

# Example of Financial Ratios for Catfish Farmers

## *An East Mississippi Example*

Tables 1 through 5 show the ratio definitions for each of the 16 farm financial ratios. Table 6 shows the actual calculation for a typical farm in east Mississippi.

### Table 1. Liquidity Ratios

Current Ratio = Current assets / Current liabilities  
Working Capital = Current assets - Current liabilities

### Table 2. Solvency Ratios

Debt-to-Asset Ratio = Total liabilities / Total assets  
Equity-to-Asset Ratio = Total equity / Total assets  
Debt-to-Equity Ratio = Total liabilities / Total equity

### Table 3. Profitability Ratios

Rate of Return on Assets (ROA)  
= (Net income from operation  
+ Farm interest expense  
- Value of operator and unpaid labor) /  
Average total assets

Rate of Return on Equity (ROE)  
= (Net income from operation  
- Value of operator and unpaid labor) /  
Average total equity

Operating Profit Margin  
= (Net income from operation  
+ Farm interest expense  
- Value of operator and unpaid labor) /  
Value of farm production

Net Farm Income (NFI)

### Table 4. Repayment Capacity

Term Debt and Capital Lease Coverage  
= (Net income from operation  
+ Total non-farm income  
+ Depreciation expense  
+ Interest on term debt and capital leases  
- Total income tax expense  
- Family living withdrawal)  
/ (Principal and interest payments on term debt and  
capital leases)

Capital Replacement and Term Debt Repayment Margin  
= (Net income from operation  
+ Total non-farm income  
+ Depreciation expense  
- Total income tax expense  
- Family living withdrawal)  
= Capital Replacement and Term Debt Repayment Capacity  
- Principal payments on current portions of term debt  
- Principal payments on current portions of capital leases  
= Capital Replacement and Term Debt Repayment Margin

### Table 5. Financial Efficiency

Asset Turnover Ratio  
= VFP / Average total assets

Operating Expense Ratio  
= (Operating expenses  
- Depreciation) / Value of farm production

Depreciation Expense Ratio  
= Depreciation / Value of farm production

Interest Expense Ratio  
= Interest / Value of farm production

Net Income from Operations (NIFO) Ratio  
= NIFO / Value of farm production

## Table 6. Ratio Calculation Example

### Liquidity

$$\begin{array}{l} \text{Current Ratio} \\ \text{CR} = 177560 / 100128 = 1.77 \end{array}$$

$$\begin{array}{l} \text{Working Capital} \\ \text{WC} = 177560 - 100128 = 77432 \end{array}$$

### Solvency

$$\begin{array}{l} \text{Debt/Asset Ratio} \\ \text{D/A} = 133848 / 275069 = 0.49 \end{array}$$

$$\begin{array}{l} \text{Equity/Asset Ratio} \\ \text{E/A} = 141221 / 275069 = 0.51 \end{array}$$

$$\begin{array}{l} \text{Debt/Equity Ratio} \\ \text{D/E} = 133848 / 141221 = 0.95 \end{array}$$

### Profitability

$$\begin{array}{l} \text{Rate of Return on Assets} \\ \text{ROA} = (65189 + 8108 - 35000) / 275069 = 13.92\% \end{array}$$

$$\begin{array}{l} \text{Rate of Return on Equity} \\ \text{ROE} = (65189 - 35000) / 141221 = 21.38\% \end{array}$$

$$\begin{array}{l} \text{Operating Profit Margin} \\ \text{OPM} = (65189 + 8108 - 35000) / 112560 = 34.02\% \end{array}$$

$$\begin{array}{l} \text{Net Income} \\ \text{NI} = 65189 \end{array}$$

### Repayment Capacity

$$\begin{array}{l} \text{Term Debt and Capital Lease Coverage Ratio} \\ (65189 + 30000 + 8846 + 5242 - 3000 - 35000) / 50242 = 1.42 \end{array}$$

$$\begin{array}{l} \text{Capital Replacement and Term Debt Repayment Margin} \\ (65189 + 30000 + 8846 - 3000 - 35000) = 66035 - 45000 = 21035 \end{array}$$

### Financial Efficiency

$$\begin{array}{l} \text{Asset Turnover Ratio} \\ \text{AT} = 112560 / 275069 = 40.92\% \end{array}$$

$$\begin{array}{l} \text{Operating Expense Ratio} \\ \text{OE} = (39263 - 8846) / 112560 = 27.02\% \end{array}$$

$$\begin{array}{l} \text{Depreciation Expense Ratio} \\ \text{DE} = 8846 / 112560 = 7.86\% \end{array}$$

$$\begin{array}{l} \text{Interest Expense} \\ \text{IE} = 8108 / 112560 = 7.20\% \end{array}$$

$$\begin{array}{l} \text{Net Farm Income from Operations Ratio} \\ \text{NFIFO} = 65189 / 112560 = 57.91\% \end{array}$$

