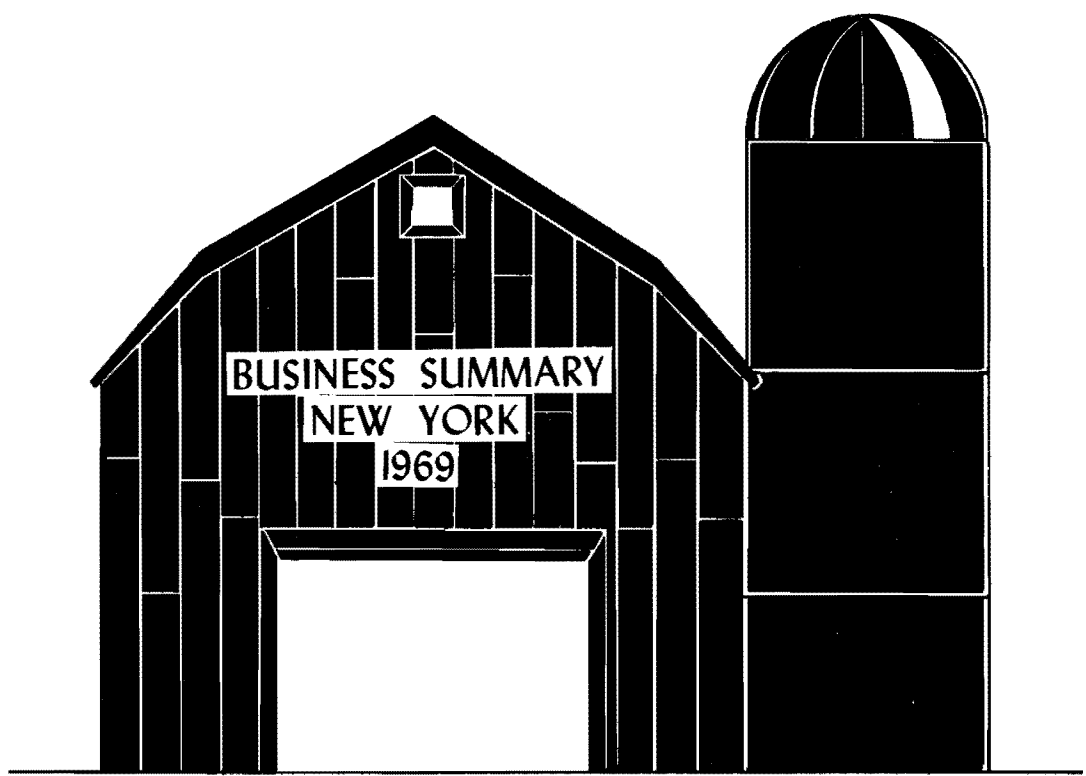


*Casler*

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# DAIRY FARM MANAGEMENT



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## INTRODUCTION

Each year a group of New York dairymen participate in a college sponsored farm business management project. This project serves a dual purpose. It provides the basis for extension management programs and also data for an applied research project.

Farm business records are kept by each dairyman. Some use farm account books for keeping records while others participate in electronic farm accounting programs. In all cases the information is submitted to the college for summary and analysis.

Extension agents cooperate in the organization of local groups and in collection of the data. Regional reports on the results are prepared for use by the agents in their winter and spring educational meetings with farmers. The aim of these extension activities is to help the dairy cooperators with their current management problems.

The records from all parts of the State are combined and used as the basis for a research project to study factors affecting dairy farm incomes. Two major purposes of this research are to keep abreast of the rapid changes that are taking place in dairy farming and to provide current farm business data for use by dairymen, extension agents, teachers, agribusinessmen, policy-makers, and others concerned with the New York dairy industry.

