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SUMMARY REPORT ON FINANCIAL, SIZE AND PERFORMANCE
DATA FOR 128 DAIRY FARMS,
OHIO, 1984

by

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Summary Report On Financial, Size and Performance Data For 128 Dairy Farms, Ohio, 1984

INTRODUCTION

This summary is compiled from 1984 records of a sample of 128 Ohio dairy farms participating in the Agrifax farm records program. Agrifax is operated through the Federal Land Bank and Federal Intermediate Credit Bank of Louisville, District IV, which include the states of Indiana, Kentucky, Tennessee and Ohio. Data on Ohio farms were made available to The Ohio State University for research purposes, with the understanding that no individual farm data would be identified by name or location.

Farms in the sample were defined as dairy farms if at least 50% of the Value of Farm Production was from the sale of milk and dairy products. These farms are not necessarily representative of all Ohio dairy farms, but they do provide an indication of results for Ohio's dairy producers. Similar data is also available on a sample of 167 Ohio cash crop farms for 1984, and is reported in a separate publication. In addition, a third publication summarizes farms for each type by net farm earnings.

These farms were summarized for various characteristics including financial performance, debt, farm size, and economic efficiency. In addition, the farms were sorted into subgroups by size of dairy herd and by debt to asset ratio. The 5 farm size groups, measured by number of dairy cows, were: 20-39, 40-59, 60-79, 80-119, and 120 Plus cows. There were 4 categories measured by debt as a percentage of assets (D/A Ratio): Up to 30, 31-50, 51-70, and 71 plus. Various tables show the results of summarizing the data by these categories. The results by size of farm are presented first, followed by the D/A Ratio tables.

HIGHLIGHTS -- DAIRY FARMS BY NUMBER OF COWS

Overview of Farms Summarized

The 128 Dairy Farms averaged 79 cows, 368 tillable acres, utilized 3.5 Man Year Equivalentents (1 MYE equals 3,000 hours), and had annual sales as measured by Value of Farm Production of \$208,505 (Table 1). On average, the Balance Sheet showed \$726,500 in assets, \$333,200 in liabilities, and \$393,300 of equity. Their average debt to asset ratio was .46 and financially stable. Crop yields averaged 110 bushels per acre for corn, 34 for soybeans, and 41 for wheat. Of the total 368 tillable acres, 178 acres were owned, 173 acres were cash rented, and 17 acres were share rented. This represents 48% owned, 47% cash rented, and 5% shared rented of total tillable acres farmed.

The farms are fairly well distributed over the five size classes by number of cows per farm with the 60-79 class having the most farms at 32 and the 120 Plus class having the least

Table 1: Number of Farms, Crop Yields, and Measures of Size for 128 Dairy Farms
By Number of Cows, Ohio, 1984.

Size Characteristics	Unit	FARM SIZE IN NUMBER OF COWS					All Farms
		20-39	40-59	60-79	80-119	120 Plus	
NUMBER OF FARMS	Number	23	26	32	29	18	128
NUMBER OF DAIRY COWS	Head	33	50	68	97	167	79
TILLABLE ACRES FARMED	Acres	175	265	353	486	598	368
TOTAL LABOR USED	\$	2.1	2.5	2.6	4.4	6.3	3.5
VALUE OF FARM PRODUCTION	\$	\$94,520	\$135,241	\$192,577	\$259,540	\$406,072	\$208,505
BALANCE SHEET DATA							
Total Assets	\$1,000	392.5	519.9	759.9	903.2	1107.0	726.5
Total Liabilities	\$1,000	134.4	283.2	335.8	400.5	546.8	333.2
Total Equity	\$1,000	258.1	236.7	424.1	502.7	560.2	393.3
CROP YIELDS							
Corn	Bu./A.	114	100	109	114	112	110
Soybeans	Bu./A.	34	32	34	36	37	34
Wheat	Bu./A.	38	41	40	42	41	41
TILLABLE ACRES BY TENURE							
Total Owned	Acres	120	201	224	302	276	226
Tillable Owned	Acres	88	164	175	231	233	178
Tillable Cash Rented	Acres	57	96	164	233	353	173
Tillable Share Rent	Acres	30	5	14	22	12	17
TOTAL TILLABLE	Acres	175	265	353	486	598	368
PERCENT OF TILLABLE ACRES							
Owned	Percent	50	62	50	48	39	48
Cash Rented	Percent	33	36	46	48	59	47
Share Rented	Percent	17	2	4	5	2	5

number of farms at 18. In terms of a useful sample to depict income and performance measures for various sized farms, this appears to be an extremely good sample.

When comparisons are made of farm size measures between the five size groups, there is a normal increase in acres, MYE in Labor, Value of Farm Production, and balance sheet data. The 40-59 cow farms have the highest debt to asset at .54 and the 20-39 cow farms have the lowest debt to asset ratio at .34.

There are also differences in how they acquired the land they farm. The farms with 40-59 cows own 62% of the land, while the larger 120 Plus cow farms own only 39%. However, the larger 120 Plus cow farms cash rented a larger percentage of their land at 59% compared to the 20-39 and 40-59 cow farms which only cash rented 33% and 36%, respectively. The medium size 60-79 and

80-119 cow farms owned and rented approximately equal portions of land. The 20-39 cow farms also share rented 17% of their land, which is much larger than the average 5% of land share rented.

Measures of Earnings

In 1984 these 128 Dairy farms had an average Value of Farm Production of \$208,505 (Table 2). Cash receipts of \$206,687 combined with positive inventory changes and other adjustments of \$1,818 resulted in a final figure of \$208,505. Total expense, including both variable and fixed expenses, totaled \$205,923. See Table 3 for a detailed income statement.

Net Farm Earnings were \$2,582 on average for these farms in 1984 with an average Net Non-farm Income of \$8,073 for total Net Earnings of \$10,655. Deduction for family living (Operator Labor Draw) and income tax reduced total Net Earnings to a negative number at (\$10,916).

Table 2: Income, Expense and Measures of Earnings For 128 Dairy Farms
By Number of Cows, Ohio, 1984.

