

Staff Paper

Business Analysis Summary For Potato Farms

Sherrill B. Nott and Gary E. Lenneman

Staff Paper 97-38

September, 1997



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

MSU is an Affirmative Action/Equal Opportunity Institution

Copyright © 1997 by Dr. Sherrill B. Nott. All rights reserved. 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.

**Business Analysis Summary
For Potato Farms**

**By
Sherrill B. Nott and Gary E. Lenneman
Staff Paper #97-38
September, 1997
Pages 19
E-Mail nott@pilot.msu.edu**

BUSINESS ANALYSIS SUMMARY FOR POTATO FARMS

1996 Telfarm/MicroTel/Farm Credit Services Data

Staff Paper No. 97-38, September, 1997

by

Sherrill B. Nott and Gary E. Lenneman¹

Introduction

The body of this report is organized as follows:

- I. Introduction and Table of Contents
 - A. List of Tables
 - B. Data Source
- II. Data Tables
 - A. Averages of 7 Potato Farms
 - 1. Crop Production and Marketing Page 4
 - 2. Farm Income Statement Pgs. 5&6
 - 3. Inventory Changes Page 7
 - 4. Depreciation, Capital Adjustments Page 8
 - 5. Profitability and Liquidity Analysis Page 9
 - 6. Balance Sheet at Cost Values Page 10
 - 7. Balance Sheet at Market Values Page 11
 - 8. Statement of Cash Flows Page 12
 - 9. Financial Guidelines Measures Page 13
- III. Formulas and Definitions of Finpack Terms

Data Source

This report was made possible by a test of using farm data from the Department of Agricultural Economic's Telfarm/MicroTel and from Farm Credit Services of Michigan's Heartland to build a farm financial database unique to Michigan.

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. Potato farms had 50 percent or more of the value of farm sales from potatoes plus seed potatoes. Note, however, the wide variety of income

¹Co-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, R. Clark and G. Kole with the assistance of MSU Extension Agents in Michigan. Farm Credit Services of Michigan's Heartland co-workers included Kelly Tobin.

producing items in Table 2, the income statement.

This report is a summary of the financial and production records kept by potato farmers enrolled in the Telfarm/MicroTel record program through Michigan State University Extension or enrolled with Farm Credit Services of Michigan's Heartland. Farm records were included if a Finan² summary was completed on 1996 data including beginning and ending balance sheets, plus income and expenses. 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.

This report has three purposes: 1) to provide statistical information about the financial results on potato 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 has not previously had access to potato farm results in large enough numbers to analyze. Also, Finansum³ has only recently been used to process averages.

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; we included a subset in this 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/ and find the screen area on full text publications. The numerical tables can be printed from www.msu.edu/user/nott/

²Finan = financial analysis, one of the parts of Finpack, a financial software package from the Center for Farm Financial Management at the University of Minnesota.

³Finansum averages and prints reports using data files created by Finan. It also comes from the University of Minnesota.

Table 1.

CROP PRODUCTION AND MARKETING SUMMARY, 1996
Potato Farms, 6 Counties
(Average of all farms reporting)

	Average Of All Farms
Number of Farms	5
 ACREAGE SUMMARY	
Total Acres Owned	332
Total Crop Acres	718
Crop Acres Owned	104
Crop Acres Cash Rented	614
Crop Acres Share Rented	-
Acres of Potatoes	217
 AVERAGE YIELD PER ACRE	
Potatoes (cwt.)	296.66
Corn (bu.)	109.99
Soybeans (bu.)	32.50
Hay, Mixed (ton)	1.49
Wheat, Winter (bu.)	52.25
Peas (lb.)	519.70
Oats (bu.)	66.67
Hay, Alfalfa (ton)	2.41
Hay, Native Grass (ton)	0.88

The above Acreage Summary was calculated by dropping out 2 of the farms due to lack of information on acres planted to individual crops. Had these 2 farms been included, the Total Acres Owned would have averaged out to 1,000 acres instead of the 332 acres reported above. The reader should note this when interpreting values in the following tables.

