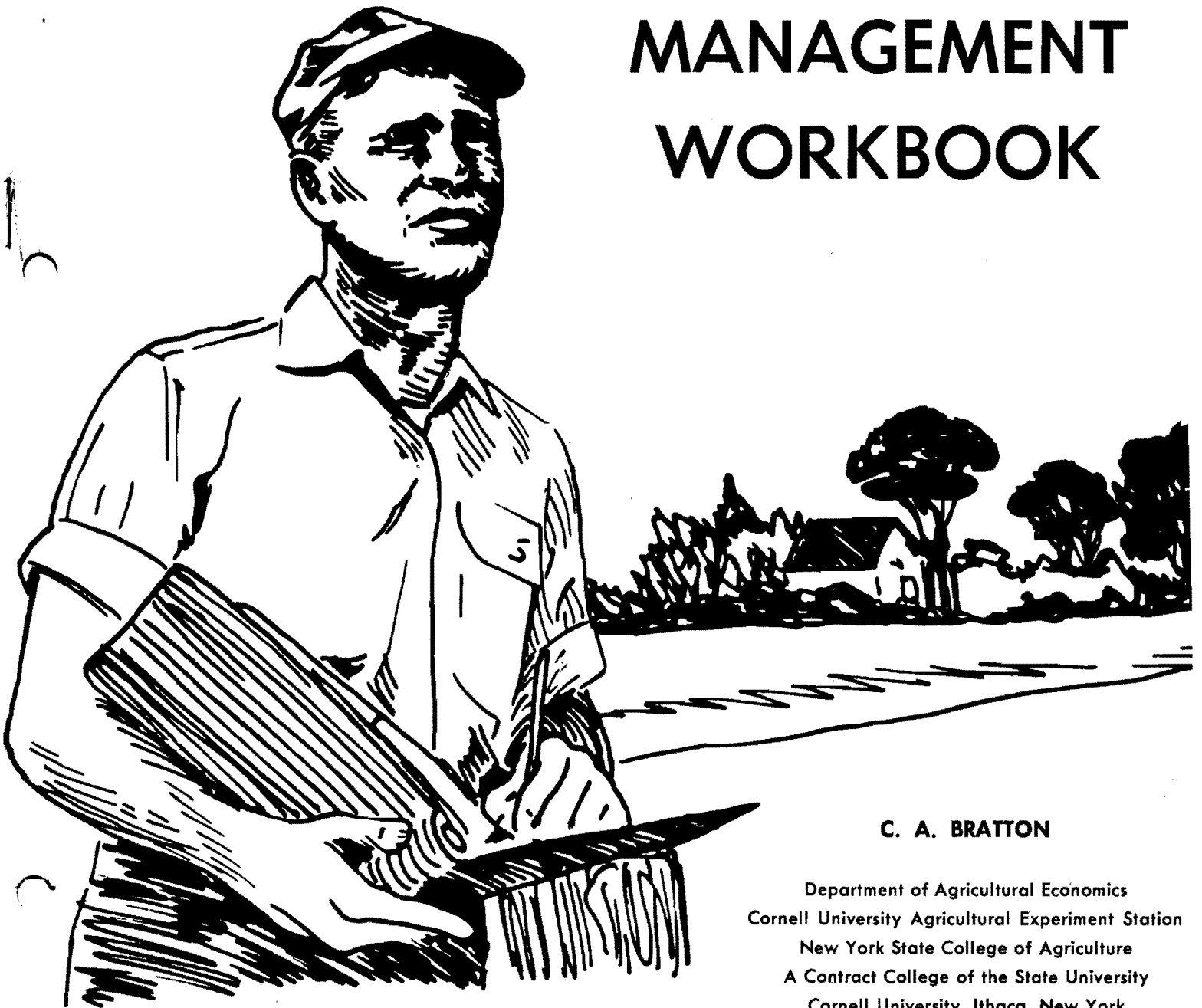


1964 DAIRY FARM MANAGEMENT WORKBOOK



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TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
PART I - SUMMARY OF THE FARM BUSINESS	2
Labor, Livestock, and Crops Grown	2
Inventory Values	3
Receipts	4
Expenses	6
Measures of Income	8
PART II - ANALYSIS OF THE FARM BUSINESS	10
Size of Business	10
Rates of Production	12
Labor Efficiency	13
Cost Control	14
Feed Costs	14
Power and Machinery Costs	16
Labor and Machinery Costs	18
Capital Efficiency	19
Farm Business Chart	20
Financial Situation	22
Family Living Expenditures	24
Budgeting	25
Selected Farm Business Summary Factors, 1961-1964	26
Farm Business Summary (Average of 434 New York Dairy Farms, 1964)	27

ACKNOWLEDGEMENT

C. A. Bratton, C. W. Loomis, G. C. Smith, R. S. Smith, and L. A. Stanton with the assistance of county agricultural agents in 38 counties supervised the farm business management projects and the records which made this summary and analysis possible. The summarization and tabulation of the books processed at Cornell was under the direction of G. H. Bull. Myrtle Voorheis was in charge of transferring the data to cards and all machine operations needed to calculate the various relationships used.

1964 DAIRY FARM MANAGEMENT WORKBOOK

"It's the MAN in Management that counts." This popular saying is just as true in farming as in any other business. The farmer and his wife are the key figures in the successful operation of a farm business.

Every manager is challenged to find ways to improve his managerial skills. This may mean developing a systematic approach to management problems along with learning about tools which can be used in making management decisions.

The Farm Business Management Projects sponsored by the Extension Service are designed to help farm families develop their managerial skills. The projects are organized by counties and families participate on a voluntary basis.

Financial records are considered to be an essential tool in managing a modern-day farm. Families in the farm business management projects agree to keep a farm inventory, crop records, and income and expense records. At the end of the year, the individual records are summarized and county summary reports are prepared.

