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2005 Michigan Swine (Farrow to Finish) Business Analysis Summary

Eric Wittenberg and Stephen Harsh

Staff Paper 2006-32

December, 2006







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2005 Michigan TelFarm and Farm Credit Services Data Staff Paper No. 06-32

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Eric Wittenberg and Stephen Harsh¹

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Executive Summary

This report summarizes the financial and production records of 11 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 2005 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 2005 business analysis was 161 sows, 401 acres owned and 536 acres cropped, Table 1. Additional data on farm characteristics indicated that the average weight for a finished hog was 254 pound and the average price was \$54.90 per hundredweight.

Table 1. Average Michigan Swine (Farrow to Finish) Farm Characteristics, 2002-2005

	2002	2003	2004	2005
Average number of sows	1095	364	178	161
Total acres owned	491	769	587	401
Total crop acres	800	1036	919	536
Average weight of hogs sold (lbs.)	247	252	256	254
Average price/cwt.	\$36.47	\$44.82	51.77	54.90
Number of farms	7	9	12	11

Net farm income (NFI) is the amount remaining after all cash farm expenses and depreciation have been subtracted from net 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 2005 averaged, \$92,830. This average somewhat obscures a very large range of net farm income values. The range was a negative \$4,905 to \$217,533 and the standard deviation was \$76,477.

Gross cash farm income averaged \$842,919 in 2005. The largest components of this revenue are finished feeder pigs sales which averaged \$262,399, finished raised hogs sales which averaged \$275,488 and weaning to finished hogs sales which averaged \$140,108. Government payments averaged \$44,254 per farm in 2005.

Average total cash expenses were \$681,217 in 2005 and average net cash farm income was \$161,703. Inventory levels increased and averaged \$5,050 per farm. Prepaid expenses, supplies, crops, and feeds inventories increased while accounts payable and market livestock decreased.

Table 2. Average Swine Farm Income Statement, 2002-2005

	2002	2003	2004	2005
	(\$)	(\$)	(\$)	(\$)
Gross cash farm income	1,986,148	1,001,043	1,089,291	842,919
- Total cash expense	2,149,235	833,911	892,506	681,217
= Net cash farm income	-163,087	167,132	196,785	161,703
+ Inventory change	111,150	-35853	79,912	5,050
+ Depreciation and capital adjustments	<i>-</i> 71,696	<u>-113880</u>	<u>-78,960</u>	<u>-73,922</u>
= Net farm income	-123,632	17399	197,737	92,830

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 for 2005 averaged 7.7 percent.

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, this was the case in 2005. ROE performance for 2005 averaged 11.8 percent. This farm summary indicates that these farms were profitable in 2005.

Table 3 compares profitability for the years 2002 - 2005 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 2005 swine farm ROA was 7.0 percent, which was an 56 percent decrease over 2004 value. Return on equity averaged 11.8 percent. Operating profit margin measures the dollars of profit generated per dollar of revenue. In 2005, the OPM was 13.8 percent. Asset turnover measures the efficiency with which farm assets generate revenue. In 2005, this ratio was 50.8 percent. All these profitability measures indicate that on the average, 2005 was a profitable year financially.

Table 3. Average Swine Farm Profitability Indicators, 2002-2005

	2002	2003	2004	2005
	(%)	(%)	(%)	(%)
Rate of return on assets*	-3.2	0.7	16.1	7.0
Rate of return on equity	-14.8	-10.2	52.4	11.8
Operating profit margin	-7.0	1.4	25.3	13.8
Asset turnover rate*	45.6	49.8	63.5	50.8

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

Table 4 compares profitability measures across the years 2002 - 2005 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 2005 was 7.7 percent, a positive change when compared to 2002 and 2003. Return on equity (ROE) for 2005 was 9.8 percent. Operating profit margin (OPM) measures the dollars of profit generated per dollar of revenue. In 2005 the OPM was 28.4 percent. In 2005 these swine farms are generating good profit per dollar of revenue.

Asset turnover ratio measures the efficiency with which farm assets generate revenue. In 2005, the asset turnover ratio was 27.2 percent. This was a slight decrease when compared with 2004, higher prices for production or lower total asset value will increase ATO. This is a slight decrease of 12 percent, meaning that the farm assets generated less dollars per dollar invested in farm assets. The trend with respect to profitability in 2005 was good.

