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Staff Paper

**Dairy Grazing Finances in Michigan and Wisconsin,
1999**

by

Sherrill B. Nott, Tom Kriegl and William M. Bivens

Staff Paper 2000-54

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DAIRY GRAZING FINANCES IN MICHIGAN AND WISCONSIN, 1999

Michigan State University Agricultural Economics Staff Paper No. 2000-54

by

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Introduction

The purpose of this paper is to demonstrate possible outcomes and problems of merging farm data sets from multiple states in order to build a statistically sound body of financial information that will help individual farmers analyze their own situations. This paper is in support of a grant titled “Regional/Multi-State Interpretation of Small Farm Financial Data” recently funded by USDA – IFAFS – Farm Efficiency and Profitability.

Financial data sets came from dairy farms using management intensive grazing (MIG) strategies during 1999. There were 12 farms from Michigan and 19 farms from Wisconsin. Finpack and Finansum² were used to process the data from all farms. Definitions and formulas are not given in this paper as they can be found in Finpack users’ guides and manuals. The averages for all 31 farms are given in Tables 1 through 10 plus Figures 1 and 2. The averages for farms with less than 70 milk cows are given in Tables 11 through 20. Averages for farms with over 70 cows are in Tables 21 through 30.

Towards the end of the paper is a discussion of the strengths and weaknesses of the data set and what should be considered as more states’ data are merged into the grant project. The last page, Table 32, gives some income and expense categories on a per cow basis which may be useful in doing an individual farm comparative analysis.

¹Extension specialist at Michigan State University, farm financial analyst with the Center for Dairy Profitability at the University of Wisconsin, and Michigan Agriculture and Natural Resources agent, respectively. The authors thank the farmers who anonymously provided their data for use in this study.

²Both are from the Center for Farm Financial Management at the University of Minnesota. Finpack provides, among other things, an accrualized financial summary of a farm business. Finansum allows averaging of results from several farms.

Table 1. Livestock Production Summary, 1999
 Dairy Graziers in Michigan and Wisconsin
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 25 %)))))))))	Average Of High 25 %)))))))))
Dairy			
Number of farms	31	8	8
Avg. number of Cows	80.3	42.9	128.6
Milk produced per Cow	15,953	15,333	17,680
Percent of barn capacity	227.9	162.6	248.0
Avg. milk price per cwt.	15.09	14.94	15.02

The purpose of this paper is to demonstrate the merging of multiple states' dairy farm graziers' financial data. The authors refuse to get into a discussion of Michigan versus Wisconsin, strong though the temptation might be! However, because of the importance of milk price to the financial outcome of specialized dairy farms, the following averages are mentioned to demonstrate how similar the farm situations are between the two states. Table 1 shows the average gross milk price received was \$15.09 per hundredweight (cwt.) on the 31 farms. The average price for the 12 Michigan farms was \$15.16; and the average price on the 19 Wisconsin farms was \$15.03 per cwt.

Table 2. FARM INCOME STATEMENT, 1999
Dairy Graziers in Michigan and Wisconsin
(Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 25%)))))))))	Average Of High 25%)))))))))
Number of Farms	31	8	8
CASH FARM INCOME			
Corn	113	-	438
Alfalfa Hay	4	-	-
Mixed Hay	50	194	-
Straw	80	166	86
Winter Wheat	34	-	130
Other crops	871	-	-
Miscellaneous crop income	4	-	16
Beef Calves	28	-	-
Chicks	42	-	-
Milk	193269	98208	341564
Dairy Calves	2795	1324	5276
Dairy Replacement Heifers	513	-	1987
Dairy Steers	236	490	-
Cull breeding livestock	9735	6378	12512
Misc. livestock income	1305	-	1678
Transition payments	3460	568	5608
CRP payments	1693	6561	-
Other government payments	6527	1660	8870
Custom work income	428	145	56
Patronage dividends, cash	1642	937	1706
Insurance income	509	26	-
Other farm income	2834	1700	3385
Gross Cash Farm Income	226173	118357	383313

Table 3. INCOME STATEMENT, 1999 (Continued)
Dairy Graziers in Michigan and Wisconsin
(Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 25%)))))))))	Average Of High 25%)))))))))
Number of Farms	31	8	8
CASH FARM EXPENSE			
Seed	2910	2419	5304
Fertilizer	7522	6234	4802
Crop chemicals	1183	1504	2088
Crop insurance	6	15	8
Crop marketing	19	63	-
Crop miscellaneous	799	401	1013
Feeder livestock purchase	10	-	-
Purchased feed	48709	24534	83026
Breeding fees	1795	1435	2891
Veterinary	4185	2541	6005
Livestock supplies	8717	4184	13282
Livestock leases	121	466	-
Livestock marketing	5964	5398	9094
Interest	11325	6389	15891
Fuel & oil	3627	2038	5677
Repairs	13593	8688	22257
Custom hire	4469	1915	5890
Hired labor	15891	7598	35797
Land rent	3357	713	4120
Machinery & bldg leases	2117	497	3523
Real estate taxes	3924	3037	6605
Personal property taxes	43	86	-
Farm insurance	2916	2114	4635
Utilities	4390	3984	5486
Dues & professional fees	1135	857	2106
Miscellaneous	4893	3294	7825
Total cash expense	153621	90405	247325
Net cash farm income	72551	27952	135988
INVENTORY CHANGES			
Crops and feed	3860	1534	4161
Market livestock	864	-425	-67
Accounts receivable	-258	4959	-373
Prepaid expenses and supplies	1267	-1433	5130
Accounts payable	1952	2395	4164
Total inventory change	7686	7030	13015
Net operating profit	80237	34982	149003
DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS			
Breeding livestock	6115	-1429	12095
Machinery and equipment	-14914	-12091	-18936
Buildings and improvements	-6566	-3401	-5312
Other farm capital	69	479	-
Total depr. and other capital adj	-15296	-16442	-12152
Net farm income	64941	18541	136851

Table 4. INVENTORY CHANGES, 1999
Dairy Graziers in Michigan and Wisconsin
(Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 25%)))))))))	Average Of High 25%)))))))))
Number of Farms	31	8	8
Net cash farm income	72551	27952	135988
CROPS AND FEED			
Ending inventory	28283	16429	48496
Beginning inventory	24423	14894	44334
Inventory change	3860	1534	4161
MARKET LIVESTOCK			
Ending inventory	2430	703	748
Beginning inventory	1566	1128	815
Inventory change	864	-425	-67
ACCTS RECEIVABLE & OTHER CURRENT ASSETS			
Ending inventory	8683	8153	19721
Beginning inventory	8942	3194	20094
Inventory change	-258	4959	-373
PREPAID EXPENSES AND SUPPLIES			
Ending inventory	6597	2279	15155
Beginning inventory	5330	3712	10025
Inventory change	1267	-1433	5130
ACCOUNTS PAYABLE			
Beginning inventory	4153	6639	7609
Ending inventory	2201	4244	3445
Inventory change	1952	2395	4164
Total inventory change	7686	7030	13015
Net operating profit	80237	34982	149003

Table 5. DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS, 1999
Dairy Graziers in Michigan and Wisconsin
(Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 25%)))))))))	Average Of High 25%)))))))))
Number of Farms	31	8	8
Net operating profit	80237	34982	149003
BREEDING LIVESTOCK			
Ending inventory	128398	70625	208093
Capital sales	3741	6846	5454
Beginning inventory	123648	76609	195949
Capital purchases	2376	2291	5503
Depreciation, capital adj.	6115	-1429	12095
MACHINERY AND EQUIPMENT			
Ending inventory	48812	36898	78098
Capital sales	506	725	-
Beginning inventory	46489	34973	70945
Capital purchases	17743	14741	26089
Depreciation, capital adj.	-14914	-12091	-18936
BUILDINGS AND IMPROVEMENTS			
Ending inventory	44839	33702	37228
Capital sales	-	-	-
Beginning inventory	48818	36007	41049
Capital purchases	2588	1097	1492
Depreciation, capital adj.	-6566	-3401	-5312
OTHER CAPITAL ASSETS			
Ending inventory	5095	5214	9952
Capital sales	365	189	1019
Beginning inventory	4470	4924	8553
Capital purchases	923	-	2418
Depreciation, capital adj.	69	479	-
Total depreciation, capital adj.	-15296	-16442	-12152
Net farm income	64941	18541	136851