In 1964, business management projects were sponsored for dairy farmers, poultrymen, grape growers, potato farmers, and beef cattlemen. In addition, a group of farm families participated in an electronic farm accounting project. Each individual cooperator in these various projects was provided a summary and analysis of his own business and a group summary for comparison purposes. Meetings were held in the counties to discuss the results with the cooperators.

This Dairy Farm Management Workbook is a management tool. The workbook is organized so that it provides a systematic way of summarizing and analyzing a farm business. It can be used by a farm family, extension agent, teacher, or agribusinessman who wishes to study a particular business.

Comparisons are useful in any analysis. In this workbook, a summary of the records of 434 farm business management cooperators, who had dairy as the only major enterprise, has been included for comparative purposes. The records were divided into three herd size groups for summary purposes. In addition, averages have been included for the 10 percent of the farms with the highest labor incomes. In the back is a general summary of all 434 farms.

Cooperators in the farm business management projects represent a cross section of commercial farm operators, but they do not represent the "average" for the State. Averages for the cooperators are somewhat above those of all farmers in the State. For example, the cooperators averaged 40 cows while the State average for all farms is only 32 cows. Likewise, the average pounds of milk sold for the 434 cooperators was 11,260 pounds compared with 8,650 for all farms in the State.

A tool for your kit. Persons working with farmers on management problems may wish to add this workbook to their set of management tools.

Inventory Values

An inventory is a basic part of any financial record for a business. Farm business management cooperators take an inventory of all farm property as of January first each year.

An inventory is a list of the numbers or amounts of items owned along with the value. It is suggested that the current market value be used. This is often defined as what the item might bring at a well-attended farm auction.

The inventory books provide space for listing each individual item with its value. These values are added for summary purposes. There is also a section for liabilities in the inventory books. These have not been summarized for the 434 farms. Families, however, are urged to inventory their liabilities, and calculate their net worth.

Below are the averages for the end of year inventories by major classes of items. This gives a measure of the capital investment for the business.

