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SUMMARY REPORT ON FINANCIAL, SIZE AND PERFORMANCE
DATA FOR 128 CASH GRAIN FARMS
OHIO, 1985

by

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Summary Report On Financial, Size and Performance Data
For 128 Cash Grain Farms, Ohio, 1985

INTRODUCTION

This summary is compiled from 1985 records of a sample of 128 Ohio cash grain 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 cash grain farms if at least 50% of the Value of Farm Production was from the sale of crops. These farms are not necessarily representative of all Ohio cash grain farms, but they do provide an indication of results for Ohio's cash grain producers. Similar data is also available for a sample of 114 Ohio dairy farms and 32 Ohio swine farms for 1985, and are reported in separate publications.

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 farm size, by debt to asset ratio, and net farm earnings. The 5 farm size groups, measured by tillable acres, were: Up to 250, 251-500, 501-750, 751-1000, and Over 1000 acres. There were 3 categories measured by debt to asset (D/A) ratio: Up to .40, .41-.70, and Over .70. The net farm earnings were divided evenly into three groups: top 1/3, middle 1/3, and bottom 1/3. Various tables show the results of summarizing the data by these categories. The results by size of farm are presented first, followed by D/A Ratio results and then net farm earnings.

HIGHLIGHTS -- CASH GRAIN FARMS BY SIZE OF FARM CLASSES

Overview of Farms Summarized

The 128 cash grain farms averaged 769 tillable acres, and had annual sales as measured by Value of Farm Production of \$198,389 (Table 1). On average, the Balance Sheet showed \$771,000 in assets, \$375,700 in liabilities, and \$395,300 of equity. Thus their average debt to asset ratio (D/A) was just under 50%. Of the total of 769 acres of tillable land operated, 222 acres were owned, 383 acres cash rented and 164 acres was share rented. This works out to be 29% owned, 50% cash rented, and 21% share rented. The average farm put out 318 acres of corn, 298 acres of soybeans, and 75 acres of wheat. Crop yields received were slightly above state averages for 1985 at 132 bushels per acre for corn, 41 for soybeans, and 59 for wheat. Market prices received by farmers for these commodities averaged \$2.43 per bushel of corn, \$5.25 per bushel of soybeans, and \$2.85 per bushel of wheat.

Table 1: Number of Farms, Crop Yields, and Measures of Size For 128 Cash Grain Farms
By Acres of Cropland, Ohio, 1985.

Size Characteristics	Unit	FARM SIZE IN ACRES OF CROPLAND					All Farms
		Up To 250	251-500	501-750	751-1,000	Over 1000	
NUMBER OF FARMS	Number	19	25	35	17	32	128
TILLABLE ACRES FARMED	Acres	165	373	607	857	1566	769
VALUE OF FARM PRODUCTION	\$	\$42,581	\$98,855	\$160,547	\$222,062	\$397,477	\$198,389
BALANCE SHEET DATA							
Total Assets	\$1,000	\$339.3	\$411.1	\$699.7	\$822.5	\$1359.2	\$771.0
Total Liabilities	\$1,000	194.0	230.0	276.7	406.4	689.3	375.7
Total Equity	\$1,000	145.3	181.1	423.0	416.1	669.9	395.3
TILLABLE ACRES BY TENURE							
Total Owned	Acres	116	121	217	281	500	263
Tillable Owned	Acres	89	106	180	251	424	222
Tillable Cash Rented	Acres	48	218	257	453	811	383
Tillable Share Rent	Acres	29	50	170	153	332	164
TOTAL TILLABLE	Acres	165	374	607	857	1566	769
PERCENT OF TILLABLE ACRES							
Owned	Percent	54	28	30	29	27	29
Cash Rented	Percent	29	59	42	53	52	50
Share Rented	Percent	17	13	28	18	21	21
CROP ACRES							
Corn acres	Acres	54	142	187	346	584	318
Soybean acres	Acres	51	139	225	341	508	298
Wheat acres	Acres	51	37	64	72	132	75
CROP YIELDS							
Corn	Bu./A.	125	129	138	126	132	132
Soybeans	Bu./A.	46	40	43	42	41	41
Wheat	Bu./A.	58	52	65	66	55	59
CROP PRICES RECEIVED							
Corn **	\$/Bu.	\$1.75	\$2.16	\$2.32	\$2.30	\$2.55	\$2.43
Soybean	\$/Bu.	\$4.93	\$5.13	\$5.15	\$5.05	\$5.40	\$5.25
Wheat	\$/Bu.	\$2.85	\$3.00	\$3.01	\$2.96	\$2.69	\$2.85

** Corn Prices Received were calculated by dividing total corn sales by total corn production and do not reflect corn fed on the farm.

When the farms are sorted by the 5 tillable acres classes, they are fairly well distributed. The classes with the greatest number of farms are the 501-750 and Over 1000 acre categories, with 35 and 32 of the total of 128 farms, respectively. The smallest categories are the 751-1000 acre class with 17 farms, and the Under 250 acre class with only 19 farms. No doubt, the larger farms are over represented, in terms of relative numbers. But in terms of a useful sample to depict income and performance measures for various size farms, this is an extremely good set of data.

When comparisons are made of farm size measures between the 5 size groups, there is a normal increase in size of tillable acres, value of farm production, and balance sheet values. There are also differences in how they acquired the land farmed. The smallest size group owns 54% of the land, while the others own only 27 to 30%. The 4 larger size groups primarily substituted cash rented land for owned land, with 42 to 59 percent acquired via cash rent. The amount of land share rented was fairly similar between the 5 groups, ranging from 13% for 251-500 size group to 28% for the 501-750 acre class.

Crop yields varied among the 5 size groups however the 501-750 size group had considerably better yields on corn at 138 bushels and the Under 250 acres size farms had higher soybean yields at 46 bushel per acre. On average, most farmers put out slightly more acres of corn than soybeans, but the 501-750 size farms put out slightly more soybeans than corn in 1985. On average, prices received for corn and soybeans increased as the farm size increased with a difference of \$.80 a bushel for corn and \$.47 a bushel for soybeans between the smallest and largest farms. However, for wheat, the average size farms received higher prices than either the smallest or the largest farms on average.

Measures of Earnings

In 1985 these 128 Ohio cash grain farms had an average Value of Farm Production of \$198,389 (Table 2). Cash receipts were \$228,038, but inventory changes and other adjustments to income of (\$29,648) resulted in the final \$198,389 figure. Total farm expense, including both variable and fixed expenses, totaled \$202,022. See Table 3 for a detailed income statement.

Net Farm Earnings were negative (\$3,633) for these farms in 1985. This means that gross receipts were not sufficient to cover cash expense and depreciation, so the return to the operator for his capital, labor and management shows a loss of \$3,633 for 1985. However, the average non-farm income of \$12,808 allowed positive Net Earnings of \$9,176. But when deductions are made for family living (Operator Labor Draw) and income tax, Total Net Earnings are again negative at (\$11,744).

Table 2: Income, Expense and Measures of Earnings For 128 Cash Grain Farms
By Acres of Cropland, Ohio, 1985.

