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# *Staff Paper*

Business Analysis Summary for Beef Farms

by

Sherrill B. Nott

Staff Paper 97-33

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## Business Analysis Summary for Beef Farms

by

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This report is a summary of the financial and production records kept by beef farmers enrolled in the Telfarm/MicroTel record program through Michigan State University Extension. Farm records were included if a Finan<sup>1</sup> summary was completed on 1996 data including beginning and ending balance sheets, income and expenses plus crop acres and yields. The summary was included if cash discrepancy was less than 10 % of gross cash inflow, and if the debt discrepancy was less than \$1,000. A few farms were included which met this criteria but were not enrolled in Telfarm.

This report has three purposes: 1) to provide statistical information about the financial results on beef farms during 1996; 2) to provide production costs for comparative analysis and forward planning; and 3) to provide information on the trends in resource use, income and costs during the last few years.

18 pages

# BUSINESS ANALYSIS SUMMARY FOR BEEF FARMS

## 1996 Telfarm/MicroTel Data

by

Sherrill B. Nott<sup>2</sup>

### Introduction

The body of this report is organized as follows:

- I. Introduction and Table of Contents
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### Data Source

Farm types were assigned using the 1992 Census of Agriculture's Standard Industrial Classification (SIC) definitions. Basically, any farm with 50 percent or more of value of farm sales from one item becomes a farm of that type. Beef farms have 50 percent or more of value of combined sales from beef animals. Most of the included farms are cow-calf, but at least one is a feedlot.

This report is a summary of the financial and production records kept by beef farmers enrolled in the Telfarm/MicroTel record program through Michigan State University Extension.

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<sup>2</sup>Co-workers in the Telfarm/MicroTel project were: R. Hepp, J. Jones, D. Stein, T. Purdy, S. Harsh, M. Kelsey, R. Betz, G. Schwab, A. Shapley, W. Schauer, and G. Kole with the assistance of MSU Extension Agents in Michigan.

Farm records were included if a Finan<sup>3</sup> summary was completed on 1996 data including beginning and ending balance sheets, income and expenses plus crop acres and yields. The summary was included if cash discrepancy was less than 10 % of gross cash inflow, and if the debt discrepancy was less than \$1,000. A few farms were included which met this criteria but were not enrolled in Telfarm.

This report has three purposes: 1) to provide statistical information about the financial results on beef farms during 1996; 2) to provide production costs for comparative analysis and forward planning; and 3) to provide information on the trends in resource use, income and costs during the last few years. Following trends will be a problem this year, as Telfarm/MicroTel and the Department of Agricultural Economics adopted Finansum<sup>4</sup> a different software package for doing annual analysis. Some bridging inferences can be drawn from 1995 information. The new method was reported in Staff Paper No. 96-86, Michigan Farm Database. New Directions for 1995; it contains averages of 12 general livestock farms calculated with Finansum.

Finansum allows rapid analysis of group averages with some degree of choice over how the results are presented. A farm was accepted in the average regardless of whether it was a proprietorship, partnership, limited liability company, or corporation. Finansum will produce a variety of report options; I included a subset in the publication.

Added copies of this paper can be printed off from your internet browser equipped with Adobe's Acrobat reader. Go to [www.aec.msu.edu/agecon/](http://www.aec.msu.edu/agecon/) and find the screen area on full text publications. The numerical tables can be printed from [www.msu.edu/user/nott/](http://www.msu.edu/user/nott/)

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<sup>3</sup>Finan = financial analysis, one of the parts of Finpack, a financial software package from the Center for Farm Financial Management at the University of Minnesota.

<sup>4</sup>Finansum provides summarization calculations for data files generated by Finan. It also comes from the Center for Farm Financial Management.