FARM INVENTORY VALUES, JANUARY 1, 1965
434 New York Dairy Farms, 1964

Item	My farm	Average of farms with			Average of top 10% by labor income
		Less than 30 cows	30-49 cows	50 cows and over	
Machinery and equipment	\$ _____	\$ 7,611	\$12,215	\$19,596	\$16,080
Cattle	_____	8,666	13,855	23,735	21,865
Feed and supplies	_____	2,163	3,451	5,780	5,324
Land and buildings	_____	18,134	25,027	47,326	37,044
TOTAL INVESTMENT	\$ _____	\$36,574	\$54,548	\$96,437	\$80,313

In a growing business, the inventory values usually increase from the beginning to the end of the year. For the 434 dairy farms in 1964, a total of 322 farms showed an increase in inventory while 112 farms showed a decrease. The average net increase (increases minus decreases) was \$2,902 per farm. This is a 5 percent increase in inventory during the year.

For the 434 farms, there was an increase of about \$1,500 in land and buildings, \$1,000 in machinery and equipment, and \$500 in livestock. For feed and supplies, there was a decrease of about \$100 (see inside back cover).

Farm receipts include all the cash receipts plus increase in inventory. Receipts from work off the farm by the operator are included as a receipt. Off-farm receipts of the farmer's wife or other members of the family are not included.

Increase in inventory is the amount that the end-of-year inventory exceeds the beginning inventory. It is due to expansion and is a common occurrence in "going" farm businesses. It may be due to more cows, more machinery and equipment, additions to the real estate, or a better feed situation.

Increases in inventory are considered as farm receipts. These items could have been sold and turned into cash receipts, but the farmer decided to leave them in his business. The costs of producing or acquiring these items are included in the farm expenses.

The gross milk sales are entered in the receipts in these accounts. Expenses deducted by the milk plant have been entered as a farm expense. This puts the milk receipts from all farms on a comparable basis.

The average price of milk is found by dividing the gross milk receipts for the year by the total cwt. of milk sold during the year. Differences in average price may be due to distance from markets, season produced, etc. Milk price is not a major factor in the success or failure of a particular business. This is borne out by the fact that the high income farmers (top 10 percent by labor income) received an average of nine cents less for their milk than those with 50 cows and over, and two cents less than those with 30-49 cows.

Notice that the prices given are for "Cwt. of 3.7 milk sold." All milk is converted to 3.7% test so that the milk price can be compared with groups of other farms regardless of the butterfat level of the herd.

To convert the milk sold on a particular farm to 3.7% test, one must multiply the total pounds of milk sold by the conversion factor for his average test found in the table below. For example, 300,000 lbs. of 4.0% milk would be converted by $(300,000 \times 1.046 = 313,800 \text{ lbs. } 3.7\% \text{ equivalent})$.

Total pounds milk sold		
Conversion factor (see table)	X	
POUNDS OF 3.7% MILK SOLD		

FACTORS FOR CONVERTING MILK TO 3.7% TEST

Average Test	Conversion Factor	Average Test	Conversion Factor	Average Test	Conversion Factor
3.0	.889	4.0	1.046	5.0	1.203
3.1	.905	4.1	1.062	5.1	1.219
3.2	.920	4.2	1.077	5.2	1.234
3.3	.936	4.3	1.093	5.3	1.250
3.4	.952	4.4	1.109	5.4	1.266
3.5	.968	4.5	1.124	5.5	1.282
3.6	.984	4.6	1.140	5.6	1.297
3.7	1.000	4.7	1.156	5.7	1.313
3.8	1.015	4.8	1.172	5.8	1.329
3.9	1.030	4.9	1.187	5.9	1.344

The expense classification used here is taken from the "Cornell Farm Account Book." In case of question as to where to enter a specific item, see the inside back cover of the farm account book.

Hired labor should include wages to all full-time employees, part-time employees, piece workers, any social security paid by the employer on his employees, the cash cost of board for any hired men boarded by the operator, or items such as fuel for the house of a hired man.