Table 6. PROFITABILITY AND LIQUIDITY ANALYSIS, 1999
Dairy Graziers in Michigan and Wisconsin
(Farms sorted by Net Farm Income)

	Average Of All Farms))))))))))	Average Of Low 25%))))))))))	Average Of High 25%))))))))))
Number of Farms	31	8	8
PROFITABILITY (Market)			
Net farm income	88395	49342	143654
Labor and management earnings	65176	30254	106248
Rate of return on assets	11.8 %	7.1 %	13.0 %
Rate of return on equity	13.8 %	7.6 %	14.8 %
Operating profit margin	34.4 %	30.9 %	34.3 %
Asset turnover rate	34.4 %	22.9 %	37.9 %
Interest on farm net worth	23219	19087	37406
Farm interest expense	11371	6327	15989
Value of operator lbr and mgmt.	35164	25259	51301
Return on farm assets	64602	30410	108343
Average farm assets	545956	429206	833421
Return on farm equity	53231	24083	92353
Average farm equity	386985	318118	623438
Value of farm production	188036	98462	316104
Number of Farms	31	8	8
LIQUIDITY (Cash)			
Net cash farm income	72551	27952	135988
Net nonfarm income	4441	6029	18
Family living and taxes	53998	28221	106117
Real estate principal payments	2246	2112	1115
Cash available for interm. debt	20749	3648	28774
Average intermediate debt	41321	28522	63182
Years to turnover interm. debt	2.0	7.8	2.2
Expense as a % of income	68 %	76 %	65 %
Interest as a % of income	5 %	5 %	4 %
LIQUIDITY (Accrual)			
Total accrual farm income	230639	124425	387035
Total accrual farm expense	150402	89443	238031
Net accrual operating income	80237	34982	149003
Net nonfarm income	4441	6029	18
Family living and taxes	53998	28221	106117
Real estate principal payments	2246	2112	1115
Available for intermediate debt	28435	10678	41789
Average intermediate debt	41321	28522	63182
Years to turnover interm. debt	1.5	2.7	1.5
Expense as a % of income	65 %	72 %	62 %
Interest as a % of income	5 %	5 %	4 %

Table 7. BALANCE SHEET AT MARKET VALUES, 1999
Dairy Graziers in Michigan and Wisconsin
(Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))		Average Of Low 25 %)))))))))		Average Of High 25 %)))))))))	
Number of Farms	31		8		8	
	Beginning)))))))))	Ending)))))))))	Beginning)))))))))	Ending)))))))))	Beginning)))))))))	Ending)))))))))
ASSETS						
Current Farm Assets						
Cash and checking balance	6575	6268	1226	1703	10406	7712
Prepaid expenses & supplies	5330	6597	3712	2279	10025	15155
Growing crops	2747	3368	-	-	9331	11738
Accounts receivable	4482	3258	1902	1744	10637	7858
Hedging accounts	-	-	-	-	-	-
Crops held for sale or feed	24423	28283	14894	16429	44334	48496
Crops under government loan	-	-	-	-	-	-
Market livestock held for sale	1566	2430	1128	703	815	748
Other current assets	1713	2057	1292	6409	125	125
Total current farm assets	46834	52262	24155	29266	85674	91831
Intermediate Farm Assets						
Breeding livestock	123877	128405	76609	70625	196837	208118
Machinery and equipment	81954	87130	76374	81001	118100	125900
Other intermediate assets	2408	2970	2877	2757	3763	4982
Total intermediate farm assets	208239	218504	155859	154384	318700	339000
Long-Term Farm Assets						
Farm land	210101	234529	173187	200625	362621	374372
Buildings and improvements	59306	57239	57787	56144	44155	40728
Other long-term assets	2384	2513	3297	3707	4790	4969
Total long-term farm assets	271791	294280	234272	260476	411566	420070
Total Farm Assets	526865	565046	414286	444126	815940	850902
Total Nonfarm Assets	66003	68233	83592	86226	99801	102432
Total Assets	592868	633279	497878	530352	915742	953334
LIABILITIES						
Current Farm Liabilities						
Accrued interest	531	577	269	206	1516	1615
Accounts payable	3623	1625	6370	4037	6092	1830
Current notes	7941	10255	2979	8116	22088	26698
Government crop loans	-	-	-	-	-	-
Principal due on term debt	5702	6677	6442	6645	5353	6986
Total current farm liabilities	17796	19133	16060	19005	35049	37129
Intermediate Farm Liabilities	39849	35120	21530	27030	70885	45490
Long-term Farm Liabilities	101509	104534	71753	66797	106820	124593
Total Farm Liabilities	159154	158787	109343	112832	212755	207212
Total Nonfarm Liabilities	14538	12929	2734	2512	32969	30238
Total Deferred Liabilities	-	-	-	-	-	-
Total Liabilities	173692	171717	112078	115344	245724	237450
Net Worth (farm and nonfarm)	419176	461563	385800	415008	670018	715884
Net Worth Change		42387		29208		45867
RATIO ANALYSIS						
Current Farm Liabilities / Assets	38 %	37 %	66 %	65 %	41 %	40 %
Curr. & Interm Farm Liab. / Assets	23 %	20 %	21 %	25 %	26 %	19 %
Long Term Farm Liabilities / Assets	37 %	36 %	31 %	26 %	26 %	30 %
Total Liabilities / Assets	29 %	27 %	23 %	22 %	27 %	25 %

Table 8. STATEMENT OF CASH FLOWS, 1999
Dairy Graziers in Michigan and Wisconsin
(Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 25%)))))))))	Average Of High 25%)))))))))
Number of Farms	31	8	8
(a) Beginning cash balance (farm & nonfarm)	13073	1226	27252
CASH FROM OPERATING ACTIVITIES			
Gross cash farm income	226173	118357	383313
Net nonfarm income (+)	4441	6029	18
Total cash farm expense (-)	153621	90405	247325
Apparent family living expense (-)	53412	26836	106117
Income and social security tax (-)	586	1386	-
(b) Cash from operations (=)	22995	5760	29888
CASH FROM INVESTING ACTIVITIES			
Sale of breeding livestock	3741	6846	5454
Sale of machinery & equipment (+)	506	725	-
Sale of farm land (+)	3629	-	14063
Sale of farm buildings (+)	-	-	-
Sale of other farm assets (+)	365	189	1019
Sale of nonfarm assets (+)	95	-	369
Purchase of breeding livestock (-)	2376	2291	5503
Purchase of machinery & equip. (-)	17743	14741	26089
Purchase of farm land (-)	7031	-	10750
Purchase of farm buildings (-)	2588	1097	1492
Purchase of other farm assets (-)	923	-	2418
Purchase of nonfarm assets (-)	806	-	3125
(c) Cash from investing activities (=)	-23129	-10369	-28472
CASH FROM FINANCING ACTIVITIES			
Money borrowed	27328	20831	51421
Cash gifts and inheritances (+)	-	-	-
Principal payments (-)	27338	15119	55532
Dividends paid (-)	-	-	-
Gifts given (-)	-	-	-
(d) Cash from financing activities (=)	-10	5712	-4110
(e) Net change in cash balance (b+c+d)	-145	1102	-2694
Ending cash balance (farm & nonfarm)	12929	2328	24558