Financial Characteristics	Unit	FARM SIZE IN NUMBER OF COWS					All Farms
		20-39	40-59	60-79	80-119	120 Plus	
INCOME							
Total Cash Income	\$	\$97,618	\$135,029	\$191,226	\$254,415	\$400,149	\$206,687
Other Income & Inv. Changes	\$	(\$3098)	(\$212)	\$1,311	\$5,125	\$5,923	\$1,818
VALUE OF FARM PRODUCTION	\$	\$94,520	\$135,241	\$192,577	\$259,540	\$406,072	\$208,505
EXPENSE							
Total Variable Expense	\$	\$57,108	\$76,167	\$112,338	\$154,877	\$240,068	\$122,667
Total Fixed Expense	\$	\$32,340	\$58,014	\$78,000	\$105,456	\$158,340	\$83,256
TOTAL FARM EXPENSE	\$	\$89,448	\$134,181	\$190,338	\$260,333	\$398,408	\$205,923
EARNINGS							
Net Farm Earnings	\$	\$5,072	\$1,060	\$2,239	(\$793)	\$7,664	\$2,582
Net NonFarm Income	\$	\$9,722	\$7,557	\$7,103	\$8,296	\$8,080	\$8,073
NET EARNINGS	\$	\$14,794	\$8,617	\$9,342	\$7,503	\$15,744	\$10,655
Operator Labor Draw	\$	\$16,643	\$20,861	\$20,850	\$19,261	\$27,860	\$20,722
Income Tax	\$	\$776	\$948	\$579	\$1,255	\$623	\$849
TOTAL NET EARNINGS	\$	(\$2,625)	(\$13,192)	(\$12,087)	(\$13,013)	(\$12,739)	(\$10,916)
NET FARM EARNINGS	\$	\$5,072	\$1,060	\$2,239	(\$793)	\$7,664	\$2,582
RETURN TO UNPAID LABOR & MGT	\$	(\$10,414)	(\$13,142)	(\$23,207)	(\$30,955)	(\$25,948)	(\$21,016)
RETURN TO INVESTMENT	\$	\$7,522	\$15,115	\$10,736	\$12,238	\$41,159	\$15,653
RETURN TO EQUITY	\$	(\$5,342)	(\$12,082)	(\$20,968)	(\$31,748)	(\$18,284)	(\$18,434)

Table 3: Income Statement For 128 Dairy Farms By Number of Cows, Ohio, 1984

INCOME STATEMENT	Unit	FARM SIZE IN NUMBER OF COWS					
		20-39	40-59	60-79	80-119	120 Plus	All Farms
CASH INCOME							
Crops	\$	\$12,568	\$13,508	\$21,451	\$32,622	\$26,003	\$21,413
Hogs	\$	\$2,654	\$3,041	\$7,374	\$48	\$0	\$2,949
Dairy Products	\$	\$64,974	\$93,887	\$131,431	\$186,492	\$332,333	\$152,590
Dairy	\$	\$7,806	\$12,566	\$20,129	\$20,951	\$34,360	\$18,566
Beef	\$	\$968	\$996	\$1,664	\$6,245	\$1,932	\$2,479
Other Farm Income	\$	\$8,648	\$11,031	\$9,177	\$8,057	\$5,521	\$8,690
TOTAL CASH INCOME	\$	\$97,618	\$135,029	\$191,226	\$254,415	\$400,149	\$206,687
Resale Purchases	\$	(\$1,902)	(\$643)	(\$2,776)	(\$749)	(\$557)	(\$1,414)
Breeder L.S. purchase	\$	(\$2,353)	(\$1,986)	(\$7,042)	(\$2,747)	(\$12,105)	(\$4,911)
L.S. Inventory Change	\$	\$869	(\$799)	\$5,039	(\$716)	\$9,452	\$2,420
Crop & Feed Inv. Change	\$	(\$690)	\$2,013	\$5,175	\$7,442	\$5,220	\$3,999
Acct Rec Change	\$	\$717	\$1,401	\$563	\$1,005	\$2,870	\$1,185
Net Non-Cash Farm Income	\$	\$228	\$207	\$474	\$768	\$1,043	\$522
L.S Pay/Futures Changes	\$	\$33	\$19	(\$82)	\$122	\$0	\$17
VALUE OF FARM PRODUCTION	\$	\$94,520	\$135,241	\$192,577	\$259,540	\$406,072	\$208,505
EXPENSES							
Variable Expense							
Wages	\$	\$3,916	\$5,644	\$9,202	\$22,971	\$37,502	\$14,629
Repair Machinery	\$	\$4,648	\$5,719	\$8,160	\$11,065	\$16,627	\$8,882
Feed	\$	\$16,536	\$21,814	\$33,299	\$37,248	\$71,081	\$34,162
Seed & Plants	\$	\$2,491	\$3,401	\$5,249	\$6,769	\$9,038	\$5,255
Fertilizer & Lime	\$	\$6,273	\$9,561	\$12,935	\$19,403	\$24,549	\$14,151
Spray & Chemicals	\$	\$1,880	\$3,564	\$4,831	\$7,275	\$8,265	\$5,080
Custom Hire	\$	\$1,961	\$1,275	\$912	\$1,802	\$5,019	\$1,953
Supplies	\$	\$3,407	\$3,686	\$4,795	\$5,441	\$7,128	\$4,795
Breeding	\$	\$1,056	\$924	\$1,409	\$2,694	\$4,094	\$1,916
Vet & Medicine	\$	\$2,032	\$1,811	\$3,713	\$4,211	\$9,043	\$3,887
Fuel & Lube	\$	\$3,315	\$5,635	\$8,631	\$10,020	\$12,783	\$7,966
Utilities	\$	\$2,218	\$3,375	\$4,211	\$5,809	\$8,065	\$4,587
Marketing	\$	\$2,802	\$3,867	\$4,140	\$7,250	\$11,160	\$5,536
Storage	\$	\$401	\$206	\$116	\$558	\$435	\$331
Other Than Above	\$	\$4,172	\$5,685	\$10,735	\$12,361	\$15,279	\$9,537
TOTAL VARIABLE EXPENSE	\$	\$57,108	\$76,167	\$112,338	\$154,877	\$240,068	\$122,667
Fixed Expenses							
Interest	\$	\$12,864	\$27,197	\$31,704	\$43,986	\$59,443	\$34,087
Taxes	\$	\$1,445	\$2,313	\$3,410	\$4,805	\$5,123	\$3,391
Lease Payments	\$	\$4,669	\$8,655	\$11,569	\$14,731	\$28,769	\$12,873
Insurance	\$	\$1,332	\$2,241	\$2,416	\$5,129	\$8,358	\$3,636
Building Repairs	\$	\$792	\$1,557	\$1,896	\$1,861	\$2,556	\$1,715
Building Depreciation	\$	\$2,016	\$4,855	\$8,466	\$12,166	\$23,309	\$9,499
Equipment Depreciation	\$	\$9,222	\$11,196	\$18,539	\$22,778	\$30,782	\$18,055
TOTAL FIXED EXPENSE	\$	\$32,340	\$58,014	\$78,000	\$105,456	\$158,340	\$83,256
TOTAL FARM EXPENSE	\$	\$89,448	\$134,181	\$190,338	\$260,333	\$398,408	\$205,923
NET FARM EARNINGS	\$	\$5,072	\$1,060	\$2,239	(\$793)	\$7,664	\$2,582

When these figures are examined by size group, all size classes end up with negative Total Net Earnings. However, all classes of farms have positive Net Farm Earnings except the 80-119 cow group with a negative (\$793). The 20-39 and 120 Plus groups had the largest Net Farm Earnings at \$5,072 and \$7,664 respectively. The 20-39 cow farms have slightly more non-farm earnings at \$9,722 and considerably less family living expense (Operator Labor and Draw) at \$16,643 to come up with the highest Total Net Earnings of (\$2,625) although it was still negative. The other four groups had similar negative Total Net Earnings in the (\$12,000-\$13,000) range. The 120 Plus cow farms had the highest family living expense at \$27,860 with the other farms near the average of \$20,722.