Dairy concentrate refers to any grain purchased for the dairy herd. Feed grinding is included with dairy concentrate. Hay for the dairy and any feed for other livestock are entered in "other feed." On the farms used for comparison, dairy concentrate amounted to about 40 percent of the total cash operating expenses.

Land, building and fence repairs include not only those expenses of maintaining the farm buildings, etc. but also the cost of maintaining the operator's house. Since income for analysis purposes assumes that the operator has free use of a house and privileges, the cost of maintaining the house is included in farm expenses. For income tax returns, however, house repairs must be taken out.

Capital items include new machinery, new real estate, and purchased livestock. These are not considered as part of total cash operating expenses but are included in total farm expenses. Machinery purchases to offset depreciation and the purchase of replacement cows could logically be included in the cash operating expenses. Because of difficulty in dividing up between depreciation and added investment, they are all carried here as capital expense.

Unpaid family labor refers to work done by members of the family who are not paid cash wages. For the 434 farms used for comparison, this item was calculated by determining how many months of unpaid labor was performed on each farm and then this was charged to the business at \$150 per month.

Even though the operator does not pay cash for this labor, it is assumed that he would have to hire it if the family were not available. Therefore, in order to measure the success of the business and to compare a business with similar businesses, a charge must be included for unpaid labor.

Decrease in inventory is the result of the end farm inventory being smaller than the beginning inventory. In a farm business, a decrease in inventory may result if feed supplies are short due to a drought year, if the operator fails to buy enough machinery to maintain the machinery inventory or sells livestock without replacing them. Some individual farm businesses have a decrease in inventory but for the total of the 434 farms, the increases were greater than the decreases. For this reason, in the figures for comparison, there is no decrease shown.

RETURN ON INVESTMENT
434 New York Dairy Farms, 1964

Item	My farm	Average of farms with			Average of top 10% by labor income
		Less than 30 cows	30-49 cows	50 cows and over	
Farm income	\$ _____	\$ 3,731	\$ 6,015	\$ 9,085	\$13,160
Value of operators' labor*	_____	<u>3,635</u>	<u>3,868</u>	<u>4,427</u>	<u>3,683</u>
Return on investment	\$ _____	\$ 96	\$ 2,147	\$ 4,658	\$ 9,477
Average capital investment	\$ _____	\$35,784	\$53,257	\$93,750	\$77,397
Rate of return on investment	_____%	.3%	4%	5%	12%

*\$3,600 per year per operator.

The return on investment is calculated by deducting a charge for the operators' labor from the "farm income." This return is then divided by the average investment for the year to determine the rate of return on investment.

Rate of return on investment is used much more in non-farm businesses than in farm businesses. Farmers have usually thought more in terms of return to their labor. However, it is useful to look at the rate of return on investment.

The operators' labor has been estimated at \$3,600 per year. This is about the equivalent of top hired men's wages. Over the years, studies have shown that operators generally receive for their labor and management about the same return as a good hired man.

FARM CASH OPERATING INCOME
434 New York Dairy Farms, 1964

Item	My farm	Average of farms with			Average of top 10% by labor income
		Less than 30 cows	30-49 cows	50 cows and over	
Total Cash Receipts	\$ _____	\$13,063	\$21,576	\$37,522	\$34,083
Total Cash Operating Expenses	_____	<u>8,007</u>	<u>13,166</u>	<u>24,491</u>	<u>19,724</u>
FARM CASH OPERATING INCOME	\$ _____	\$ 5,056	\$ 8,410	\$13,031	\$14,359

"Farm Cash Operating Income" reflects the cash available from the year's operation of the farm business for family living, debts, and new capital purchases or investments. If non-farm income was earned by some member of the family or if money was inherited or borrowed, the actual cash used might be greater than the amount shown here.

Number of cows is the average number for the year. Where available, the D.H.I.A. yearly averages are used. This is the measure used most in studying the effect of size on labor income in dairy businesses.

Pounds of 3.7 milk sold is a measure of size based on output. For a dairy farm this is a useful measure.