Financial Characteristics	FARM SIZE IN ACRES OF CROPLAND						All Farms
	Unit	Up To 250	251-500	501-750	751-1,000	Over 1000	
INCOME							
Total Cash Income	\$	\$79,859	\$115,726	\$177,975	\$239,794	\$452,273	\$228,038
Other Income & Inv. Changes	\$	(37,279)	(16,781)	(17,440)	(17,122)	(34,796)	(29,648)
VALUE OF FARM PRODUCTION	\$	\$42,581	\$98,855	\$160,547	\$222,062	\$397,477	\$198,389
EXPENSE							
Total Variable Expense	\$	\$36,696	\$60,453	\$77,410	\$120,664	\$220,753	\$109,635
Total Fixed Expense	\$	\$31,484	\$51,546	\$73,350	\$99,425	\$177,538	\$92,387
TOTAL FARM EXPENSE	\$	\$68,180	\$111,999	\$150,760	\$220,089	\$398,291	\$202,022
EARNINGS							
Net Farm Earnings	\$	(\$25,600)	(\$13,144)	\$9,787	\$1,972	(\$814)	(\$3,633)
Net Non-Farm Income	\$	\$14,246	\$15,231	\$10,642	\$7,979	\$14,996	\$12,808
NET EARNINGS	\$	(\$11,354)	\$2,087	\$20,429	\$9,951	\$14,182	\$9,176
Operator Labor Draw	\$	\$17,007	\$15,196	\$21,743	\$21,646	\$21,431	\$19,670
Income Tax	\$	\$900	\$903	\$1,891	\$972	\$1,173	\$1,249
TOTAL NET EARNINGS	\$	(\$29,261)	(\$14,012)	(\$3,205)	(\$12,667)	(\$8,422)	(\$11,744)
NET FARM EARNINGS	\$	(\$25,600)	(\$13,144)	\$9,787	\$1,972	(\$814)	(\$3,633)
RETURN TO UNPAID LABOR & MGT	\$	(\$34,319)	(\$24,009)	(\$15,593)	(\$22,991)	(\$41,009)	(\$27,353)
RETURN TO INVESTMENT	\$	(\$26,181)	(\$9,010)	\$14,785	\$21,107	\$42,818	\$11,905
RETURN TO EQUITY	\$	(\$42,606)	(\$28,340)	(\$11,956)	(\$19,674)	(\$22,245)	(\$23,303)

When these figures are examined by size group, all categories end up with negative Total Net Earnings. The largest loss, both in Net Farm and Total Net Earnings occurred in the Up to 250 acre size class. The 501-750 acre farms had the highest Total Net Earnings at (\$3,205).

Returns To Unpaid Labor & Management averaged (\$27,353) for these 128 farms in 1985. This measure is calculated by deducting a charge for equity capital, using a 6 percent rate, from Net Farm Earnings. A mixed picture emerges when returns to capital are calculated. Return to Investment is positive at \$11,905, but the Return To Equity is negative at (\$23,303). By size groups, all have losses for Return To Unpaid Labor & Management and Return to Equity. However, the farms with over 500 acres have positive Return To Investment, while the two smaller size groups have a negative Return To Investment.

Table 3: Income Statement For 128 Cash Grain Farms by Acres of Cropland, Ohio, 1965.

INCOME STATEMENT	FARM SIZE IN ACRES OF CROPLAND						All Farms
	Unit	Up To 250	251-500	501-750	751-1,000	Over 1000	
CASH INCOME							
Crops	\$	\$38,464	\$83,736	\$131,668	\$180,616	\$343,408	\$167,907
Fruit & Vegetables	\$	\$0	\$0	\$954	\$0	\$27	\$268
Hogs	\$	\$3,702	\$9,748	\$7,335	\$13,072	\$8,884	\$8,416
Dairy Products	\$	\$13,192	\$187	\$388	\$0	\$0	\$2,101
Dairy	\$	\$11,238	\$6	\$4,515	\$0	\$0	\$2,904
Beef	\$	\$6,667	\$8,591	\$11,008	\$9,731	\$10,750	\$9,658
Sheep	\$	\$464	\$621	\$478	\$0	\$2	\$321
CCC	\$	\$0	\$1,144	\$6	\$5,719	\$17,392	\$5,333
Other Farm Income	\$	\$6,133	\$11,694	\$21,621	\$30,656	\$71,810	\$31,130
TOTAL CASH INCOME	\$	\$79,859	\$115,726	\$177,975	\$239,794	\$452,273	\$228,038
Resale Purchases	\$	(\$2,444)	(\$8,686)	(\$20,611)	(\$14,615)	(\$67,620)	(\$26,541)
Breeder Livestock Pur.	\$	(\$186)	(\$246)	(\$250)	(\$541)	(\$330)	(\$298)
Livestock Inv. Change	\$	(\$27,192)	(\$1,726)	(\$566)	(\$1,589)	(\$13)	(\$4,742)
Crop & Feed Inv. Change	\$	(\$7,286)	(\$5,977)	\$2,700	(\$3,255)	\$11,786	\$1,003
Accts Receivable Change	\$	(\$251)	(\$212)	\$1,391	\$2,224	\$1,868	\$1,064
Net Non-Cash Farm Inc.	\$	\$37	\$85	\$55	\$99	\$80	\$70
Livestock Payable	\$	\$43	(\$109)	(\$148)	(\$55)	(\$567)	(\$204)
VALUE OF FARM PRODUCTION	\$	\$42,581	\$98,855	\$160,547	\$222,062	\$397,477	\$198,389
EXPENSES							
Variable Expense							
Wages	\$	\$1,654	\$3,118	\$3,408	\$4,929	\$20,851	\$7,654
Repair Machinery	\$	\$3,114	\$5,417	\$8,192	\$13,925	\$19,670	\$10,527
Feed	\$	\$3,944	\$5,173	\$4,198	\$5,016	\$6,678	\$5,079
Seed & Plants	\$	\$3,082	\$6,848	\$7,388	\$12,870	\$22,221	\$11,080
Fertilizer & Lime	\$	\$7,719	\$13,509	\$19,434	\$34,996	\$60,208	\$28,798
Spray & Chemicals	\$	\$3,463	\$7,476	\$9,971	\$14,502	\$24,898	\$12,851
Custom Hire	\$	\$1,396	\$2,165	\$1,659	\$3,540	\$6,221	\$3,109
Supplies	\$	\$665	\$1,201	\$2,403	(\$323)	\$3,906	\$1,924
Breeding	\$	\$206	\$0	\$25	\$22	\$0	\$40
Vet & Medicine	\$	\$938	\$301	\$324	\$428	\$273	\$412
Fuel & Lube	\$	\$3,489	\$6,458	\$9,459	\$14,211	\$23,305	\$12,079
Utilities	\$	\$1,253	\$1,462	\$1,844	\$1,917	\$3,272	\$2,048
Marketing	\$	\$1,821	\$71	\$500	\$240	\$1,353	\$791
Storage	\$	\$262	\$2,041	\$1,994	\$2,915	\$2,471	\$1,988
Other Than Above	\$	\$3,692	\$5,214	\$6,611	\$11,478	\$25,426	\$11,255
TOTAL VARIABLE EXPENSE	\$	\$36,696	\$60,453	\$77,410	\$120,664	\$220,753	\$109,635
Fixed Expenses							
Interest	\$	\$16,426	\$19,331	\$26,741	\$40,781	\$65,062	\$35,208
Taxes	\$	\$1,145	\$1,494	\$2,035	\$3,147	\$5,147	\$2,723
Lease Payments	\$	\$2,835	\$11,800	\$15,460	\$25,249	\$48,174	\$22,350
Insurance	\$	\$1,155	\$1,586	\$2,641	\$3,911	\$7,374	\$3,566
Building Repairs	\$	\$536	\$457	\$663	\$844	\$1,355	\$801
Building Depreciation	\$	\$2,446	\$3,376	\$5,146	\$6,821	\$12,356	\$6,424
Equipment Depreciation	\$	\$6,941	\$13,502	\$20,664	\$18,672	\$38,071	\$21,315
TOTAL FIXED EXPENSE	\$	\$31,484	\$51,546	\$73,350	\$99,425	\$177,538	\$92,387
TOTAL FARM EXPENSE	\$	\$68,180	\$111,999	\$150,760	\$220,089	\$398,290	\$202,022
NET FARM EARNINGS	\$	(\$25,600)	(\$53,144)	\$9,787	\$1,972	(\$814)	(\$3,633)

Balance Sheet Data

Balance sheet data for 1985 shows \$771,000 in Total Assets, \$375,700 in Total Liabilities, and \$395,300 in Total Equity per farm (Table 4). The majority of the assets, liabilities, and equity are in the fixed category, although over 1/4 of the debt is held as current liabilities. During 1985, the change in owners equity was a loss of \$6,700. The smallest farms lost the most equity with a decrease in owner's equity of \$28,600. The 501-750 acre size group was the only group to show an increase in owner's equity equal to \$5,600.

Table 4: Balance Sheet Data On 128 Cash Grain Farms By Acres of Cropland, Ohio, 1985.

