

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.

Staff Paper

2003 Michigan Swine (Farrow to Finish) Business Analysis Summary

> Eric Wittenberg and Steve Harsh

Staff Paper 2004-23

December, 2004





Department of Agricultural Economics MICHIGAN STATE UNIVERSITY East Lansing, Michigan 48824

MSU is an Affirmative Action/Equal Opportunity Institution

2003 Michigan Swine (Farrow to Finish) Business Analysis Summary

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

by

Eric Wittenberg and Steve Harsh

Copyright 2004 by Eric Wittenberg and Steve Harsh. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

2003 Michigan Swine (Farrow to Finish) Business Analysis Summary

by

Eric Wittenberg and Steve Harsh¹

Table of Contents	Page
Executive Summary	3
List of Tables	
Summary Tables	
1) Average 2003 Farm Characteristics	3
2) Average Income Statement	4
3) Average Profitability Indicators (cost)	5
4) Average Profitability Indicators (market)	5
Average of 9 Farrow to Finish Swine Farms	
5) Livestock and Crop Production Summary	6
6) Farm Income Statement	7
7) Inventory Changes	9
8) Depreciation and Other Capital Adjustment	10
9) Profitability Measures	11
10) Liquidity Measures	12
11) Balance Sheet at Cost Values	13
12) Balance sheet at Market Values	14
13) Statement of Cash Flows	15
14) Financial Standards Measures	16
15) Operator Information and Nonfarm Summary	17
16) Financial Summary	18

_

¹ Co-workers in the TelFarm project were: R. Betz, L. Borton, B. Battel, W. Schauer, D. Stein, and V. Varner with the assistance of Michigan State University Extension Agents. Farm Credit Services of Michigan co-workers were: Kelly Tobin, Steve Eshelman, Janice Raymond, Tiffany Aldrich, Anne Gerke, Kathleen Spranger, Sonya Pentecost, and Lynette Wood. Farm Credit Services of Wisconsin co-worker was Steve Zimmerman.

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 substracted 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 forth 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
		(Perce	ent)	
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
		(Per	rcent)	
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)

	g. Of Farms
Number of farms	9
Acreage Summary Total acres owned Total crop acres Crop acres owned Crop acres cash rented Crop acres share rented Total pasture acres	769 1,036 645 391 -
Average Price Received (Cash Sales Only) Wheat, Winter per bushel Soybeans per bushel	3.15 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 Hay, Mixed Soybeans Straw Wheat, Winter Hogs, Farrow-Fin, Raised Hogs Hogs, Feeder Pigs, Feeder Pigs Hogs, Finish Feeder Pigs Hogs, Weaning to Finish Cull breeding livestock Misc. livestock income Direct & CC govt payments CRP payments Other government payments	94,515 554 97,302 1,267 15,771 433,625 29,490 226,306 21,311 12,428 199 2,689 2,222 27,024
Custom work income Patronage dividends, cash Insurance income Cash from hedging accts Other farm income Gross Cash Farm Income	24,306 601 3,681 401 7,353 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 Fuel & oil	49,249 14,231
Repairs Custom hire	27,683 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	1 500
Crops and feed Market livestock	-1,580 -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 Adjust	
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 Beginning inventory Inventory change	277,164 278,744 -1,580
Market Livestock Ending inventory Beginning inventory Inventory change	185,249 237,914 -52,665
Accts Receivable & Other Current Asse Ending inventory Beginning inventory Inventory change	97,996 17,137 80,859
Prepaid Expenses and Supplies Ending inventory Beginning inventory Inventory change	41,511 103,409 -61,898
Accounts Payable & Accrued Expenses Beginning inventory Ending inventory Inventory change	26,984 27,553 -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 Capital sales Beginning inventory Capital purchases Depreciation, capital adjust.	52,469 3,401 55,287 4,981 -4,398
Machinery and Equipment Ending inventory Capital sales Beginning inventory Capital purchases Depreciation, capital adjust.	141,815 2,668 154,396 74,193 -84,106
Buildings and Improvements Ending inventory Capital sales Beginning inventory Capital purchases Depreciation, capital adjust.	99,222 - 123,535 2,397 -26,710
Other Capital Assets Ending inventory Capital sales Beginning inventory Capital purchases Depreciation, capital adjust.	38,899 10,355 43,076 4,845 1,333
Total depreciation, capital adj.	-113,880
Net farm income	17,399

Profitability Measures Michigan Swine (Farrow to Finish), 2003 (Farms Sorted By Rate of Return on Assets - Mkt) Table 9

	Avg. Of All Farms
Number of farms	9
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	17,399 -6,618 0.7 % -10.2 % 1.4 % 49.8 %
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	24,017 47,576 55,459 9,516 1,385,759 -38,059 372,693 690,033
	Avg. Of All Farms
Number of farms	9
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	83,576 -17,933 2.8 % 1.7 % 11.0 % 25.1 %
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	101,508 47,576 55,459 75,693 2,747,956 28,117 1,691,805 690,033