Table 9. FINANCIAL GUIDELINES MEASURES, 1999
 Dairy Graziers in Michigan and Wisconsin
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))		Average Of Low 25 %)))))))))		Average Of High 25 %)))))))))	
Number of Farms	31		8		8	
LIQUIDITY	Beginning	Ending	Beginning	Ending	Beginning	Ending
Current ratio	2.63	2.73	1.50	1.54	2.44	2.47
Working capital	29039	33129	8095	10261	50624	54703
SOLVENCY (Market)	Beginning	Ending	Beginning	Ending	Beginning	Ending
Farm debt to asset ratio	30 %	28 %	26 %	25 %	26 %	24 %
Farm equity to asset ratio	70 %	72 %	74 %	75 %	74 %	76 %
Farm debt to equity ratio	43 %	39 %	36 %	34 %	35 %	32 %
PROFITABILITY (Market)						
Rate of return on farm assets	11.8 %		7.1 %		13.0 %	
Rate of return on farm equity	13.8 %		7.6 %		14.8 %	
Operating profit margin	34.4 %		30.9 %		34.3 %	
Net farm income	88395		49342		143654	
REPAYMENT CAPACITY	Cash	Accrual	Cash	Accrual	Cash	Accrual
Term debt coverage ratio	267 %	341 %	94 %	158 %	297 %	401 %
Capital replacement margin	17246	24932	-682	6348	24536	37551
EFFICIENCY						
Asset turnover rate (market)	34.4 %		22.9 %		37.9 %	
Operating expense ratio	60.3 %		66.8 %		57.4 %	
Depreciation expense ratio	6.6 %		13.2 %		3.1 %	
Interest expense ratio	4.9 %		5.1 %		4.1 %	
Net farm income ratio	28.2 %		14.9 %		35.4 %	

LABOR ANALYSIS

	Average Of All Farms)))))))))
Number of Farms	12
Total unpaid labor hours	4254
Total hired labor hours	2907
Total labor hours per farm	7161
Value of farm production / hour	-
Net farm income / unpaid hour	15.51

Table 10. INFORMATION & NONFARM SUMMARY, 1999
 Dairy Graziers in Michigan and Wisconsin
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 25%)))))))))	Average Of High 25%)))))))))
Number of Farms	31	8	8
OPERATOR INFORMATION			
Average number of operators	1.2	1.0	1.4
Average age of operators	54.8		
Average number of years farming	29.2		
NONFARM INCOME			
Nonfarm wages & salary	2858	2516	-
Nonfarm business income	-	-	-
Nonfarm rental income	451	422	-
Nonfarm interest income	168	-	18
Nonfarm cash dividends	-	-	-
Tax refunds	129	356	-
Nontaxable nonfarm income	-	-	-
Gifts and inheritances	-	-	-
Other nonfarm income	836	2735	-
Total nonfarm income	4441	6029	18
NONFARM ASSETS (Mkt)			
	Average Of All Farms Beginning)))))))))	Ending)))))))))	
Checking & savings	6499	6660	
Stocks & bonds	1003	963	
Other current assets	6316	6316	
Furniture & appliances	2048	2048	
Nonfarm vehicles	2010	1933	
Cash value of life ins.	1889	1995	
Retirement accounts	4024	4359	
Other intermediate assets	1843	1747	
Nonfarm real estate	35372	37210	
Other long term assets	5000	5000	
Total nonfarm assets	66003	68233	

Table 1 shows that farms in the high 25 percent group, when sorted by net farm income, have more cows than the average of all farms. The low 25 percent by net farm income have fewer cows than the average of all farms. Figure 1 shows a plot of herd size and net farm income for each of the 31 farms in the study. The net farm incomes were calculated in Finpack using market value balance sheet columns, and do not include any changes of land values. Because of the implications that bigger herd size means bigger net income, the 31 farms were split into 2 groups. The 15 farms with 23 to 60 cows were analyzed separately in Tables 11 through 20 below. The 16 farms with 72 to 231 cows were analyzed separately in Tables 21 through 30 below.

Income and Herd Size

Graziers, 2 States, 1999

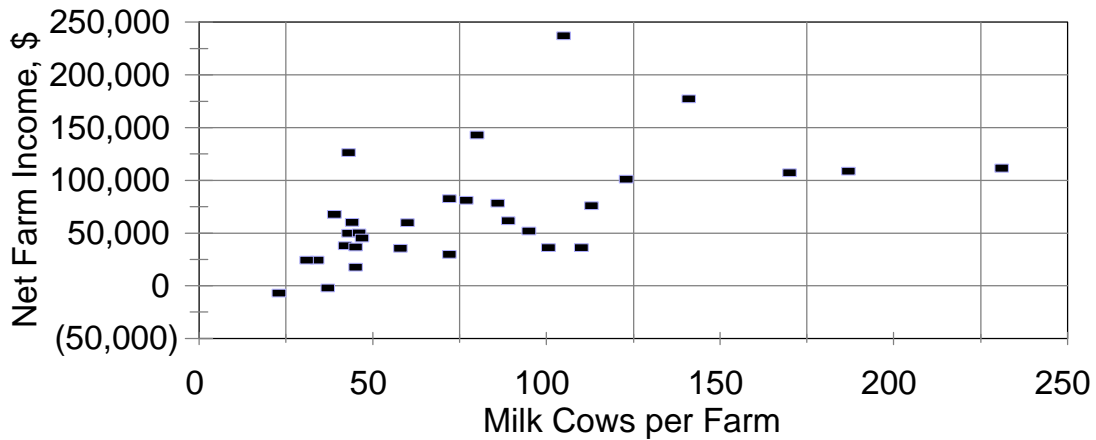


Figure 1.

In the following tables the high and low income percentages were set such that at least 6 farms would be included in each group. This means the percentages are different from the 25 percent levels used in Tables 1 through 10.

Table 11. Livestock Production Summary, 1999
Graziers in 2 States with 23 - 60 Cows
(Farms sorted by Net Farm Income)

	Average Of All Farms))))))))))	Average Of Low 40 %))))))))))	Average Of High 40 %))))))))))
Dairy			
Number of farms	15	6	6
Avg. number of Cows	42.5	38.0	46.5
Milk produced per Cow	15,362	13,341	17,306
Percent of barn capacity	316.9	228.0	429.2
Avg. milk price per cwt.	15.00	14.80	15.04

Table 12. FARM INCOME STATEMENT, 1999
 Graziers in 2 States with 23 - 60 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 40%)))))))))	Average Of High 40%)))))))))
Number of Farms	15	6	6
CASH FARM INCOME			
Alfalfa Hay	7	-	17
Mixed Hay	103	250	-
Straw	89	222	-
Chicks	87	-	-
Milk	97840	75011	121011
Dairy Calves	1929	1478	2812
Dairy Steers	467	653	-
Cull breeding livestock	5485	6101	5284
Misc. livestock income	527	-	1222
Transition payments	699	758	989
CRP payments	1252	2791	-
Other government payments	2081	2214	2358
Custom work income	477	193	1000
Patronage dividends, cash	1540	785	2668
Insurance income	14	35	-
Other farm income	1768	1999	1492
Gross Cash Farm Income	114365	92488	138853