BALANCE SHEET INFORMATION	FARM SIZE IN ACRES OF CROPLAND						All Farms
	Unit	Up To 250	251-500	501-750	751-1,000	Over 1000	
BALANCE SHEET DATA							
Current Assets	\$1,000	43.4	81.5	131.2	168.3	302.0	156.1
Current Liabilities	\$1,000	44.7	66.7	84.5	104.9	252.1	119.8
Current Equity	\$1,000	(1.4)	14.8	46.7	63.5	49.9	36.3
Intermediate Assets	\$1,000	67.5	96.1	150.1	150.0	260.1	154.8
Inter. Liabilities	\$1,000	25.7	37.4	50.2	41.3	85.8	51.8
Intermediate Equity	\$1,000	41.8	58.7	99.9	108.7	174.3	103.0
Fixed Assets	\$1,000	228.4	233.4	418.4	504.1	797.2	460.1
Fixed Liabilities	\$1,000	123.5	125.8	142.0	260.2	351.4	204.1
Fixed Equity	\$1,000	104.9	107.6	276.4	243.9	445.8	256.0
Total Assets	\$1,000	339.3	411.1	699.7	822.5	1359.2	771.0
Total Liabilities	\$1,000	194.0	230.0	276.7	406.4	689.3	375.7
Total Equity	\$1,000	145.3	181.1	423.0	416.1	669.9	395.3
Change In Equity, 1984-5	\$1,000	-28.6	-6.2	5.6	-11.2	-5.1	-6.7
FINANCIAL PERFORMANCE MEASURES							
Liquidity Ratios							
Current Ratio (CA/CL)	Ratio	.97	1.22	1.55	1.61	1.20	1.30
CurrLiab/TotLiab (CL/TL)	Ratio	.23	.29	.31	.26	.37	.32
Inter. (CA+IA)/(CL+IL)	Ratio	1.57	1.71	2.09	2.18	1.66	1.81
Solvency Ratios							
Debt/Asset(D/A)or(TL/TA)	Ratio	.57	.56	.40	.49	.51	.49
Equity Ratio (TE/TL)	Ratio	.43	.44	.60	.51	.49	.51
Leverage (TL/TE)	Ratio	1.33	1.27	.65	.98	1.03	.95
Profitability							
Net Farm Earnings as % of							
Average Farm Assets	%	-8.50	-3.67	1.59	.26	-.06	-.51

Other balance sheet ratios help to portray the financial situation of these cash grain farmers. Measures of liquidity give an indication of how well they may be able to make annual payments. Lenders like the Current Ratio, comparing current assets to current liabilities, to be 2.0 or better. The average for all farms in 1985 was only 1.30, much below the desired level. The ratio of current to total liabilities of .32 shows that almost one-third of their current liabilities is due annually. This is higher than desirable. The Intermediate Ratio, comparing current & intermediate assets to current & intermediate liabilities, of 1.81 is also below 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 was 49%, indicating they have about equal amounts of equity and debt. Net Farm Earnings as a Percent of Average Farm Assets was a negative, at (.51)%.

The smaller farms appear to have slightly more debt and lower liquidity ratios. The 501-750 acres size group on average have the lowest debt to asset ratio while both the 501-750 and 751-1000 acre groups have the best liquidity ratios.

Measures of Financial Efficiency

Cash grain farms require large amounts of capital relative to sales. In 1985, these farms had a Turnover Ratio of .28, which means they averaged 28 cents in sales for each dollar of investment (Table 5). The Turnover Ratio was only .14 for the smallest size farms and increased to .31 for the farms in the Over 1,000 acres size class. Net Profit Margins, Return On Investment, and Return On Equity all increased as farm size increased. Net Profit Margin on all farms averaged 6.00 percent, but was negative for the Up To 250 and 251-500 acre size classes. A similar pattern resulted for Return On Investment; the average was 1.69 percent, but the two smallest size classes again had negative returns. On Return On Equity, all size classes had negative returns, but the smallest farms had the poorest returns. All the above measures relate to the profitability of the business as measured by the income statement. They indicate that many farms did not make a profit in 1985. A related measure, Rate of Growth In Equity, which is determined from the balance sheet, shows that all size classes experienced a loss in equity in 1985. This is a poorer showing than profits and is consistent with declining values in land and other assets during this period.

Table 5: Measures of Financial Efficiency On 128 Cash Grain Farms By Acres of Cropland, Ohio, 1985.

Efficiency Measures	FARM SIZE IN ACRES OF CROPLAND						
	Unit	Up To 250	251-500	501-750	751-1,000	Over 1000	All Farms
FINANCIAL EFFICIENCY							
Turnover Ratio	Ratio	.14	.28	.26	.29	.31	.28
Debt Service Ratio	Ratio	4.51	13.78	16.29	27.49	20.46	19.42
PROFITABILITY							
Net Profit Margin	%	-61.49	-9.11	9.21	9.51	10.77	6.00
Return On Investment	%	-8.69	-2.51	2.40	2.79	3.32	1.69
Return On Equity	%	-29.32	-15.65	-2.83	-4.73	-3.32	-5.89
Rate of Growth in Equity	%	-20.14	-7.74	-0.76	-3.04	-1.26	-2.97
EXPENSE AND EARNINGS AS A PERCENT OF VALUE OF FARM PRODUCTION							
Interest	%	38.58	19.55	16.66	18.36	16.37	17.75
Depreciation	%	22.04	17.07	16.08	11.48	12.69	13.98
Operating Expense	%	99.50	76.67	61.17	69.27	71.15	70.10
Net Farm Earnings	%	-60.12	-13.30	6.10	.89	-.20	-1.83
TOTAL EXPENSE AS A PERCENTAGE OF VALUE OF FARM PRODUCTION							
Variable Expense	%	86.18	81.15	48.22	54.34	55.94	55.26
Fixed Expense	%	73.74	52.14	45.69	44.77	44.67	46.57
Total	%	160.12	113.30	93.90	99.11	100.20	101.83

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 accounted for 18%, Depreciation 14%, Other Operating Expenses 70%, and the residual, Net Farm Earnings, were negative at (2%). But of additional interest is the distribution by farm size class. Other Operating Expense was about 70% or higher on all but the 501-750 acre class. The smaller farms had much higher operating expense at 99.50% and 76.67% for farms with less than 250 acres and 251-500 acre class, respectively. Interest and depreciation were also higher for the smaller farm size classes and Net Farm Earnings much lower. So part of the problem of low profits on the smaller farms may be a result of over investment, resulting in higher interest and depreciation expense and definitely much higher operating expense.

Table 6: Efficiency Measures And Cost Per Tillable Acre On 128 Cash Grain Farms
By Acres of Cropland, Ohio, 1985.

Efficiency Measures	Unit	FARM SIZE IN ACRES OF CROPLAND					All Farms
		Up To 250	251-500	501-750	751-1,000	Over 1000	
PRODUCTION EFFICIENCY PER TILLABLE ACRE							
Value of Crop Production/TA	\$/A	\$233.56	\$224.25	\$216.96	\$210.85	\$219.32	\$218.48
Value of Total Prod./T.A.	\$/A	\$484.92	\$309.92	\$293.26	\$279.94	\$288.84	\$296.72
Variable Expense Per T.A.	\$/A	\$222.40	\$162.07	\$127.53	\$140.79	\$140.97	\$142.57
Fixed Expense Per T.A.	\$/A	\$190.81	\$138.19	\$120.84	\$116.02	\$113.37	\$120.14
Total Expense Per T.A.	\$/A	\$413.21	\$300.26	\$248.37	\$256.81	\$254.34	\$262.71
Machinery Investment/T.A.	\$/A	\$298.11	\$205.07	\$192.15	\$157.80	\$146.14	\$168.23
Machinery Cost Per T.A.							
Repair Machinery	\$/A	\$18.91	\$14.51	\$13.50	\$16.26	\$12.56	\$13.70
Custom Hire	\$/A	\$8.47	\$5.80	\$2.73	\$4.13	\$3.97	\$4.05
Fuel & Lube Cost	\$/A	\$21.18	\$17.29	\$15.59	\$16.59	\$14.88	\$15.72
Equipment Depreciation	\$/A	\$42.15	\$36.16	\$34.05	\$21.80	\$24.31	\$27.73
Machinery Invest @7.5%	\$/A	\$22.36	\$15.38	\$14.41	\$11.83	\$10.96	\$12.62
Machinery Cost Per T.A.	\$/A	\$113.07	\$89.14	\$80.28	\$70.61	\$66.69	\$73.81
Seed & Plant Cost Per T.A.	\$/A	\$18.71	\$18.34	\$12.17	\$15.02	\$14.19	\$14.42
Fert. & Lime Cost Per T.A.	\$/A	\$46.87	\$36.18	\$32.02	\$40.85	\$38.45	\$37.47
Spray & Chem Cost Per T.A.	\$/A	\$21.03	\$20.02	\$16.43	\$16.93	\$15.90	\$16.72
CAPITAL INVESTMENT							
Feed & Crop Capital	\$	\$23,107	\$48,208	\$79,976	\$100,508	\$189,165	\$95,354
Livestock Capital	\$	\$19,406	\$12,317	\$13,570	\$15,687	\$10,483	\$13,701
Machinery Capital	\$	\$49,093	\$76,574	\$116,615	\$135,169	\$228,831	\$129,290
Land & Building Cap	\$	\$195,638	\$188,516	\$375,384	\$455,995	\$757,512	\$418,443
Other Capital	\$	\$13,889	\$32,904	\$30,795	\$49,467	\$102,367	\$49,070
TOTAL FARM ASSETS	\$	\$301,134	\$358,519	\$616,340	\$756,826	\$1,288,359	\$705,859