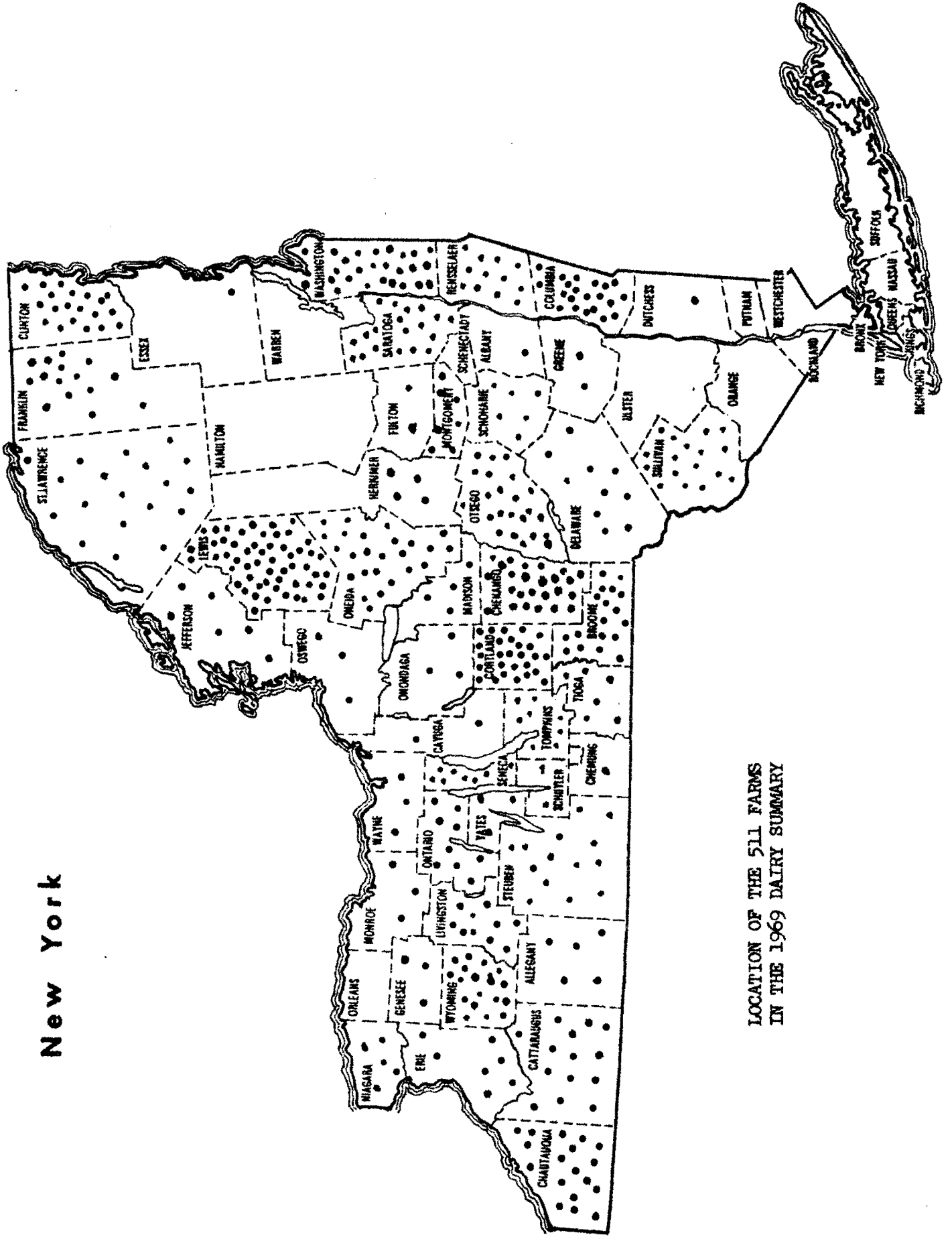
A total of 511 farm business records were included in the dairy summary for 1969. Farms with combinations of dairy and other major enterprises were excluded from the analysis reported in this publication.

The farms included in this study do NOT represent the average of all dairy farms in the State. Participation in the project was on a voluntary basis. Cooperators were located in various parts of the State but not all areas were represented. In general the 511 farms represent a cross section of commercial operators but are better than the average for all dairy farms in the State. For example, the median number of cows for the 511 farms was 51 while the State median was 38 and the milk sold per cow was 12,600 compared with the statewide median of 10,000 pounds.

### Acknowledgements

C.A. Bratton, G. L. Casler, G. J. Conneman, C. W. Loomis, A. C. Lowry, R. S. Smith, and S. F. Smith with the assistance of the Cooperative Extension Agents supervised the farm business management projects and the records which made this summary possible. Summarization and tabulation of the records and all machine operations were completed under the supervision of Myrtle Voorheis and the typing was done by Wendy Roby and Sara Hall.

