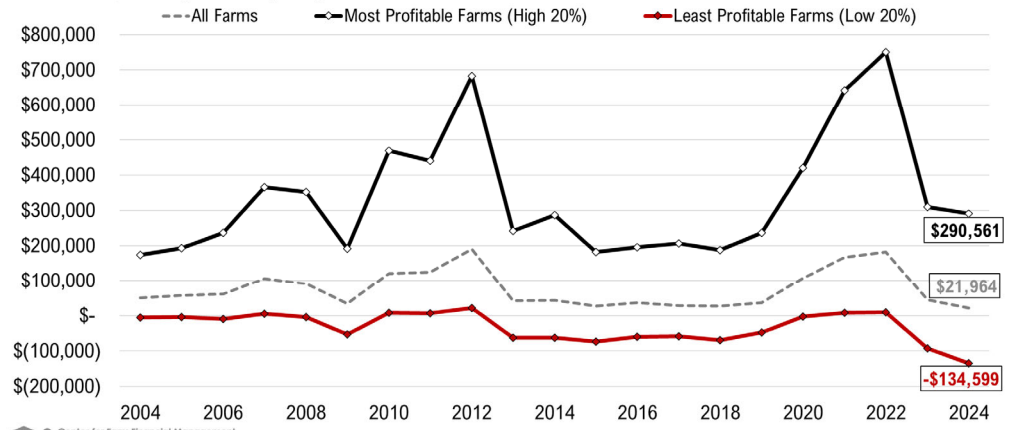
Median Net Farm Income by Profit Group

Data: Minnesota, Sorted by Profitability Group



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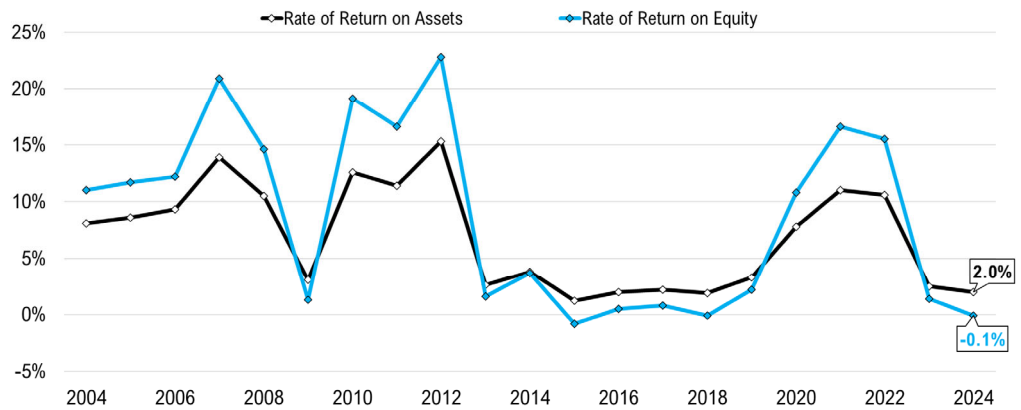
Rates of Return On Assets and Equity

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



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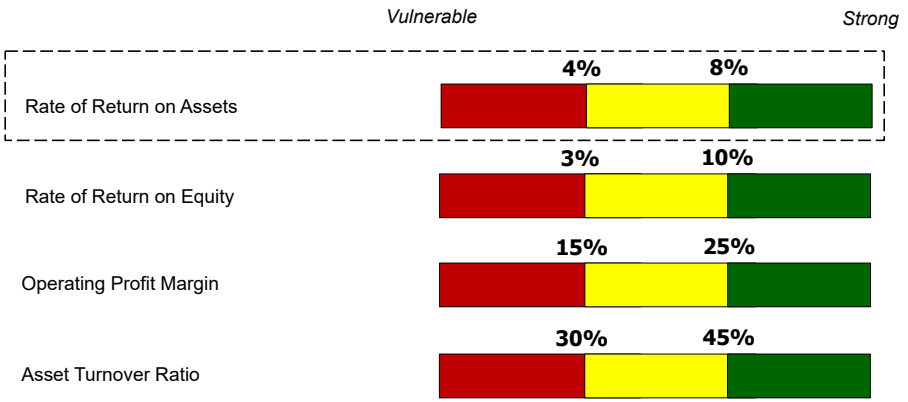
Profitability Measures