**Table 1. CROP PRODUCTION AND MARKETING SUMMARY, 1996**  
**Michigan Beef Farms**  
(Average of all farms reporting)

	Average Of All Farms
	<hr/>
Number of Farms	8
 ACREAGE SUMMARY	
Total Acres Owned	298
Total Crop Acres	516
Crop Acres Owned	229
Crop Acres Cash Rented	287
Crop Acres Share Rented	-
Total Pasture Acres	2
 AVERAGE YIELD PER ACRE	
Corn (bu.)	103.01
Soybeans (bu.)	33.03
Hay, Alfalfa (ton)	2.80
Corn Silage (ton)	10.73
Wheat, Winter (bu.)	38.43
Hay, Grass (ton)	1.32
Oatlage (ton)	1.00
Oats (bu.)	85.00

**Table 2. FARM INCOME STATEMENT, 1996**  
**Michigan Beef Farms**  
(Average of all farms reporting)

	Average Of All Farms
	<hr/>
Number of Farms	8
CASH FARM INCOME	
Green Beans	398
Corn	8006
Corn Silage	1
Alfalfa Hay	2400
Mixed Hay	3
Oats	348
Soybeans	22535
Straw	40
Winter Wheat	4437
Other crops	9329
Beef Calves	608
Background Beef	29104
Finish Beef Calves	149833
Finish Yrlg Steers	4521
Milk	2719
Dairy Steers	4388
Raised Hogs	26330
Aquaculture	12665
Cull breeding livestock	924
Misc. livestock income	1376
Deficiency payments	2354
Other government payments	5642
Custom work income	115
Patronage dividends, cash	38
Insurance income	260
Other farm income	592
Gross Cash Farm Income	288966

**Table 2. FARM INCOME STATEMENT, 1996 (Continued)**  
**Michigan Beef Farms**  
(Average of all farms reporting)

	Average Of All Farms
	<hr/>
Number of Farms	8
<b>CASH FARM EXPENSE</b>	
Seed	9440
Fertilizer	25689
Crop chemicals	17957
Crop insurance	150
Drying fuel	1077
Crop marketing	620
Crop miscellaneous	191
Feeder livestock purchase	89543
Purchased feed	23585
Breeding fees	31
Veterinary	3454
Livestock supplies	846
Livestock marketing	1418
Interest	14584
Fuel & oil	6038
Repairs	12261
Custom hire	2840
Hired labor	12021
Land rent	10988
Machinery & bldg leases	12717
Real estate taxes	3441
Personal property taxes	373
Farm insurance	3129
Utilities	4839
Dues & professional fees	899
Miscellaneous	2503
Total cash expense	260637
Net cash farm income	28329
<b>INVENTORY CHANGES</b>	
Crops and feed	-545
Market livestock	637
Accounts receivable	-789
Prepaid expenses and supplies	7846
Accounts payable	-564
Total inventory change	6586
Net operating profit	34915
<b>DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS</b>	
Breeding livestock	-6723
Machinery and equipment	-16544
Buildings and improvements	-8238
Other farm capital	-88
Total depr. and other capital adj	-31593
Net farm income	3322



**Table 3.      INVENTORY CHANGES, 1996**  
**Michigan Beef Farms**  
(Average of all farms reporting)

	Average Of All Farms
	8
Number of Farms	8
Net cash farm income	28329
<b>CROPS AND FEED</b>	
Ending inventory	66649
Beginning inventory	67194
Inventory change	-545
<b>MARKET LIVESTOCK</b>	
Ending inventory	125591
Beginning inventory	124954
Inventory change	637
<b>ACCTS RECEIVABLE &amp; OTHER CURRENT ASSETS</b>	
Ending inventory	2203
Beginning inventory	2992
Inventory change	-789
<b>PREPAID EXPENSES AND SUPPLIES</b>	
Ending inventory	15974
Beginning inventory	8127
Inventory change	7846
<b>ACCOUNTS PAYABLE</b>	
Beginning inventory	1302
Ending inventory	1866
Inventory change	-564
Total inventory change	6586
Net operating profit	34915

Table 4.

## DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS, 1996

**Michigan Beef Farms**

(Average of all farms reporting)

	Average Of All Farms
	<hr/>
Number of Farms	8
Net operating profit	34915
BREEDING LIVESTOCK	
Ending inventory	8022
Capital sales	1516
Beginning inventory	15191
Capital purchases	1071
Depreciation, capital adj.	-6723
MACHINERY AND EQUIPMENT	
Ending inventory	86165
Capital sales	3325
Beginning inventory	71403
Capital purchases	34630
Depreciation, capital adj.	-16544
BUILDINGS AND IMPROVEMENTS	
Ending inventory	20473
Capital sales	-
Beginning inventory	20904
Capital purchases	7807
Depreciation, capital adj.	-8238
OTHER CAPITAL ASSETS	
Ending inventory	3091
Capital sales	3977
Beginning inventory	5075
Capital purchases	2081
Depreciation, capital adj.	-88
Total depreciation, capital adj.	-31593
Net farm income	3322

**Table 5. PROFITABILITY AND LIQUIDITY ANALYSIS, 1996**  
**Michigan Beef Farms**  
(Average of all farms reporting)

	Average Of All Farms	Average Of All Farms
Number of Farms	8	8
PROFITABILITY	--- Cost ---	-- Market --
Net farm income	3322	4600
Labor and management earnings	-11994	-27445
Rate of return on assets	-1.9 %	-0.9 %
Rate of return on equity	-9.9 %	-4.0 %
Operating profit margin	-4.5 %	-3.8 %
Asset turnover rate	42.4 %	24.0 %
Interest on farm net worth	15316	32046
Farm interest expense	15148	15148
Value of operator lbr and mgmt.	26117	26117
Return on farm assets	-7647	-6368
Average farm assets	397428	700447
Return on farm equity	-22795	-21516
Average farm equity	231074	534092
Value of farm production	168417	168417
	Average Of All Farms	
Number of Farms	8	
LIQUIDITY (Cash)		
Net cash farm income	28329	
Net nonfarm income	37245	
Family living and taxes	16565	
Real estate principal payments	2184	
Cash available for interm. debt	46825	
Average intermediate debt	63202	
Years to turnover interm. debt	1.3	
Expense as a % of income	90 %	
Interest as a % of income	5 %	
LIQUIDITY (Accrual)		
Total accrual farm income	288269	
Total accrual farm expense	253354	
Net accrual operating income	34915	
Net nonfarm income	37245	
Family living and taxes	16565	
Real estate principal payments	2184	
Available for intermediate debt	53410	
Average intermediate debt	63202	
Years to turnover interm. debt	1.2	
Expense as a % of income	88 %	
Interest as a % of income	5 %	

**Table 6. BALANCE SHEET AT COST VALUES, 1996**  
**Michigan Beef Farms**  
(Average of all farms reporting)

	Average For All Farms	
	Beginning	Ending
Number of Farms	8	
<b>ASSETS</b>		
Current Farm Assets		
Cash and checking balance	7136	7996
Prepaid expenses & supplies	8127	15974
Growing crops	2784	2203
Accounts receivable	208	-
Hedging accounts	-	-
Crops held for sale or feed	67194	66649
Crops under government loan	-	-
Market livestock held for sale	124954	125591
Other current assets	-	-
Total current farm assets	210403	218413
Intermediate Farm Assets		
Breeding livestock	15191	8022
Machinery and equipment	71403	86165
Other intermediate assets	4657	2673
Total intermediate farm assets	91250	96859
Long-Term Farm Assets		
Farm land	64702	71015
Buildings and improvements	20904	20473
Other long-term assets	419	419
Total long-term farm assets	86025	91907
Total Farm Assets	387678	407179
Total Nonfarm Assets	28044	30204
Total Assets	415722	437383
<b>LIABILITIES</b>		
Current Farm Liabilities		
Accrued interest	472	1035
Accounts payable	831	831
Current notes	37593	42045
Government crop loans	-	-
Principal due on term debt	16389	15555
Total current farm liabilities	56353	60534
Intermediate Farm Liabilities	56422	43222
Long-term Farm Liabilities	59938	56239
Total Farm Liabilities	172713	159996
Total Nonfarm Liabilities	-	-
Total Liabilities	172713	159996
Net Worth (farm and nonfarm)	243009	277387
Net Worth Change		34377
<b>RATIO ANALYSIS</b>		
Current Farm Liabilities / Assets	27 %	28 %
Curr. & Interm Farm Liab / Assets	37 %	33 %
Long Term Farm Liab. / Assets	70 %	61 %
Total Liabilities / Assets	42 %	37 %