Table 13. FARM INCOME STATEMENT, 1999 (Continued)
 Graziers in 2 States with 23 - 60 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 40%)))))))))	Average Of High 40%)))))))))
Number of Farms	15	6	6
CASH FARM EXPENSE			
Seed	1284	1436	1109
Fertilizer	3095	2326	3057
Crop chemicals	507	788	13
Crop insurance	4	10	-
Crop miscellaneous	96	141	-
Feeder livestock purchase	21	-	-
Purchased feed	23431	21885	26656
Breeding fees	1413	1436	1299
Veterinary	2276	1953	3197
Livestock supplies	4548	3534	5051
Livestock leases	250	621	4
Livestock marketing	4113	3888	4006
Interest	4010	7029	2193
Fuel & oil	1561	1523	1557
Repairs	6290	8135	5644
Custom hire	1471	1968	1709
Hired labor	2786	-	1366
Land rent	1330	92	2026
Machinery & bldg leases	253	6	596
Real estate taxes	2296	2733	2183
Personal property taxes	22	15	24
Farm insurance	1622	1586	1667
Utilities	3140	3357	3070
Dues & professional fees	534	251	685
Miscellaneous	3372	4291	3189
Total cash expense	69725	69005	70301
Net cash farm income	44640	23484	68552
INVENTORY CHANGES			
Crops and feed	2657	2597	302
Market livestock	-163	-267	400
Accounts receivable	1780	6586	-1992
Prepaid expenses and supplies	-663	-1911	522
Accounts payable	474	1111	-25
Total inventory change	4084	8116	-792
Net operating profit	48723	31600	67760
DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS			
Breeding livestock	2137	-3664	8157
Machinery and equipment	-9493	-9714	-9768
Buildings and improvements	-1978	-3831	-585
Other farm capital	225	639	-76
Total depr. and other capital adj	-9109	-16570	-2272
Net farm income	39614	15030	65488

Table 14. INVENTORY CHANGES, 1999
 Graziers in 2 States with 23 - 60 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 40%)))))))))	Average Of High 40%)))))))))
Number of Farms	15	6	6
Net cash farm income	44640	23484	68552
CROPS AND FEED			
Ending inventory	15100	13765	13996
Beginning inventory	12444	11168	13695
Inventory change	2657	2597	302
MARKET LIVESTOCK			
Ending inventory	183	-	400
Beginning inventory	347	267	-
Inventory change	-163	-267	400
ACCTS RECEIVABLE & OTHER CURRENT ASSETS			
Ending inventory	5614	10045	2550
Beginning inventory	3835	3459	4542
Inventory change	1780	6586	-1992
PREPAID EXPENSES AND SUPPLIES			
Ending inventory	2912	2997	4283
Beginning inventory	3575	4907	3760
Inventory change	-663	-1911	522
ACCOUNTS PAYABLE			
Beginning inventory	2108	4827	343
Ending inventory	1634	3717	368
Inventory change	474	1111	-25
Total inventory change	4084	8116	-792
Net operating profit	48723	31600	67760

Table 15. DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS, 1999
 Graziers in 2 States with 23 - 60 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 40%)))))))))	Average Of High 40%)))))))))
Number of Farms	15	6	6
Net operating profit	48723	31600	67760
BREEDING LIVESTOCK			
Ending inventory	67080	58908	78233
Capital sales	5049	7385	5238
Beginning inventory	68607	66903	74906
Capital purchases	1385	3054	408
Depreciation, capital adj.	2137	-3664	8157
MACHINERY AND EQUIPMENT			
Ending inventory	35712	41663	38397
Capital sales	387	967	-
Beginning inventory	35325	37841	40633
Capital purchases	10267	14502	7532
Depreciation, capital adj.	-9493	-9714	-9768
BUILDINGS AND IMPROVEMENTS			
Ending inventory	35036	38453	33007
Capital sales	-	-	-
Beginning inventory	36429	40821	33592
Capital purchases	585	1463	-
Depreciation, capital adj.	-1978	-3831	-585
OTHER CAPITAL ASSETS			
Ending inventory	4441	6177	4925
Capital sales	101	252	-
Beginning inventory	3692	5790	3440
Capital purchases	624	-	1561
Depreciation, capital adj.	225	639	-76
Total depreciation, capital adj.	-9109	-16570	-2272
Net farm income	39614	15030	65488

Table 16. PROFITABILITY AND LIQUIDITY ANALYSIS, 1999
 Graziers in 2 States with 23 - 60 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 40%)))))))))	Average Of High 40%)))))))))
Number of Farms	15	6	6
PROFITABILITY (Market)			
Net farm income	56410	49473	70645
Labor and management earnings	41756	32809	57080
Rate of return on assets	11.4 %	8.3 %	18.4 %
Rate of return on equity	12.8 %	9.3 %	20.0 %
Operating profit margin	36.4 %	43.3 %	39.8 %
Asset turnover rate	31.5 %	19.1 %	46.2 %
Interest on farm net worth	14653	16664	13565
Farm interest expense	4020	7029	2218
Value of operator lbr and mgmt.	25035	23678	25459
Return on farm assets	35394	32823	47404
Average farm assets	309203	397433	257552
Return on farm equity	31374	25795	45186
Average farm equity	244224	277728	226085
Value of farm production	97323	75855	119065
Number of Farms	15	6	6
LIQUIDITY (Cash)			
Net cash farm income	44640	23484	68552
Net nonfarm income	5904	7842	6918
Family living and taxes	39639	22499	62563
Real estate principal payments	1268	2123	1046
Cash available for interm. debt	9638	6705	11861
Average intermediate debt	16077	24942	8338
Years to turnover interm. debt	1.7	3.7	0.7
Expense as a % of income	61 %	75 %	51 %
Interest as a % of income	4 %	8 %	2 %
LIQUIDITY (Accrual)			
Total accrual farm income	118638	101404	137564
Total accrual farm expense	69915	69805	69804
Net accrual operating income	48723	31600	67760
Net nonfarm income	5904	7842	6918
Family living and taxes	39639	22499	62563
Real estate principal payments	1268	2123	1046
Available for intermediate debt	13721	14821	11069
Average intermediate debt	16077	24942	8338
Years to turnover interm. debt	1.2	1.7	0.8
Expense as a % of income	59 %	69 %	51 %
Interest as a % of income	3 %	7 %	2 %

Table 17. BALANCE SHEET AT MARKET VALUES, 1999
 Graziers in 2 States with 23 - 60 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))		Average Of Low 40 %)))))))))		Average Of High 40 %)))))))))	
	15	6	6	6	6	6
Number of Farms	15	6	6	6	6	6
	Beginning)))))))))	Ending)))))))))	Beginning)))))))))	Ending)))))))))	Beginning)))))))))	Ending)))))))))
ASSETS						
Current Farm Assets						
Cash and checking balance	3361	3152	-282	937	7416	5552
Prepaid expenses & supplies	3575	2912	4907	2997	3760	4283
Growing crops	-	-	-	-	-	-
Accounts receivable	2262	1363	1736	1499	2333	467
Hedging accounts	-	-	-	-	-	-
Crops held for sale or feed	12444	15100	11168	13765	13695	13996
Crops under government loan	-	-	-	-	-	-
Market livestock held for sale	347	183	267	-	-	400
Other current assets	1572	4251	1723	8545	2208	2083
Total current farm assets	23561	26962	19519	27743	29412	26780
Intermediate Farm Assets						
Breeding livestock	68607	67080	66903	58908	74906	78233
Machinery and equipment	55760	57126	67748	71335	44850	43031
Other intermediate assets	2031	2603	3061	2901	2017	3607
Total intermediate farm assets	126398	126809	137712	133144	121773	124871
Long-Term Farm Assets						
Farm land	97700	112033	158500	192167	58667	60833
Buildings and improvements	50677	50634	60716	59359	44018	45674
Other long-term assets	1661	1971	2729	3276	1423	1651
Total long-term farm assets	150038	164638	221946	254802	104108	108158
Total Farm Assets	299997	318410	379176	415689	255293	259810
Total Nonfarm Assets	64968	66186	68188	69854	59297	59664
Total Assets	364965	384596	447364	485544	314590	319474
LIABILITIES						
Current Farm Liabilities						
Accrued interest	10	20	-	-	25	50
Accounts payable	2098	1614	4827	3717	318	318
Current notes	2337	2812	3971	4155	1872	2875
Government crop loans	-	-	-	-	-	-
Principal due on term debt	2799	3079	4775	5295	2222	2401
Total current farm liabilities	7244	7525	13574	13167	4437	5645
Intermediate Farm Liabilities	13142	15536	18187	26264	6898	6524
Long-term Farm Liabilities	46065	40447	86981	81237	23849	15581
Total Farm Liabilities	66451	63507	118742	120668	35184	27749
Total Nonfarm Liabilities	4632	3287	3646	3349	5051	2001
Total Deferred Liabilities	-	-	-	-	-	-
Total Liabilities	71084	66794	122388	124017	40235	29751
Net Worth (farm and nonfarm)	293882	317802	324976	361527	274355	289723
Net Worth Change		23920		36550		15367
RATIO ANALYSIS						
Current Farm Liabilities / Assets	31 %	28 %	70 %	47 %	15 %	21 %
Curr. & Interm Farm Liab. / Assets	14 %	15 %	20 %	25 %	7 %	8 %
Long Term Farm Liabilities / Assets	31 %	25 %	39 %	32 %	23 %	14 %
Total Liabilities / Assets	19 %	17 %	27 %	26 %	13 %	9 %