Total acres in crops is an important factor to be aware of but is not widely used as a measure of size for dairy farms.

Labor is another measure of size and is especially important when comparing different types of business. Man equivalent is the amount of labor performed on the farm during the year in terms of full-time man equivalent. Part-time workers or boys are converted to a full-time man equivalent.

Total work units represents the number of productive man days that would be required, under average conditions, to care for the acreage of crops grown and the number of livestock kept on the farm. A list of the work units and a worksheet for calculating total work units is in the back of the "Cornell Farm Account Book."

Total receipts is another measure of output and is sometimes used as an indicator of size.

Total investment measures size in terms of the total capital invested in the business.

COWS PER FARM AND LABOR INCOME
434 New York Dairy Farms, 1964

Number of cows	Number of farms	Labor income per operator
Under 20	11	\$ 695
20 - 29	93	\$2,080
30 - 39	144	\$3,029
40 - 49	99	\$3,345
50 - 59	48	\$2,857
60 & over	39	\$4,801

The table above illustrates how, in general, larger businesses make larger incomes. It is of interest to note that the 50-59 cow group had a lower average income than the 40-49 cow group. This frequently shows in studying size relations. It may well indicate a somewhat inefficient size unit in dairy farms.

Labor Efficiency

Labor efficiency is sometimes claimed to be the most important single factor on farms today. This is brought about by the rapidly rising wage rates relative to machinery prices. If a farmer wants top efficiency from his hired men's time as well as his own, he must keep a close watch on the factors which affect labor efficiency.

MEASURES OF LABOR EFFICIENCY 434 New York Dairy Farms, 1964

Measure	My farm	Average of farms with			Average of top 10% by labor income
		Less than 30 cows	30-49 cows	50 cows and over	
Number of cows per man		18	24	27	28
Pounds of 3.7 milk sold per man		200,400	268,400	306,800	337,300
Work units per man		248	304	325	346
Crop acres per man		58	64	61	70

Cows per man and pounds of milk sold per man are the most commonly used measures of labor efficiency on dairy farms. Man equivalent is used in calculating the "per man" measures.

In general, the larger farms had higher rates of labor efficiency. The farms with 50 cows and over averaged nine more cows per man and over 100,000 more pounds milk per man than the farms with less than 30 cows.

POUNDS OF MILK SOLD PER MAN AND LABOR INCOME 434 New York Dairy Farms, 1964

Pounds milk sold per man	Farms with less than 30 cows		Farms with 30-49 cows		Farms with 50 cows and over	
	Number of farms	Labor income	Number of farms	Labor income	Number of farms	Labor income
Under 250,000	77	\$1,391	94	\$2,024	21	\$2,132
250,000-349,999	27	\$3,482	109	\$3,400	44	\$3,378
350,000 & over	0	--	40	\$5,165	22	\$5,953

When labor efficiency is related to labor income as in the table above, two factors become obvious. One is that the more pounds of milk sold per man the higher the labor income per operator. This is illustrated in all three size groups. The other factor is that a much higher percentage of the large farms have high labor efficiency. One-fourth of the farms with 50 cows or over sold 350,000 pounds or more milk per man, while none of the small-size group accomplished this.

Cost control is more difficult to measure than the other factors. This is due in part to the number of expenses in a farm business and their inter-relationship. For example, labor costs are dependent on the amount of machinery and in turn machinery costs. Another reason why cost control is difficult to evaluate is that costs can be too low as well as too high. It is possible to cut costs to the point that they reduce efficiency.

Even though cost control is difficult to measure, it is important to use the best guides available since costs are often the weakest point in the business. Proceed with your cost control analysis with care.

Feed cost is the largest single expense on most dairy farms. It is influenced by many things such as, the amount of home-grown grain, quantity and quality of roughage, and number of young stock. Measures of selected items related to feed costs are given on page 14.