Table 4. Average Swine Farm Profitability Indicators, 2002-2005

	2002	2003	2004	2005
	(%)	(%)	(%)	(%)
Rate of return on assets*	-0.1	2.8	10.1	7.7
Rate of return on equity	-3.6	1.7	13.9	9.8
Operating profit margin	-0.5	11.0	32.4	28.4
Asset turnover rate*	31.2	25.1	31.0	27.2

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

Table 5 Crop Production and Marketing Summary Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

	g. Of Farms
Number of farms	11
Acreage Summary Total acres owned Total crop acres Crop acres owned Crop acres cash rented Crop acres share rented Total pasture acres	401 536 269 267 -
Average Price Received (Cash Sales Only) Corn per bushel Soybeans per bushel	2.81 6.03

Table 6 Farm Income Statement Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	11
Number of farms Cash Farm Income Beans, Navy Corn Hay, Mixed Soybeans Straw Sugar Beets Wheat, Winter Beef, Custom Fed Hogs, Farrow-Fin, Raised Hogs Hogs, Feeder Pigs, Feeder Pigs Hogs, Finish Feeder Pigs Chickens, Pullets Hogs, Weaning Pigs, Weaning Pigs Hogs, Weaning to Feeder Hogs, Weaning to Finish Cull breeding livestock Misc. livestock income	11 6,025 9,977 93 34,513 353 10,237 2,717 311 275,488 20,522 241,877 118 552 852 140,108 22,669
Direct & CC govt payments CRP payments	3,988 1,818
Other government payments Custom work income Patronage dividends, cash Insurance income Other farm income Gross Cash Farm Income	42,436 17,978 213 4,578 5,280 842,919

Table 6

Farm Income Statement (Continued) Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	11
Cash Farm Expense	
Seed	22,729
Fertilizer	26,298
Crop chemicals	21,464
Crop insurance	1,551
Drying fuel	6,924
Crop marketing	201
Crop miscellaneous	714
Feeder livestock purchase	129,740
Purchased feed	190,409
Breeding fees	1,632
Veterinary	7,124
Supplies Livestock utilities	4,185 390
Hauling and trucking	152
Livestock marketing	8,507
Livestock miscellaneous	201
Interest	30,752
Packaging and supplies	705
Fuel & oil	21,970
Repairs	34,458
Custom hire	31,877
Hired labor	31,180
Land rent	22,318
Machinery leases	18,166
Real estate taxes	8,304
Personal property taxes	121
Farm insurance	9,616
Utilities	23,892
Dues & professional fees	3,588
Hedging account deposits	1,164
Miscellaneous	20,885
Total cash expense	681,217
Net cash farm income	161,703
Inventory Changes	E 0.45
Crops and feed	5,045
Market livestock	-15,283
Accounts receivable	3,802
Prepaid expenses and supplies	14,839
Accounts payable	-3,353
Total inventory change Net operating profit	5,050 166,753
Depreciation and Other Capital Adjust	
Breeding livestock	-1,578
Machinery and equipment	-38,348
Buildings and improvements	-33,997
Other farm capital	72 022
Total depr. and other capital adj	-73,922
Net farm income	92,830

Table 7 Inventory Changes Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	11
Net cash farm income	161,703
Crops and Feed Ending inventory Beginning inventory Inventory change	119,952 114,907 5,045
Market Livestock Ending inventory Beginning inventory Inventory change	207,428 222,711 -15,283
Accts Receivable & Other Current Asset Ending inventory Beginning inventory Inventory change	20,974 17,172 3,802
Prepaid Expenses and Supplies Ending inventory Beginning inventory Inventory change	70,843 56,004 14,839
Accounts Payable & Accrued Expenses Beginning inventory Ending inventory Inventory change	13,865 17,218 -3,353
Total inventory change	5,050
Net operating profit	166,753

Table 8 Depreciation and Other Capital Adjustments Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	11
Net operating profit	166,753
Breeding Livestock Ending inventory Capital sales Beginning inventory Capital purchases Depreciation, capital adjust.	43,431 248 43,570 1,686 -1,578
Machinery and Equipment Ending inventory Capital sales Beginning inventory Capital purchases Depreciation, capital adjust.	108,290 640 69,945 77,332 -38,348
Buildings and Improvements Ending inventory Capital sales Beginning inventory Capital purchases Depreciation, capital adjust.	88,739 - 69,960 52,776 -33,997
Other Capital Assets Ending inventory Capital sales Beginning inventory Capital purchases Depreciation, capital adjust.	23,890 15,131 38,735 286 0
Total depreciation, capital adj.	-73,922
Net farm income	92,830

