

Staff Paper

2003 Michigan Swine (Farrow to Finish) Business Analysis Summary

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2003 Michigan TelFarm and Farm Credit Services Data
Staff Paper No. 04-23

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Executive Summary

This report summarizes the financial and production records of 9 Michigan, farrow to finish, swine farms. To be included, the farms must have produced at least 50 percent of gross cash farm income from one or a combination of fat hogs, feeder pigs and cull breeding hogs sales. The records came from Michigan State University's TelFarm project and the Farm Credit Service system in Michigan. The values were pooled into averages for reporting purposes.

Farm records were included if a farm financial summary was completed on 2003 data including beginning and ending balance sheets, plus income and expenses. The data were checked to verify that cash discrepancy was less than 10% of gross cash inflow and that debt discrepancy was less than \$1,000. While considerable variation in the data exists, average values are reported in the summary tables below.

Summary of Results

The average size of a farrow to finish swine farm contained in this 2003 business analysis was 364 sows, 769 acres owned and 1036 acres cropped, Table 1. Additional data on farm characteristics indicated that the average weight for a finished hog was 252 pound and the average price was \$44.82 per hundredweight.

Table 1. Average 2003 Michigan Swine (Farrow to Finish) Farm Characteristics

	2002	2003
Average number of sows	1095	364
Total acres owned	491	769
Total crop acres	800	1036
Average weight of hogs sold (lbs.)	247	252
Average price/cwt.	\$36.47	\$44.82
Number of farms	7	9

Net farm income (NFI) is the amount remaining after all cash farm expenses and depreciation have been subtracted from cash farm income and inventory changes have been recognized. The net farm income value is the return to operator unpaid management, labor and equity capital invested. Income statement data presented in Table 2 indicates that net farm income in 2003 averaged, \$17,399. This average somewhat obscures a very large range of net farm income values. The range was a negative \$137,943 to \$213,114 and the standard deviation was \$92,564.

Gross cash farm income averaged \$1,001,043 in 2003. The largest component of these revenues was finished hog sales, which averaged \$433,625. Finish feeder pigs was the second largest revenue at \$226,306. The third and fourth largest revenues were soybeans and corn, \$97,302 and \$97,515 respectfully. Government payments averaged \$27,024 per farm in 2003.

Average total cash expenses were \$833,911 in 2003 and average net cash farm income was \$167,132. In 2002, net cash farm income was a negative \$163,087. Given better hog prices in 2003, inventory levels declined and were converted into cash sales. Prepaid expenses, supplies, crops, and feeds inventories decreased along with an average total inventory net change of a negative \$35,853.

Table 2. Average 2003 Swine Farm Income Statement

	2002	2003
	(\$)	(\$)
Gross cash farm income	1,986,148	1,001,043
Total cash expense	2,149,235	833,911
Net cash farm income	-163,087	167,132
Inventory change	111,150	-35853
Depreciation and capital adjustments	-71,696	-113880
Net farm income	-123,632	17399

Four key financial performance indicators are presented in Table 3. The rate of return on assets (ROA) is calculated as if the farm has no debt. ROA indicates the farm earnings, after subtracting out an allowance for unpaid operator labor and management, as a percentage of invested assets. ROA provides the key summary performance indicator for your farm. By multiplying the operating profit margin by the asset turnover rate, the ROA is determined. The ROA data presented in Table 3 indicates a slight improvement over 2002 but still below earlier years.

The rate of return on equity (ROE), expressed as a percentage of own equity capital, represents the farm earnings after interest payments. Ideally the ROE should be higher than the ROA indicating that profit is being made on borrowed money. ROE performance for 2003 was similar to 2002 with negative returns. This farm summary indicates that profitability on these farms remained a challenge for 2003.

Table 3 compares profitability for the years 2000 - 2003 with assets valued at cost. Profitability indicators calculated using assets valued at cost, can be used to compare the same farm over time. The average 2003 swine farm ROA was 0.7 percent, which was an improvement over the negative return in 2002, but still below an acceptable return on assets. Return on equity was a negative 10.2 percent. Operating profit margin measures the dollars of profit generated per dollar of revenue. In 2003, the OPM was 1.4 percent, a slight improvement over 2002. Asset turnover measures the efficiency with which farm assets generate revenue. In 2003, this ratio was 49.8 percent. All these profitability measures indicate that on the average, 2003 was a difficult year financially.