Table 18. STATEMENT OF CASH FLOWS, 1999
 Graziers in 2 States with 23 - 60 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 40%)))))))))	Average Of High 40%)))))))))
Number of Farms	15	6	6
(a) Beginning cash balance (farm & nonfarm)	16793	-282	40993
CASH FROM OPERATING ACTIVITIES			
Gross cash farm income	114365	92488	138853
Net nonfarm income (+)	5904	7842	6918
Total cash farm expense (-)	69725	69005	70301
Apparent family living expense (-)	38954	22499	61850
Income and social security tax (-)	685	-	713
(b) Cash from operations (=)	10905	8828	12908
CASH FROM INVESTING ACTIVITIES			
Sale of breeding livestock	5049	7385	5238
Sale of machinery & equipment (+)	387	967	-
Sale of farm land (+)	-	-	-
Sale of farm buildings (+)	-	-	-
Sale of other farm assets (+)	101	252	-
Sale of nonfarm assets (+)	-	-	-
Purchase of breeding livestock (-)	1385	3054	408
Purchase of machinery & equip. (-)	10267	14502	7532
Purchase of farm land (-)	-	-	-
Purchase of farm buildings (-)	585	1463	-
Purchase of other farm assets (-)	624	-	1561
Purchase of nonfarm assets (-)	-	-	-
(c) Cash from investing activities (=)	-7325	-10415	-4263
CASH FROM FINANCING ACTIVITIES			
Money borrowed	10638	19424	2874
Cash gifts and inheritances (+)	-	-	-
Principal payments (-)	14427	16617	13383
Dividends paid (-)	-	-	-
Gifts given (-)	-	-	-
(d) Cash from financing activities (=)	-3789	2807	-10509
(e) Net change in cash balance (b+c+d)	-209	1219	-1864
Ending cash balance (farm & nonfarm)	16584	937	39129

Table 19. FINANCIAL GUIDELINES MEASURES, 1999
 Graziers in 2 States with 23 - 60 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))		Average Of Low 40 %)))))))))		Average Of High 40 %)))))))))	
Number of Farms	15		6		6	
LIQUIDITY	Beginning	Ending	Beginning	Ending	Beginning	Ending
Current ratio	3.25	3.58	1.44	2.11	6.63	4.74
Working capital	16317	19438	5945	14577	24975	21136
SOLVENCY (Market)	Beginning	Ending	Beginning	Ending	Beginning	Ending
Farm debt to asset ratio	22 %	20 %	31 %	29 %	14 %	11 %
Farm equity to asset ratio	78 %	80 %	69 %	71 %	86 %	89 %
Farm debt to equity ratio	28 %	25 %	46 %	41 %	16 %	12 %
PROFITABILITY (Market)						
Rate of return on farm assets	11.4 %		8.3 %		18.4 %	
Rate of return on farm equity	12.8 %		9.3 %		20.0 %	
Operating profit margin	36.4 %		43.3 %		39.8 %	
Net farm income	56410		49473		70645	
REPAYMENT CAPACITY	Cash	Accrual	Cash	Accrual	Cash	Accrual
Term debt coverage ratio	260 %	342 %	146 %	240 %	375 %	354 %
Capital replacement margin	8009	12093	4052	12169	10443	9650
EFFICIENCY						
Asset turnover rate (market)	31.5 %		19.1 %		46.2 %	
Operating expense ratio	55.5 %		61.9 %		49.1 %	
Depreciation expense ratio	7.7 %		16.3 %		1.7 %	
Interest expense ratio	3.4 %		6.9 %		1.6 %	
Net farm income ratio	33.4 %		14.8 %		47.6 %	

LABOR ANALYSIS

	Average Of All Farms)))))))))
Number of Farms	4
Total unpaid labor hours	3161
Total hired labor hours	709
Total labor hours per farm	3870
Value of farm production / hour	-
Net farm income / unpaid hour	7.62

Table 20. INFORMATION & NONFARM SUMMARY, 1999
 Graziers in 2 States with 23 - 60 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 40%)))))))))	Average Of High 40%)))))))))
Number of Farms	15	6	6
OPERATOR INFORMATION			
Average number of operators	1.0	1.0	1.0
Average age of operators	48.3		
Average number of years farming	24.3		
NONFARM INCOME			
Nonfarm wages & salary	3306	3022	5244
Nonfarm business income	-	-	-
Nonfarm rental income	280	700	-
Nonfarm interest income	325	-	812
Nonfarm cash dividends	-	-	-
Tax refunds	266	475	190
Nontaxable nonfarm income	-	-	-
Gifts and inheritances	-	-	-
Other nonfarm income	1727	3646	672
Total nonfarm income	5904	7842	6918
NONFARM ASSETS (Mkt)			
	Average Of All Farms Beginning)))))))))	Ending)))))))))	
Checking & savings	13431	13431	
Stocks & bonds	2034	1950	
Other current assets	13052	13052	
Furniture & appliances	2567	2567	
Nonfarm vehicles	1300	1433	
Cash value of life ins.	3547	3767	
Retirement accounts	5347	5629	
Other intermediate assets	367	367	
Nonfarm real estate	17989	18656	
Other long term assets	5333	5333	
Total nonfarm assets	64968	66186	

Table 21. Livestock Production Summary, 1999
 Graziers in 2 States with 72 - 231 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 37 %)))))))))	Average Of High 37 %)))))))))
Dairy			
Number of farms	16	6	6
Avg. number of Cows	115.7	92.1	152.3
Milk produced per Cow	16,157	15,415	17,446
Percent of barn capacity	207.8	202.4	220.2
Avg. milk price per cwt.	15.12	15.02	15.00

Table 22. FARM INCOME STATEMENT, 1999
 Graziers in 2 States with 72 - 231 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 37%)))))))))	Average Of High 37%)))))))))
Number of Farms	16	6	6
CASH FARM INCOME			
Corn	219	-	584
Alfalfa Hay	2	5	-
Straw	72	77	115
Winter Wheat	65	-	173
Other crops	1688	4500	-
Miscellaneous crop income	8	-	21
Beef Calves	55	-	-
Milk	282733	213185	398773
Dairy Calves	3606	2545	6264
Dairy Replacement Heifers	994	-	2650
Dairy Steers	19	50	-
Cull breeding livestock	13720	14761	13313
Misc. livestock income	2034	655	1139
Transition payments	6048	8651	5027
CRP payments	2107	5618	-
Other government payments	10696	5346	11295
Custom work income	383	219	74
Patronage dividends, cash	1739	2188	1958
Insurance income	973	94	-
Other farm income	3833	1423	3027
Gross Cash Farm Income	330992	259317	444413