Table 9 Profitability Measures Michigan Swine (Farrow to Finish), 2005

Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	11
Profitability (assets valued at cost) Net farm income Labor and management earnings Rate of return on assets Rate of return on equity Operating profit margin Asset turnover rate	92,830 68,717 7.0 % 11.8 % 13.8 % 50.8 %
Interest on farm net worth Farm interest expense Value of operator lbr and mgmt. Return on farm assets Average farm assets Return on farm equity Average farm equity Value of farm production	24,113 30,061 51,626 71,265 1,013,203 41,204 347,929 514,756
	Avg. Of All Farms
Number of farms	11
Profitability (assets valued at marke Net farm income Labor and management earnings Rate of return on assets Rate of return on equity Operating profit margin Asset turnover rate	t) 167,772 96,376 7.7 % 9.8 % 28.4 % 27.2 %
Interest on farm net worth Farm interest expense Value of operator lbr and mgmt. Return on farm assets Average farm assets Return on farm equity Average farm equity Value of farm production	71,395 30,061 51,626 146,206 1,891,788 116,146 1,189,920 514,756

Table 10 Liquidity Measures Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	11
Liquidity (cash) Net cash farm income Net nonfarm income Family living and taxes Principal due on long term debt Cash available for interm. debt Average intermediate debt	161,703 8,976 100,295 21,396 48,988 152,780
Years to turnover interm. debt Expense as a % of income Interest as a % of income Working capital to gross income	3.1 81 % 4 % 25 %
Liquidity (accrual) Total accrual farm income Total accrual operating expense Net accrual operating income Net nonfarm income Family living and taxes Principal due on long term debt Available for intermediate debt Average intermediate debt	836,483 669,731 166,753 8,976 100,295 21,396 54,038 152,780
Years to turnover interm. debt Expense as a % of income Interest as a % of income Working capital to gross income	2.8 80 % 4 % 25 %

Table 11 Balance Sheet at Cost Values Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

Avg. Of All Farms

Number	o.f	forma	1:	1	
Number	OI	Iarms		-	

Number of farms	Δ.	L
	Beginning	Ending
Assets		
Current Farm Assets		
Cash and checking balance	24,206	8,323
Prepaid expenses & supplies	56,004	
Growing crops	2,100	
Accounts receivable	10,506	
Hedging accounts	4,566	
Crops held for sale or feed	114,907	
		119,932
Crops under government loan Market livestock held for sale	0	
		207,428
Other current assets	0	
Total current farm assets	434,998	427,520
Intermediate Farm Assets		
Breeding livestock	43,570	43,431
Machinery and equipment	69,945	108,290
Titled vehicles	0	
Other intermediate assets	36,321	21,386
Total intermediate farm assets	36,321 149,837	173,106
Long Term Farm Assets		
Farm land	315,250	362,078
Buildings and improvements	69,960	88,739
Other long-term assets	2 414	2 505
Total long-term farm assets		453,322
Total Farm Assets	972,459	1,053,948
Total Nonfarm Assets	138.520	182,641
Total Assets		1,236,589
10001 1100000	1,110,3.3	1,230,303
Liabilities		
Current Farm Liabilities		
Accrued interest	3,190	2,499
Accounts payable	10,675	14,719
Current notes	138,519	152,985
Government crop loans	0	
Principal due on term debt	47,679	50,404
Total current farm liabilities	200,063	220,607
Total intermediate farm liabs	114,728	137,961
Total long term farm liabilities	307,776	
Total farm liabilities	622,567	
	, , , , ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Total nonfarm liabilities	25,975	27,170
Total liabilities	648,542	
	,	·
Net worth (farm and nonfarm)	462,437	501,437
Net worth change		39,000
5		,
Ratio Analysis		
Current farm liabilities / assets	46 %	
Curr. & interm farm liab. / assets	54 %	60 %
Long term farm liab. / assets	79 %	77 %
Total debt to asset ratio	58 %	59 %