Table 3. Average Swine Farm Profitability Indicators, 2000-2003

	2000	2001	2002	2003
	(Percent)			
Rate of return on assets*	11.7	17.2	-3.2	0.7
Rate of return on equity	19.5	32.4	-14.8	-10.2
Operating profit margin	20.9	25.3	-7.0	1.4
Asset turnover rate*	55.8	68.0	45.6	49.8

* Assets valued at **cost** value (rather than market value).

Table 4 compares profitability measures across the years 2000 - 2003 valued at market. The market value approach includes the impact of price appreciation (inflation) of the asset base overtime. Land is the main reason for price appreciation and reflects a form of income. Financial performance indicators like ROA can be looked upon in this comparison as the “opportunity cost of capital” of farming versus alternative investments. Market value for assets is more appropriate when comparing across different farms (while cost is more appropriate to compare the same farm across time).

The average return on assets (ROA) for 2003 was 2.8 percent, a positive change when compared to 2002. Return on equity (ROE) for 2003 was 1.7 percent.

Operating profit margin (OPM) measures the dollars of profit generated per dollar of revenue. In 2003 the OPM was 11.0 percent and while the OPM was a negative 0.5 percent in 2002. In 2003 these swine farms are generating profit per dollar of revenue but still below earlier years.

Asset turnover ratio measures the efficiency with which farm assets generate revenue. In 2003, the asset turnover ratio was 25.1 percent and in 2002 the ratio was 31.2 percent. This is a decrease of 19 percent, meaning that the farm assets generated less dollars per dollar invested in farm assets. The trend with respect to profitability in 2003 was slightly better than 2002, but certainly below earlier years and likely below the desired returns.

Table 4. Average Swine Farm Profitability Indicators, 2000-2002

	2000	2001	2002	2003
	(Percent)			
Rate of return on assets*	8.3	13.4	-0.1	2.8
Rate of return on equity	8.5	18.2	-3.6	1.7
Operating profit margin	22.9	29.3	-0.5	11.0
Asset turnover rate*	36.3	45.6	31.2	25.1

* Assets valued at **market** value (rather than cost value).

Table 5

Crop Production and Marketing Summary
Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	9
Acreage Summary	
Total acres owned	769
Total crop acres	1,036
Crop acres owned	645
Crop acres cash rented	391
Crop acres share rented	-
Total pasture acres	-
Average Price Received (Cash Sales Only)	
Wheat, Winter per bushel	3.15
Soybeans per bushel	5.64

Table 6

Farm Income Statement

Michigan Swine (Farrow to Finish), 2003

(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	9
Cash Farm Income	
Corn	94,515
Hay, Mixed	554
Soybeans	97,302
Straw	1,267
Wheat, Winter	15,771
Hogs, Farrow-Fin, Raised Hogs	433,625
Hogs, Feeder Pigs, Feeder Pigs	29,490
Hogs, Finish Feeder Pigs	226,306
Hogs, Weaning to Finish	21,311
Cull breeding livestock	12,428
Misc. livestock income	199
Direct & CC govt payments	2,689
CRP payments	2,222
Other government payments	27,024
Custom work income	24,306
Patronage dividends, cash	601
Insurance income	3,681
Cash from hedging accts	401
Other farm income	7,353
Gross Cash Farm Income	1,001,043

Table 6, (continued) Farm Income Statement
Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	9
Cash Farm Expense	
Seed	34,849
Fertilizer	30,726
Crop chemicals	29,108
Crop insurance	343
Drying fuel	13,556
Crop miscellaneous	1,048
Feeder livestock purchase	104,117
Purchased feed	229,110
Breeding fees	3,035
Veterinary	9,785
Livestock supplies	2,203
Contract production exp.	14,595
Livestock hired labor	3,098
Marketing	5,144
Interest	49,249
Fuel & oil	14,231
Repairs	27,683
Custom hire	64,081
Hired labor	54,668
Land rent	43,657
Machinery & bldg leases	15,933
Real estate taxes	11,290
Farm insurance	16,874
Utilities	27,875
Dues & professional fees	3,799
Hedging account deposits	600
Miscellaneous	23,257
Total cash expense	833,911
Net cash farm income	167,132
Inventory Changes	
Crops and feed	-1,580
Market livestock	-52,665
Accounts receivable	80,859
Prepaid expenses and supplies	-61,898
Accounts payable	-569
Total inventory change	-35,853
Net operating profit	131,279
Depreciation and Other Capital Adjustments	
Breeding livestock	-4,398
Machinery and equipment	-84,106
Buildings and improvements	-26,710
Other farm capital	1,333
Total depr. and other capital adj	-113,880
Net farm income	17,399