Goal: ROE > ROA

- Goal of borrowing someone else's money - make a profit on it!
- If ROE is higher than ROA, the business is making a profit on borrowed money
  - ROA is higher than average interest rate on borrowed money
  - Positive use of financial leverage

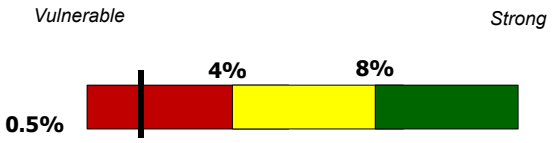
PROFITABILITY

How does John Q measure up?

How can he maintain or improve his profitability position?

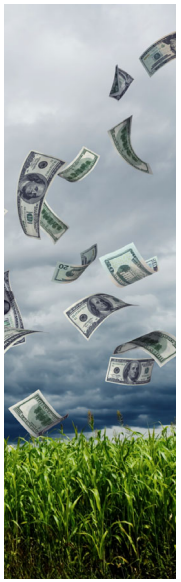
Case Farm – John Q Farmer

Profitability



Maintaining & Improving Profitability

- **Lock in profits**
  - Focus on profit margins of enterprises, not tax liabilities
  - Monitor operating expenses to evaluate budget to actual performance
- **Use risk management strategies**
  - Manage production, marketing, and financial risks
- **Weigh asset management decisions**
  - Evaluate whether to lease, own, or use custom hire services
  - Maximize capital asset utilization



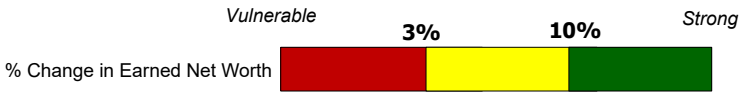
Profitability Measure Proxy

Percent Change in Earned Net Worth

- Typically, lenders don't have the accrual income data to accurately calculate profitability ratios.
- Alternative Measure:

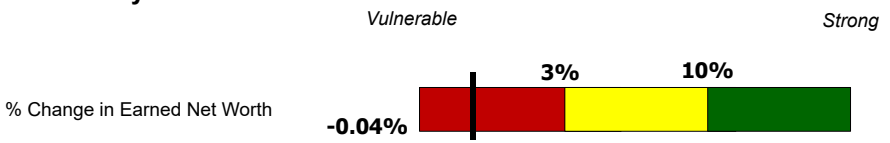
% Change in Earned Net Worth (mimics ROE)