Efficiency and Cost Measures

Looking at the Value of Crop Production and the Value of Total Production Per Tillable Acre, the small farms had the largest values of Total Production per tillable acre, \$484 compared to \$296 for the average of all farms (Table 6). Apparently farms in the small size class operated their smaller farms more intensively. But the higher returns were not enough to offset the higher variable and fixed expense per acre incurred by these small farms.

In addition, the Up to 250 acre farms had the highest machinery investment (\$298) and machinery cost (\$113) per tillable acre of all the groups. Per acre machinery investment and machinery cost declined as the farms get larger in size. The Over 1000 acre farms have the lowest machinery investment (\$146) and machinery cost (\$66) per tillable acre. The Up to 250 acre farms have the highest seed, plant, fertilizer, lime, spray, and chemical costs per acre (\$87), but they also have a considerably higher crop value per acre (\$233). The Over 501-750 acre farms had a crop value per acre of \$216, but incurred only \$61 input costs per acre. The Up to 250 acre farms had the highest variable, fixed and total expense per tillable acre. The 501-750 had the lowest variable and total expense per acre while the Over 1000 acre group had the lowest fixed expense and second lowest total expense. The two smaller size groups had considerably higher expenses per acre than did the larger farms.

The section on Machinery Cost Per Tillable Acre, gives data on field cost per acre for cash grain farms. Machinery repair costs averaged almost \$14 per acre, and varied from \$12.56 to \$18.91 between size classes. Fuel and lube costs averaged under \$16 per tillable acre, with a low of \$14.88 and a high of \$21.18, for the size classes. Ownership costs, depreciation and interest, averaged \$40 per tillable acre, ranging from \$35 for the Over 1000 size class to \$67 per acre for the Up to 250 acre class. Little custom work was hired by these farms, averaging only \$4.05 per acre.

HIGHLIGHTS -- CASH GRAIN FARMS BY DEBT TO ASSET RATIO CLASSES

Tables 7 through 12 give similar information for the 128 cash grain farms sorted by debt to asset ratios. The middle class, farms with 41 to 70 percent debt to asset ratios, account for 53% of the farms. (Table 7). In the other classes, 21 or 16 percent of the farms have a D/A ratio of 71 percent or more with 39 farms or 30 percent of the farms with a D/A ratio of 40 percent or less. The farms in the 71 Plus class have less total assets, lower yields, fewer tillable acres, and a higher percentage of cash rented acres.

Table 7: Number of Farms, Crop Yields, and Measures of Size for 128 Grain Farms By Debt to Asset Ratios, Ohio 1985.

Size Characteristics	Unit	DEBT AS A PERCENTAGE OF ASSETS			
		Up To 40	41-70	71 Plus	All Farms
NUMBER OF FARMS	Number	39	68	21	128
TOTAL TILLABLE ACRES	Acres	808	796	607	769
VALUE OF FARM PRODUCTION	\$	\$188,758	\$222,438	\$138,405	\$198,389
BALANCE SHEET DATA					
Total Assets	\$1,000	811.6	830.8	502.3	771.0
Total Liabilities	\$1,000	213.2	435.7	483.1	375.7
Total Equity	\$1,000	598.3	395.1	19.2	395.3
CROP ACRES					
Corn	Acre	282	343	319	318
Soybeans	Acre	315	303	249	298
Wheat	Acre	73	86	84	75
CROP YIELDS					
Corn	Bu./A.	134	135	121	132
Soybeans	Bu./A.	43	40	40	41
Wheat	Bu./A.	61	59	54	59
CROP PRICES					
Corn	\$/Bu.	\$2.48	\$2.40	\$2.48	\$2.43
Soybeans	\$/Bu.	\$5.43	\$5.20	\$5.01	\$5.25
Wheat	\$/Bu.	\$2.98	\$2.75	\$2.90	\$2.85
PERCENT OF TILLABLE ACRES					
Owned	Percent	31	28	26	29
Cash Rented	Percent	50	48	57	50
Share Rented	Percent	19	24	17	21

Farms in the Up To 40 class showed positive Net Farm Earnings (Table 8). However, all classes had negative Total Net Earnings. Farms with a D/A ratio of Up To 40 had a positive change in equity for the year, while the rest of the farms had negative equity changes.

Table 8: Income, Expense and Measures of Earnings for
128 Cash Grain Farms By Debt to Asset Ratios, Ohio, 1995.

Financial Characteristics	Unit	DEBT AS A PERCENTAGE OF ASSETS			
		Up To 40	41-70	71 Plus	All Farms
INCOME					
Total Cash Income	\$	\$214,616	\$252,779	\$172,850	\$228,038
Other Income & Inv. Changes	\$	(25,858)	(30,341)	(34,445)	(29,648)
VALUE OF FARM PRODUCTION	\$	\$188,758	\$222,438	\$138,405	\$198,389
EXPENSE					
Total Variable Exp	\$	\$92,032	\$122,354	\$101,140	\$109,635
Total Fixed Expense	\$	\$79,857	\$102,867	\$81,719	\$92,387
TOTAL FARM EXPENSE	\$	\$171,890	\$225,221	\$182,859	\$202,022
EARNINGS					
Net Farm Earnings	\$	\$16,868	(\$2,784)	(\$44,454)	(\$3,633)
Net Non-Farm Income	\$	\$11,343	\$12,720	\$15,815	\$12,808
NET EARNINGS	\$	\$28,212	\$9,936	(\$28,639)	\$9,176
Operator Labor Draw	\$	\$18,396	\$22,620	\$12,486	\$19,670
Income Tax	\$	\$1,952	\$1,015	\$706	\$1,249
TOTAL NET EARNINGS	\$	\$7,864	(\$13,699)	(\$41,931)	(\$11,744)
NET FARM EARNINGS	\$	\$16,868	(\$2,784)	(\$44,454)	(\$3,633)
RETURN TO UNPAID LABOR & MGT	\$	(\$19,031)	(\$26,489)	(\$45,606)	(\$27,353)
RETURN TO INVESTMENT	\$	\$20,465	\$17,244	(\$21,138)	\$11,905
RETURN TO EQUITY	\$	(\$1,528)	(\$25,404)	(\$56,939)	(\$23,303)

Table 7: Income Statement for 120 Cash Grain Farms by Debt to Asset Ratio, Ohio, 1985.