Table 7

Inventory Changes
Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	9
Net cash farm income	167,132
Crops and Feed	
Ending inventory	277,164
Beginning inventory	278,744
Inventory change	-1,580
Market Livestock	
Ending inventory	185,249
Beginning inventory	237,914
Inventory change	-52,665
Accts Receivable & Other Current Assets	
Ending inventory	97,996
Beginning inventory	17,137
Inventory change	80,859
Prepaid Expenses and Supplies	
Ending inventory	41,511
Beginning inventory	103,409
Inventory change	-61,898
Accounts Payable & Accrued Expenses	
Beginning inventory	26,984
Ending inventory	27,553
Inventory change	-569
Total inventory change	-35,853
Net operating profit	131,279

Table 8

Depreciation and Other Capital Adjustments
Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	9
Net operating profit	131,279
Breeding Livestock	
Ending inventory	52,469
Capital sales	3,401
Beginning inventory	55,287
Capital purchases	4,981
Depreciation, capital adjust.	-4,398
Machinery and Equipment	
Ending inventory	141,815
Capital sales	2,668
Beginning inventory	154,396
Capital purchases	74,193
Depreciation, capital adjust.	-84,106
Buildings and Improvements	
Ending inventory	99,222
Capital sales	-
Beginning inventory	123,535
Capital purchases	2,397
Depreciation, capital adjust.	-26,710
Other Capital Assets	
Ending inventory	38,899
Capital sales	10,355
Beginning inventory	43,076
Capital purchases	4,845
Depreciation, capital adjust.	1,333
Total depreciation, capital adj.	-113,880
Net farm income	17,399

Table 9

Profitability Measures
Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	9
Profitability (assets valued at cost)	
Net farm income	17,399
Labor and management earnings	-6,618
Rate of return on assets	0.7 %
Rate of return on equity	-10.2 %
Operating profit margin	1.4 %
Asset turnover rate	49.8 %
Interest on farm net worth	24,017
Farm interest expense	47,576
Value of operator lbr and mgmt.	55,459
Return on farm assets	9,516
Average farm assets	1,385,759
Return on farm equity	-38,059
Average farm equity	372,693
Value of farm production	690,033

	Avg. Of All Farms
Number of farms	9
Profitability (assets valued at market)	
Net farm income	83,576
Labor and management earnings	-17,933
Rate of return on assets	2.8 %
Rate of return on equity	1.7 %
Operating profit margin	11.0 %
Asset turnover rate	25.1 %
Interest on farm net worth	101,508
Farm interest expense	47,576
Value of operator lbr and mgmt.	55,459
Return on farm assets	75,693
Average farm assets	2,747,956
Return on farm equity	28,117
Average farm equity	1,691,805
Value of farm production	690,033

Table 10

Liquidity Measures
Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	9
Liquidity (cash)	
Net cash farm income	167,132
Net nonfarm income	41,318
Family living and taxes	50,392
Real estate principal payments	36,129
Cash available for interm. debt	121,929
Average intermediate debt	214,566
Years to turnover interm. debt	1.8
Expense as a % of income	83 %
Interest as a % of income	5 %
Liquidity (accrual)	
Total accrual farm income	1,027,658
Total accrual operating expense	896,378
Net accrual operating income	131,279
Net nonfarm income	41,318
Family living and taxes	50,392
Real estate principal payments	36,129
Available for intermediate debt	86,076
Average intermediate debt	214,566
Years to turnover interm. debt	2.5
Expense as a % of income	87 %
Interest as a % of income	5 %