Feed bought as percent of milk receipts is one of the better measures for looking at feed cost. It is calculated by dividing dairy feed bought by milk receipts. This measure is most useful in locating farms with high feed costs. If your analysis shows the percentage of milk receipts going for feed to be above 30 percent, it probably suggests that you might well take a close look at your feed program.

PERCENT PURCHASED FEED IS OF MILK RECEIPTS
434 New York Dairy Farms, 1964

Feed bought as percent of milk receipts	Farms with <u>less than 30 cows</u>		Farms with <u>30-49 cows</u>		Farms with <u>50 cows and over</u>	
	Number of farms	Labor income	Number of farms	Labor income	Number of farms	Labor income
Under 25%	22	\$3,132	53	\$4,488	11	\$3,673
25 - 34%	36	\$2,214	119	\$3,362	51	\$4,134
35 - 44%	36	\$1,182	52	\$2,325	22	\$3,596
45% & over	10	\$996	19	\$451	3	\$-2,001

The table above illustrates generally how percent purchased feed is of milk receipts relates to labor income. In general, as the percent of the milk check going for feed went up, the labor income went down. The highest income on the large farms was in the 25-34 percent range. In analyzing an individual farm, one must also look at the other related items.

Capital Efficiency

Capital efficiency is a far more important factor on farms today than many people realize. This is because dairy farming requires an ever increasing amount of capital. However, capital like all other costs to the business can get out of line. This may result from too much money tied up in non-productive items such as, an expensive house, or an unnecessarily elaborate barn; or from not using the investment fully such as, a barn that is only half full of cows.

The end inventory figures were used in calculating the various measures of capital efficiency in the table below.

MEASURES OF CAPITAL EFFICIENCY 434 New York Dairy Farms, 1964

Measure	My farm	Average of farms with			Average of top 10% by labor income
		Less than 30 cows	30-49 cows	50 cows and over	
Total capital per man	\$ _____	\$28,134	\$34,092	\$40,182	\$40,156
Total capital per cow	\$ _____	\$1,524	\$1,435	\$1,507	\$1,460
Total capital per cwt. of milk sold	\$ _____	\$14	\$13	\$13	\$12
Total machinery and equipment per cow	\$ _____	\$317	\$321	\$306	\$292
Total land and building investment per cow	\$ _____	\$756	\$659	\$739	\$674

When capital per cow is related to labor income, there are differences in the relationship for each size group. It is not possible to point out any definite relationships from these data.

CAPITAL PER COW AND LABOR INCOME 434 New York Dairy Farms, 1964

Total capital per cow	Farms with less than 30 cows		Farms with 30-49 cows		Farms with 50 cows and over	
	Number of farms	Labor income	Number of farms	Labor income	Number of farms	Labor income
Under \$1,200	22	\$1,735	73	\$3,281	20	\$3,057
\$1,200 - \$1,599	47	\$2,421	101	\$3,192	39	\$3,700
\$1,600 & over	35	\$1,405	69	\$2,978	28	\$4,248

The Farm Business Chart on page 20 is an important tool in determining the strength or weakness of various business factors. It not only lets one compare a particular factor with the average but also shows how far above or below average each factor falls.

The top figure in each column is the average of the top 10 percent of the farms for that factor. The other figures in the column are "the next best 10 percent," etc. For example, when sorted on milk per cow, the 10 percent of farms with the highest production per cow averaged 14,300 pounds of 3.7 percent milk sold per cow. The 10 percent with the lowest production per cow averaged 7,800 pounds.

In using this chart, keep in mind that each column is independent of the others. The farms in the top 10 percent for one factor would not be the same farms in the top 10 percent for the factor in the next column.

Take a pencil and draw a line through each column which will show where the particular farm being analyzed stands. Then list below the factors that are particularly strong and those that are particularly weak. With these important factors listed plus a consideration of the financial situation and goals and objectives, the manager is in a good position to start considering what changes should be made in the business.

STRONG POINTS:

WEAK POINTS:

Most commercial farmers find it impossible to operate an efficient and profitable business without using credit. When used in reasonable amounts and under reasonable terms, credit is an extremely valuable asset to successful management.