INCOME STATEMENT	Unit	DEBT AS A PERCENTAGE OF ASSETS			
		Up To 40	41-70	71 Plus	All Farms
CASH INCOME					
Crops	\$	\$161,718	\$182,465	\$132,261	\$167,907
Fruit & Vegetables	\$	\$856	\$13	\$0	\$268
Hogs	\$	\$5,955	\$9,709	\$8,800	\$8,416
Dairy	\$	\$2,297	\$2,213	\$1,373	\$2,101
Dairy Products	\$	\$2,571	\$3,617	\$1,213	\$2,904
Beef	\$	\$2,854	\$13,022	\$11,397	\$9,658
Sheep	\$	\$716	\$1	\$625	\$321
CCC	\$	\$2,633	\$8,522	\$20	\$5,333
Other Farm Income	\$	\$35,015	\$33,216	\$17,162	\$31,130
TOTAL CASH INCOME	\$	\$214,616	\$252,779	\$172,850	\$228,038
Resale Purchases	\$	(\$23,036)	(\$28,969)	(\$25,190)	(\$26,541)
Breeder L.S. purc	\$	(\$170)	(\$414)	(\$163)	(\$298)
L.S. Inven. Chang	\$	(\$3,485)	(\$4,287)	(\$8,550)	(\$4,742)
Cr & Feed Inv. Ch	\$	(\$1,388)	\$2,043	\$2,078	\$1,003
Acct Rec Change	\$	2,314	\$1,458	(\$2,534)	\$1,064
Net Non-Cash F Inc	\$	\$65	\$64	\$99	\$70
L.S Payb/Fut Chan	\$	(\$158)	(\$237)	(\$185)	(\$204)
VALUE OF FARM PROD.	\$	\$188,758	\$222,438	\$138,405	\$198,389
EXPENSES					
Variable Expense					
Wages	\$	\$6,295	\$9,202	\$5,164	\$7,654
Repair Machinery	\$	\$9,421	\$11,595	\$9,124	\$10,527
Feed	\$	\$2,738	\$6,667	\$4,285	\$5,079
Seed & Plants	\$	\$9,134	\$12,379	\$10,485	\$11,080
Fertilizer & Lime	\$	\$24,145	\$29,980	\$33,611	\$28,798
Spray & Chemicals	\$	\$11,653	\$15,394	\$6,843	\$12,851
Custom Hire	\$	\$2,665	\$3,582	\$2,404	\$3,109
Supplies	\$	\$2,147	\$1,938	\$1,461	\$1,924
Breeding	\$	\$43	\$31	\$64	\$40
Vet & Medicine	\$	\$365	\$458	\$350	\$412
Fuel & Lube	\$	\$11,065	\$12,923	\$11,230	\$12,079
Utilities	\$	\$2,151	\$2,086	\$1,735	\$2,048
Marketing	\$	\$1,195	\$724	\$254	\$791
Storage	\$	\$2,363	\$1,606	\$2,526	\$1,988
Other Than Above	\$	\$6,650	\$13,788	\$11,603	\$11,255
TOTAL VARIABLE EXPENSE	\$	\$92,032	\$122,354	\$101,140	\$109,635
Fixed Expenses					
Interest	\$	\$21,916	\$42,648	\$35,801	\$35,208
Taxes	\$	\$2,847	\$2,864	\$2,036	\$2,723
Lease Payments	\$	\$17,216	\$24,898	\$23,632	\$22,350
Insurance	\$	\$3,929	\$3,755	\$2,280	\$3,566
Bldg. Repairs	\$	\$772	\$878	\$606	\$801
Bldg. Depreciation	\$	\$7,924	\$6,682	\$2,808	\$6,424
Equip. Depreciation	\$	\$25,254	\$21,143	\$14,557	\$21,315
TOTAL FIXED EXPENSE	\$	\$79,857	\$102,867	\$81,719	\$92,387
TOTAL FARM EXPENSE	\$	\$171,890	\$225,221	\$182,859	\$202,022
NET FARM EARNINGS	\$	\$16,868	(\$2,784)	(\$44,454)	(\$3,633)

The 71 Plus class of farms lost \$33,800 in equity in 1985 (Table 10). At this rate, their total equity of \$19,200 would be gone within 6 months! Other financial performance measures also indicate the financial distress these farms are experiencing. Their Current Ratio is only .93, their D/A ratio is .96, and the Leverage Ratio is 25, meaning loans are equal to 25 times their equity. Most of these farms are in severe financial distress and will only be in business for a very short time.

Table 10: Balance Sheet Data On 128 Cash Grain Farm By Debt to Asset Ratios, Ohio, 1985.

BALANCE SHEET INFORMATION	Unit	DEBT AS A PERCENTAGE OF ASSETS			
		Up To 40	41-70	71 Plus	All Farms
BALANCE SHEET DATA					
Current Assets	\$1,000	161.7	166.3	112.6	156.1
Current Liabilities	\$1,000	84.8	139.3	121.6	119.8
Current Equity	\$1,000	76.9	27.0	-9.0	36.3
Intermediate Assets	\$1,000	171.3	161.8	101.2	154.8
Inter. Liabilities	\$1,000	32.3	59.8	62.0	51.8
Inter. Equity	\$1,000	139.0	102.0	39.2	103.0
Fixed Assets	\$1,000	478.6	502.6	288.6	460.2
Fixed Liabilities	\$1,000	96.2	236.6	299.6	204.1
Fixed Equity	\$1,000	382.4	266.0	-11.0	256.0
Total Assets	\$1,000	811.6	830.8	502.3	771.0
Total Liabilities	\$1,000	213.3	435.7	483.1	375.7
Total Equity	\$1,000	598.3	395.1	19.2	395.3
Change in Equity, 1984-5	\$1,000	12.0	-9.1	-33.8	-6.7
FINANCIAL PERFORMANCE MEASURES					
Liquidity Ratios					
Current Ratio (CA/CL)	Ratio	1.91	1.19	.93	1.30
CurrLiab/TotLiab (CL/TL)	Ratio	.40	.32	.25	.32
Inter. (CA+IA)/(CL+IL)	Ratio	2.84	1.65	1.16	1.81
Solvency Ratios					
Debt/Asset Ratio	Ratio	.26	.52	.96	.49
Equity Ratio (TE/TL)	Ratio	.74	.48	.04	.51
Leverage (TL/TE)	Ratio	.36	1.10	25.15	.95
Profitability					
Net Farm Earnings as % of Average Farm Assets	%	2.34	-0.36	-9.40	-0.51

In table 11, the farms with the higher debt to asset ratios had the highest Turnover ratio. Farms in the less than 40 D/A class had the highest Net Profit Margin at 10.8%, the highest ROI at 2.82%, and the only positive rate of growth in equity at 1.31. The farms with D/A Ratios over 70 are basically bankrupt. Farms with D/A ratios between 41-70 have a positive Net Profit Margin at 7.75% and ROI at 2.24% but they are still losing equity at the rate of (3.47) percent a year.

Table 11: Measures of Financial Efficiency On 167 Cash Grain Farms by Debt to Asset Ratio, Ohio, 1984.

Efficiency Measures	Unit	DEBT AS A PERCENTAGE OF ASSETS			
		Up To 40	41-70	71 Plus	All Farms
FINANCIAL EFFICIENCY					
Turnover Ratio	Ratio	.26	.29	.29	.28
Debt Service Ratio	Ratio	5.50	26.46	18.05	19.42
PROFITABILITY					
Net Profit Margin	%	10.80	7.75	-15.27	6.00
ROI	%	2.82	2.24	-4.47	1.69
ROE	%	-2.26	-6.43	-296.42	-5.89
Rate of Growth in Equity	%	1.31	-3.47	-217.77	-2.97
EXPENSE AND EARNINGS AS A PERCENT OF VALUE OF FARM PRODUCTION					
Interest	%	11.61	19.17	25.87	17.75
Depreciation	%	17.58	12.51	12.55	13.98
Net Farm Earnings	%	8.94	-1.25	-32.12	-1.83
Other Operating Expense	%	61.88	69.57	93.71	70.10
Total	%	100.00	100.00	100.00	100.00
TOTAL EXPENSE AS A PERCENTAGE OF VALUE OF FARM PRODUCTION					
Variable Expense	%	48.76	55.01	73.07	55.26
Fixed Expense	%	42.31	46.25	59.04	46.57
Total	%	91.06	101.26	132.12	101.83

Interest as a percent of value of farm production is higher for the higher D/A classes, up to 26% for the 71 Plus group, compared to an average of 17.75% for all farms (Table 11). However, depreciation was inversely related to D/A ratio, with a greater percent accounted for by depreciation on farms with low D/A ratios. Financially strapped operations have probably not spent much on capital investment in recent years. Variable expenses ranged from 48% in the low D/A Ratio farms to 73.07% in the higher D/A farms and averaged 55%. Fixed expenses ranged from a low of 42% in the Up to 40 D/A group to a high of 59% in the 71 Plus D/A group with an average of 46%.