Returns to Unpaid Labor & Management were negative and averaged (\$21,016) for the 128 dairy farms in 1984. This measure is calculated by deducting a 6 percent charge for equity capital from Net Farm Earnings. Return to Investment averaged \$15,653 while Return to Equity is a negative (\$18,434). By size groups, Return to Unpaid Labor & Management and Return to Equity decline as the farms get larger, until the 80-119 cow group, but increase for the 120 Plus cow farms. The 120 Plus group shows the highest Return to Investment at \$41,159 which is far above the other four groups ranging from \$7,522 for the 20-39 cow farms to \$15,115 for 40-59 cow farms.

Balance Sheet Data

Average Balance Sheet results for 1984 shows \$726,500 in Total Assets, \$333,200 in Total Liabilities, and \$393,300 in Total Equity (Table 4). Approximately 12% of the assets are current, a little over a third intermediate and roughly 55% are fixed assets for all the farms. During 1984, the change in owner equity was a negative (\$4,900) for the average. The 20-39 cow farms had a gain of \$2,000 while the 40-59 cow group had a negative (\$15,300) change in owners equity.

Other balance sheet ratios help to portray the financial situation of these dairy farmers. Measures of liquidity give an indication of how well they may be able to make annual payments. Lenders prefer the Current Ratio, comparing current assets to current liabilities, to be 2.0 or better. The average for all farms in 1984 was only 1.49, below the desired level. The ratio of current to total liabilities of .17 shows that just over 17% of their liabilities is due annually. The Intermediate Ratio, comparing current & intermediate assets to current & intermediate liabilities, of 2.50 is above the desired ratio of at least 2.0.

Turning to solvency ratios, the average Debt to Asset Ratio (and its mirror image, the Equity Ratio) for all farms were 46% and 54%, respectively, indicating they have slightly more equity than debt, with an average leverage ratio, or liabilities to equity, of .85. Net Farm Earnings as a Percent of Average Farm

Table 4: Balance Sheet Data On 128 Dairy Farms By Number of Cows, Ohio, 1984.

BALANCE SHEET INFORMATION	Unit	FARM SIZE IN NUMBER OF COWS					
		20-39	40-59	60-79	80-119	120 Plus	All Farms
BALANCE SHEET DATA							
Current Assets	\$1,000	47.3	53.6	90.3	105.6	127.2	83.8
Current Liabilities	\$1,000	34.1	60.0	52.8	61.9	76.8	56.3
Current Equity	\$1,000	13.2	-6.4	37.5	43.7	50.4	27.5
Intermediate Assets	\$1,000	124.1	161.0	240.8	313.7	427.4	246.4
Inter. Liabilities	\$1,000	32.5	53.0	61.0	86.4	170.5	75.4
Inter. Equity	\$1,000	91.6	108.0	179.8	227.3	256.9	171.0
Fixed Assets	\$1,000	221.1	305.3	428.8	483.9	552.4	396.3
Fixed Liabilities	\$1,000	67.8	170.2	222.0	252.2	299.5	201.5
Fixed Equity	\$1,000	153.3	135.1	206.8	231.7	252.9	194.8
Total Assets	\$1,000	392.5	519.9	759.9	903.2	1107.0	726.5
Total Liabilities	\$1,000	134.4	283.2	335.8	400.5	546.8	333.2
Total Equity	\$1,000	258.1	236.7	424.1	502.7	560.2	393.3
Owners Equity Change, Yr	\$1,000	2.0	-15.3	-6.4	1.5	-6.1	-4.9
FINANCIAL PERFORMANCE MEASURES							
Liquidity Ratios							
Current Ratio (CA/CL)	Ratio	1.39	0.89	1.71	1.71	1.66	1.49
CurrLiab/TotLiab (CL/TL)	Ratio	0.25	0.21	0.16	0.15	0.14	0.17
Inter. (CA+IA)/(CL+IL)	Ratio	2.57	1.91	2.86	2.82	2.24	2.50
Solvency Ratios							
Debt/Asset(D/A)or(TL/TA)	Ratio	0.34	0.54	0.44	0.44	0.49	0.46
Equity Ratio (TE/TL)	Ratio	0.66	0.46	0.56	0.56	0.51	0.54
Leverage Ratio (TL/TE)	Ratio	0.52	1.20	0.79	0.80	0.98	0.85
Profitability							
Net Farm Earnings as % of							
Average Farm Assets	%	1.44	.22	3.26	-0.10	0.73	0.39

Assets was a positive .39%. By size group, the 20-39 cow farms had a much lower debt to asset ratio of .34, and thus a higher equity ratio of .66 than the average farm. Net Farm Earnings as a percent of Average Farm Assets ranged from a low of -.10% for the 80-119 cow farms to a high of 3.26% for the 60-79 cow farms.

Measures of Financial Efficiency

Dairy Farms require a large amount of capital relative to sales. In 1984, these farms averaged 31 cents in sales for each dollar of investment (Table 5). The Turnover Ratio ranged from .27 for the smallest to .39 for the largest dairy farms.

Table 5: Measures of Financial Efficiency On 128 Dairy Farms By
Number of Cows, Ohio, 1984.

Efficiency Measures	Unit	FARM SIZE IN NUMBER OF COWS					All Farms
		20-39	40-59	60-79	80-119	120 Plus	
FINANCIAL EFFICIENCY							
Turnover Ratio	Ratio	0.27	0.27	0.28	0.32	0.39	0.31
PROFITABILITY							
Net Profit Margin	Percent	7.96	11.18	5.57	4.72	10.14	7.51
Return On Investment	Percent	2.13	3.07	1.57	1.49	3.94	2.34
Return On Equity	Percent	-2.07	-5.10	-4.94	-6.32	-3.26	-4.69
Rate of Growth In Equity	Percent	-1.02	-5.56	-2.85	-2.59	-2.38	-2.80
EXPENSE AND EARNINGS AS A PERCENT OF VALUE OF FARM PRODUCTION							
Interest	Percent	13.61	20.11	16.46	16.95	14.64	16.35
Depreciation	Percent	11.89	11.87	14.02	13.46	13.32	13.22
Other Operating Expense	Percent	69.14	67.23	68.35	69.89	70.15	69.20
Net Farm Earnings	Percent	5.36	.78	1.16	-0.31	1.89	1.24
Total	Percent	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL EXPENSE AS A PERCENTAGE OF VALUE OF FARM PRODUCTION							
Variable Expense	Percent	60.42	56.32	58.33	59.67	59.12	58.83
Fixed Expense	Percent	34.21	42.90	40.50	40.63	40.00	39.93
Total	Percent	94.63	99.22	98.83	100.31	99.12	98.76

Net Profit Margin averaged 7.51%, Return on Investment 2.34 %, Return on Equity -4.69% and Rate of Growth in Equity of -2.80%. All groups of farms showed a loss in equity in 1984 which is consistent with the declining values of land. By farm size, the 40-59 cow group had the highest Net Profit Margin and a high Return on Investment. However, they had a negative Return on Equity, possibly due to a decrease in land values, of which it owned the most.

