

Introduction to Financial Statements and Ratios

(A Delta Catfish Farm Example)

An income statement and balance sheet are two very important financial tools that catfish farmers can use to evaluate the financial health of their operations. An income statement shows the income and expenses over a period of time, typically 1 year. A balance sheet shows assets, liabilities, and net worth at a given point in time. Together, these two statements show the profitability and solvency of a catfish operation.

A true income statement will show the actual income and expenses that occur during the course of the year. Often, lenders will use tax returns as a proxy for income. However, because farmers can use cash accounting to pay taxes, a Schedule F is often misleading for measuring farm revenue. As an example, a farmer with more fish in his or her ponds at the end of the year compared to the beginning of the year has accrual income that is not reported on a cash income basis. Accrual accounting would recognize the value of the unsold fish that were produced during the year. Figures 1 and 2 show an income statement and a balance sheet for a typical 600-acre catfish farm located in the Mississippi Delta.

Generating an accrual income statement requires more detailed accounting to generate than does cash accounting. However, an accrual-adjusted income statement also provides an accurate picture of net farm income and is fairly easy to generate. Catfish farmers just need their cash-based income statement, and a beginning and ending balance sheet. By taking the difference between beginning and end-

ing balance sheet categories that affect net farm income, an accurate income statement can be produced. Those balance sheet categories that potentially affect net farm income are catfish inventories, accounts receivable and payable, supplies inventory, prepaid expenses, and any change in accrued interest and taxes.

Financial Ratios

While an income statement and balance sheet are extremely important, they are only the starting point in analyzing a farm's financial position. Most catfish farms can benefit from the use of financial ratios. These ratios can help detect problems before they get out of hand. Financial ratios basically put the numbers from an income statement and balance sheet into the proper perspective for analysis.

Financial ratios allow catfish farmers to do two kinds of analysis. First, financial ratios allow farmers to compare their farm to other similar farms. The ratio calculation makes it possible to compare farms that are not exactly the same. Thus, a 400-acre catfish farm can be compared with an 800-acre farm. Comparing a catfish farm with a dairy farm is even possible, although as the differences increase, the comparisons become less valid. For example, a ratio comparison between a 400-acre and a 600-acre catfish farm is better than comparing a catfish farm to a dairy farm but not as good as a comparison between a 400-acre and a 450-acre catfish farm.

In addition, ratios allow a catfish farm to gauge its progress over time. A time comparison can be done without ratios,

but ratios make it easy to adjust for size and other changes that may occur over time.

There are 16 farm financial ratios recommended by the Farm Financial Standards Counsel. These ratios cover the areas of liquidity, solvency, profitability, repayment capacity, and financial efficiency. Some ratios require only the income statement or only the balance sheet, and others need both statements. For the ratios using both the income statement and balance sheet, the beginning and ending balance sheet numbers should be averaged. This is because the income statement covers an entire year and the balance sheet is a single point measure. Averaging beginning and ending balance sheets better approximates the average year condition for these ratios.

Liquidity—There are two measures for liquidity: the current ratio and the working capital ratio. Both of these ratios use numbers from the balance sheet. The liquidity ratios give some idea of whether a catfish farm has adequate cash to meet short-term (under 1 year) obligations.

Solvency—There are three measures for solvency: debt-to-asset ratio, equity-to-asset ratio, and debt-to-equity ratio. These ratios all come from the balance sheet. In fact, the ratios are all mathematically related.

Knowing one ratio and using the balance sheet equation of $\text{Assets} = \text{Liabilities} + \text{Equity}$ allows the other two ratios to be calculated. These three ratios tell who actually owns a catfish farmer's farm. The debt-to-asset ratio shows the percentage of lender capital in the business. The equity-to-asset ratio shows the percentage of the catfish farmer's own capital in the business.

Profitability—There are four ratios that show profitability: return on assets (ROA), return on equity (ROE), operating profit margin, and net farm income (NFI). The ROA and ROE need numbers from both the income statement and the balance sheet. The other two ratios use numbers only from the income statement. In addition, these ratios (except NFI) need an estimate for the value of operator and unpaid labor.

ROA shows the profitability of all the farm assets, while ROE shows the profitability of only farm equity. ROE should be greater than ROA. If not, then the debt capital employed by the farm is earning a return less than the cost to use it. A case of $\text{ROA} > \text{ROE}$ could occur every now and then, but it should not be a regular pattern in a viable catfish operation. Normally, a farm's ROA and ROE numbers are less than other businesses outside of farming. This occurs because land appreciation is not included in the calculation, and most farms have a large percentage of land in their capital base.