Table 2. FARM INCOME STATEMENT, 1996
Potato Farms, 6 Counties
(Average of all farms reporting)

	Average Of All Farms

Number of Farms	7
CASH FARM INCOME	
Green Beans	95966
Carrots	27639
Cordwood	143
Corn	102791
Seed Corn	15550
Oats	176
Peas	15479
Potatoes	857180
Seed Potatoes	35694
Soybeans	14588
Straw	812
Sweet Corn	16019
Watermelon	499
Winter Wheat	35791
Beef Calves	6027
Cull breeding livestock	2008
CRP payments	32
Other government payments	12554
Custom work income	272
Patronage dividends, cash	405
Insurance income	2802
Other farm income	18760
 Gross Cash Farm Income	 1261187

Table 2.

FARM INCOME STATEMENT, 1996 (Continued)
Potato Farms, 6 Counties
(Average of all farms reporting)

	Average Of All Farms
Number of Farms	7
CASH FARM EXPENSE	
Seed	130077
Fertilizer	104409
Crop chemicals	172705
Crop insurance	1876
Drying fuel	1019
Crop marketing	3497
Crop miscellaneous	12076
Purchased feed	653
Breeding fees	157
Veterinary	338
Livestock supplies	686
Livestock marketing	212
Interest	74252
Fuel & oil	31272
Repairs	59682
Custom hire	57064
Hired labor	157475
Land rent	127879
Machinery & bldg leases	1057
Real estate taxes	12128
Personal property taxes	77
Farm insurance	26957
Utilities	32467
Dues & professional fees	23044
Miscellaneous	79764
Total cash expense	1110824
Net cash farm income	150363
INVENTORY CHANGES	
Crops and feed	-5453
Market livestock	-
Accounts receivable	46491
Prepaid expenses and supplies	-13840
Accounts payable	-13006
Total inventory change	14192
Net operating profit	164555
DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS	
Breeding livestock	1628
Machinery and equipment	-105670
Buildings and improvements	68237
Other farm capital	-393
Total depr. and other capital adj	-36199
Net farm income	128357

Table 3. INVENTORY CHANGES, 1996

Potato Farms, 6 Counties
(Average of all farms reporting)

	Average Of All Farms -----
Number of Farms	7
Net cash farm income	150363
CROPS AND FEED	
Ending inventory	434649
Beginning inventory	440102
Inventory change	-5453
MARKET LIVESTOCK	
Ending inventory	1263
Beginning inventory	1263
Inventory change	-
ACCTS RECEIVABLE & OTHER CURRENT ASSETS	
Ending inventory	198240
Beginning inventory	151748
Inventory change	46491
PREPAID EXPENSES AND SUPPLIES	
Ending inventory	43930
Beginning inventory	57770
Inventory change	-13840
ACCOUNTS PAYABLE	
Beginning inventory	45975
Ending inventory	58981
Inventory change	-13006
Total inventory change	14192
Net operating profit	164555

Table 4.

DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS, 1996
Potato Farms, 6 Counties
(Average of all farms reporting)

	Average Of All Farms

Number of Farms	7
Net operating profit	164555
BREEDING LIVESTOCK	
Ending inventory	22567
Capital sales	-
Beginning inventory	20939
Capital purchases	-
Depreciation, capital adj.	1628
MACHINERY AND EQUIPMENT	
Ending inventory	256877
Capital sales	33454
Beginning inventory	251986
Capital purchases	144016
Depreciation, capital adj.	-105670
BUILDINGS AND IMPROVEMENTS	
Ending inventory	259333
Capital sales	-
Beginning inventory	187111
Capital purchases	3985
Depreciation, capital adj.	68237
OTHER CAPITAL ASSETS	
Ending inventory	27570
Capital sales	15529
Beginning inventory	24708
Capital purchases	18784
Depreciation, capital adj.	-393
Total depreciation, capital adj.	-36199
Net farm income	128357

Table 5. PROFITABILITY AND LIQUIDITY ANALYSIS, 1996
Potato Farms, 6 Counties
(Average of all farms reporting)

