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# ***Staff Paper***

## **Business Analysis Summary For General Crops Farms**

Sherrill B. Nott

Staff Paper 97-32

July 1997



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# **BUSINESS ANALYSIS SUMMARY FOR GENERAL CROPS FARMS**

**1996 Telfarm/MicroTel Data**

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by

**Sherrill B. Nott**

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## **Summary:**

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

This report has three purposes: 1) to provide statistical information about the financial results on General crops 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.

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# BUSINESS ANALYSIS SUMMARY FOR GENERAL CROPS FARMS

## 1996 Telfarm/MicroTel Data

by

Sherrill B. Nott<sup>1</sup>

### Introduction

The body of this report is organized as follows:

- I. Introduction and Table of Contents
  - A. List of Tables
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- II. Data Tables
  - A. Averages of 7 General Crops Farms
    - 1. Crop Production and Marketing . . . . . Page 3.
    - 2. Farm Income Statement . . . . . Pgs 4,5.
    - 3. Inventory Changes . . . . . Page 6.
    - 4. Depreciation, Capital Adjustments . . . . . Page 7.
    - 5. Profitability and liquidity Analysis . . . . . Page 8.
    - 6. Balance Sheet at Cost Values . . . . . Page 9.
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    - 8. Statement of Cash Flows . . . . . Page 11.
    - 9. Financial Guidelines Measures . . . . . Page 12.
- III. Formulas and Definitions of Finpack Terms . . . . . Page 13.

### 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. However, the general crops category is where no one group of commodities makes up 50 % or more of gross sales. For these farms, the crops are a bigger portion of gross sales than are livestock sales. Note the wide variety of income producing items in Table 2, the income statement.

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

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<sup>1</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.

Extension. Farm records were included if a Finan<sup>2</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 these criteria but were not enrolled in Telfarm.

This report has three purposes: 1) to provide statistical information about the financial results on General crops 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>3</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 crops 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.

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<sup>2</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>3</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 General Crops Farms, Sales over \$100,000**  
(Average of all farms reporting)

	Average Of All Farms
	-----
Number of Farms	7
ACREAGE SUMMARY	
Total Crop Acres	1129
Crop Acres Owned	550
Crop Acres Cash Rented	579
Crop Acres Share Rented	-
AVERAGE PRICE RECEIVED (Cash Sales Only)	
Corn per bu.	3.01
AVERAGE YIELD PER ACRE	
Soybeans (bu.)	31.53
Corn (bu.)	109.14
Corn, Seed (bu.)	202.20
Potatoes (cwt.)	271.79
Wheat, Winter (bu.)	49.79
Sugar Beets (ton)	14.16
Hay, Alfalfa (ton)	2.19
Beans, Cranberry (cwt.)	18.63
Cucumbers (cwt.)	181.73
Beans, Light Red Kidney (cwt.)	21.56

**Table 2.      INCOME STATEMENT, 1996**  
**Michigan General Crops Farms, Sales over \$100,000**  
(Average of all farms reporting)

	Average Of All Farms
Number of Farms	7
CASH FARM INCOME	
Apples	22892
Asparagus	2070
Cranberry Beans	17371
Dark Red Kidney Beans	397
Green Beans	7726
Light Red Kidney Beans	6752
Navy Beans	11279
Carrots	29290
Corn	69095
Seed Corn	88646
Cucumbers	19204
Grapes	2483
Alfalfa Hay	14820
Mixed Hay	1110
Peas	5246
Plums	23
Potatoes	116807
Seed Potatoes	1337
Soybeans	38297
Speltz	2016
Straw	1833
Sugar Beets	29971
Sweet Corn	16019
Watermelon	499
Winter Wheat	14502
Other crops	2391
Background Beef	2113
Finish Beef Calves	364
Dairy Steers	217
Raised Hogs	75172
Feeder Pigs	435
Mkt Lambs	1797
Wool	48
Cull breeding livestock	5741
Deficiency payments	5704
Other government payments	11839
Custom work income	12201
Patronage dividends, cash	220
Insurance income	274
Cash from hedging accts	-1494
Other farm income	126101
Gross Cash Farm Income	762807