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

Number of farms	9	9
	Beginning	Ending
Assets		
Current Farm Assets	02 400	40 052
Cash and checking balance	83,492	40,853
Prepaid expenses & supplies	103,409	41,511
Growing crops Accounts receivable	4,793	
Hedging accounts	4,035 7,126	
Crops held for sale or feed	278,744	
Crops under government loan	278,744	2//,104
Market livestock held for sale	237,914	
Other current assets	1,183	
Total current farm assets	720,696	
Total carrent farm abbeeb	720,030	012,773
Intermediate Farm Assets		
Breeding livestock	55,287	52,469
Machinery and equipment	154,396	
Titled vehicles	0	
Other intermediate assets	42,854	38,677
Total intermediate farm assets	252,537	232,961
Long Term Farm Assets		
Farm land	346,458	
Buildings and improvements	123,535	
Other long-term assets	222	
Total long-term farm assets		452,336
Total Farm Assets	1,443,447	1,328,070
Total Nonfarm Assets	122 041	146,807
Total Assets		1,474,877
TOTAL ASSECS	1,377,300	1,4/4,0//
Liabilities		
Current Farm Liabilities		
Accrued interest	13,634	11,961
Accounts payable	13,350	
Current notes	370,296	
Government crop loans	0	
Principal due on term debt	88,943	86,048
Total current farm liabilities	486,224	379,157
Total intermediate farm liabs	148,694	
Total long term farm liabilities	440,264	
Total farm liabilities	1,075,182	950,950
Total nonform liabilities	10 707	21 742
Total nonfarm liabilities	19,707	
Total liabilities	1,094,890	972,692
Net worth (farm and nonfarm)	482,499	502,185
Net worth change	102,100	19,686
1.0001 ondinge		15,500
Ratio Analysis		
Current farm liabilities / assets	67 %	59 %
Curr. & interm farm liab. / assets	65 %	
Long term farm liab. / assets	94 %	
Total debt to asset ratio	69 %	

Table 12 Balance Sheet at Market Values Michigan Swine (Farrow to Finish), 2003 (Farms Sorted By Rate of Return on Assets - Mkt)

Avo	3.	Of
All	Fá	arms

	AII Fall	แธ
Number of farms		9
Number of Farms	Beginning	
Assets	203211112113	21142113
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	
Hedging accounts	7,126	
Crops held for sale or feed	278,744	
Crops under government loan	0	
Market livestock held for sale	237,914	185,249
Other current assets	1,183	
Total current farm assets	720,696	642,773
Intermediate Farm Assets		
Breeding livestock	55,287	52,044
Machinery and equipment	412,868	
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	
Principal due on term debt	88,943	86,048
Total current farm liabilities	486,224	379,157
Total intermediate farm liabs	148,694	
Total long term farm liabilities	440,264	
Total farm liabilities	1,075,182	950,950
Total nonfarm liabilities	19,707	
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		502,185
Market valuation equity		1,479,852
Net worth (farm and nonfarm)		1,982,037
Net worth excluding deferreds	1,915,818	2,033,270
Net worth change		113,382
Date in Burglanda		
Ratio Analysis	6B *	50 °
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 Net nonfarm income Total cash farm expense Apparent family living expense Income and social security tax Cash from operations	1,001,043 41,318 -833,911 -49,571 -821 158,058
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	3,401 2,668 - - 10,355 5,728 -4,981 -74,193 - -7,922 -2,397 -4,845 -7,783 -79,970
Cash From Financing Activities Money borrowed Cash gifts and inheritances Principal payments Dividends paid Gifts given Cash from financing activities	259,947 5,947 -386,826 - -573 -121,505
Net change in cash balance	-43,417
<pre>Ending cash (farm & nonfarm)</pre>	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 Working capital	1.70 263,616
Solvency (market) Farm debt to asset ratio Farm equity to asset ratio Farm debt to equity ratio	37 % 63 % 58 %
Profitability (cost) Rate of return on farm assets Rate of return on farm equity Operating profit margin Net farm income	0.7 % -10.2 % 1.4 % 17,399
Repayment Capacity Term debt coverage ratio Capital replacement margin	110 % 12,486
Efficiency Asset turnover rate (cost) Operating expense ratio Depreciation expense ratio Interest expense ratio Net farm income ratio	49.8 % 82.6 % 11.1 % 4.6 % 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 Average age of operators Average number of years farming	1.4 53.2 29.3
Results Per Operator Working capital Total assets (market) Total liabilities Net worth (market) Net worth excl deferred liabs	182,503 2,081,050 708,871 1,372,179 1,407,648
Gross farm income Total farm expense Net farm income	711,455 699,410 12,046
Net nonfarm income Family living & tax withdrawals	28,604 34,886
Total acres owned Total crop acres Crop acres owned Crop acres cash rented Crop acres share rented Total pasture acres	532.0 717.0 446.2 270.8
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	9 3,516 4,346 7,862 2,434 87.77 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 Total cash farm expense Net cash farm income Inventory change Depreciation and capital adjust Net farm income Profitability (cost)	1,001,043 833,911 167,132 -35,853 -113,880 17,399
Labor and management earnings Rate of return on assets Rate of return on equity Operating profit margin Asset turnover rate Profitability (market)	-6,618 0.7 % -10.2 % 1.4 % 49.8 %
Labor and management earnings Rate of return on assets Rate of return on equity Operating profit margin Asset turnover rate Liquidity	-17,933 2.8 % 1.7 % 11.0 % 25.1 %
Ending current ratio Ending working capital End working capital to gross inc Term debt coverage ratio Expense as a percent of income Interest as a percent of income	1.70 263,616 26.3 % 109.7 % 87.2 % 4.6 %
Solvency (cost) Number of farms Ending farm assets Ending farm liabilities Ending total assets Ending total liabilities Ending net worth Net worth change Ending farm debt to asset ratio Beg total debt to asset ratio End total debt to asset ratio	9 1,328,070 950,950 1,474,877 972,692 502,185 19,686 72 % 69 %
Solvency (market) Number of farms Ending farm assets Ending farm liabilities Ending total assets Ending total liabilities Ending net worth Net worth change Ending farm debt to asset ratio Beg total debt to asset ratio End total debt to asset ratio Nonfarm Information Net nonfarm income	9 2,724,030 994,708 3,005,962 1,023,925 1,982,037 113,382 37 % 38 % 34 %
Crop Acres Total acres owned Total crop acres Total crop acres owned Total crop acres cash rented Total crop acres share rented	769 1,036 645 391