It is also interesting to look at a breakdown of the factors that must be covered by the Value of Farm Production. In an accounting definition, Value of Farm Production must equal Variable Expense Plus Fixed Expense Plus Net Farm Earnings. Examining the importance of these parts, Table 5 shows that Interest Expense accounts for 16%, Depreciation 13%, Other Operating Expense 69% and the residual, Net Farm Earnings, a little over 1%. Interest Expense was the lowest for the largest and the smallest herd sizes, and highest for the 40-59 cow farms. Variable Expense as a Percentage of the Value of Farm

Production averaged 59%, Fixed Expense 40%, with Total expense just under 99%. The smallest farms had slightly more Variable Expense at 60%, but much less Fixed Expense (34%) and Total Expense (94%), due to more favorable Net Farm Earnings.

Efficiency and Cost Measures Per Tillable Acre

The average farm had a Value of Crop Production per tillable acre of \$58.19 with a Total Value of Production per tillable acre of \$566.59 (Table 6). Value of Crop Production is only the value of cash crops sold, and does not include the value of hay and grain fed. The 120 Plus cow farms had a much greater Total Value of production per acre at \$679.05. Variable Expense per tillable acre averaged \$333.33, with Fixed Expense at \$226.24 and Total Expense at \$559.57. The 120 Plus cow group had the highest Variable, Fixed, and thus Total Expense per tillable acre at \$666.23. The 40-59 cow farms had the lowest Variable and Total Expense at \$506.34 per tillable acre.

Table 6: Efficiency Measures and Cost per Tillable Acre on 128 Dairy Farms BY Number of Cows, Ohio, 1984.

Efficiency Measures	Unit	FARM SIZE IN NUMBER OF COWS					All Farms
		20-39	40-59	60-79	80-119	120 Plus	
PRODUCTION EFFICIENCY PER TILLABLE ACRE							
Value of Crop Prod./T.A.	\$/A	\$71.82	\$50.97	\$60.77	\$67.12	\$43.48	\$58.19
Value of Total Prod./T.A.	\$/A	\$540.11	\$510.34	\$545.54	\$534.03	\$679.05	\$566.59
Variable Expense Per T.A.	\$/A	\$326.33	\$287.42	\$318.24	\$318.67	\$401.45	\$333.33
Fixed Expense Per T.A.	\$/A	\$184.80	\$218.92	\$220.96	\$216.99	\$264.78	\$226.24
Total Expense Per T.A.	\$/A	\$511.13	\$506.34	\$539.20	\$535.66	\$666.23	\$559.57
Machinery Investment/T.A.	\$/A	\$314.16	\$301.50	\$331.05	\$284.61	\$295.80	\$303.09
Machinery Cost Per T.A.							
Repair Machinery	\$/A	\$26.56	\$21.58	\$23.12	\$22.77	\$27.80	\$24.14
Custom Hire	\$/A	\$11.21	\$4.81	\$2.58	\$3.71	\$8.39	\$5.31
Fuel & Lube Cost	\$/A	\$18.94	\$21.26	\$24.45	\$20.62	\$21.38	\$21.65
Equipment Depreciation	\$/A	\$52.70	\$42.25	\$52.52	\$46.87	\$51.47	\$49.06
Machinery Investment@7.5%	\$/A	\$23.56	\$22.61	\$24.83	\$21.35	\$22.18	\$22.73
Machinery Cost Per T.A.	\$/A	\$132.97	\$112.52	\$127.50	\$115.31	\$131.23	\$122.88
CROP CASH EXPENSE PER T.A.							
Seed & Plant Cost Per T.A.	\$/A	\$14.23	\$12.83	\$14.87	\$13.93	\$15.11	\$14.28
Fert. & Lime Cost Per T.A.	\$/A	\$35.85	\$36.08	\$36.64	\$39.92	\$41.05	\$38.45
Spray & Chem Cost Per T.A.	\$/A	\$10.74	\$13.45	\$13.69	\$14.97	\$13.82	\$13.80
CAPITAL INVESTMENT							
Feed & Crop Capital	\$	\$26,966	\$32,896	\$50,152	\$70,217	\$88,241	\$52,383
Livestock Capital	\$	\$54,531	\$76,882	\$114,211	\$147,211	\$227,354	\$119,292
Machinery Capital	\$	\$54,978	\$79,898	\$116,861	\$138,320	\$176,887	\$111,536
Land & Building Cap	\$	\$196,652	\$283,456	\$372,023	\$430,518	\$500,895	\$353,896
Other Capital	\$	\$20,146	\$19,071	\$32,751	\$35,253	\$50,822	\$30,816
TOTAL FARM ASSETS	\$	\$353,273	\$492,203	\$685,998	\$821,519	\$1,044,199	\$667,923

Machinery Investment Per Tillable Acre averaged \$303.09 and Machine Cost Per Tillable Acre \$122.88. These costs include both field and livestock machinery and equipment. Seed & Plant Cost was \$14.28, Fertilizer and Lime Cost \$38.45, and Spray and Chemical Cost \$13.80 per tillable acre.

Efficiency and Cost Measures Per Cow

The average number of dairy cows was 79 on the 128 farms (Table 7). Milk Production Per Cow averaged 14,349 pounds and Total Milk Production 1,133,550 pounds. Milk Sales Per Cow averaged \$1,926 and Total Returns Per Cow \$2,123. The 120 Plus cow group had the highest Milk Production Per Cow at 14,822 pounds, Milk Sales Per Cow at \$1,990 and the second highest Total Returns Per Cow at \$2,123.