$$= \frac{\text{Change in Earned Net Worth}}{\text{Beginning Net Worth}}$$



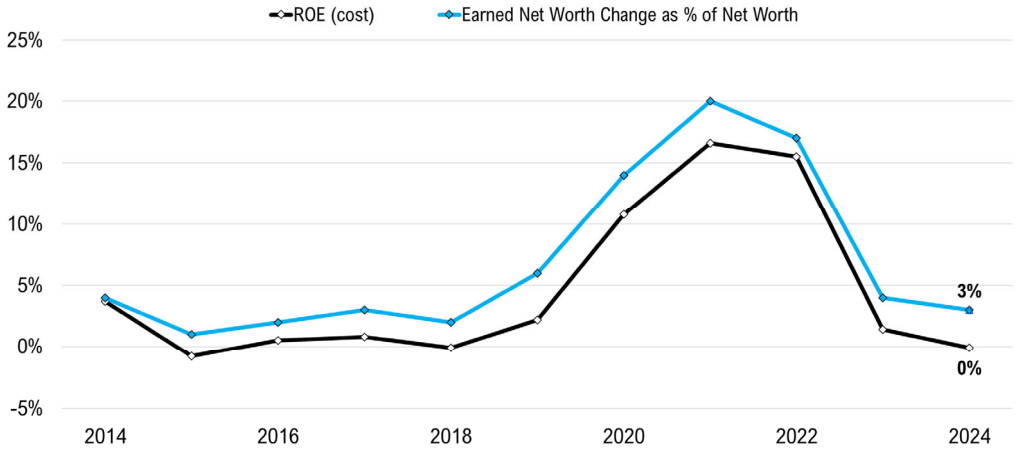
Case Farm – John Q Farmer

Profitability



ROE and Earned Net Worth Change %

Data: Minnesota, All Farm Types and Sizes



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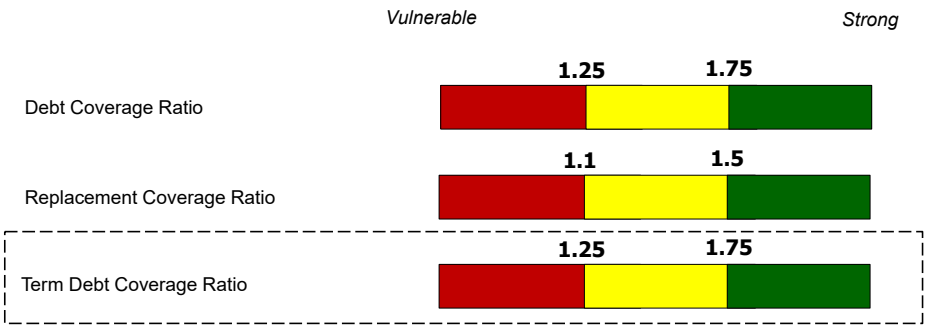
Repayment Capacity

- Is the farm generating enough income to repay debts and replace assets?
- Ratios:
  - Debt Coverage Ratio
  - Replacement Coverage Ratio
  - Term Debt Coverage Ratio

Repayment Capacity Measures

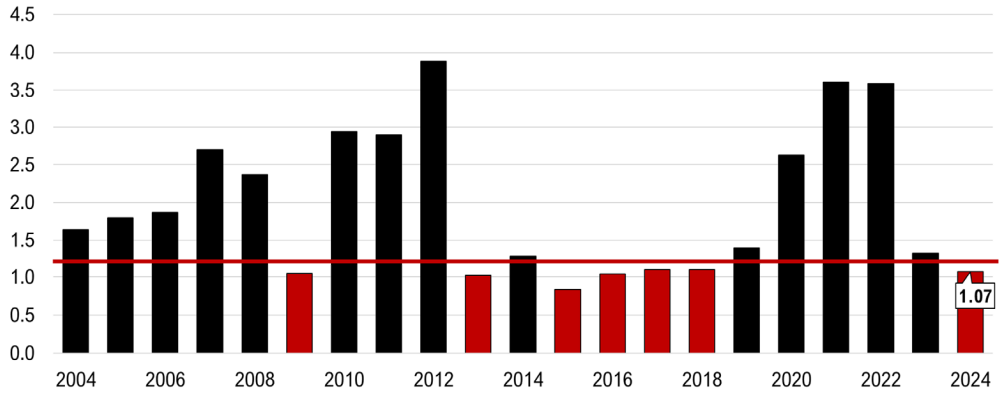


Debt Coverage Calculations

- **(Total) Debt Coverage**
  - Measures the ability of the borrower to cover ALL current interest expenses and scheduled term debt payments
- **Term Debt Coverage**
  - Measures the ability of the borrower to cover scheduled TERM debt payments