In table 12, the 41-70 debt to asset group had the highest Values of Crop (and Total) Production per tillable acre at \$229

and \$317 per acre, respectively. The Up to 40 D/A Ratio farms had the lowest Value of Crop (and Total) Production per tillable acre at \$200 and \$265, but they had the highest Machinery investment at \$173. They also had lower Seed & Plant Costs, Fertilizer & Lime Costs, and Spray & Chemical Costs per tillable acre at \$11, \$30, and \$14, respectively than the average farm at \$14, \$37, and \$17. The over 70 D/A farms had much lower Machinery Investment at \$141 but had much higher Seed & Plant and Fertilizer & Lime costs at \$17 and \$55, respectively. These farms also had considerably less Total Farm Assets at \$473,040 compared to the average of \$705,459.

Table 12: Efficiency Measures and Cost per Tillable acre on 128 Cash Grain Farms by Debt to Asset Ratios, Ohio, 1985.

Efficiency Measures	Unit	DEBT AS A PERCENTAGE OF ASSETS			
		Up To 40	41-70	71 Plus	All Farms
PRODUCTION EFFICIENCY PER TILLABLE ACRE					
Value of Crop Prod./T.A.	\$/A	\$200.18	\$229.26	\$217.89	\$218.48
Value of Total Prod./T.A.	\$/A	\$265.65	\$317.61	\$284.76	\$296.72
Machinery Investment/T.A.	\$/A	\$172.67	\$172.04	\$141.06	\$168.23
Machinery Cost Per T.A.					
Repair Machinery	\$/A	\$11.66	\$14.57	\$15.03	\$13.70
Custom Hire	\$/A	\$3.30	\$4.50	\$3.96	\$4.05
Fuel & Lube Cost	\$/A	\$13.70	\$16.24	\$18.50	\$15.72
Equip. Depreciation	\$/A	\$31.26	\$26.57	\$23.98	\$27.73
Mchy Invest @7.5%	\$/A	\$12.95	\$12.90	\$10.58	\$12.62
Machinery Cost per T.A.	\$/A	\$72.87	\$74.77	\$72.06	\$73.81
Seed & Plant Cost Per T.A.	\$/A	\$11.31	\$15.55	\$17.27	\$14.42
Fert. & Lime Cost Per T.A.	\$/A	\$29.89	\$37.67	\$55.37	\$37.47
Spray & Chem Cost Per T.A.	\$/A	\$14.42	\$19.34	\$11.27	\$16.72
CAPITAL INVESTMENT					
Feed & Crop Capital	\$	\$91,661	\$103,214	\$76,759	\$95,354
Livestock Capital	\$	\$8,677	\$16,254	\$14,765	\$13,701
Machinery Capital	\$	\$139,493	\$136,924	\$85,624	\$129,290
Land & Building Cap	\$	\$436,466	\$459,865	\$250,845	\$418,443
Other Capital	\$	\$45,592	\$52,308	\$45,047	\$49,070
TOTAL FARM ASSETS	\$	\$721,888	\$768,566	\$473,040	\$705,859

HIGHLIGHT -- CASH GRAIN FARMS BY NET FARM EARNINGS CLASSES

Overview of Farms Summarized

Tables 13 through 17 give similar information for the 128 cash grain farms sorted by net farm earnings. The top 1/3 farms had much larger farms with 1009 tillable acres compared to the average of only 769 tillable acres. They also had double the Value of Farm production of the other farms and on average had higher yields and received higher prices for their commodities than did the other two classes. The bottom 1/3 of farms sorted by Net Farm Earnings had fewer tillable acres, and the lowest yields and prices.

Table 13: Number of Farms, Crop Yields, and Measures of Size for 128 Grain Farms By Net Farm Earnings, Ohio 1985.

Size Characteristics	Unit	FARMS RANKED BY NET FARM EARNINGS			
		Top 1/3	Middle 1/3	Bottom 1/3	All Farms
NUMBER OF FARMS	Number	42	44	42	128
TOTAL TILLABLE ACRES	Acres	1009	664	638	769
VALUE OF FARM PRODUCTION	\$	\$298,422	\$143,234	\$156,139	\$198,389
BALANCE SHEET DATA					
Total Assets	\$1,000	946.4	572.3	803.9	771.0
Total Liabilities	\$1,000	398.8	259.3	474.5	375.7
Total Equity	\$1,000	547.6	312.0	329.3	395.3
CROP ACRES					
Corn	Acre	385	239	324	318
Soybeans	Acre	393	211	283	298
Wheat	Acre	79	60	93	75
CROP YIELDS					
Corn	Bu./A.	139	132	122	132
Soybeans	Bu./A.	43	43	36	41
Wheat	Bu./A.	53	62	51	59
CROP PRICES					
Corn	\$/Bu.	\$2.50	\$2.43	\$2.29	\$2.43
Soybeans	\$/Bu.	\$5.43	\$5.05	\$5.10	\$5.25
Wheat	\$/Bu.	\$2.96	\$3.14	\$2.40	\$2.85
PERCENT OF TILLABLE ACRES					
Owned	Percent	25	30	34	29
Cash Rented	Percent	51	43	55	50
Share Rented	Percent	24	27	11	21

Measure of Earnings

Farms in the top 1/3 class reported a profit (Table 14) as net farm earnings averaged \$47,005 while the bottom 1/3 averaged (\$59,892). The middle 1/3 class had much lower total farm expense compared to the Bottom 1/3 although they had more tillable acres. Return to Unpaid Labor and Management ranged from \$14,148 to (\$79,652) and averaged (\$27,353) for all farms. Return to Investment averaged \$11,905 and ranged from \$62,381 to (\$37,845). Return to Equity averaged (\$23,303) but ranged from a high of \$24,257 to a low of (\$79,683). This table illustrates that although many farms have financial problems, it is not true of all farms. The top 1/3 farms by net farm earnings reported excellent profits in 1985--regardless of the income measure. For a detailed Income Statement see Table 15.

Table 14: Income, Expense and Measures of Earnings for 128 Cash Grain Farms By Net Farm Earnings, Ohio, 1985.

Financial Characteristics	Unit	RANKED BY NET FARM EARNINGS			
		Top 1/3	Middle 1/3	Bottom 1/3	All Farms
INCOME					
Total Cash Income	\$	\$308,494	\$176,911	\$201,143	\$228,038
Other Income & Inv. Changes	\$	(\$10,071)	(33,678)	(45,004)	(29,648)
VALUE OF FARM PRODUCTION	\$	\$298,422	\$143,234	\$156,139	\$198,389
EXPENSE					
Total Variable Expense	\$	\$135,601	\$74,674	\$120,294	\$409,635
Total Fixed Expense	\$	\$115,317	\$66,825	\$95,736	\$92,387
TOTAL FARM EXPENSE	\$	\$251,418	\$141,500	\$216,030	\$202,022
EARNINGS					
Net Farm Earnings	\$	\$47,005	\$1,734	(\$59,892)	(\$3,633)
Net Non-Farm Income	\$	\$6,002	\$11,742	\$20,731	\$12,808
NET EARNINGS	\$	\$53,006	\$13,476	(\$39,160)	\$9,176
Operator Labor Draw	\$	\$22,748	\$16,617	\$19,792	\$19,670
Income Tax	\$	\$1,992	\$575	\$1,213	\$1,249
TOTAL NET EARNINGS	\$	\$28,267	(\$3,717)	(\$60,165)	(\$11,744)
NET FARM EARNINGS	\$	\$47,005	\$1,734	(\$59,892)	(\$3,633)
RETURN TO UNPAID LABOR & MGT	\$	\$14,148	(\$17,045)	(\$79,652)	(\$27,353)
RETURN TO INVESTMENT	\$	\$62,381	\$11,211	(\$37,845)	\$11,905
RETURN TO EQUITY	\$	\$24,257	(\$14,883)	(\$79,683)	(\$23,303)

Table 13: Income Statement for 120 Cash Grain Farms by Net Farm Earnings, Ohio, 1985.