**Table 2. INCOME STATEMENT, 1996 (Continued)**  
**Michigan General Crops Farms, Sales over \$100,000**  
(Average of all farms reporting)

	Average Of All Farms
Number of Farms	7
<b>CASH FARM EXPENSE</b>	
Seed	30348
Fertilizer	56261
Crop chemicals	59844
Crop insurance	2489
Drying fuel	1509
Irrigation energy	3257
Crop marketing	852
Crop miscellaneous	15724
Feeder livestock purchase	19
Purchased feed	27810
Veterinary	4261
Livestock supplies	1368
Livestock marketing	699
Interest	50372
Fuel & oil	21187
Repairs	57545
Custom hire	17368
Hired labor	79699
Land rent	48919
Machinery & bldg leases	8351
Real estate taxes	7106
Farm insurance	10937
Utilities	10258
Dues & professional fees	1855
Hedging account deposits	4286
Miscellaneous	111675
Total cash expense	633996
Net cash farm income	128811
<b>INVENTORY CHANGES</b>	
Crops and feed	4410
Market livestock	897
Accounts receivable	664
Prepaid expenses and supplies	12145
Accounts payable	5875
Total inventory change	23990
Net operating profit	152800
<b>DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS</b>	
Breeding livestock	-3154
Machinery and equipment	-22333
Buildings and improvements	-6470
Other farm capital	-3578
Total depr. and other capital adj	-35535
Net farm income	117265



**Table 3.      INVENTORY CHANGES, 1996**  
**Michigan General Crops Farms, Sales over \$100,000**  
(Average of all farms reporting)

	Average Of All Farms
Number of Farms	7
Net cash farm income	128811
<b>CROPS AND FEED</b>	
Ending inventory	181908
Beginning inventory	177498
Inventory change	4410
<b>MARKET LIVESTOCK</b>	
Ending inventory	21939
Beginning inventory	21043
Inventory change	897
<b>ACCTS RECEIVABLE &amp; OTHER CURRENT ASSETS</b>	
Ending inventory	21775
Beginning inventory	21111
Inventory change	664
<b>PREPAID EXPENSES AND SUPPLIES</b>	
Ending inventory	41270
Beginning inventory	29126
Inventory change	12145
<b>ACCOUNTS PAYABLE</b>	
Beginning inventory	20037
Ending inventory	14162
Inventory change	5875
Total inventory change	23990
Net operating profit	152800

**Table 4.      DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS, 1996**  
**Michigan General Crops Farms, Sales over \$100,000**  
(Average of all farms reporting)

	Average Of All Farms
	<hr/>
Number of Farms	7
Net operating profit	152800
BREEDING LIVESTOCK	
Ending inventory	12870
Capital sales	1566
Beginning inventory	13168
Capital purchases	4422
Depreciation, capital adj.	-3154
MACHINERY AND EQUIPMENT	
Ending inventory	122816
Capital sales	848
Beginning inventory	119560
Capital purchases	26437
Depreciation, capital adj.	-22333
BUILDINGS AND IMPROVEMENTS	
Ending inventory	51593
Capital sales	-
Beginning inventory	54985
Capital purchases	3078
Depreciation, capital adj.	-6470
OTHER CAPITAL ASSETS	
Ending inventory	6893
Capital sales	17154
Beginning inventory	26382
Capital purchases	1243
Depreciation, capital adj.	-3578
Total depreciation, capital adj.	-35535
Net farm income	117265

**Table 5. PROFITABILITY AND LIQUIDITY ANALYSIS, 1996**  
**Michigan General Crops Farms, Sales over \$100,000**  
(Average of all farms reporting)