Table 11

Balance Sheet at Cost Values
Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms	
Number of farms	9	
	Beginning	Ending
Assets		
Current Farm Assets		
Cash and checking balance	83,492	40,853
Prepaid expenses & supplies	103,409	41,511
Growing crops	4,793	5,451
Accounts receivable	4,035	82,787
Hedging accounts	7,126	9,020
Crops held for sale or feed	278,744	277,164
Crops under government loan	0	0
Market livestock held for sale	237,914	185,249
Other current assets	1,183	739
Total current farm assets	720,696	642,773
Intermediate Farm Assets		
Breeding livestock	55,287	52,469
Machinery and equipment	154,396	141,815
Titled vehicles	0	0
Other intermediate assets	42,854	38,677
Total intermediate farm assets	252,537	232,961
Long Term Farm Assets		
Farm land	346,458	352,892
Buildings and improvements	123,535	99,222
Other long-term assets	222	222
Total long-term farm assets	470,214	452,336
Total Farm Assets	1,443,447	1,328,070
Total Nonfarm Assets	133,941	146,807
Total Assets	1,577,388	1,474,877
Liabilities		
Current Farm Liabilities		
Accrued interest	13,634	11,961
Accounts payable	13,350	15,592
Current notes	370,296	265,556
Government crop loans	0	0
Principal due on term debt	88,943	86,048
Total current farm liabilities	486,224	379,157
Total intermediate farm liabs	148,694	174,774
Total long term farm liabilities	440,264	397,018
Total farm liabilities	1,075,182	950,950
Total nonfarm liabilities	19,707	21,742
Total liabilities	1,094,890	972,692
Net worth (farm and nonfarm)	482,499	502,185
Net worth change		19,686
Ratio Analysis		
Current farm liabilities / assets	67 %	59 %
Curr. & interm farm liab. / assets	65 %	63 %
Long term farm liab. / assets	94 %	88 %
Total debt to asset ratio	69 %	66 %

Table 12

Balance Sheet at Market Values
Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms	
Number of farms	9	
	Beginning	Ending
Assets		
Current Farm Assets		
Cash and checking balance	83,492	40,853
Prepaid expenses & supplies	103,409	41,511
Growing crops	4,793	5,451
Accounts receivable	4,035	82,787
Hedging accounts	7,126	9,020
Crops held for sale or feed	278,744	277,164
Crops under government loan	0	0
Market livestock held for sale	237,914	185,249
Other current assets	1,183	739
Total current farm assets	720,696	642,773
Intermediate Farm Assets		
Breeding livestock	55,287	52,044
Machinery and equipment	412,868	442,169
Titled vehicles	0	0
Other intermediate assets	42,854	38,677
Total intermediate farm assets	511,009	532,890
Long Term Farm Assets		
Farm land	1,318,415	1,337,832
Buildings and improvements	221,540	210,313
Other long-term assets	222	222
Total long-term farm assets	1,540,177	1,548,368
Total Farm Assets	2,771,882	2,724,030
Total Nonfarm Assets	238,826	281,932
Total Assets	3,010,708	3,005,962
Liabilities		
Current Farm Liabilities		
Accrued interest	13,634	11,961
Accounts payable	13,350	15,592
Current notes	370,296	265,556
Government crop loans	0	0
Principal due on term debt	88,943	86,048
Total current farm liabilities	486,224	379,157
Total intermediate farm liabs	148,694	174,774
Total long term farm liabilities	440,264	397,018
Total farm liabilities	1,075,182	950,950
Total nonfarm liabilities	19,707	21,742
Total liabs excluding deferreds	1,094,890	972,692
Total deferred liabilities	47,164	51,233
Total liabilities	1,142,054	1,023,925
Retained earnings	482,499	502,185
Market valuation equity	1,386,156	1,479,852
Net worth (farm and nonfarm)	1,868,654	1,982,037
Net worth excluding deferreds	1,915,818	2,033,270
Net worth change		113,382
Ratio Analysis		
Current farm liabilities / assets	67 %	59 %
Curr. & interm farm liab. / assets	52 %	47 %
Long term farm liab. / assets	29 %	26 %
Total debt to asset ratio	38 %	34 %
Debt to assets excl deferreds	36 %	32 %