Table 23. FARM INCOME STATEMENT, 1999 (Continued)
 Graziers in 2 States with 72 - 231 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 37%)))))))))	Average Of High 37%)))))))))
Number of Farms	16	6	6
CASH FARM EXPENSE			
Seed	4435	3318	6023
Fertilizer	11673	14932	5658
Crop chemicals	1816	944	2373
Crop insurance	8	10	10
Crop marketing	37	99	-
Crop miscellaneous	1458	2376	948
Purchased feed	72407	57384	105409
Breeding fees	2154	1661	2952
Veterinary	5975	6372	6344
Livestock supplies	12626	8413	16866
Livestock marketing	7698	7377	10417
Interest	18183	19471	20838
Fuel & oil	5565	4353	6420
Repairs	20440	17082	25574
Custom hire	7279	7737	7596
Hired labor	28177	21812	40702
Land rent	5257	3175	5023
Machinery & bldg leases	3863	4651	4698
Real estate taxes	5449	2794	6554
Personal property taxes	62	165	-
Farm insurance	4130	3509	5150
Utilities	5563	4699	6392
Dues & professional fees	1698	1190	2541
Miscellaneous	6320	3169	9110
Total cash expense	232274	196694	297597
Net cash farm income	98718	62623	146817
INVENTORY CHANGES			
Crops and feed	4988	6918	676
Market livestock	1828	1814	-45
Accounts receivable	-2168	-550	1370
Prepaid expenses and supplies	3077	-1932	7654
Accounts payable	3338	3300	5552
Total inventory change	11063	9551	15207
Net operating profit	109781	72175	162024
DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS			
Breeding livestock	9845	2810	12362
Machinery and equipment	-19995	-15962	-21859
Buildings and improvements	-10867	-18849	-4974
Other farm capital	-78	67	-
Total depr. and other capital adj	-21095	-31934	-14471
Net farm income	88686	40241	147553

Table 24. INVENTORY CHANGES, 1999
 Graziers in 2 States with 72 - 231 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 37%)))))))))	Average Of High 37%)))))))))
Number of Farms	16	6	6
Net cash farm income	98718	62623	146817
CROPS AND FEED			
Ending inventory	40642	36213	44728
Beginning inventory	35653	29294	44051
Inventory change	4988	6918	676
MARKET LIVESTOCK			
Ending inventory	4537	3052	907
Beginning inventory	2709	1237	952
Inventory change	1828	1814	-45
ACCTS RECEIVABLE & OTHER CURRENT ASSETS			
Ending inventory	11561	3767	25662
Beginning inventory	13729	4317	24292
Inventory change	-2168	-550	1370
PREPAID EXPENSES AND SUPPLIES			
Ending inventory	10051	1234	17236
Beginning inventory	6975	3166	9581
Inventory change	3077	-1932	7654
ACCOUNTS PAYABLE			
Beginning inventory	6071	5995	10145
Ending inventory	2733	2695	4593
Inventory change	3338	3300	5552
Total inventory change	11063	9551	15207
Net operating profit	109781	72175	162024

Table 25. DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS, 1999
 Graziers in 2 States with 72 - 231 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 37%)))))))))	Average Of High 37%)))))))))
Number of Farms	16	6	6
Net operating profit	109781	72175	162024
BREEDING LIVESTOCK			
Ending inventory	185884	152883	238549
Capital sales	2515	3127	3207
Beginning inventory	175250	151725	222691
Capital purchases	3304	1475	6704
Depreciation, capital adj.	9845	2810	12362
MACHINERY AND EQUIPMENT			
Ending inventory	61093	29144	79716
Capital sales	619	1233	-
Beginning inventory	56955	31394	69522
Capital purchases	24752	14945	32053
Depreciation, capital adj.	-19995	-15962	-21859
BUILDINGS AND IMPROVEMENTS			
Ending inventory	54030	81878	27257
Capital sales	-	-	-
Beginning inventory	60432	96227	32025
Capital purchases	4465	4500	205
Depreciation, capital adj.	-10867	-18849	-4974
OTHER CAPITAL ASSETS			
Ending inventory	5709	2025	9173
Capital sales	613	277	1359
Beginning inventory	5199	2025	8271
Capital purchases	1202	210	2261
Depreciation, capital adj.	-78	67	-
Total depreciation, capital adj.	-21095	-31934	-14471
Net farm income	88686	40241	147553

Table 26. PROFITABILITY AND LIQUIDITY ANALYSIS, 1999
 Graziers in 2 States with 72 - 231 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 37%)))))))))	Average Of High 37%)))))))))
Number of Farms	16	6	6
PROFITABILITY (Market)			
Net farm income	118382	88258	156624
Labor and management earnings	87133	65816	116870
Rate of return on assets	12.0 %	12.3 %	12.1 %
Rate of return on equity	14.2 %	15.3 %	14.0 %
Operating profit margin	33.7 %	36.0 %	32.2 %
Asset turnover rate	35.6 %	34.3 %	37.5 %
Interest on farm net worth	31249	22442	39753
Farm interest expense	18263	19602	20969
Value of operator lbr and mgmt.	44660	31108	63721
Return on farm assets	91985	76752	113872
Average farm assets	767911	621481	942533
Return on farm equity	73722	57150	92903
Average farm equity	520823	374034	662555
Value of farm production	273079	212926	353368
Number of Farms	16	6	6
LIQUIDITY (Cash)			
Net cash farm income	98718	62623	146817
Net nonfarm income	3069	8160	23
Family living and taxes	67459	42710	113827
Real estate principal payments	3163	5013	1486
Cash available for interm. debt	31166	23060	31527
Average intermediate debt	64988	47435	84243
Years to turnover interm. debt	2.1	2.1	2.7
Expense as a % of income	70 %	76 %	67 %
Interest as a % of income	5 %	8 %	5 %
LIQUIDITY (Accrual)			
Total accrual farm income	335640	267500	446414
Total accrual farm expense	225859	195325	284391
Net accrual operating income	109781	72175	162024
Net nonfarm income	3069	8160	23
Family living and taxes	67459	42710	113827
Real estate principal payments	3163	5013	1486
Available for intermediate debt	42229	32612	46734
Average intermediate debt	64988	47435	84243
Years to turnover interm. debt	1.5	1.5	1.8
Expense as a % of income	67 %	73 %	64 %
Interest as a % of income	5 %	7 %	5 %

Table 27. BALANCE SHEET AT MARKET VALUES, 1999
 Graziers in 2 States with 72 - 231 Cows
 (Farms sorted by Net Farm Income)