Repayment capacity—Repayment capacity has two ratios that use numbers from the income statement, balance sheet, and other sources. Because these two ratios require more detailed data, they are a little more difficult to calculate.

Financial efficiency—Financial efficiency consists of five ratios mostly drawn from the income statement. These ratios—operating expense ratio, depreciation expense ratio, interest expense ratio, and net income from operations ratio—tell where income was used on the farm. These four ratios must add up to 100 percent because they are the four segments of farm-generated revenue. The first three are the expenses that revenue must cover, and the last (net income from operations ratio) is net to the farm after expenses are paid.

The final ratio is the asset turnover ratio, which tells something about how assets are being used on the farm. When this ratio is multiplied by the operating profit margin, the answer is the rate of return on assets (ROA). In effect, profitability is determined from the margin on products sold and the efficient use of farm assets. For example, a grocery store tends to have low margins, but they have large sales relative to their asset base (good asset turnover ratio). Luxury car dealerships, by contrast, have good margins but low turnover.

This publication describes the financial statements and the financial ratios based on those statements. The companion publication **P2440 Example of Financial Ratios for Catfish Farmers (Delta Example)** shows the actual calculations and some of the ratio ranges from a typical farm.

INCOME STATEMENT	Mississippi State University
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Name <u>Average 600 acre farm - Delta</u>	Year Ending <u>2004</u>
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REVENUE

Market Livestock			
Cash Sales	1,680,000	1a	
Inventory Change	157,176	1b	
Transfers to Breeding	0	1c	1,837,176
			0
Livestock Products			0
Crops			
Cash Sales	0	3a	
Inventory Change	0	3b	0
Custom Work			0
Government Payments			0
Patronage Dividends			0
Accounts Receivable Change			0
Hedging Income			0
Other Farm Income			0
GROSS REVENUE		10	1,837,176
minus Fingerlings Purchases		11	324,000
minus Feed Purchases and Crops Bought for Resale		12	810,000
VALUE OF FARM PRODUCTION		13	703,176

EXPENSES

Cash Operating Expenses	345,851	14	
Prepaid Expenses Change	0	15	
Accounts Payable Change	0	16	
Depreciation	76,286	17	
TOTAL OPERATING EXPENSES		18	422,137
Interest			
Interest Paid	89,341	19a	
Accrued Interest Change	0	19b	
TOTAL INTEREST EXPENSE		19	89,341

NET FARM INCOME FROM OPERATIONS	(line 13 minus lines 18 and 19)	20	191,698
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Gain/Loss on Sale of Capital Assets		21	0
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NET FARM INCOME	(line 20 plus or minus line 21)	22	191,698
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Non-Farm Income		23	0
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NET INCOME BEFORE TAXES	(line 22 plus line 23)	24	191,698
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Income and Social Security Taxes		25	0
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NET INCOME AFTER TAXES	(line 24 minus line 25)	26	
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BALANCE SHEET Mississippi State University

Name Average 600 acre farm - Delta Date 12/31/04

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.	668,100
Accounts Receivable		168,000	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		1,947,000	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		
TOTAL CURRENT ASSETS		2,120,000	16	TOTAL CURRENT LIABILITIES	713,100

NON-CURRENT ASSETS			NON-CURRENT LIABILITIES		
	Mod Cost	Mkt Value		Mod Cost	Mkt Value
Raised Breeding Catfish		0	17	Loan Principal Due beyond 12 mo on:	
Purchased Breeding Catfish		0	18	Notes	156,000
Machinery and Equipment		87,429	19	Capital Leases	0
Buildings and Improvements		0	20	Sales/Land Contracts	0
Land and Ponds		960,000	21	Real Estate Mortgage	627,000
Capital Leased Assets		0	22	Other Loans	0
Investments in Cooperatives		120,000	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		
TOTAL NON-CURRENT ASSETS		1,167,429	29	TOTAL NON-CURRENT LIABILITIES	783,000

30 **TOTAL LIABILITIES** 1,496,100

31 **OWNER EQUITY** 1,791,329

TOTAL ASSETS 3,287,429 **32 TOTAL LIABILITIES & OWNER EQUITY** 3,287,429

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