Table 7: Efficiency Measures and Cost Per Cow on 129 Dairy Farms By Number of Cows, Ohio, 1984

Efficiency Measures	Unit	FARM SIZE IN NUMBER OF COWS					
		20-39	40-59	60-79	80-119	120 Plus	All Farms
NUMBER OF FARMS	Number	23	26	32	29	18	128
NUMBER OF DAIRY COWS	HEAD	33	50	68	97	167	79
TOTAL MILK PRODUCTION	CWT.	4,542.7	6,964.7	9,942.6	13,850.6	24,753.1	11,335.5
MILK PRODUCTION PER COW	LBS.	13766	13929	14621	14279	14822	14349
MILK SALES PER COW	\$/COW	\$1,969	\$1,878	\$1,933	\$1,923	\$1,990	\$1,926
TOTAL RETURNS PER COW	\$/COW	\$2,140	\$2,083	\$2,204	\$2,043	\$2,123	\$2,123
TOTAL DEBT PER COW	\$/COW	\$4,073	\$5,664	\$4,938	\$4,129	\$3,274	\$4,218
SALES OF DAIRY PRODUCTS	\$	\$64,974	\$93,887	\$131,431	\$186,492	\$332,333	\$152,590
SALES OF DAIRY ANIMALS	\$	\$7,890	\$12,716	\$17,362	\$20,972	\$34,360	\$17,925
OTHER DAIRY INCOME	\$	(\$2,237)	(\$2,441)	\$1,066	(\$9,289)	(\$553)	(\$2,813)
TOTAL DAIRY RETURNS	\$	\$70,627	\$104,162	\$149,859	\$198,175	\$366,140	\$167,701
VALUE OF FEED FED PER COW							
HAY	\$/COW	\$349	\$252	\$195	\$165	\$144	\$220
CORN SILAGE	\$/COW	\$163	\$157	\$148	\$169	\$175	\$161
GRASS SILAGE	\$/COW	\$8	\$22	\$12	\$1	\$5	\$10
HAYLAGE	\$/COW	\$91	\$176	\$199	\$169	\$203	\$169
CONCENTRATES	\$/COW	\$257	\$257	\$290	\$277	\$283	\$273
PURCHASED FEED	\$/COW	\$325	\$269	\$379	\$312	\$345	\$327
TOTAL VALUE OF FEED FED	\$/COW	\$1,193	\$1,133	\$1,222	\$1,094	\$1,154	\$1,160
RETURNS ABOVE FEED FED/COW	\$/COW	\$947	\$951	\$981	\$949	\$1,038	\$970
RETURNS PER \$100 FEED FED	\$/COW	\$179	\$184	\$180	\$187	\$190	\$183

Purchased Feed expense averaged \$327 and Total Feed Expense \$1,160 per cow. Returns Per \$100 of Feed Fed averaged \$183. By herd size, the 60-79 cow farms had the highest Total Feed Expense per cow at \$1,222 and the second lowest Return Per \$100 Feed Fed at \$180. The 80-119 cow farms had the lowest Total Feed Expense at \$1,094 and the second highest Return Per \$100 of Feed Fed at \$187, while the 120 Plus cow farms had the highest returns at \$190. Total Debt Per Cow averaged \$4,218 with the 120 Plus cow farms having only \$3,274 debt per cow and the 40-59 cow farms having \$5,664 debt per cow.

In general, it appears that farmers with the larger herds had the greatest production efficiency and lower costs than the farms with smaller herds. It also appears that larger farms fed more haylage, while the smaller farms fed more hay. But, overall, the per cow cost and return data was fairly similar between size classes.

HIGHLIGHTS--DAIRY FARMS BY DEBT TO ASSET RATIO CLASSES

Tables 8 through 14 give similar information for the 128 dairy farms sorted by debt to asset ratios. The distribution of farms among D/A Ratio classes is fairly even, however, the 51-70 debt to asset class has the largest number of dairy farms with 37 followed by the Up To 30 class with 33 (Table 8). The 31-50 debt to asset class has the largest number of cows at 90 and the most tillable acres at 419. The 71 Plus class has the smallest number of tillable acres at 333. The Up To 30 class has the smallest number of cows on average at 67, but the highest Total Labor Used at 2.6 MYE.

Table 8: Number of Farms, Crop Yields, and Measures of Size for 128 Dairy Farms
By Debt to Asset Ratios, Ohio, 1984.

DAIRY FARMS Size Characteristics	Unit	DEBT AS A PERCENTAGE OF ASSETS					All Farms
		Up To 30	31-50	51-70	71 Plus		
NUMBER OF FARMS	Number	33	29	37	29	128	
NUMBER OF DAIRY COWS	HEAD	67	90	80	78	79	
TOTAL TILLABLE	Acres	370	419	352	333	368	
TOTAL LABOR USED	MYE	2.6	2.3	2.5	2.2	2.4	
VALUE OF FARM PRODUCTION	\$	\$189,295	\$250,504	\$210,367	\$185,986	\$208,505	
BALANCE SHEET DATA							
Total Assets	\$1,000	734.5	968.6	638.3	590.3	726.5	
Total Liabilities	\$1,000	126.9	376.5	369.7	478.0	333.2	
Total Equity	\$1,000	607.6	592.1	268.6	112.3	393.3	
CROP YIELDS							
Corn	Bu./A.	113	115	108	104	110	
Soybeans	Bu./A.	34	36	35	32	34	
Wheat	Bu./A.	40	43	39	39	41	
ACREAGE							
Total Owned	Acres	201	283	207	220	226	
Tillable Owned	Acres	171	214	164	166	178	
Tillable Cash Rented	Acres	173	190	179	150	173	
Tillable Share Rent	Acres	26	15	9	17	17	
TOTAL TILLABLE	Acres	370	419	352	333	368	
PERCENT OF TILLABLE ACRES							
Owned	Percent	46	51	47	50	48	
Cash Rented	Percent	47	45	51	45	47	
Share Rented	Percent	7	4	3	5	5	

In Table 9, Net Farm Earnings range from a high of \$9,470 in the Up To 30 debt to asset class to a negative (\$11,522) in the 71 Plus class. Total Net Earnings are all negative and range in a similar pattern from (\$4,734) to (\$17,705) as the class by debt to asset ratio increases. Return to Unpaid Labor & Management and Return to Equity are negative across all debt to asset classes, but Return On Investment is positive for all but the Up To 30 debt to asset group. Income statements by D/A Ratio are in Table 10.

Table 9: Income, Expense and Measures of Earnings for 128 Dairy Farms
By Debt to Asset Ratios, Ohio, 1984.

DAIRY FARMS	Unit	DEBT AS A PERCENTAGE OF ASSETS				
		Up To 30	31-50	51-70	71 Plus	All Farms
INCOME						
Total Cash Income	\$	\$189,334	\$245,040	\$210,531	\$183,172	\$206,686
Other Income & Inv. Changes	\$	(39)	5,464	(164)	2,814	1,819
VALUE OF FARM PRODUCTION	\$	\$189,295	\$250,504	\$210,367	\$185,986	\$208,505
EXPENSE						
Total Variable Expense	\$	\$119,897	\$144,193	\$118,263	\$109,914	\$122,667
Total Fixed Expense	\$	\$59,928	\$96,852	\$90,004	\$87,594	\$83,256
TOTAL FARM EXPENSE	\$	\$179,825	\$241,045	\$208,267	\$197,508	\$205,923
EARNINGS						
Net Farm Earnings	\$	\$9,470	\$9,459	\$2,100	(\$11,522)	\$2,582
Net NonFarm Income	\$	\$7,674	\$7,321	\$6,232	\$11,566	\$8,073
NET EARNINGS	\$	\$17,144	\$16,780	\$8,332	\$44	\$10,655
Operator Labor Draw	\$	\$20,008	\$23,044	\$22,264	\$17,244	\$20,722
Income Tax	\$	\$1,870	\$837	\$217	\$505	\$849
TOTAL NET EARNINGS	\$	(\$4,734)	(\$7,101)	(\$14,149)	(\$17,705)	(\$10,916)
NET FARM EARNINGS	\$	\$9,470	\$9,459	\$2,100	(\$11,522)	\$2,582
RETURN TO UNPAID LABOR & MGT	\$	(\$26,986)	(\$26,067)	(\$14,016)	(\$18,260)	(\$21,016)
RETURN ON INVESTMENT	\$	(\$4,696)	\$23,548	\$27,914	\$15,109	\$15,653
RETURN TO EQUITY	\$	(\$17,516)	(\$16,608)	(\$11,916)	(\$29,782)	(\$18,434)