	Average Of All Farms	Average Of All Farms
	-----	-----
Number of Farms	7	7
PROFITABILITY	--- Cost ---	-- Market --
Net farm income	128357	341116
Labor and management earnings	91514	270092
Rate of return on assets	9.7 %	17.1 %
Rate of return on equity	12.9 %	24.6 %
Operating profit margin	11.6 %	27.9 %
Asset turnover rate	84.1 %	61.2 %
Interest on farm net worth	36842	71024
Farm interest expense	73051	73051
Value of operator lbr and mgmt.	50473	50473
Return on farm assets	150935	363694
Average farm assets	1549258	2129853
Return on farm equity	77884	290643
Average farm equity	603143	1183739
Value of farm production	1303200	1303200
	Average Of All Farms	

Number of Farms	7	
LIQUIDITY (Cash)		
Net cash farm income	150363	
Net nonfarm income	10036	
Family living and taxes	52570	
Real estate principal payments	6317	
Cash available for interm. debt	101512	
Average intermediate debt	395568	
Years to turnover interm. debt	3.9	
Expense as a % of income	88 %	
Interest as a % of income	6 %	
LIQUIDITY (Accrual)		
Total accrual farm income	1302226	
Total accrual farm expense	1137670	
Net accrual operating income	164555	
Net nonfarm income	10036	
Family living and taxes	52570	
Real estate principal payments	6317	
Available for intermediate debt	115704	
Average intermediate debt	395568	
Years to turnover interm. debt	3.4	
Expense as a % of income	87 %	
Interest as a % of income	6 %	

Table 6. BALANCE SHEET AT COST VALUES, 1996
Potato Farms, 6 Counties
(Average of all farms reporting)

Number of Farms	Average For All Farms	
	Beginning	Ending
	7	
ASSETS		
Current Farm Assets		
Cash and checking balance	75860	50018
Prepaid expenses & supplies	57770	43930
Growing crops	7314	6377
Accounts receivable	144089	190238
Hedging accounts	-	-
Crops held for sale or feed	440102	434649
Crops under government loan	-	-
Market livestock held for sale	1263	1263
Other current assets	345	1624
Total current farm assets	726744	728099
Intermediate Farm Assets		
Breeding livestock	20939	22567
Machinery and equipment	251986	256877
Other intermediate assets	14693	16007
Total intermediate farm assets	287618	295451
Long-Term Farm Assets		
Farm land	319369	273211
Buildings and improvements	187111	259333
Other long-term assets	10016	11563
Total long-term farm assets	516496	544107
Total Farm Assets	1530857	1567658
Total Nonfarm Assets	14712	18284
Total Assets	1545570	1585942
LIABILITIES		
Current Farm Liabilities		
Accrued interest	1287	86
Accounts payable	44687	58895
Current notes	260874	212112
Government crop loans	-	-
Principal due on term debt	48421	77510
Total current farm liabilities	355269	348603
Intermediate Farm Liabilities	342828	342813
Long-term Farm Liabilities	246165	256551
Total Farm Liabilities	944262	947967
Total Nonfarm Liabilities	-	-
Total Liabilities	944262	947967
Net Worth (farm and nonfarm)	601308	637975
Net Worth Change		36667
RATIO ANALYSIS		
Current Farm Liabilities / Assets	49 %	48 %
Curr. & Interm Farm Liab / Assets	69 %	68 %
Long Term Farm Liab. / Assets	48 %	47 %
Total Liabilities / Assets	61 %	60 %

Table 7. BALANCE SHEET AT MARKET VALUES, 1996

Potato Farms, 6 Counties
(Average of all farms reporting)