Table 12

Balance Sheet at Market Values Michigan Swine (Farrow to Finish), 2005

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

Avg. Of All Farms

37		£	11
Number	OI	Iarms	11

		- 1'
Assets	Beginning	Ending
Current Farm Assets		
Cash and checking balance	24,206	8,323
Prepaid expenses & supplies	56,004	70,843
Growing crops Accounts receivable	2,100 10,506	2,018 15,231
Hedging accounts	4,566	3,724
Crops held for sale or feed	114,907	119,952
Crops under government loan	0	0
Market livestock held for sale Other current assets	222,711	207,428
Total current farm assets	0 434,998	0 427,520
	,	,
Intermediate Farm Assets	42 550	42 565
Breeding livestock	43,570	
Machinery and equipment Titled vehicles	279,251 0	321,480 2,727
Other intermediate assets	36,321	
Total intermediate farm assets	359,142	
Tana Mana Rama Amarka		
Long Term Farm Assets Farm land	756,970	828,472
Buildings and improvements		281,468
Other long-term assets	15,918	
Total long-term farm assets		1,154,309
Total Farm Assets	1,812,589	1,970,986
Total Nonfarm Assets	238,600	304,105
Total Assets	2,051,189	2,275,092
Liabilities		
Current Farm Liabilities		
Accrued interest	3,190	2,499
Accounts payable	10,675	
Current notes	138,519	
Government crop loans Principal due on term debt	0 47,679	0 50,404
Total current farm liabilities	200,063	
Total intermediate farm liabs	114,728	137,961
Total long term farm liabilities Total farm liabilities	307,776 622,567	349,414 707,982
Total laim liabilities	022,307	707,302
Total nonfarm liabilities	25,975	27,170
Total liabs excluding deferreds	648,542	735,152
Total deferred liabilities	46,678	41,376
Total liabilities	695,220	776,528
Retained earnings	462,437	501,437
Market valuation equity	893,532	
Net worth (farm and nonfarm)	1,355,969	1,498,563 1,539,939
Net worth excluding deferreds Net worth change	1,402,647	142,595
		-,
Ratio Analysis	4.5.0	50 0
Current farm liabilities / assets Curr. & interm farm liab. / assets	46 % 40 %	52 % 44 %
Long term farm liab. / assets	30 %	30 %
Total debt to asset ratio	34 %	34 %
Debt to assets excl deferreds	32 %	32 %

Table 13 Statement Of Cash Flows Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	11
Beginning cash (farm & nonfarm)	24,339
Cash From Operating Activities Gross cash farm income Net nonfarm income Total cash farm expense Apparent family living expense Income and social security tax Cash from operations	842,919 8,976 -681,217 -100,250 -45 70,384
Cash From Investing Activities Sale of breeding livestock Sale of machinery & equipment Sale of titled vehicles Sale of farm land Sale of farm buildings Sale of other farm assets Sale of nonfarm assets Purchase of breeding livestock Purchase of machinery & equip. Purchase of titled vehicles Purchase of farm land Purchase of farm buildings Purchase of other farm assets Purchase of nonfarm assets Cash from investing activities	248 640 - 1,136 - 15,131 28 -1,686 -77,332 - -47,465 -52,776 -286 -2,999 -165,362
Cash From Financing Activities Money borrowed Cash gifts and inheritances Principal payments Dividends paid Gifts given Cash from financing activities Net change in cash balance	538,007 5,808 -454,336 - -10,290 79,188
Ending cash (farm & nonfarm)	8,551

Table 14 Financial Standards Measures Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	11
Liquidity Current ratio	1.94
Working capital	206,913
Solvency (market)	
Farm debt to asset ratio	38 %
Farm equity to asset ratio	62 %
Farm debt to equity ratio	61 %
Profitability (cost)	
Rate of return on farm assets	7.0 %
Rate of return on farm equity	11.8 %
Operating profit margin	13.8 %
Net farm income	92,830
Repayment Capacity	
Term debt coverage ratio	182 %
Capital replacement margin	53,532
Efficiency	
Asset turnover rate (cost)	50.8 %
Operating expense ratio	76.5 %
Depreciation expense ratio	8.8 %
Interest expense ratio	3.6 %
Net farm income ratio	11.1 %

Table 15 Operator and Labor Information Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

	Avg. Of All Farms
Number of farms	11
Operator Information Average number of operators Average age of operators Average number of years farming	1.6 51.1 26.7
Results Per Operator Working capital Total assets (market) Total liabilities Net worth (market) Net worth excl deferred liabs	126,447 1,390,334 474,545 915,789 941,074
Gross farm income Total farm expense Net farm income	511,184 454,455 56,730
Net nonfarm income Family living & tax withdrawals	5,486 61,291
Total acres owned Total crop acres Crop acres owned Crop acres cash rented Crop acres share rented Total pasture acres	245.1 327.7 164.6 163.1
Labor Analysis Number of farms Total unpaid labor hours Total hired labor hours Total labor hours per farm Unpaid hours per operator Value of farm production / hour Net farm income / unpaid hour Average hourly hired labor wage	11 3,809 1,951 5,759 2,328 89.38 24.37 16.17
Partnerships & LLCs Number of farms Number of operators Owner withdrawals per farm Withdrawals per operator	6 2.0 - -

Table 16 Financial Summary Michigan Swine (Farrow to Finish), 2005 (Farms Sorted By Rate of Return on Assets - Mkt)

Avg. Of
All Farms
11
842,919 681,217 161,703 5,050 -73,922 92,830
68,717 7.0 % 11.8 % 13.8 % 50.8 %
96,376 7.7 % 9.8 % 28.4 % 27.2 %
1.94 206,913 24.5 % 181.8 % 80.1 % 3.6 %
11 1,053,948 707,982 1,236,589 735,152 501,437 39,000 67 % 58 % 59 %
11 1,970,986 745,559 2,275,092 776,528 1,498,563 142,595 38 % 34 % 34 % 8,976 401 536 269 267