Table 10: Income Statement for 128 Dairy Farms By Debt to Asset Ratio,
Ohio, 1984

Income Statement	Unit	DEBT AS A PERCENTAGE OF ASSETS				
		Up To 30	31-50	51-70	71 Plus All	Farms
CASH INCOME						
Crops	\$	\$24,959	\$29,625	\$18,061	\$13,440	\$21,413
Hogs	\$	\$404	\$2,494	\$4,386	\$4,466	\$2,949
Dairy Products	\$	\$135,664	\$175,107	\$159,469	\$140,556	\$152,590
Dairy	\$	\$16,648	\$25,367	\$19,019	\$13,370	\$18,566
Beef	\$	\$2,073	\$4,640	\$1,468	\$2,069	\$2,479
Other Farm Income	\$	\$9,586	\$7,807	\$8,128	\$9,271	\$8,690
TOTAL CASH INCOME	\$	\$189,334	\$245,040	\$210,531	\$183,172	\$206,687
Resale Purchases	\$	(\$853)	(\$1,364)	(\$1,448)	(\$2,059)	(\$1,414)
Breeder L.S. Purchases	\$	(\$1,703)	(\$9,917)	(\$3,167)	(\$5,783)	(\$4,911)
L.S. Inventory Change	\$	\$180	\$8,616	(\$320)	\$2,271	\$2,420
Crop & Feed Inv. Change	\$	\$1,068	\$5,772	\$3,002	\$6,832	\$3,999
Acct Rec Change	\$	\$608	\$1,677	\$1,395	\$1,083	\$1,185
Net Non-Cash Farm Inc	\$	\$741	\$680	\$374	\$305	\$522
L.S Pay/Futures Change	\$	(\$80)	\$0	\$0	\$165	\$17
VALUE OF FARM PROD.	\$	\$189,295	\$250,504	\$210,367	\$185,986	\$208,505
EXPENSES						
Variable Expense						
Wages	\$	\$20,457	\$17,414	\$10,206	\$10,854	\$14,629
Repair Machinery	\$	\$8,742	\$9,307	\$9,484	\$7,849	\$8,882
Feed	\$	\$26,748	\$40,828	\$35,090	\$34,748	\$34,162
Seed & Plants	\$	\$4,865	\$6,059	\$5,222	\$4,938	\$5,255
Fertilizer & Lime	\$	\$13,901	\$17,749	\$12,898	\$12,437	\$14,151
Spray & Chemicals	\$	\$5,350	\$5,421	\$5,411	\$4,009	\$5,080
Custom Hire	\$	\$2,101	\$1,322	\$2,872	\$1,244	\$1,953
Supplies	\$	\$5,051	\$5,236	\$4,390	\$4,579	\$4,795
Breeding	\$	\$2,291	\$2,421	\$1,656	\$1,315	\$1,916
Vet & Medicine	\$	\$3,605	\$4,728	\$4,061	\$3,145	\$3,887
Fuel & Lube	\$	\$7,855	\$9,527	\$7,393	\$7,264	\$7,966
Utilities	\$	\$4,107	\$5,778	\$4,395	\$4,187	\$4,587
Marketing	\$	\$5,642	\$7,291	\$5,752	\$3,385	\$5,536
Storage	\$	\$233	\$630	\$426	\$21	\$331
Other Than Above	\$	\$8,949	\$10,482	\$9,007	\$9,939	\$9,537
TOTAL VARIABLE EXPENSE	\$	\$119,897	\$144,193	\$118,263	\$109,914	\$122,667
Fixed Expenses						
Interest	\$	\$12,820	\$40,156	\$39,830	\$44,891	\$34,087
Taxes	\$	\$4,090	\$3,903	\$2,772	\$2,873	\$3,391
Lease Payments	\$	\$7,631	\$11,295	\$17,596	\$14,388	\$12,873
Insurance	\$	\$3,950	\$4,252	\$3,231	\$3,179	\$3,636
Building Repairs	\$	\$1,885	\$1,590	\$1,911	\$1,396	\$1,715
Building Depreciation	\$	\$7,923	\$13,669	\$9,348	\$7,315	\$9,499
Equipment Depreciation	\$	\$21,629	\$21,987	\$15,316	\$13,552	\$18,055
TOTAL FIXED EXPENSE	\$	\$59,928	\$96,852	\$90,004	\$87,594	\$83,256
TOTAL FARM EXPENSE	\$	\$179,825	\$241,045	\$208,267	\$197,508	\$205,923
NET FARM EARNINGS	\$	\$9,470	\$9,459	\$2,100	(\$11,522)	\$2,582

Table 11 shows the financial performance measures for the dairy farms. The 71 Plus class has a Leverage ratio of 4.26 which means they have 4.26 times as much debt as they do equity with a Current Ratio of only .96 and Equity Ratio of .19. Net Farm Earnings as a percent of Farm assets ranged from 1.4% down to -2.12% as debt to asset ratios increased.

Table 11: Balance Sheet Data on 128 Dairy Farms By Debt to asset Ratios, Ohio, 1984.