	Average Of All Farms	Average Of All Farms
	7	7
Number of Farms	7	7
PROFITABILITY	--- Cost ---	-- Market --
Net farm income	117265	196535
Labor and management earnings	105952	143243
Rate of return on assets	16.5 %	13.4 %
Rate of return on equity	43.5 %	16.0 %
Operating profit margin	15.0 %	25.7 %
Asset turnover rate	110.0 %	52.2 %
Interest on farm net worth	11314	53292
Farm interest expense	47583	47583
Value of operator lbr and mgmt.	54453	54453
Return on farm assets	110395	189665
Average farm assets	670774	1414432
Return on farm equity	62812	142082
Average farm equity	144548	888206
Value of farm production	737795	737795
	Average Of All Farms	
Number of Farms	7	
LIQUIDITY (Cash)		
Net cash farm income	128811	
Net nonfarm income	4628	
Family living and taxes	62163	
Real estate principal payments	8523	
Cash available for interm. debt	62754	
Average intermediate debt	197682	
Years to turnover interm. debt	3.2	
Expense as a % of income	83 %	
Interest as a % of income	7 %	
LIQUIDITY (Accrual)		
Total accrual farm income	768777	
Total accrual farm expense	615977	
Net accrual operating income	152800	
Net nonfarm income	4628	
Family living and taxes	62163	
Real estate principal payments	8523	
Available for intermediate debt	86743	
Average intermediate debt	197682	
Years to turnover interm. debt	2.3	
Expense as a % of income	80 %	
Interest as a % of income	6 %	

**Table 6. BALANCE SHEET AT COST VALUES, 1996**  
**Michigan General Crops Farms, Sales over \$100,000**  
(Average of all farms reporting)

	Average For All Farms	
	Beginning	Ending
Number of Farms	7	
<b>ASSETS</b>		
Current Farm Assets		
Cash and checking balance	23264	18833
Prepaid expenses & supplies	29126	41270
Growing crops	9334	8195
Accounts receivable	9128	11494
Hedging accounts	-	-
Crops held for sale or feed	177498	181908
Crops under government loan	-	-
Market livestock held for sale	21043	21939
Other current assets	2649	2086
Total current farm assets	272042	285725
Intermediate Farm Assets		
Breeding livestock	13168	12870
Machinery and equipment	119560	122816
Other intermediate assets	7369	6122
Total intermediate farm assets	140097	141808
Long-Term Farm Assets		
Farm land	188111	187403
Buildings and improvements	54985	51593
Other long-term assets	19013	771
Total long-term farm assets	262109	239767
Total Farm Assets	674248	667301
Total Nonfarm Assets	116672	129286
Total Assets	790919	796587
<b>LIABILITIES</b>		
Current Farm Liabilities		
Accrued interest	15253	12464
Accounts payable	4784	1698
Current notes	141224	106420
Government crop loans	-	-
Principal due on term debt	41205	34855
Total current farm liabilities	202466	155438
Intermediate Farm Liabilities	180854	157194
Long-term Farm Liabilities	176128	180375
Total Farm Liabilities	559448	493006
Total Nonfarm Liabilities	-	-
Total Liabilities	559448	493006
Net Worth (farm and nonfarm)	231472	303581
Net Worth Change		72109
<b>RATIO ANALYSIS</b>		
Current Farm Liabilities / Assets	74 %	54 %
Curr. & Interm Farm Liab / Assets	93 %	73 %
Long Term Farm Liab. / Assets	67 %	75 %
Total Liabilities / Assets	71 %	62 %

**Table 7. BALANCE SHEET AT MARKET VALUES, 1996**  
**Michigan General Crops Farms, Sales over \$100,000**  
(Average of all farms reporting)

Number of Farms	Average For All Farms	
	Beginning	Ending
	7	
<b>ASSETS</b>		
Current Farm Assets		
Cash and checking balance	23264	18833
Prepaid expenses & supplies	29126	41270
Growing crops	9334	8195
Accounts receivable	9128	11494
Hedging accounts	-	-
Crops held for sale or feed	177498	181908
Crops under government loan	-	-
Market livestock held for sale	21043	21939
Other current assets	2649	2086
Total current farm assets	272042	285725
Intermediate Farm Assets		
Breeding livestock	13168	12870
Machinery and equipment	381765	413587
Other intermediate assets	8055	6808
Total intermediate farm assets	402987	433265
Long-Term Farm Assets		
Farm land	646801	690547
Buildings and improvements	23143	26000
Other long-term assets	33299	15056
Total long-term farm assets	703242	731603
Total Farm Assets	1378271	1450594
Total Nonfarm Assets	114621	137269
Total Assets	1492892	1587862
<b>LIABILITIES</b>		
Current Farm Liabilities		
Accrued interest	15253	12464
Accounts payable	4784	1698
Current notes	141224	106420
Government crop loans	-	-
Principal due on term debt	41205	34855
Total current farm liabilities	202466	155438
Intermediate Farm Liabilities	180854	157194
Long-term Farm Liabilities	176128	180375
Total Farm Liabilities	559448	493006
Total Nonfarm Liabilities	-	-
Total Deferred Liabilities	-	-
Total Liabilities	559448	493006
Net Worth (farm and nonfarm)	933444	1094856
Net Worth Change		161412
<b>RATIO ANALYSIS</b>		
Current Farm Liabilities / Assets	74 %	54 %
Curr. & Interm Farm Liab. / Assets	57 %	43 %
Long Term Farm Liabilities / Assets	25 %	25 %
Total Liabilities / Assets	37 %	31 %