Term Debt Coverage Ratio

Data: Minnesota Average, All Farms



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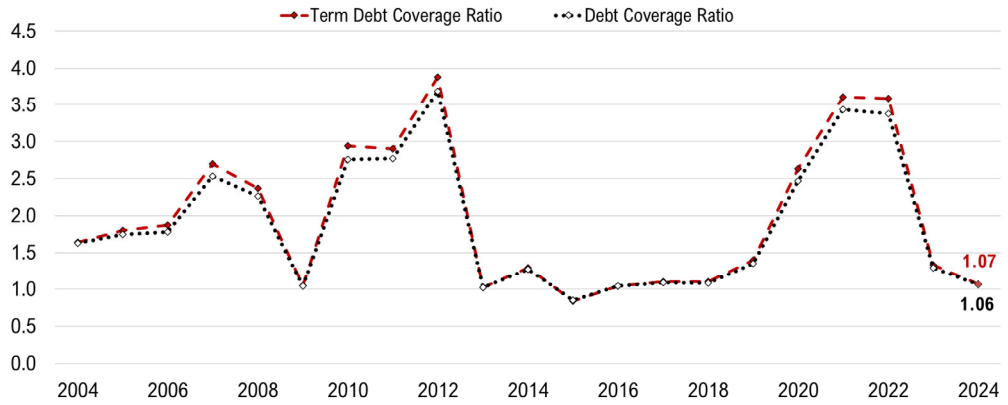
Debt Coverage Ratios

Data: Minnesota Averages, All Farms



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Repayment Capacity Measures

- **Important consideration:** **Asset Replacement**
  - Each year the farm must replace assets.
  - Important to factor in the unfinanced portion of these asset purchases.
- **Termed**: **Unfunded capital expenditures**
- Ratio Analysis: **Replacement Coverage Ratio**

Repayment Capacity

How does John Q measure up?

How can he maintain or improve his repayment capacity position?

Case Farm – John Q Farmer

Repayment Capacity

Maintaining & Improving Repayment Capacity

- **Restructure or re-amortize loans**
  - Reduce annual loan payments
- **Sell unneeded assets**
  - Use funds to reduce liability balances
- **Invest in productive, profitable farm assets**
  - Avoid purchases solely for tax purposes, and carefully consider new debt obligations
- **Maximize farm profits**
  - Look at ways to increase income and manage operating expenses
  - Decrease family living needs from the farm, increase off-farm income if needed

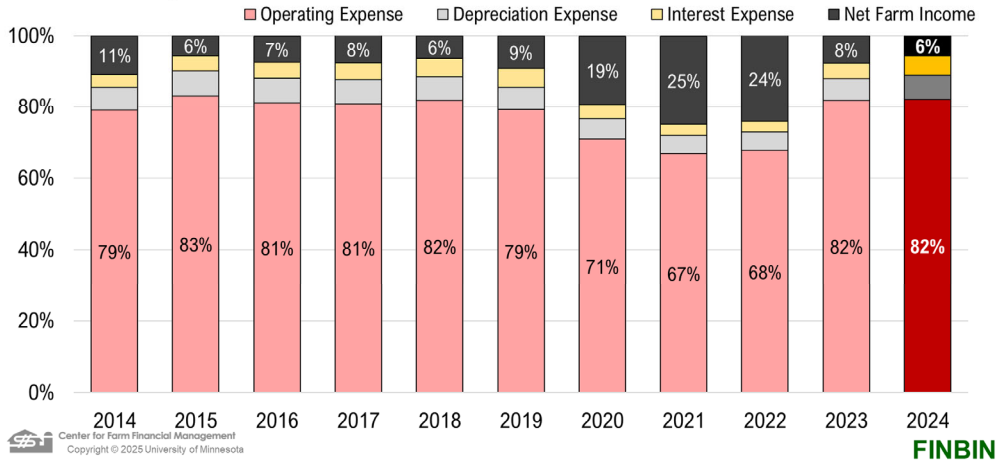
Financial Efficiency Measures

- The ability of the farm to operate in a cost-effective manner.