DAIRY FARMS Balance Sheet Information	Unit	DEBT AS A PERCENTAGE OF ASSETS				
		Up To 30	31-50	51-70	71 Plus	All Farms
BALANCE SHEET DATA						
Current Assets	\$1,000	91.2	108.5	74.0	63.1	83.8
Current Liabilities	\$1,000	30.1	68.5	62.6	65.7	56.3
Current Equity	\$1,000	61.1	40.0	11.4	-2.6	27.5
Intermediate Assets	\$1,000	228.1	336.9	220.6	212.3	246.4
Inter. Liabilities	\$1,000	47.8	73.2	92.6	87.1	75.4
Inter. Equity	\$1,000	180.3	263.7	128.0	125.2	171.0
Fixed Assets	\$1,000	415.2	523.2	343.7	314.9	396.3
Fixed Liabilities	\$1,000	49.0	234.8	214.5	325.2	201.5
Fixed Equity	\$1,000	366.2	288.4	129.2	-10.3	194.8
Total Assets	\$1,000	734.5	968.6	638.3	590.3	726.5
Total Liabilities	\$1,000	126.9	376.5	369.7	478.0	333.2
Total Equity	\$1,000	607.6	592.1	268.6	112.3	393.3
Change in Equity, 1983-4	\$1,000	-4.2	0.9	-7.9	-7.6	-4.9
FINANCIAL PERFORMANCE MEASURES						
Liquidity Ratios						
Current Ratio (CA/CL)	Ratio	3.03	1.58	1.18	0.96	1.49
CurrLiab/TotLiab (CL/TL)	Ratio	0.23	0.18	0.17	0.14	0.17
Inter. (CA+IA)/(CL+IL)	Ratio	4.10	3.07	1.90	1.80	2.50
Solvency Ratios						
Debt/Asset(D/A)or(TL/TA)	Ratio	0.17	0.39	0.58	0.81	0.46
Equity Ratio (TE/TL)	Ratio	0.83	0.61	0.42	0.19	0.54
Leverage Ratio (TL/TE)	Ratio	0.21	0.64	1.38	4.26	0.85
Profitability						
Net Farm Earnings as % of Average Farm Assets	\$	1.41	1.08	0.35	-2.12	.39

The classes of farms with high D/A ratios had the highest Turnover Ratio, Net Profit Margin, and Return To Investment (Table 12). Thus these farms are performing fairly well in generating income. However, the 71 Plus class had a -26.52% return on equity and a -15.77% rate of growth in equity, a rate at which in only 6 years they would be bankrupt. Interest

Table 12: Measures of Financial Efficiency on 128 Dairy Farms
By Debt to Asset Ratio, Ohio, 1984.

Efficiency Measures	Unit	DEBT AS A PERCENTAGE OF ASSETS				
		Up To 30	31-50	51-70	71 Plus All Farms	
FINANCIAL EFFICIENCY						
Turnover Ratio	Ratio	0.28	0.29	0.35	0.34	0.31
PROFITABILITY						
Net Profit Margin	Percent	-2.48	9.40	13.27	8.12	7.51
Return on Investment	Percent	-0.70	2.68	4.68	2.78	2.34
Return on Equity	Percent	-2.88	-2.80	-4.44	-26.52	-4.69
Rate of Growth In Equity	Percent	-0.78	-1.20	-5.35	-15.77	-2.80
EXPENSE AND EARNINGS AS A PERCENT OF VALUE OF FARM PRODUCTION						
Interest	Percent	6.77	16.03	18.93	24.14	16.34
Depreciation	Percent	15.61	14.23	11.72	11.22	13.22
Other Operating Exp	Percent	72.61	65.96	68.34	70.84	69.20
Net Farm Earnings	Percent	5.00	3.78	1.00	-6.19	1.24
Total	Percent	100.00	100.00	100.00	100.00	100.00
TOTAL EXPENSE AS A PERCENTAGE OF VALUE OF FARM PRODUCTION						
Variable Expense	Percent	63.34	57.56	56.21	59.10	58.83
Fixed Expense	Percent	31.66	38.66	42.78	47.10	39.93
Total	Percent	95.00	96.22	98.99	106.20	98.76

expense represents nearly one fourth of the Value of Farm Production on the 71 Plus group of farms, compared to only 7% on farms with Up To 30 debt to asset ratios. Variable Expenses are fairly similar for D/A Ratio classes, but the percentage of Fixed Expenses increases as the farms are grouped by higher D/A Ratios. Fixed Expense is only 32% of the Value of Farm Production on the Up To 30 D/A class farms, and over 47% on the 71 Plus D/A class farms.

In Table 13, the 31-50 D/A Ratio class has the highest Value of Crop Production per tillable acre at \$71 and the highest Value of Total Production Per Tillable Acre at \$598. The 71 Plus group has the lowest Value of Crop Production per tillable acre at \$40 coupled with the highest Variable Expense at \$368 and Total Expense at \$618 per tillable acre. The Up To 30 debt to asset class has the lowest Variable, Fixed and Total Expense Per Tillable Acre at \$486 per acre.

Table 13: Efficiency Measures and Cost per Tillable Acre on 128 Dairy Farms
By Debt to Asset Ratios, Ohio, 1984.

DAIRY FARMS		DEBT AS A PERCENTAGE OF ASSETS				
Efficiency Measures	Unit	Up To 30	31-50	51-70	71 Plus	All Farms
PRODUCTION EFFICIENCY PER TILLABLE ACRE						
Value of Crop Prod./T.A.	\$/A	\$67.46	\$70.70	\$51.31	\$40.36	\$58.19
Value of Total Prod./T.A.	\$/A	\$511.60	\$597.86	\$597.63	\$558.52	\$566.59
Variable Expense Per T.A.	\$/A	\$324.05	\$344.14	\$335.97	\$368.37	\$333.33
Fixed Expense Per T.A.	\$/A	\$161.97	\$231.15	\$255.69	\$250.01	\$226.24
Total Expense Per T.A.	\$/A	\$486.01	\$575.28	\$591.67	\$618.39	\$559.57
Machinery Investment/T.A.	\$/A	\$296.82	\$358.38	\$283.91	\$269.25	\$303.09
Machine Cost Per T.A.						
Repair Machinery	\$/A	\$23.63	\$22.21	\$26.94	\$23.57	\$24.14
Custom Hire	\$/A	\$5.68	\$3.16	\$8.16	\$3.74	\$5.31
Lube & Fuel Cost	\$/A	\$21.23	\$22.74	\$21.00	\$21.81	\$21.65
Equipment Depreciation	\$/A	\$58.46	\$52.47	\$43.51	\$40.70	\$49.06
Machinery Invest @7.5%	\$/A	\$22.26	\$26.88	\$21.29	\$20.19	\$22.73
Machinery Cost Per T.A.	\$/A	\$131.25	\$127.46	\$120.91	\$110.01	\$122.88
CROP CASH EXPENSE PER T.A.						
Seed & Plant Cost Per T.A.	\$/A	\$13.15	\$14.46	\$14.84	\$14.83	\$14.28
Fert. & Lime Cost Per T.A.	\$/A	\$37.57	\$42.36	\$36.64	\$37.35	\$38.45
Spray & Chem Cost Per T.A.	\$/A	\$14.46	\$12.94	\$15.37	\$12.04	\$13.80
CAPITAL INVESTMENT						
Feed & Crop Capital	\$	\$55,977	\$65,985	\$47,173	\$41,338	\$52,383
Livestock Capital	\$	\$103,836	\$153,566	\$112,493	\$111,280	\$119,292
Machinery Capital	\$	\$109,825	\$150,161	\$99,937	\$89,659	\$111,536
Land & Building Cap	\$	\$375,413	\$466,603	\$307,407	\$276,019	\$353,896
Other Capital	\$	\$28,203	\$41,452	\$29,331	\$25,046	\$30,816
TOTAL FARM ASSETS	\$	\$673,254	\$877,767	\$596,341	\$543,342	\$667,923

Dairy production efficiency measures are shown in Table 14. The high D/A Ratio farms did not perform well here, as the 71 Plus class has the lowest Milk Production Per Cow at 13,470 pounds, lowest Milk Sales Per Cow at \$1,802, and the lowest Returns Per \$100 Feed Fed at \$173. The Up To 30 debt to asset class has the highest Milk Production Per Cow at 15,341 pounds, the highest Milk Sales Per Cow at \$2,025, and one of the highest Returns Per \$100 Feed Fed at \$190. Total Debt Per Cow ranges from a low of \$1,894 for the Up To 30 debt to asset class to \$6,128 for the 71 Plus class.