**Table 8. STATEMENT OF CASH FLOWS, 1996**  
**Michigan General Crops Farms, Sales over \$100,000**  
(Average of all farms reporting)

	Average Of All Farms
Number of Farms	7
(a) Beginning cash balance (farm & nonfarm)	23264
CASH FROM OPERATING ACTIVITIES	
Gross cash farm income	762807
Net nonfarm income	(+) 4628
Total cash farm expense	(-) 633996
Apparent family living expense	(-) 62163
Income and social security tax	(-) -
(b) Cash from operations	(=) 71276
CASH FROM INVESTING ACTIVITIES	
Sale of breeding livestock	1566
Sale of machinery & equipment	(+) 848
Sale of farm land	(+) 857
Sale of farm buildings	(+) -
Sale of other farm assets	(+) 17154
Sale of nonfarm assets	(+) 1343
Purchase of breeding livestock	(-) 4422
Purchase of machinery & equip.	(-) 26437
Purchase of farm land	(-) -
Purchase of farm buildings	(-) 3078
Purchase of other farm assets	(-) 1243
Purchase of nonfarm assets	(-) -
(c) Cash from investing activities	(=) -13412
CASH FROM FINANCING ACTIVITIES	
Money borrowed	248679
Cash gifts and inheritances	(+) 4561
Principal payments	(-) 309256
Dividends paid	(-) -
Gifts given	(-) 6279
(d) Cash from financing activities	(=) -62295
(e) Net change in cash balance	(b+c+d) -4431
Ending cash balance (farm & nonfarm)	18833

**Table 9. FINANCIAL GUIDELINES MEASURES, 1996**  
**Michigan General Crops Farms, Sales over \$100,000**  
(Average of all farms reporting)

	Average For All Farms	
	-----	
Number of Farms	7	
<b>LIQUIDITY</b>	<b>Beginning</b>	<b>Ending</b>
Current ratio	1.34	1.84
Working capital	69576	130288
<b>SOLVENCY (Market)</b>	<b>Beginning</b>	<b>Ending</b>
Farm debt to asset ratio	41 %	34 %
Farm equity to asset ratio	59 %	66 %
Farm debt to equity ratio	68 %	51 %
<b>PROFITABILITY</b>	<b>Cost</b>	<b>Market</b>
Rate of return on farm assets	16.5 %	13.4 %
Rate of return on farm equity	43.5 %	16.0 %
Operating profit margin	15.0 %	25.7 %
Net farm income	117265	196535
<b>REPAYMENT CAPACITY</b>	<b>Cash</b>	<b>Accrual</b>
Term debt coverage ratio	145 %	180 %
Capital replacement margin	30072	54061
<b>EFFICIENCY</b>		
Asset turnover rate (market)	52.2 %	
Operating expense ratio	73.9 %	
Depreciation expense ratio	4.6 %	
Interest expense ratio	6.2 %	
Net farm income ratio	15.3 %	

LABOR ANALYSIS

	Average For All Farms
	-----
Number of Farms	7
Total unpaid labor hours	4535
Total hired labor hours	10123
Total labor hours per farm	14658
Value of farm production / hour	50.33
Net farm income / unpaid hour	25.86

## **EXPLANATORY NOTES FOR THE WHOLE-FARM REPORTS<sup>4</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>4</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.