Operating Expense Ratio
\+ Depreciation Expense Ratio
\+ Interest Expense Ratio
\+ Net Farm Income Ratio
= 100 % of Gross Revenue

Financial Efficiency Ratios

Data: Minnesota Average, All Farms



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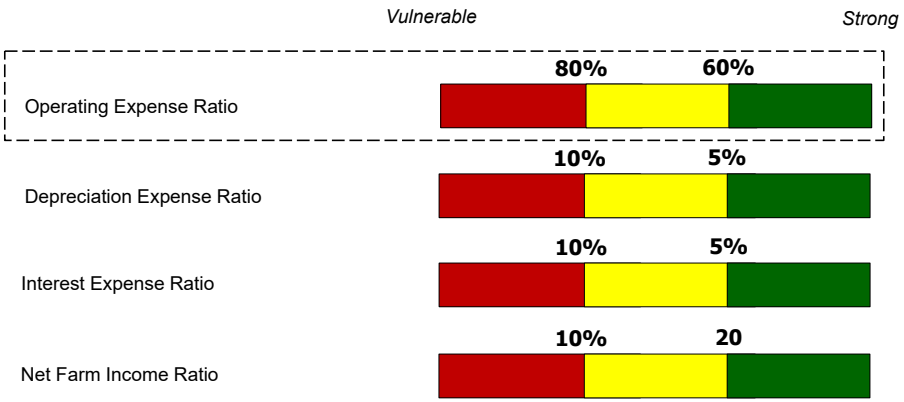
Financial Efficiency Measures

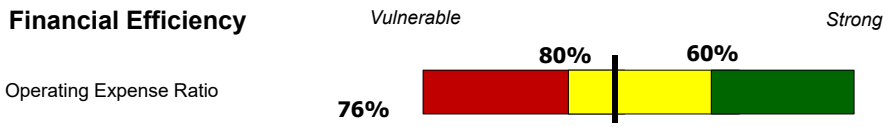


Financial Efficiency

How does John Q measure up?

How can he maintain or improve his financial efficiency position?

Case Farm – John Q Farmer

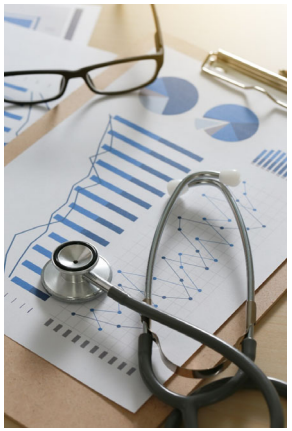


Maintaining & Improving Financial Efficiency

- **Maximize operational efficiency**
  - Scrutinize costs, increase revenue, manage assets
  - Monitor budget to actual to evaluate revenue and expenses
- **Invest in productive, profitable farm assets**
  - Fully employ farm assets, carefully consider new debt obligations
  - Sell unneeded assets and reduce debt
  - Carefully analyze new debt obligations

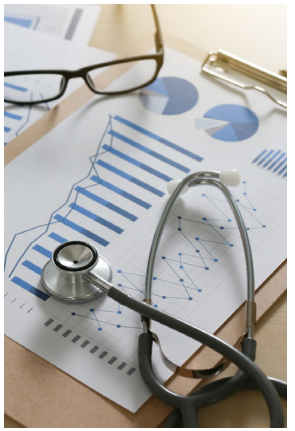
Farm Finances at a Glance

- <u>Financial Opportunities:</u>
  - Strong Liquidity
    - Agile, take advantage of opportunities
  - Strong Solvency
    - Able to seek capital and expand business
  - Strong Profitability
    - Capitalize on business strengths
  - Strong Repayment Capacity
    - Pay down debt faster
  - Strong Financial Efficiency
    - Prepared for opportunities



Farm Finances at a Glance

- <u>Financial Problems:</u>
  - Limited Liquidity?
    - Too much short-term debt
  - Limited Solvency?
    - Too much debt
  - Low Profitability?
    - Lack of farm earnings
  - Tight Repayment Capacity?
    - Payments too high
  - Lack of Financial Efficiency?
    - Cost control issues