Number of Farms	Average Of		Average Of		Average Of	
	All Farms		Low 37 %		High 37 %	
))))))))))))))))))))))))))))))))))))))))))))))))))))))
	16		6		6	
	Beginning	Ending	Beginning	Ending	Beginning	Ending
))))))))))))))))))))))))))))))))))))))))))))))))))))))
ASSETS						
Current Farm Assets						
Cash and checking balance	9587	9189	9141	13530	7334	6428
Prepaid expenses & supplies	6975	10051	3166	1234	9581	17236
Growing crops	5322	6525	1750	1750	12442	15651
Accounts receivable	6563	5035	2567	2017	11850	10011
Hedging accounts	-	-	-	-	-	-
Crops held for sale or feed	35653	40642	29294	36213	44051	44728
Crops under government loan	-	-	-	-	-	-
Market livestock held for sale	2709	4537	1237	3052	952	907
Other current assets	1845	-	-	-	-	-
Total current farm assets	68653	75980	47156	57796	86211	94959
Intermediate Farm Assets						
Breeding livestock	175693	185897	151725	152883	223874	238583
Machinery and equipment	106511	115259	70233	74374	132396	143451
Other intermediate assets	2761	3313	2025	2025	2640	3531
Total intermediate farm assets	284965	304469	223984	229283	358911	385564
Long-Term Farm Assets						
Farm land	315476	349368	239250	278183	432195	447863
Buildings and improvements	67396	63430	87817	76161	36167	31924
Other long-term assets	3062	3021	1667	1667	5630	5641
Total long-term farm assets	385935	415820	328733	356011	473992	485428
Total Farm Assets	739553	796268	599873	643089	919113	965952
Total Nonfarm Assets	66974	70152	58989	63791	70645	74153
Total Assets	806527	866420	658862	706880	989758	1040105
LIABILITIES						
Current Farm Liabilities						
Accrued interest	1019	1098	645	776	2022	2153
Accounts payable	5052	1635	5350	1919	8123	2440
Current notes	13194	17232	4732	10356	29451	35597
Government crop loans	-	-	-	-	-	-
Principal due on term debt	8423	10051	11559	12301	7137	9315
Total current farm liabilities	27688	30016	22286	25353	46732	49505
Intermediate Farm Liabilities	64888	53481	42694	38795	94513	60654
Long-term Farm Liabilities	153488	164615	186643	179123	142427	166124
Total Farm Liabilities	246064	248113	251623	243271	283673	276282
Total Nonfarm Liabilities	23824	21969	19573	18267	36484	40317
Total Deferred Liabilities	-	-	-	-	-	-
Total Liabilities	269888	270082	271196	261538	320157	316599
Net Worth (farm and nonfarm)	536639	596339	387666	445342	669602	723505
Net Worth Change		59700		57676		53904
RATIO ANALYSIS						
Current Farm Liabilities / Assets	40 %	40 %	47 %	44 %	54 %	52 %
Curr. & Interm Farm Liab. / Assets	26 %	22 %	24 %	22 %	32 %	23 %
Long Term Farm Liabilities / Assets	40 %	40 %	57 %	50 %	30 %	34 %
Total Liabilities / Assets	33 %	31 %	41 %	37 %	32 %	30 %

Table 28. STATEMENT OF CASH FLOWS, 1999
 Graziers in 2 States with 72 - 231 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 37%)))))))))	Average Of High 37%)))))))))
Number of Farms	16	6	6
(a) Beginning cash balance (farm & nonfarm)	9587	9141	7334
CASH FROM OPERATING ACTIVITIES			
Gross cash farm income	330992	259317	444413
Net nonfarm income (+)	3069	8160	23
Total cash farm expense (-)	232274	196694	297597
Apparent family living expense (-)	66966	41396	113827
Income and social security tax (-)	493	1314	-
(b) Cash from operations (=)	34328	28073	33013
CASH FROM INVESTING ACTIVITIES			
Sale of breeding livestock	2515	3127	3207
Sale of machinery & equipment (+)	619	1233	-
Sale of farm land (+)	7031	-	18750
Sale of farm buildings (+)	-	-	-
Sale of other farm assets (+)	613	277	1359
Sale of nonfarm assets (+)	185	-	492
Purchase of breeding livestock (-)	3304	1475	6704
Purchase of machinery & equip. (-)	24752	14945	32053
Purchase of farm land (-)	13622	-	14333
Purchase of farm buildings (-)	4465	4500	205
Purchase of other farm assets (-)	1202	210	2261
Purchase of nonfarm assets (-)	1563	-	4167
(c) Cash from investing activities (=)	-37945	-16493	-35914
CASH FROM FINANCING ACTIVITIES			
Money borrowed	42974	16398	68562
Cash gifts and inheritances (+)	-	-	-
Principal payments (-)	39442	22756	66567
Dividends paid (-)	-	-	-
Gifts given (-)	-	-	-
(d) Cash from financing activities (=)	3532	-6358	1995
(e) Net change in cash balance (b+c+d)	-85	5222	-906
Ending cash balance (farm & nonfarm)	9502	14363	6428

Table 29. FINANCIAL GUIDELINES MEASURES, 1999
 Graziers in 2 States with 72 - 231 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))		Average Of Low 37 %)))))))))		Average Of High 37 %)))))))))	
Number of Farms	16		6		6	
LIQUIDITY	Beginning	Ending	Beginning	Ending	Beginning	Ending
Current ratio	2.48	2.53	2.12	2.28	1.84	1.92
Working capital	40965	45964	24870	32443	39478	45454
SOLVENCY (Market)	Beginning	Ending	Beginning	Ending	Beginning	Ending
Farm debt to asset ratio	33 %	31 %	42 %	38 %	31 %	29 %
Farm equity to asset ratio	67 %	69 %	58 %	62 %	69 %	71 %
Farm debt to equity ratio	50 %	45 %	72 %	61 %	45 %	40 %
PROFITABILITY (Market)						
Rate of return on farm assets	12.0 %		12.3 %		12.1 %	
Rate of return on farm equity	14.2 %		15.3 %		14.0 %	
Operating profit margin	33.7 %		36.0 %		32.2 %	
Net farm income	118382		88258		156624	
REPAYMENT CAPACITY	Cash	Accrual	Cash	Accrual	Cash	Accrual
Term debt coverage ratio	269 %	341 %	194 %	248 %	256 %	347 %
Capital replacement margin	25906	36968	16515	26066	25877	41084
EFFICIENCY						
Asset turnover rate (market)	35.6 %		34.3 %		37.5 %	
Operating expense ratio	61.9 %		65.7 %		59.0 %	
Depreciation expense ratio	6.3 %		11.9 %		3.2 %	
Interest expense ratio	5.4 %		7.3 %		4.7 %	
Net farm income ratio	26.4 %		15.0 %		33.1 %	

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	Average Of All Farms)))))))))
Number of Farms	8
Total unpaid labor hours	4800
Total hired labor hours	4006
Total labor hours per farm	8806
Value of farm production / hour	-
Net farm income / unpaid hour	18.11

Table 30. OPERATOR INFORMATION & NONFARM SUMMARY, 1999
 Graziers in 2 States with 72 - 231 Cows
 (Farms sorted by Net Farm Income)

	Average Of All Farms)))))))))	Average Of Low 37%)))))))))	Average Of High 37%)))))))))
Number of Farms	16	6	6
OPERATOR INFORMATION			
Average number of operators	1.3	1.2	1.5
Average age of operators	58.0		
Average number of years farming	32.2		
NONFARM INCOME			
Nonfarm wages & salary	2438	6500	-
Nonfarm business income	-	-	-
Nonfarm rental income	611	1629	-
Nonfarm interest income	20	31	23
Nonfarm cash dividends	-	-	-
Tax refunds	-	-	-
Nontaxable nonfarm income	-	-	-
Gifts and inheritances	-	-	-
Other nonfarm income	-	-	-
Total nonfarm income	3069	8160	23
NONFARM ASSETS (Mkt)			
	Average Of Beginning)))))))))	All Farms Ending)))))))))	
Checking & savings	-	313	
Stocks & bonds	38	38	
Other current assets	-	-	
Furniture & appliances	1563	1563	
Nonfarm vehicles	2675	2402	
Cash value of life ins.	334	334	
Retirement accounts	2783	3169	
Other intermediate assets	3226	3042	
Nonfarm real estate	51667	54605	
Other long term assets	4688	4688	
Total nonfarm assets	66974	70152	

Figure 2 below indicates the relationship between net farm income and milk sold per cow for the 31 farms in this study. It appears there may be a weak association between the two factors. However, Table 1 indicated that cow numbers changed proportionately more than did milk per cow when looking at the averages for the low income and high income groups. Consequently, no further analyses were done using milk per cow for a variable as was done in Tables 11 through 30 with herd size.