Table 14: Dairy Production Measures on 128 Dairy Farms By Debt to Asset Ratios, Ohio, 1984

Efficiency Measures	Unit	DEBT AS A PERCENTAGE OF ASSETS					All Farms
		Up To 30	31-50	51-70	71 Plus		
NUMBER OF FARMS	Number	33	29	37	29	128	
NO. OF DAIRY COWS	HEAD	67	90	80	78	79	
TOTAL MILK PRODUCTION	CWT.	10,279	12,870	11,726	10,506	11,336	
MILK PRODUCTION PER COW	LBS.	15,341	14,300	14,657	13,470	14,349	
MILK SALES PER COW	\$/COW	\$2,025	\$1,946	\$1,993	\$1,802	\$1,947	
TOTAL RETURNS PER COW	\$/COW	\$2,213	\$2,164	\$2,195	\$1,943	\$2,123	
TOTAL DEBT PER COW	\$/COW	\$1,894	\$4,183	\$4,621	\$6,128	\$4,218	
SALES OF DAIRY PRODUCTS	\$	\$135,664	\$175,107	\$159,469	\$140,556	\$152,590	
SALES OF DAIRY ANIMALS	\$	\$16,701	\$25,531	\$16,574	\$13,434	\$17,925	
OTHER DAIRY INCOME	\$	(\$4,123)	(\$5,897)	(\$483)	(\$2,445)	(\$2,813)	
TOTAL DAIRY RETURNS	\$	\$148,242	\$194,741	\$175,560	\$151,545	\$167,701	
VALUE OF FEED FED PER COW							
HAY	\$/COW	\$213	\$171	\$183	\$199	\$190	
CORN SILAGE	\$/COW	\$150	\$180	\$181	\$138	\$164	
GRASS SILAGE	\$/COW	\$2	\$7	\$16	\$4	\$8	
HAYLAGE	\$/COW	\$182	\$173	\$161	\$214	\$181	
CONCENTRATES	\$/COW	\$300	\$264	\$278	\$270	\$278	
PURCHASED FEED	\$/COW	\$317	\$389	\$319	\$298	\$332	
TOTAL VALUE OF FEED FED	\$/COW	\$1,164	\$1,185	\$1,139	\$1,122	\$1,153	
RETURNS ABOVE FEED FED/COW	\$/COW	\$1,049	\$978	\$1,055	\$820	\$937	
RETURNS PER \$100 FEED FED	\$/100	\$190	\$183	\$193	\$173	\$183	

DISTRIBUTION OF FARMS BY SIZE AND DEBT TO ASSET CLASS

The number of farms in each category sorted by both number of cows and debt to asset ratios is shown in Table 15. Of primary interest is whether any size class of farms is experiencing the greatest financial difficulty. Thus we reported the data with emphasis on percent of farms by size class in each D/A class. The financially healthiest farms, those with a D/A ratio of Up to 30 percent, are over represented by the smallest farms and under represented by the largest farms. The 20-39 cow class makes up 24% of this D/A group, but comprise only 18% of all farms, while the 120 Plus cow class makes up only 9%, compared to the 14% they represent of all dairy farms summarized. The farms with the greatest financial problems, the 71 Plus debt to asset group, is slightly over-represented by farms in the middle range of 40-119, cows, with fewer small and large farms having high debt to asset values. But it appears that there are no indications that financial difficulties are more prevalent among one size class than another.

Table 15: Distribution of 129 Dairy Farms by Number of Cows and Debt to Asset Ratio, Ohio 1984.

DEBT TO ASSET RATIO	FARM SIZE IN NUMBER OF COWS					TOTAL
	20-39	40-59	60-79	80-119	120 Plus	
Up to 30	8 (24)	6 (18)	10 (30)	6 (18)	3 (9)	33 (100)
31 to 50	4 (14)	3 (10)	6 (21)	11 (38)	5 (17)	29 (100)
51 to 70	8 (22)	10 (27)	8 (22)	3 (8)	8 (22)	37 (100)
71 Plus	3 (10)	7 (24)	8 (28)	9 (31)	2 (7)	29 (100)
Total	23 (18)	26 (20)	32 (25)	29 (23)	18 (14)	128 (100)

GLOSSARY ----- Definitions arranged in alphabetical order.

CURRENT RATIO: Total current assets divided by total current liabilities.

DEBT to ASSET RATIO: Total liabilities divided by total assets.

EQUITY RATIO: Total equity divided by total assets.

INTERMEDIATE CAPITAL RATIO: Current assets plus intermediate assets all divided by the sum of current liabilities and intermediate liabilities.

LEVERAGE RATIO: Total liabilities divided by total equity.

NET CAPITAL RATIO: Total assets divided by total equity.

Net Farm Earnings: Value of farm production minus total farm expense (including variable and fixed expense).

NET NON-FARM INCOME: Amount reported as off-farm income minus off-farm expenses other than operator draw or income tax.

NET PROFIT MARGIN: Net Farm Earnings plus interest paid minus unpaid labor all divided by value of farm production.

OPERATING EXPENSE: Total farm expense minus interest paid and depreciation expense.

OPERATOR LABOR DRAW: Amount reported as withdrawn from the cash flow for personal use.

RATE of GROWTH IN EQUITY: Net Earnings divided by total equity.

RETURN to EQUITY: Net Farm Earnings minus unpaid labor and management.

ROE RATIO: Return to Equity divided by average total farm assets.

RETURN to INVESTMENT: Net Farm Earnings plus interest paid minus unpaid labor and management.

ROI RATIO: Return on Investment divided by average total farm assets.

RETURN to UNPAID LABOR and MANAGEMENT: Net Farm Earnings minus 6% of total assets.

TOTAL LABOR USED: The number of people working on a farm, one Man Year Equivalent (MYE) is equal to one person working 3000 hours per year.

TOTAL Net Earnings: Total farm income plus non-farm income minus total farm expense and non-farm expense other than operator draw and income tax.

TURNOVER RATIO: Value of farm production divided by average farm assets.

VALUE of FARM PRODUCTION: The amount of cash farm income (including breeding livestock and resale sales) plus crop and livestock inventory changes and accounts receivable changes, minus breeding livestock and resale purchases.