**Table 7. BALANCE SHEET AT MARKET VALUES, 1996**

**Michigan Beef Farms**  
(Average of all farms reporting)

	Average For All Farms	
	Beginning	Ending
Number of Farms	8	
<b>ASSETS</b>		
Current Farm Assets		
Cash and checking balance	7136	7996
Prepaid expenses & supplies	8127	15974
Growing crops	2784	2203
Accounts receivable	208	-
Hedging accounts	-	-
Crops held for sale or feed	67194	66649
Crops under government loan	-	-
Market livestock held for sale	124954	125591
Other current assets	-	-
Total current farm assets	210403	218413
Intermediate Farm Assets		
Breeding livestock	17328	8022
Machinery and equipment	176949	195218
Other intermediate assets	4657	2673
Total intermediate farm assets	198933	205912
Long-Term Farm Assets		
Farm land	254505	253730
Buildings and improvements	16422	21113
Other long-term assets	9794	11669
Total long-term farm assets	280721	286512
Total Farm Assets	690057	710836
Total Nonfarm Assets	59288	64535
Total Assets	749345	775371
<b>LIABILITIES</b>		
Current Farm Liabilities		
Accrued interest	472	1035
Accounts payable	831	831
Current notes	37593	42045
Government crop loans	-	-
Principal due on term debt	16389	15555
Total current farm liabilities	56353	60534
Intermediate Farm Liabilities	56422	43222
Long-term Farm Liabilities	59938	56239
Total Farm Liabilities	172713	159996
Total Nonfarm Liabilities	-	-
Total Deferred Liabilities	-	-
Total Liabilities	172713	159996
Net Worth (farm and nonfarm)	576632	615375
Net Worth Change		38744
<b>RATIO ANALYSIS</b>		
Current Farm Liabilities / Assets	27 %	28 %
Curr. & Interm Farm Liab. / Assets	28 %	24 %
Long Term Farm Liabilities / Assets	21 %	20 %
Total Liabilities / Assets	23 %	21 %

**Table 8. STATEMENT OF CASH FLOWS, 1996**  
**Michigan Beef Farms**  
(Average of all farms reporting)

	Average Of All Farms
Number of Farms	8
(a) Beginning cash balance (farm & nonfarm)	12323
CASH FROM OPERATING ACTIVITIES	
Gross cash farm income	288966
Net nonfarm income	(+) 37245
Total cash farm expense	(-) 260637
Apparent family living expense	(-) 13331
Income and social security tax	(-) 3234
(b) Cash from operations	(=) 49009
CASH FROM INVESTING ACTIVITIES	
Sale of breeding livestock	1516
Sale of machinery & equipment	(+) 3325
Sale of farm land	(+) -
Sale of farm buildings	(+) -
Sale of other farm assets	(+) 3977
Sale of nonfarm assets	(+) -
Purchase of breeding livestock	(-) 1071
Purchase of machinery & equip.	(-) 34630
Purchase of farm land	(-) 4375
Purchase of farm buildings	(-) 7807
Purchase of other farm assets	(-) 2081
Purchase of nonfarm assets	(-) 261
(c) Cash from investing activities	(=) -41407
CASH FROM FINANCING ACTIVITIES	
Money borrowed	132718
Cash gifts and inheritances	(+) 1875
Principal payments	(-) 145998
Dividends paid	(-) -
Gifts given	(-) -
(d) Cash from financing activities	(=) -11405
(e) Net change in cash balance	(b+c+d) -3803
Ending cash balance (farm & nonfarm)	8520