Income and Milk Per Cow

Graziers, 2 States, 1999

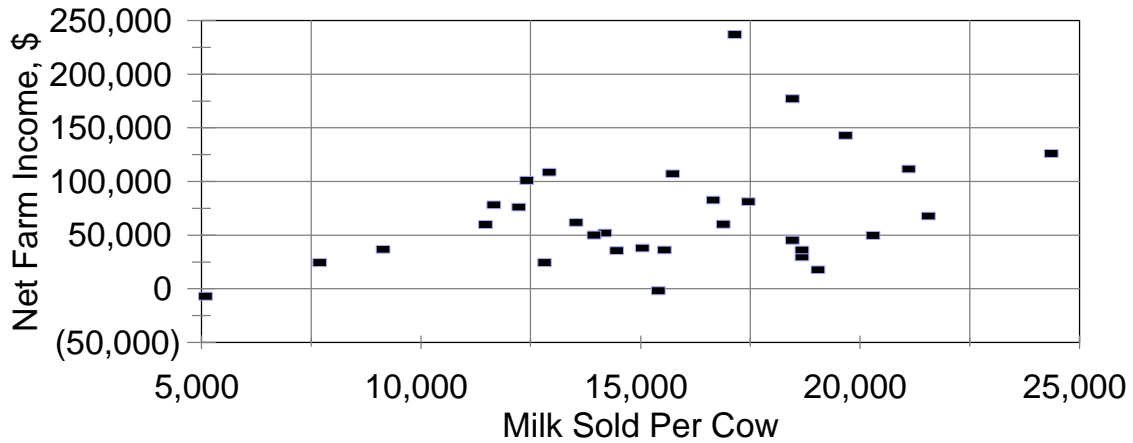


Figure 2.

Strengths and Weakness of Data

The Finansum averaging software will compute land use, crop yields and crop prices. Of the 31 farms in this sample, however, about two thirds did not fully report these items. Hence, no data was presented on these factors. The Finansum system will accept labor inputs and compute a few labor factors, as in Table 9. The factors reported by Finansum are the averages of the 12 farms for which the hours were available. As the project moves forward it will be important to decide which factors are the most important and then assure the data is collected.

Proponents of MIG sometimes argue that the net profit per acre, as opposed to net profit per cow or per farm, is an important financial measure. Because acreage information was missing, the authors could not calculate factors on a per acre basis. However, net farm income from operations per forage acre (NFIFO/A) was calculated in previous years for the Wisconsin farms and compared with other measures of profitability including NFIFO/cow and rate of return on assets (ROROA). The following is from the conclusions of that comparison: “Several measures are needed to accurately judge the financial performance of any business, but under upper Midwest U. S. conditions, dividing by cows is usually more useful than dividing by acres.”³

When summarizing a group of profitable and similar enterprise farms, it should not be a surprise that the larger farms are able to make larger net farm incomes. As this project moves forward and the number of participating farms increase, other measures may reveal additional management opportunities. For example, see Table 31. The highest Net Farm Income (NFI/cow) per cow was not in the largest herd size. Herds with 23-60

³ Page 1, “Acres vs. Cows-Comparing Financial Measures,” July 1999, By Tom Kriegl.

cows averaged \$932 NFI/cow where herds of 72-231 averaged \$767/NFI/cow. More evaluation is needed to determine if this is a result of how data is handled or if there are management improving strategies with each of the measures per acre, per cow and per farm

The Finansum summaries in this paper were calculated with the option to look at only market value balance sheets. Cost basis columns in the beginning and ending balance sheets were ignored. This means the net farm income levels reported in the above tables include changes in the market values of intermediate and long term assets. The use of market value is discussed here to show the need for consistency in the future as more states' information is merged for analysis. The Wisconsin data did not include cost basis information. Furthermore, as the data was collected in recent years, market values per unit, such as price per acre or per cow, were not allowed to change. During recent years in Michigan, effort was made to input the cost basis inputs to match depreciation schedule values and the prices paid for nondepreciable assets, but farmers set their market prices and were not discouraged from changing them over time.

The strategy for holding market values consistent over time resulted in net farm income on the 19 Wisconsin farms, calculated on the market value basis by Finansum, to average \$64,289 in 1999; changing land values were excluded at the time farm data was input. On the 12 Michigan farms, the average net farm income calculated on the cost basis without market value changes of land averaged \$65,974;⁴ this is, accidentally, remarkably similar to the Wisconsin number. The 12 Michigan farms averaged a net farm income of \$126,564 using the Finpack market value calculation which included land value changes. This is nearly twice the Wisconsin level. Most of this difference is due to two factors. First, the Michigan market value data includes appreciation while the Wisconsin data does not. Secondly, the larger size of the average Michigan farm (23 more cows than the Wisconsin data set) would probably result in a larger absolute increase in net worth when asset values are appreciating.

Summary

Dairy farm managers in Michigan and Wisconsin practicing MIG strategies in 1999 appeared to be profitable, on the average. Thirty one panel farms in this study made an average net farm income of \$64,941 using Finpack for calculations and balance sheets with only market value entries. The average net farm income per cow was \$809. When including the change in market values of land, the average net farm income was \$88,395. The average rate of returns on assets was 11.8 percent. See Tables 3 and 6 above.

Table 31 shows the net farm income per cow by groups that were summarized. Table 32, the last page of this paper, is a worksheet with per cow factors and space to enter numbers from your farm.

⁴Page 8, Agricultural Economics Staff Paper No. 2000-33, "Dairy Grazing Farms in Michigan, 1999," by Sherrill B. Nott.

Table 31.		NET FARM INCOME PER COW		
		Dairy Graziers in Michigan and Wisconsin, 1999		
		(Farms sorted by Net Farm Income)		
		Average of	Average of	Average of
		<u>All Farms</u>	<u>Low 25%</u>	<u>High 25%</u>
	All Farms	\$809	\$432	\$1,064
	23 - 60 Cows	\$932	\$396	\$1,408
	72 - 231 Cows	\$767	\$437	\$969

The 31 farms averaged to have 80.3 cows, sold 15,953 pounds of milk per cow, and received a gross milk price of \$15.09 per cwt.

As the future data base of financial performance of dairy farms using MIG is constructed, attention will have to be paid to how market valuations of assets are included in the farm data. Collecting acreage and yields by crops grown may be important.

This paper is available on the internet at:

<http://www.msu.edu/user/nott>

Table 32. **Average Income and Expense Items, Michigan & Wisconsin Dairy Graziers, per Cow, 1999**

Number of Cows	80.30	Your Farm
Income Items per Cow:		
Milk sold	\$2,407	_____
Cull cows, bulls	121	_____
Dairy steers	9	_____
Dairy calves	35	_____
Government	145	_____
Other cash income	99	_____
Expense Items per Cow:		
Purchased feed	\$607	_____
Breeding fees	22	_____
Veterinary	52	_____
Livestock supplies	109	_____
Livestock leases	2	_____
Livestock marketing	74	_____
Interest paid	141	_____
Fuel and oil	45	_____
Repairs	169	_____
Custom hire	56	_____
Hired labor	198	_____
Leases	26	_____
Real estate taxes	49	_____
Farm insurance	36	_____
Utilities	55	_____
Dues, prof. fees	14	_____
Miscellaneous	61	_____
Machinery depreciation	186	_____
Building depreciation	82	_____
Expense Items for Pasture and Crops, per Cow:		
Seed	\$36.24	_____
Fertilizer	93.67	_____
Crop chemicals	14.73	_____
Crop insurance	0.07	_____
Crop marketing	0.24	_____
Crop miscellaneous	9.95	_____
Land rent	41.81	_____
Total of Above Expenses, per Cow	\$2,181	_____