RANKED BY NET FARM EARNINGS

INCOME STATEMENT	Unit	Top 1/3	Middle 1/3	Bottom 1/3	All Farms
CASH INCOME					
Crops	\$	\$233,063	\$138,032	\$134,049	\$167,907
Fruit & Vegetables	\$	\$795	\$0	\$21	\$268
Hogs	\$	\$9,154	\$9,508	\$6,534	\$8,416
Dairy	\$	\$0	\$210	\$6,183	\$2,101
Dairy Products	\$	\$0	\$1,983	\$6,772	\$2,904
Beef	\$	\$12,409	\$5,829	\$10,917	\$9,658
Sheep	\$	\$2	\$501	\$453	\$321
CCC	\$	\$9,960	\$641	\$5,621	\$5,333
Other Farm Income	\$	\$43,111	\$20,208	\$30,592	\$31,130
TOTAL CASH INCOME	\$	\$308,494	\$176,911	\$201,143	\$228,038
Resale Purchases	\$	(\$32,583)	(\$21,720)	(\$25,550)	(\$26,541)
Breeder L.S. purc	\$	(\$402)	(\$371)	(\$119)	(\$298)
L.S. Inven. Chang	\$	\$1,318	(\$679)	(\$15,060)	(\$4,742)
Cr & Feed Inv. Ch	\$	\$21,907	(\$10,716)	(\$7,622)	\$1,003
Acct Rec Change	\$	\$33	(\$352)	\$3,578	\$1,064
Net Non-Csh F Inc	\$	\$43	\$86	\$80	\$70
L.S Payb/Fut Chan	\$	(\$388)	\$74	(\$312)	(\$204)
VALUE OF FARM PROD.	\$	\$298,422	\$143,234	\$156,139	\$198,389
EXPENSES					
Variable Expense					
Wages	\$	\$9,795	\$4,667	\$8,642	\$7,654
Repair Machinery	\$	\$12,615	\$6,974	\$12,161	\$10,527
Feed	\$	\$3,967	\$3,972	\$7,351	\$5,079
Seed & Plants	\$	\$14,593	\$7,701	\$11,106	\$11,080
Fertilizer & Lime	\$	\$37,394	\$19,295	\$30,158	\$28,798
Spray & Chemicals	\$	\$18,884	\$9,583	\$10,243	\$12,851
Custom Hire	\$	\$4,503	\$1,472	\$3,431	\$3,109
Supplies	\$	\$2,349	\$1,338	\$2,112	\$1,924
Breeding	\$	\$8	\$8	\$107	\$40
Vet & Medicine	\$	\$370	\$373	\$494	\$412
Fuel & Lube	\$	\$15,149	\$9,509	\$11,702	\$12,079
Utilities	\$	\$2,574	\$1,583	\$2,010	\$2,048
Marketing	\$	\$333	\$825	\$1,213	\$791
Storage	\$	\$2,382	\$1,685	\$1,911	\$1,988
Other Than Above	\$	\$10,686	\$5,689	\$17,655	\$11,255
TOTAL VARIABLE EXPENSE	\$	\$135,601	\$74,674	\$120,294	\$109,635
Fixed Expenses					
Interest	\$	\$38,124	\$26,095	\$41,838	\$35,208
Taxes	\$	\$3,571	\$1,647	\$3,002	\$2,723
Lease Payments	\$	\$32,236	\$16,735	\$18,345	\$22,350
Insurance	\$	\$4,949	\$2,436	\$3,367	\$3,566
Bldg. Repairs	\$	\$995	\$546	\$875	\$801
Bldg. Depreciation	\$	\$8,108	\$4,131	\$7,144	\$6,424
Equip. Depreciation	\$	\$27,034	\$15,235	\$21,166	\$21,315
TOTAL FIXED EXPENSE	\$	\$115,817	\$66,825	\$95,736	\$92,387
TOTAL FARM EXPENSE	\$	\$251,418	\$141,500	\$216,030	\$202,022
NET FARM EARNINGS	\$	\$47,005	\$1,734	(\$59,592)	(\$3,633)

Financial Performance Measures

The top 1/3 of the farms had higher liquidity ratios (Table 16) with a current ratio of 1.64 and an intermediate ratio of 2.22 however they had the highest current liabilities to total liabilities at .35. This means that 35% of their total liabilities are due in the current year. The bottom 1/3 class had the worst current ratio and intermediate ratio, however they had less current liabilities to total liabilities. The top 1/3 class had slightly less debt than the middle 1/3 class while the bottom 1/3 class was much more highly levered.

Table 16: Financial Performance Measures on 128 Cash Grain Farms
By Net Farm Earnings, Ohio, 1985.

Financial Measures	Unit	RANKED BY NET FARM EARNINGS			
		Top 1/3	Middle 1/3	Bottom 1/3	All Farms
BALANCE SHEET DATA					
Current Assets	\$1,000	228.3	98.0	143.9	156.1
Current Liabilities	\$1,000	139.5	84.9	136.5	119.8
Current Equity	\$1,000	88.8	13.9	7.4	36.3
Intermediate Assets	\$1,000	197.3	118.8	149.9	154.8
Inter. Liabilities	\$1,000	52.6	39.9	63.4	51.8
Inter. Equity	\$1,000	144.7	78.9	86.5	103.0
Fixed Assets	\$1,000	520.7	354.7	510.4	460.2
Fixed Liabilities	\$1,000	206.7	134.5	274.5	204.1
Fixed Equity	\$1,000	314.0	220.2	235.5	256.0
Total Assets	\$1,000	946.4	572.3	803.9	771.0
Total Liabilities	\$1,000	398.8	259.3	474.5	375.7
Total Equity	\$1,000	547.6	313.0	329.3	395.3
Change in Equity, 1984-5	\$1,000	29.1	-6.4	-42.8	-6.7
FINANCIAL PERFORMANCE MEASURES					
Liquidity Ratios					
Current Ratio (CA/CL)	Ratio	1.64	1.16	1.05	1.30
CurrLiab/TotLiab (CL/TL)	Ratio	.35	.33	.29	.32
Inter. (CA+IA)/(CL+IL)	Ratio	2.22	1.74	1.47	1.81
Solvency Ratios					
Debt/Asset Ratio	Ratio	.42	.45	.59	.49
Equity Ratio (TE/TL)	Ratio	.58	.55	.41	.51
Leverage (TL/TE)	Ratio	.73	.83	1.44	.95
Profitability					
Net Farm Earnings as % of Average Farm Assets	%	5.40	.34	-0.10	-0.51

MEASURES OF FINANCIAL EFFICIENCY

The top 1/3 of the farms had large amounts of capital to sales with a turnover ratio of .34 (Table 17) which means they averaged 34 cents in sales for each dollar of investment. The bottom 1/3 class had a turnover ratio of only .21.

Profitability varied widely among the three groups. Net Profit Margin averaged 6 percent but ranged from 20.90 percent for the top 1/3 to (24.24) percent for the bottom 1/3. Return on Investment averaged 1.69 percent but ranged from 7.17 to -5.12, while Return to Equity averaged -5.89 and had a range of 4.43 to -24.19, from top to bottom.

Breaking down the Value of Farm Production into several components we find that the Top 1/3 farms have much less interest expense at 13% and less operating expense at 59% to generate a positive net earnings of 16% of the Value of Farm Production. The bottom 1/3 farms had much higher interest, depreciation and operating expenses and thus had negative net earnings.

Table 17: Measures of Financial Efficiency on 128 Cash Grain Farms By Net Farm Earnings, Ohio, 1985.