NOTE: All numbers in calculations come directly from income statement or balance sheet

EXCEPT FOR—

Family living =	\$35,000
Off-farm income =	\$30,000
Tax =	\$3,000
Value of operator labor =	\$35,000
Principal on term debt =	\$45,000
Interest on term debt =	\$5,242

**INCOME STATEMENT**

Mississippi State University

Name Average 48 acre farm - East Mississippi

Year Ending

2004

**REVENUE**

Market Livestock

Cash Sales	218,400	1a
Inventory Change	0	1b
Transfers to Breeding	0	1c

218,400	1
0	2

Livestock Products

Crops

Cash Sales	0	3a
Inventory Change	0	3b

0	3
0	4

Custom Work

Government Payments

Patronage Dividends

Accounts Receivable Change

Hedging Income

Other Farm Income

0	5
0	6
0	7
0	8
0	9

GROSS REVENUE		10	218,400
minus Fingerlings Purchases	30,240	11	
minus Feed Purchases and Crops Bought for Resale	75,600	12	
VALUE OF FARM PRODUCTION		13	112,560

**EXPENSES**

Cash Operating Expenses

Prepaid Expenses Change

Accounts Payable Change

Depreciation

30,417	14
0	15
0	16
8,846	17

TOTAL OPERATING EXPENSES		18	39,263
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Interest

Interest Paid	8,108	19a
Accrued Interest Change	0	19b

TOTAL INTEREST EXPENSE		19	8,108
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NET FARM INCOME FROM OPERATIONS	(line 13 minus lines 18 and 19)	20	65,189
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Gain/Loss on Sale of Capital Assets

NET FARM INCOME	(line 20 plus or minus line 21)	22	65,189
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Non-Farm Income

NET INCOME BEFORE TAXES	(line 22 plus line 23)	24	65,189
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Income and Social Security Taxes

NET INCOME AFTER TAXES	(line 24 minus line 25)	26	
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<b>BALANCE SHEET</b>	<b>Mississippi State University</b>
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Name	Average 48 acre farm - East MS	Date	12/31/04
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CURRENT ASSETS	Value		CURRENT LIABILITIES	Value
Cash and Checking Accounts	5,000	1	Accounts Payable	0
Savings and CDs	0	2	Loans Due within 12 mo.	55,128
Accounts Receivable	16,800	3	Loan Principal Due within 12 mo on:	
Marketable Securities	0	4	Notes	0
Hedging Account Equity	0	5	Capital Leases	0
Notes/Contracts Receivable (<12 mo)	0	6	Sales/Land Contracts	0
Market Catfish	155,760	7	Real Estate Mortgage	45,000
Crops and Feed	0	8	Other Loans	0
Supplies	0	9	Accrued Interest on Current Liabilities	0
Prepaid Expenses	0	10	Accrued Interest on Non-current Liabilities	0
Investments in Growing Crops	0	11	Accrued Tax Liabilities	0
Other Current Assets	0	12	Other Current Liabilities	0
Personal Current Assets		13	Deferred Taxes on Current Assets	0
		14	Personal Current Liabilities	0
		15		
<b>TOTAL CURRENT ASSETS</b>	<b>177,560</b>	16	<b>TOTAL CURRENT LIABILITIES</b>	<b>100,128</b>

NON-CURRENT ASSETS	Mod Cost	Mkt Value		NON-CURRENT LIABILITIES	Mod Cost	Mkt Value
Raised Breeding Catfish		0	17	Loan Principal Due beyond 12 mo on:		
Purchased Breeding Catfish		0	18	Notes		24,960
Machinery and Equipment		20,709	19	Capital Leases		0
Buildings and Improvements		0	20	Sales/Land Contracts		0
Land and Ponds		76,800	21	Real Estate Mortgage		8,760
Capital Leased Assets		0	22	Other Loans		0
Investments in Cooperatives		0	23	Other Non-Current Liabilities		0
Investments in Other Entities		0	24	Deferred Taxes on Non-Current Assets		0
Notes/Contracts Receivable (>12 mo)		0	25	Personal Non-Current Liabilities		0
Other Non-Current Assets		0	26			
Personal Non-Current Assets		0	27			
			28			
<b>TOTAL NON-CURRENT ASSETS</b>		<b>97,509</b>	29	<b>TOTAL NON-CURRENT LIABILITIES</b>		<b>33,720</b>

30	<b>TOTAL LIABILITIES</b>		<b>133,848</b>
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31	<b>OWNER EQUITY</b>		<b>141,221</b>
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<b>TOTAL ASSETS</b>		<b>275,069</b>	32	<b>TOTAL LIABILITIES &amp; OWNER EQUITY</b>		<b>275,069</b>
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