FARM FAMILY DEBTS

	My Farm	126 Dairy Farms		Change
		1962	1964	
<u>Debts</u>				
Real estate debt	\$ _____	\$11,499	\$13,585	\$2,086
Chattle mortgages on cattle and equipment	_____	7,337	7,463	126
Unsecured notes	_____	1,801	2,231	430
Installment contracts	_____	400	691	291
Feed account	_____	658	634	- 24
Other debts	_____	780	830	50
Total Debts	\$ _____	\$22,475	\$25,434	\$2,959
Total Assets	\$ _____	\$71,309	\$80,274	\$8,965
Total Debts	_____	22,475	25,434	2,959
Net Worth	\$ _____	\$48,834	\$54,840	\$6,006
% Equity	_____ %	68%	68%	--
Ratio of Debt to <u>Farm</u> Assets	_____	1- 2.6	1- 2.6	--
Number of cows	_____	40	42	2
Debt per cow	\$ _____	\$562	\$605	\$43

Financial institutions serving farmers are usually reluctant to lend over 50-60 percent of the value of farm assets. It is also true that most farm businesses are not profitable enough to carry a debt load of over 50-60 percent and meet all other family and business financial obligations.

Any farmer can obtain a general picture of his financial status relative to other farmers by using the figures presented here for comparison. In appraising one's financial position, it is important to keep two points in mind; first, the ability to carry debt varies greatly from one business and one family to another; and second, unreasonable repayment terms cause trouble more often than too much credit.

Budgeting

When a farm manager considers making a change in his business, there are usually two or three alternative solutions to the problem. The outline below is a guide to help the farmer compare these alternatives. If the change is to be a major one, the farm manager may wish to consult with his county agricultural agent since he is experienced in the techniques of budgeting and has in his possession considerable reference material that is helpful when comparing alternatives.

	<u>My business in 1964</u>	<u>Proposed Change #1</u>	<u>Proposed Change #2</u>
I. <u>Farm Receipts</u>			
Milk sales, gross	\$ _____	\$ _____	\$ _____
Livestock sales	_____	_____	_____
Egg sales	_____	_____	_____
Crop sales	_____	_____	_____
Miscellaneous receipts	_____	_____	_____
Total Cash Receipts	_____	_____	_____
Increase in inventory	_____	_____	_____
Total Farm Receipts	\$ _____	\$ _____	\$ _____
II. <u>Farm Expenses</u>			
Hired labor	\$ _____	\$ _____	\$ _____
Dairy feed bought	_____	_____	_____
_____ feed bought	_____	_____	_____
Machine hire	_____	_____	_____
Truck, tractor, machinery	_____	_____	_____
Auto expense (farm share)	_____	_____	_____
Gasoline and oil	_____	_____	_____
Breeding fees	_____	_____	_____
Veterinary and medicine	_____	_____	_____
Other livestock, poultry exp.	_____	_____	_____
Lime and fertilizer	_____	_____	_____
Seeds and plants	_____	_____	_____
Spray, other crop expense	_____	_____	_____
Land, building, fence expense	_____	_____	_____
Taxes, insurance	_____	_____	_____
Electricity, telephone (f.s.)	_____	_____	_____
Miscellaneous	_____	_____	_____
Total Cash Operating Expenses	_____	_____	_____
New machinery	_____	_____	_____
New real estate	_____	_____	_____
Livestock purchases	_____	_____	_____
Unpaid family labor	_____	_____	_____
Decrease in inventory	_____	_____	_____
Total Farm Expenses	\$ _____	\$ _____	\$ _____
III. <u>Farm Financial Summary</u>			
Capital Investment	\$ _____	\$ _____	\$ _____
Total Farm Receipts	\$ _____	\$ _____	\$ _____
Total Farm Expenses	_____	_____	_____
Farm Income	\$ _____	\$ _____	\$ _____
Interest on Capital	_____	_____	_____
LABOR INCOME	\$ _____	\$ _____	\$ _____