RANKED BY NET FARM EARNINGS					
Financial Characteristics	Unit	Top 1/3	Bottom 1/3	Middle 1/3	All Farms
FINANCIAL EFFICIENCY					
Turnover Ratio	Ratio	.34	.28	.21	.28
Debt Service Ratio	Ratio	12.41	18.41	33.79	19.42
PROFITABILITY					
Net Profit Margin	%	20.90	7.83	-24.24	6.00
ROI	%	7.17	2.17	-5.12	1.69
ROE	%	4.43	-4.76	-24.19	-5.89
Rate of Growth in Equity	%	5.16	-1.19	-18.27	-2.97
EXPENSE AND EARNINGS AS A PERCENT OF VALUE OF FARM PRODUCTION					
Interest	%	12.73	18.22	26.80	17.75
Depreciation	%	12.04	13.52	18.13	13.98
Net Farm Earnings	%	15.75	1.21	-38.36	-1.83
Other Operating Expense	%	59.43	67.05	93.43	70.10
Total	%	100.00	100.00	100.00	100.00
TOTAL EXPENSE AS A PERCENTAGE OF VALUE OF FARM PRODUCTION					
Variable Expense	%	45.44	52.13	77.04	55.26
Fixed Expense	%	38.81	46.65	61.31	46.57
Total	%	84.25	98.79	138.35	101.83

Efficiency and Cost Measures

The top 1/3 of the farms had the highest Value of Crop Production per tillable acre and the lowest Machine cost per tillable acre at \$232.06 and \$71.95, respectively. The bottom 1/3 of the farms had the highest Total Value of Farm production at

\$315.26 but they had the highest Machine Investment, Machine cost, Seed & Plant cost, and Fertilizer & Lime costs. The middle 1/3 had the lowest Crop and Total Value of Production per tillable acre but they also had the lowest costs of either of the other two groups. The middle 1/3 of the farms also had considerably less Total capital per farm at \$516,627 versus an average of \$705,859.

Table 18: Efficiency Measures and Cost Per Tillable Acre on 128 Cash Grain Farms By Net Farm Earnings, Ohio, 1985.

Efficiency Characteristics	Unit	RANKED BY NET FARM EARNINGS			
		Top 1/3	Bottom 1/3	Middle 1/3	All Farms
PRODUCTION EFFICIENCY PER TILLABLE ACRE					
Value of Crop Prod./T.A.	\$/A	\$232.06	\$207.91	\$210.10	\$218.48
Value of Total Prod./T.A.	\$/A	\$305.84	\$266.47	\$315.26	\$296.72
Machinery Investment/T.A.	\$/A	\$164.93	\$147.33	\$196.22	\$168.23
Machinery Cost Per T.A.					
Repair Machinery	\$/A	\$12.51	\$10.50	\$19.06	\$13.70
Custom Hire	\$/A	\$4.46	\$2.22	\$5.38	\$4.05
Fuel & Lube Cost	\$/A	\$15.02	\$14.32	\$18.34	\$15.72
Equip. Depreciation	\$/A	\$27.59	\$22.95	\$33.17	\$27.73
Mchy Invest @7.5%	\$/A	\$12.37	\$11.05	\$14.72	\$12.62
Machinery Cost per T.A.	\$/A	\$71.95	\$61.04	\$90.67	\$73.81
Seed & Plant Cost Per T.A.	\$/A	\$14.47	\$11.80	\$17.41	\$14.42
Fert. & Lime Cost Per T.A.	\$/A	\$37.07	\$29.06	\$47.27	\$37.47
Spray & Chem Cost Per T.A.	\$/A	\$18.72	\$14.43	\$16.05	\$16.72
CAPITAL INVESTMENT					
Feed & Crop Capital	\$	\$134,755	\$66,690	\$85,981	\$95,354
Livestock Capital	\$	\$12,903	\$10,630	\$17,717	\$13,701
Machinery Capital	\$	\$166,364	\$97,811	\$125,194	\$129,290
Land & Building Cap	\$	\$492,820	\$311,162	\$456,457	\$418,443
Other Capital	\$	\$63,336	\$30,333	\$54,434	\$49,070
TOTAL FARM ASSETS	\$	\$870,177	\$516,627	\$739,783	\$705,859

DISTRIBUTION OF FARMS BY SIZE AND DEBT TO ASSET CLASS

The number of farms in each category sorted by both tillable acres and debt to asset ratios is shown in Table 19. 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 Up To 250 acre class is over represented in the high and low debt classes and under represented in the middle debt class. The 250-499 and 750-999 acre farms are under represented slightly in the low debt classes and over represented in the high debt farms. The 500-749 acre farms are heavily over represented in the low debt class and the a majority of the farms over 1000 Plus acres are in the middle debt class.

Table 20 shows the distribution of farm size measured by tillable acres against net farm earnings. The farms under 500 acres are under represented in the top 1/3 farms by net farm earnings and over represented in the bottom 1/3 farms. The 500-749 acre farms are over represented in the top 1/3 farms and under represented in the bottom 1/3 farms. The 750-99 acre farms are evenly distributed over all ranges of net farm earnings. The 1000 Plus farms are over represented on both the top and bottom 1/3 farms and under represented in the middle 1/3. Thus it appears that the larger farms have the highest net farm earnings with the farms under 750 acres forming the majority of the farms in the middle 1/3. The bottom 1/3 is composed of mostly the small farms and the very large farms.

Table 21 shows the distribution of debt to asset ratios by net farm earnings. As expected, the top 1/3 farms are over represented by the low debt loads and under represented by the high debt loads. The bottom 1/3 farms are over represented by farms with high debt and under represented farms low debt. Generally, it appears that the larger farms with low debt are fairly profitable while farms with high debts are definitely having a tough time surviving. It also appears that some of the smaller farms, even with low debt loads, are having a more difficult time surviving. It also appears that some very large farms are experiencing some difficulty with survival.

Table 19: Distribution of 128 Cash Grain Farms By Tillable Acres and Debt to Asset Ratio, Ohio, 1985.

DEBT to ASSET RATIO	FARM SIZE IN ACRES OF CROPLAND				
	Up To 250	251-500	501-750	751-1,000	Over 1000
Up To 40	7 (18)	6 (15)	14 (36)	3 (8)	0 (23)
41 to 70	7 (10)	12 (18)	19 (28)	10 (15)	20 (29)
71 Plus	5 (24)	7 (33)	2 (10)	4 (19)	3 (14)
Total	19 (14)	25 (20)	35 (27)	17 (13)	32 (25)

Note: Number in brackets represent the percent of row total.
Totals may not add due to rounding.

Table 20: Distribution of 128 Cash Grain Farms By Tillable Acres and Net Farm Earnings, Ohio, 1985.

NET FARM EARNINGS	FARM SIZE IN ACRES OF CROPLAND					Total
	Up To 250	251-500	501-750	751-1,000	Over 1000	
Top 1/3	1 (2)	4 (10)	14 (33)	6 (14)	17 (40)	42 (100)
Middle 1/3	9 (20)	10 (23)	13 (30)	6 (14)	6 (14)	44 (100)
Bottom 1/3	9 (21)	11 (26)	8 (19)	5 (12)	9 (21)	42 (100)
Total	19 (15)	25 (20)	35 (27)	17 (13)	32 (25)	128 (100)

Note: Number in brackets represent the percent of row total.
Totals may not add due to rounding

Table 21: Distribution of 128 Cash Grain Farms By Debt to Asset and Net Farm Earnings, Ohio, 1985.

NET FARM EARNINGS	DEBT TO ASSET RATIOS			
	Up To 40	41-70	71 Plus	TOTAL
Top 1/3	19 (45)	22 (52)	1 (2)	42 (100)
Middle 1/3	13 (30)	23 (52)	8 (18)	44 (100)
Bottom 1/3	7 (17)	23 (55)	12 (29)	42 (100)
Total	39 (30)	68 (53)	21 (16)	128 (100)

Note: Number in brackets represent the percent of row total.
Totals may not add due to rounding.

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: Total net earnings divided by total equity.

RETURN to EQUITY: Net farm earnings minus operator labor draw.

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

RETURN to INVESTMENT: Net Farm Earnings plus interest paid minus operator labor draw.

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

RETURN to UNPAID LABOR and MANAGEMENT: Net farm earnings minus 6% of total equity.

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.