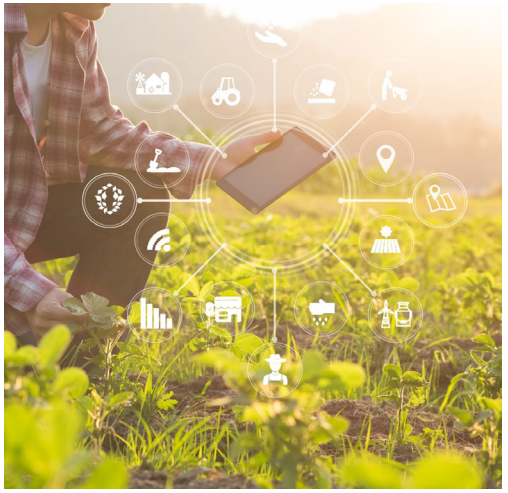


Final Thoughts

How your borrowers managed in good times!

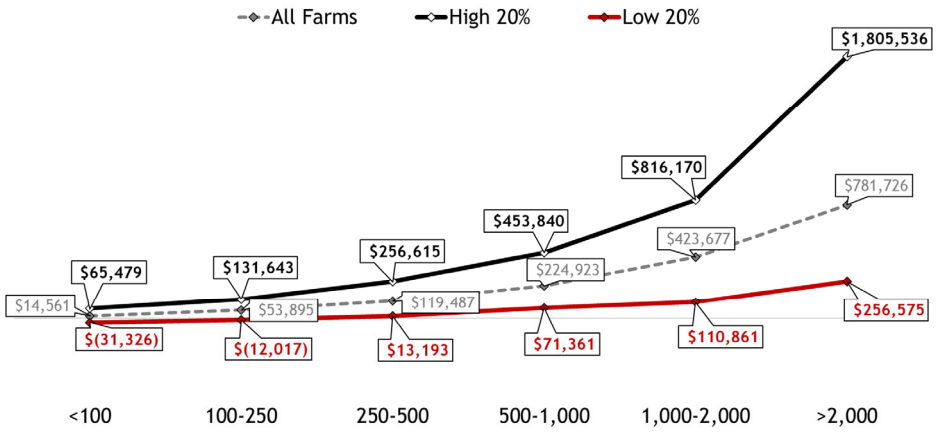
- - - -

Set the stage for the current environment.



2022 Median Net Farm Income by Farm Size

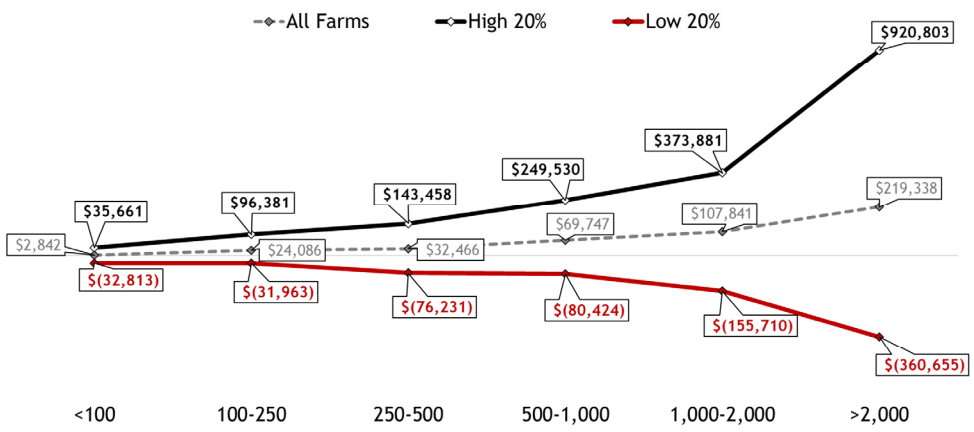
Data: Minnesota, All farms, Farm size measured by gross revenue in thousands of dollars