**Table 9. FINANCIAL GUIDELINES MEASURES, 1996**  
**Michigan Beef Farms**  
(Average of all farms reporting)

	Average For All Farms	
	-----	
Number of Farms	8	
<b>LIQUIDITY</b>	Beginning	Ending
Current ratio	3.73	3.61
Working capital	154050	157878
<b>SOLVENCY (Market)</b>	Beginning	Ending
Farm debt to asset ratio	25 %	23 %
Farm equity to asset ratio	75 %	77 %
Farm debt to equity ratio	33 %	29 %
<b>PROFITABILITY</b>	Cost	Market
Rate of return on farm assets	-1.9 %	-0.9 %
Rate of return on farm equity	-9.9 %	-4.0 %
Operating profit margin	-4.5 %	-3.8 %
Net farm income	3322	4600
<b>REPAYMENT CAPACITY</b>	Cash	Accrual
Term debt coverage ratio	259 %	291 %
Capital replacement margin	32620	39205
<b>EFFICIENCY</b>		
Asset turnover rate (market)	24.0 %	
Operating expense ratio	82.6 %	
Depreciation expense ratio	11.0 %	
Interest expense ratio	5.3 %	
Net farm income ratio	1.2 %	

LABOR ANALYSIS

	Average For All Farms	
	-----	
Number of Farms	8	
Total unpaid labor hours	2438	
Total hired labor hours	1085	
Total labor hours per farm	3523	
Value of farm production / hour	47.80	
Net farm income / unpaid hour	1.36	

## **EXPLANATORY NOTES FOR THE WHOLE-FARM REPORTS<sup>5</sup>**

The number of farms included in each of the crop and livestock tables varies because all farms do not have the same enterprises. Some farmers' records were complete enough to be included in the whole-farm tables, but at times, these same farmers' crop or livestock records were not complete enough to include in the respective crop or livestock tables.

Rounding of individual items may have caused minor discrepancies between those items and the printed totals which are calculated before rounding.

### **Farm Income Statement**

This statement is a summary of income, expenses, and resultant profit or loss from farming operations during the calendar year. The first section lists cash farm income from all sources. The second section lists cash expenses. "Interest" includes only interest actually paid. No opportunity charges on farm equity capital or unpaid labor are included. The difference between "Gross Cash Farm Income" and "Total Cash Expense" is the "Net Cash Farm Income." This is net farm income on a cash basis.

The third and fourth sections deal with noncash changes in the farm business. The "Inventory Changes" and "Depreciation and Other Capital Adjustments" sections are used to convert the cash income Statement (Net Cash Farm Income) derived from the first two sections into an accrual income statement. The resulting "Net Farm Income" represents the return to the operator's and family's unpaid labor, management, and equity capital (net worth). In other words, it represents the return to all of the resources which are owned by the farm family and, hence, not purchased or paid a wage. However, it does not include any asset appreciation, debt forgiveness or asset repossessions.

### **Inventory Changes**

This is the detailed statement of inventory changes which is summarized. It includes beginning and ending inventories and the calculated changes.

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<sup>5</sup> This section is copied and adjusted from Staff Paper P96-4, Dept. Of Applied Economics, University of Minnesota, St. Paul, MN 55108, titled "1995 Annual Report, Southwestern Minnesota Farm Business Management Association."



## **Depreciation and Other Capital Adjustments**

This is the detailed statement of depreciation and other capital adjustments which is summarized. It includes beginning and ending inventories, sales, repossessions, and depreciation.

## **Profitability and Liquidity Analysis**

Various measures of performance are calculated for the farms in this report. These include measures of profitability and liquidity. No opportunity costs are used in the Net Income Statement, the Inventory changes, nor the depreciation and other Capital Adjustments. Opportunity costs are used in the Profitability and Liquidity Analysis. Changes in market value of assets are used in calculating the market values of these measures. The measures and their components are described below.

### ***Profitability***

Profitability is measured in both cost basis and market basis (if available).

“Labor and management earnings” equals “Net Farm Income” minus an opportunity interest cost of 6% on average farm net worth.

“Rate of return on assets” is the “Return to farm assets” divided by “Average farm assets.”

“Rate of return on equity” is the “Return to farm equity” divided by “Average farm equity.”

“Operating profit margin” is the “Return to farm assets” divided by “Value of farm production.”