Table 13

Statement Of Cash Flows
Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	9
Beginning cash (farm & nonfarm)	84,433
Cash From Operating Activities	
Gross cash farm income	1,001,043
Net nonfarm income	41,318
Total cash farm expense	-833,911
Apparent family living expense	-49,571
Income and social security tax	-821
Cash from operations	158,058
Cash From Investing Activities	
Sale of breeding livestock	3,401
Sale of machinery & equipment	2,668
Sale of titled vehicles	-
Sale of farm land	-
Sale of farm buildings	-
Sale of other farm assets	10,355
Sale of nonfarm assets	5,728
Purchase of breeding livestock	-4,981
Purchase of machinery & equip.	-74,193
Purchase of titled vehicles	-
Purchase of farm land	-7,922
Purchase of farm buildings	-2,397
Purchase of other farm assets	-4,845
Purchase of nonfarm assets	-7,783
Cash from investing activities	-79,970
Cash From Financing Activities	
Money borrowed	259,947
Cash gifts and inheritances	5,947
Principal payments	-386,826
Dividends paid	-
Gifts given	-573
Cash from financing activities	-121,505
Net change in cash balance	-43,417
Ending cash (farm & nonfarm)	41,016

Table 14

Financial Standards Measures
Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	9
Liquidity	
Current ratio	1.70
Working capital	263,616
Solvency (market)	
Farm debt to asset ratio	37 %
Farm equity to asset ratio	63 %
Farm debt to equity ratio	58 %
Profitability (cost)	
Rate of return on farm assets	0.7 %
Rate of return on farm equity	-10.2 %
Operating profit margin	1.4 %
Net farm income	17,399
Repayment Capacity	
Term debt coverage ratio	110 %
Capital replacement margin	12,486
Efficiency	
Asset turnover rate (cost)	49.8 %
Operating expense ratio	82.6 %
Depreciation expense ratio	11.1 %
Interest expense ratio	4.6 %
Net farm income ratio	1.7 %

Table 15

Operator and Labor Information
Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	9
Operator Information	
Average number of operators	1.4
Average age of operators	53.2
Average number of years farming	29.3
Results Per Operator	
Working capital	182,503
Total assets (market)	2,081,050
Total liabilities	708,871
Net worth (market)	1,372,179
Net worth excl deferred liabs	1,407,648
Gross farm income	711,455
Total farm expense	699,410
Net farm income	12,046
Net nonfarm income	28,604
Family living & tax withdrawals	34,886
Total acres owned	532.0
Total crop acres	717.0
Crop acres owned	446.2
Crop acres cash rented	270.8
Crop acres share rented	-
Total pasture acres	-
Labor Analysis	
Number of farms	9
Total unpaid labor hours	3,516
Total hired labor hours	4,346
Total labor hours per farm	7,862
Unpaid hours per operator	2,434
Value of farm production / hour	87.77
Net farm income / unpaid hour	4.95

Table 16

Financial Summary

Michigan Swine (Farrow to Finish), 2003
(Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	9
Income Statement	
Gross cash farm income	1,001,043
Total cash farm expense	833,911
Net cash farm income	167,132
Inventory change	-35,853
Depreciation and capital adjust	-113,880
Net farm income	17,399
Profitability (cost)	
Labor and management earnings	-6,618
Rate of return on assets	0.7 %
Rate of return on equity	-10.2 %
Operating profit margin	1.4 %
Asset turnover rate	49.8 %
Profitability (market)	
Labor and management earnings	-17,933
Rate of return on assets	2.8 %
Rate of return on equity	1.7 %
Operating profit margin	11.0 %
Asset turnover rate	25.1 %
Liquidity	
Ending current ratio	1.70
Ending working capital	263,616
End working capital to gross inc	26.3 %
Term debt coverage ratio	109.7 %
Expense as a percent of income	87.2 %
Interest as a percent of income	4.6 %
Solvency (cost)	
Number of farms	9
Ending farm assets	1,328,070
Ending farm liabilities	950,950
Ending total assets	1,474,877
Ending total liabilities	972,692
Ending net worth	502,185
Net worth change	19,686
Ending farm debt to asset ratio	72 %
Beg total debt to asset ratio	69 %
End total debt to asset ratio	66 %
Solvency (market)	
Number of farms	9
Ending farm assets	2,724,030
Ending farm liabilities	994,708
Ending total assets	3,005,962
Ending total liabilities	1,023,925
Ending net worth	1,982,037
Net worth change	113,382
Ending farm debt to asset ratio	37 %
Beg total debt to asset ratio	38 %
End total debt to asset ratio	34 %
Nonfarm Information	
Net nonfarm income	41,318
Crop Acres	
Total acres owned	769
Total crop acres	1,036
Total crop acres owned	645
Total crop acres cash rented	391
Total crop acres share rented	-