FINBIN

2023 Median Net Farm Income by Farm Size

Data: Minnesota, All farms, Farm size measured by gross revenue in thousands of dollars



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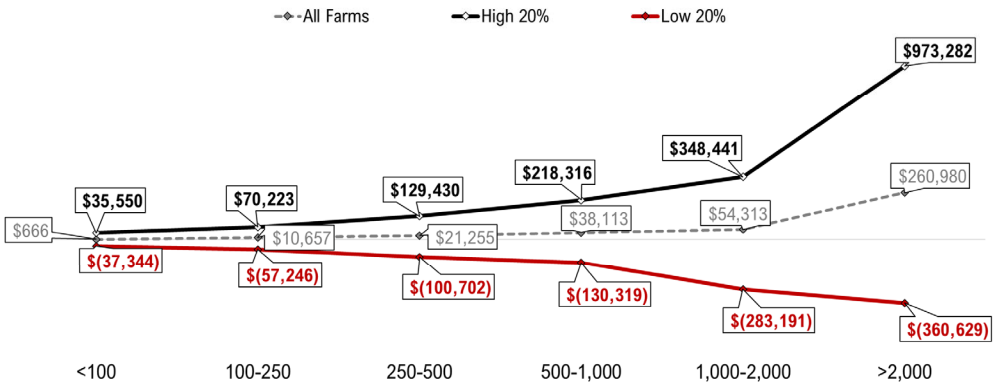
Median Net Farm Income by Farm Size in 2024

Data: Minnesota, All farms, Farm size measured by gross revenue in thousands of dollars



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Little Things Make a Big Difference:

The Impact Of 5%

	2024 Actual Analysis Results	2024 Improv. Margin Mgmt.
Liquidity		
Current Ratio	1.9	2.0
Work. Capital to Gross Rev.	36%	38%
Solvency[1]		
Debt to Asset Ratio	34%	33%
Debt to Equity Ratio	0.51	0.50
Profitability		
Rate of Ret. on Assets	2%	4%
Oper. Profit Margin	7%	17%
Asset Turnover Rate	24%	26%
Net Farm Income	$59,037	$161,000
Repayment Capacity		
Debt Coverage Ratio	1.1	1.8
Replacement Coverage Ratio	0.8	1.4
Efficiency		
Oper. Expense Ratio	83%	75%
Net Worth Growth[1]		
Net Worth Change	6%	9%

Changes Used in Forecasts		Improv. Margin
Gross Income	-	+ 5%
Operating Expenses	-	- 5%
Interest Rates	-	0%
Current Assets	-	+ 5%
Noncurrent Assets	-	0%

Earned Net Worth Change

– a Practical Solution for Lenders

The Realities of Credit Analysis for Ag

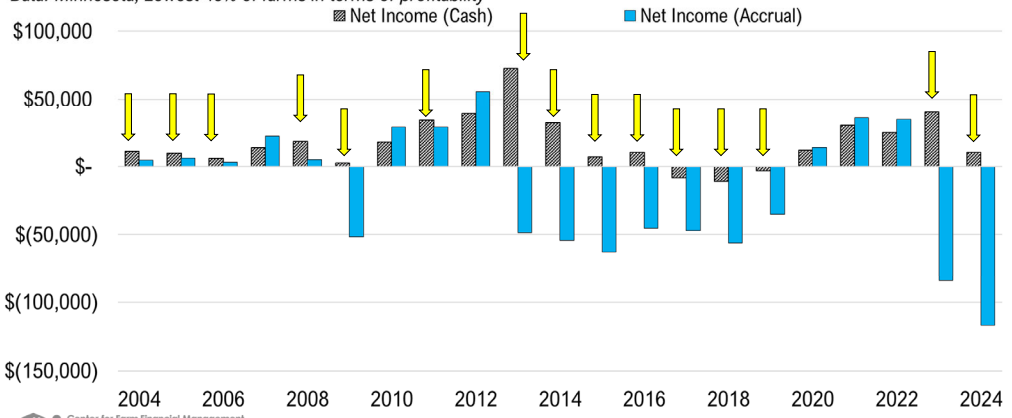
- **Accrual analysis presents many challenges**
  - **NEED** fiscal year end balance sheets
  - **NEED** the income and expense data
  - Takes **TIME**