“Asset turnover rate” is the “Value of farm production” divided by “Average farm assets.”

“Interest on farm net worth” is the “Average farm net worth” multiplied by a 6% opportunity interest cost charge.

“Farm interest expense” is the accrued interest cost so it will be different from the cash interest paid.

“Value of operator’s labor and management” is its opportunity cost.

“Return on farm assets” is calculated by adding “Farm interest expense” and “Net farm income” and then subtracting the “Value of operator’s labor and management.”

“Average farm assets” is the average of beginning and ending total farm assets.

“Return to farm equity” is calculated by subtracting the “Value of operator’s labor and management” from “Net farm income.”

“Average farm equity” is the average of beginning and ending farm net worth.

“Value of farm production” is gross farm income minus feeder livestock purchased and adjusted for inventory changes in crops, market livestock and breeding livestock.

### ***Liquidity: Cash Basis***

“Family Living and Taxes” is the apparent total family expenses and income and social security taxes paid.

“Real estate principal income is taken from the farmer’s data.

“Cash available for intermediate debt service” on the cash basis is “Total net income” minus “Family living and taxes” and “Real estate principal payments.”

“Average intermediate debt” is the average of beginning and ending intermediate farm liabilities.

“Years to turn over intermediate debt” is “Average intermediate debt” divided by “Cash available for intermediate debt service.” If either the cash-based or accrual-based “Cash available for intermediate debt” is a negative number, debt repayment is not possible because of negative cash flow and “Years to turn over intermediate debt” cannot be calculated.

“Expense as a percent of income” is “Total cash expense” divided by “Gross cash farm income.”

“Interest as a percent of income” is “Interest” divided by “Gross cash farm income.”

### ***Liquidity: Accrual Basis***

“Cash available for intermediate debt service” on the accrual basis is “Total net accrual income” minus “Family living and taxes” and “Real estate principal payments.”

“Accrual expense as a percent of income” is “Total accrual farm expense” divided by “Total accrual farm income.”

“Interest as a percent of income” is “Interest” minus beginning accrued interest plus ending accrued interest divided by “Total accrual farm income.”

## **Balance Sheets**

The beginning and ending balance sheets and solvency measures are presented. They include sole proprietors; partnerships and corporations.

## **Statement of Cash Flows**

This table reports the sources from which cash was available or obtained and where that cash was used or remains at the end of the year.

## **Financial Guidelines Measures and Labor Analysis**

This table contains two sections: first, the financial measures and, second, the labor summary. In the first section, the Farm Financial Standards Task Force's 16 financial measures for evaluating a farm's financial position and performance are reported. These 16 measures are explained below following the descriptions found in the FINPACK manual.

### ***Liquidity***

The "current ratio" is calculated by dividing the total current farm assets by the total current farm liabilities.

Working capital" is calculated by subtracting current farm liabilities from current farm assets.

### ***Solvency (Market)***

The "farm debt to asset ratio" is calculated by dividing the total farm liabilities by the total farm assets. It is similar to the total percent in debt ratio listed earlier. The difference is that nonfarm assets and liabilities are included in the total percent in debt but not in the farm debt to asset ratio.

The "farm equity to asset ratio" is calculated by dividing farm equity or net worth by the total farm assets. It measures the proportion of the farm assets financed by the owner's equity as opposed to debt. This is the opposite of the debt to asset ratio. These two measures always add up to 100% because they described how total farm assets are financed.

The "farm debt to equity ratio" measures farm debt relative to farm equity. It is calculated by dividing the total farm liabilities by the total farm net worth. The debt to equity ratio measures the amount of borrowed capital being employed for every dollar of equity capital.

## ***Profitability***

The “rate of return on farm assets” can be thought of as the average interest rate being earned on all investments in the farm or ranch business. If assets are valued at market value, the rate of return on assets can be looked at as the “opportunity cost” of farming versus alternate investments. If assets are valued at cost value, the rate of return on assets more closely represents the actual return on the average dollar invested in the farm. The rate of return on farm assets is calculated as follows:  $\text{Rate of Return on Assets} = \text{Return on Farm Assets} \div \text{Average Farm Investment}$ , where:  $\text{Return on Farm Assets} = \text{Net Farm Income} + \text{Farm Interest} - \text{Value of Operator's Labor \& Management}$ , and  $\text{Average Farm Investment} = (\text{Beginning Total Farm Assets} + \text{Ending Total Farm Assets}) \div 2$ .