	Average For All Farms	
Number of Farms	7	
	Beginning	Ending
ASSETS		
Current Farm Assets		
Cash and checking balance	75860	50018
Prepaid expenses & supplies	57770	43930
Growing crops	7314	6377
Accounts receivable	144089	190238
Hedging accounts	-	-
Crops held for sale or feed	440102	434649
Crops under government loan	-	-
Market livestock held for sale	1263	1263
Other current assets	345	1624
Total current farm assets	726744	728099
Intermediate Farm Assets		
Breeding livestock	20939	22567
Machinery and equipment	513733	641327
Other intermediate assets	14693	16007
Total intermediate farm assets	549365	679901
Long-Term Farm Assets		
Farm land	678442	782652
Buildings and improvements	40819	52419
Other long-term assets	9703	11563
Total long-term farm assets	728965	846633
Total Farm Assets	2005073	2254633
Total Nonfarm Assets	15844	19415
Total Assets	2020917	2274048
LIABILITIES		
Current Farm Liabilities		
Accrued interest	1287	86
Accounts payable	44687	58895
Current notes	260874	212112
Government crop loans	-	-
Principal due on term debt	48421	77510
Total current farm liabilities	355269	348603
Intermediate Farm Liabilities	342828	342813
Long-term Farm Liabilities	246165	256551
Total Farm Liabilities	944262	947967
Total Nonfarm Liabilities	-	-
Total Deferred Liabilities	-	-
Total Liabilities	944262	947967
Net Worth (farm and nonfarm)	1076655	1326081
Net Worth Change		249426
RATIO ANALYSIS		
Current Farm Liabilities / Assets	49 %	48 %
Curr. & Interm Farm Liab. / Assets	55 %	49 %
Long Term Farm Liabilities / Assets	34 %	30 %
Total Liabilities / Assets	47 %	42 %

Table 8. STATEMENT OF CASH FLOWS, 1996
Potato Farms, 6 Counties
(Average of all farms reporting)

	Average Of All Farms

Number of Farms	7
(a) Beginning cash balance (farm & nonfarm)	75860
CASH FROM OPERATING ACTIVITIES	
Gross cash farm income	1261187
Net nonfarm income (+)	10036
Total cash farm expense (-)	1110824
Apparent family living expense (-)	52988
Income and social security tax (-)	-419
(b) Cash from operations (=)	107830
CASH FROM INVESTING ACTIVITIES	
Sale of breeding livestock	-
Sale of machinery & equipment (+)	33454
Sale of farm land (+)	2571
Sale of farm buildings (+)	-
Sale of other farm assets (+)	15529
Sale of nonfarm assets (+)	1403
Purchase of breeding livestock (-)	-
Purchase of machinery & equip. (-)	144016
Purchase of farm land (-)	10166
Purchase of farm buildings (-)	3985
Purchase of other farm assets (-)	18784
Purchase of nonfarm assets (-)	375
(c) Cash from investing activities (=)	-124368
CASH FROM FINANCING ACTIVITIES	
Money borrowed	879122
Cash gifts and inheritances (+)	-
Principal payments (-)	888426
Dividends paid (-)	-
Gifts given (-)	-
(d) Cash from financing activities (=)	-9304
(e) Net change in cash balance (b+c+d)	-25843
Ending cash balance (farm & nonfarm)	50018

Table 9. FINANCIAL GUIDELINES MEASURES, 1996
Potato Farms, 6 Counties
(Average of all farms reporting)

	Average For All Farms	

Number of Farms	7	
LIQUIDITY	Beginning	Ending
Current ratio	2.05	2.09
Working capital	371475	379496
SOLVENCY (Market)	Beginning	Ending
Farm debt to asset ratio	47 %	42 %
Farm equity to asset ratio	53 %	58 %
Farm debt to equity ratio	89 %	73 %
PROFITABILITY	Cost	Market
Rate of return on farm assets	9.7 %	17.1 %
Rate of return on farm equity	12.9 %	24.6 %
Operating profit margin	11.6 %	27.9 %
Net farm income	128357	341116
REPAYMENT CAPACITY	Cash	Accrual
Term debt coverage ratio	498 %	593 %
Capital replacement margin	59409	73601
EFFICIENCY		
Asset turnover rate (market)	61.2 %	
Operating expense ratio	81.8 %	
Depreciation expense ratio	2.8 %	
Interest expense ratio	5.6 %	
Net farm income ratio	9.9 %	

LABOR ANALYSIS

	Average For All Farms

Number of Farms	6
Total unpaid labor hours	3691
Total hired labor hours	12082
Total labor hours per farm	15773
Value of farm production / hour	88.78
Net farm income / unpaid hour	38.98

EXPLANATORY NOTES FOR THE WHOLE-FARM REPORTS⁴

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.

⁴ 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: $\text{Asset Turnover Rate}$

= Value of Farm Production ÷ 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.