The Realities of Credit Analysis for Ag

- Accrual analysis presents many challenges
  - **NEED** fiscal year end balance sheets
  - **NEED** the income and expense data
  - Takes **TIME**
- **The options**
  - Continue with cash analysis
  - Rely on cash flow projections
  - **Use Earned Net Worth Analysis**

Cash vs Accrual Net Farm Income for Low Profit Farms

Data: Minnesota, Lowest 40% of farms in terms of profitability



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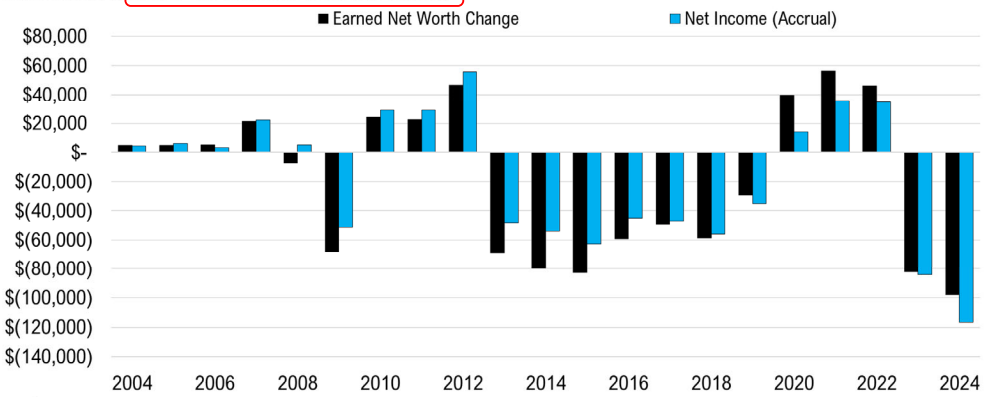
Net Farm Income vs Earned Net Worth Change

Data: Minnesota, Lowest 40% of farms in terms of profitability



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Earned Net Worth Analysis

- Benefits:
  - Fast approach to earned net worth and accrual debt coverage ratio
  - Estimate income trends when full income and expense history isn't available
  - Don't need January 1 balance sheets

Earned Net Worth Analysis

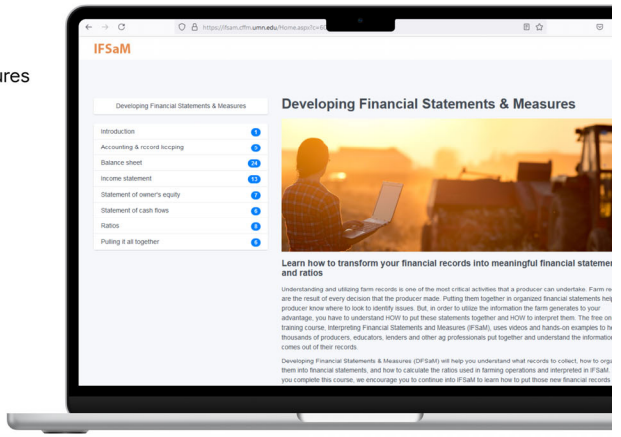
- Caveats:
  - No accuracy checks
    - Cash discrepancy is “baked in” to earned net worth change
  - Relies on accurate balance sheets
    - No checks and balances of an income statement

IFSaM

Interpreting Financial Statements and Measures

DYFSaM

Developing Your Financial Statements and Measures



IFSaM/DYFSaM is a product of the Center for Farm Financial Management

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