The “rate of return on farm equity” represents the interest rate being earned on your farm net worth. If assets are valued at market value, this return can be compared to returns available if the assets were liquidated and invested in alternate investments. If assets are valued at cost value, this more closely represents the actual return on the funds that have been invested or retained in the business. The rate of return on farm equity is calculated as follows:  $\text{Rate of Return on Equity} = \text{Return on Farm Equity} \div \text{Average Farm Net Worth}$ , where:  $\text{Return on Farm Equity} = \text{Net Farm Income} - \text{Value of Operator's Labor \& Management}$ , and  $\text{Average Farm Net Worth} = (\text{Beginning Farm Net Worth} + \text{Ending Farm Net Worth}) \div 2$ .

“Operating profit margin” is a measure of the operating efficiency of the business. It is calculated as follows:  $\text{Operating Profit Margin} = \text{Return to Farm Assets} \div \text{Value of Farm Production}$ . If expenses are held in line relative to the value of output produced, the farm will have a healthy net profit margin. A low net profit margin may be caused by low prices, high operating expenses, or inefficient production.

“Net farm income” represents the returns to unpaid labor, management, and equity capital invested in the business.

## ***Repayment Capacity***

The “term debt coverage ratio” measures whether the business generated enough cash to cover term debt payments. It is calculated by dividing the funds generated by the business for debt repayment (net cash farm income + nonfarm income + interest expense - family living expense - income taxes) by total term debt payments (annual scheduled principal and interest payments on intermediate and long term debt). A ratio less than 100 percent indicates that the business did not generate sufficient cash to meet scheduled payments in the past year. A ratio greater than 100 indicates the business generated enough cash to pay all term debt payments.

The “capital replacement margin” is the amount of money remaining after all operating expenses, taxes, family living costs, and scheduled debt payments have been made. It is the cash generated by the farm business that is available for financing capital replacement such as machinery and equipment. FINAN calculates the capital replacement margin by first adding interest due on intermediate and long term loans to the amount available for principal payments. It then subtracts scheduled principal and interest payments from this total.

## ***Efficiency***

“Asset turnover rate” is a measure of efficiency in using capital. It is calculated as follows:  $\text{Asset Turnover Rate} = \text{Value of Farm Production} \div \text{Total Farm Assets}$ . This will be a market or cost rate depending on how the assets are valued.

The last four ratios reflect the distribution of gross income to cover operating expenses and generate farm income. The sum of the operating expense ratio, the depreciation expense ratio, and the interest expense ratio equals the percent of gross income used to pay business expenses. The amount remaining is net farm income. The gross farm income used to calculate these ratios is the accrual gross farm income.

The “operating expense ratio” is calculated as  $(\text{Total Farm Operating Expense} - \text{Farm Interest Expense}) \div \text{Gross Farm Income}$ . This indicates the percent of the gross farm income that was used to pay operating expenses. Total farm operating expense is the accrual total operating expense.

The “depreciation expense ratio” is calculated as  $\text{Depreciation} \div \text{Gross Farm Income}$ . This ratio indicates the percent of the gross farm income that was used to cover depreciation and other capital adjustments.

The “interest expense ratio” is calculated as  $\text{Farm Interest Expense} \div \text{Gross Farm Income}$ . This ratio indicates the percent of the gross farm income used for farm interest expenses. This is the same ratio as the accrual interest as a percent of income from the Liquidity section in Table 4.

The “net farm income ratio” is calculated as  $\text{Net Farm Income} \div \text{Gross Farm Income}$ . This ratio indicates the percent of the gross farm income that remained after all expenses.

### **Crop Production and Marketing Summary**

This table contains three sections. The first section reports average acreage by land use. The next two sections show average price received and average yields for major crops.