# New York



LOCATION OF THE 511 FARMS  
IN THE 1969 DAIRY SUMMARY

Growing ConditionsTable 1. TEMPERATURE, GROWING SEASON AND PRECIPITATION  
Selected Stations, 1947-67 and 1969

| Station      | Average temperature |      | Precipitation     |      |              |      | Length of growing season* |      |
|--------------|---------------------|------|-------------------|------|--------------|------|---------------------------|------|
|              | May through Sept.   |      | May through Sept. |      | Total annual |      | 1947-67 1969              |      |
|              | 1947-67             | 1969 | 1947-67           | 1969 | 1947-67      | 1969 | 1947-67                   | 1969 |
|              | Degrees             |      | Inches            |      |              |      | Days                      |      |
| Alfred       | 61.8                | 61.7 | 16.8              | 13.9 | 36.7         | 35.2 | 122                       | 135  |
| Auburn       | 64.7                | 64.1 | 13.4              | 16.6 | 31.1         | 32.5 | 174                       | 174  |
| Batavia      | 64.4                | 64.8 | 14.7              | 17.1 | 31.8         | 36.1 | 152                       | 167  |
| Canton       | 63.0                | 61.6 | 16.9              | 17.8 | 34.9         | 33.2 | 127                       | 114  |
| Lowville     | 62.3                | 62.1 | 15.7              | 19.6 | 38.0         | 39.9 | 120                       | 115  |
| Norwich      | 61.7                | 61.7 | 18.1              | 15.0 | 40.1         | 37.0 | 118                       | 115  |
| Poughkeepsie | 68.2                | 66.6 | 16.4              | 19.3 | 38.2         | 41.5 | 171                       | 163  |
| Salem        | 62.5                | 62.9 | 17.8              | 17.8 | 39.0         | 39.0 | 118                       | 115  |
| Utica        | 63.8                | 64.0 | 17.7              | 18.0 | 39.8         | 43.8 | 157                       | 148  |

\*Days between the last temperature of 32° in the spring and the first in the fall.

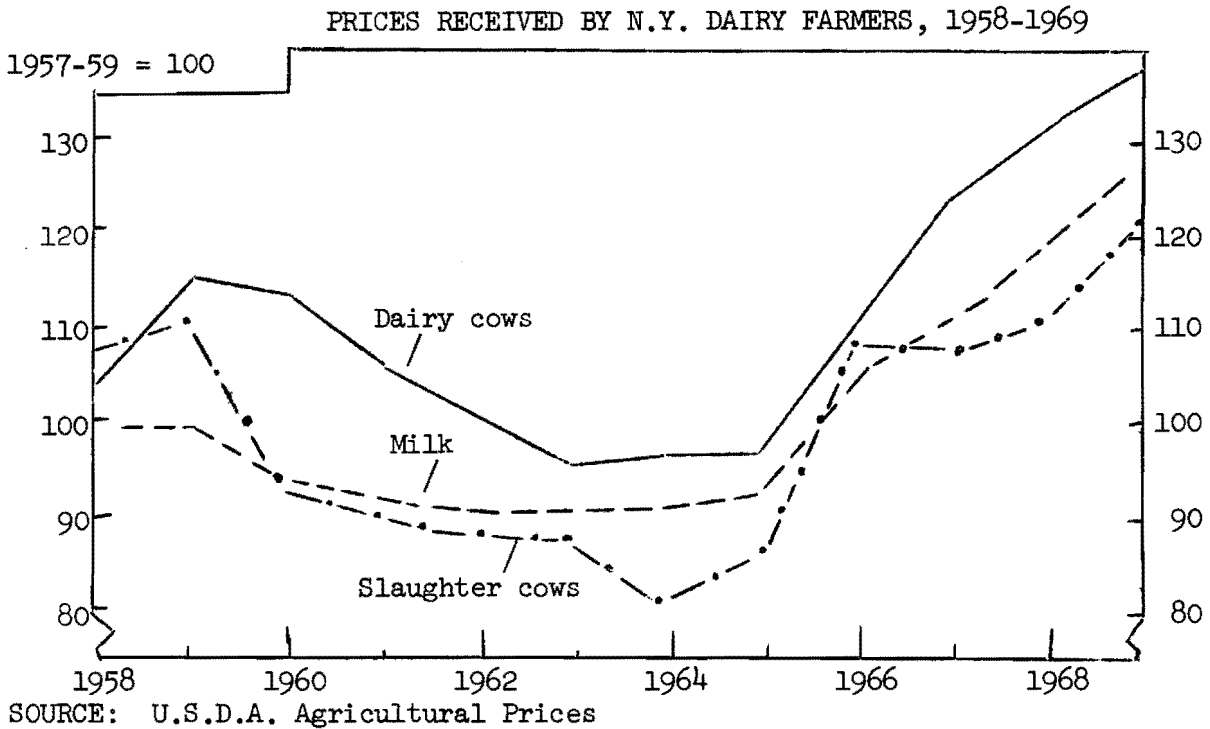
The weather is a factor to be considered when studying a farm business for a specific year. The growing conditions have a marked effect on the crops for the year. It is for this reason that data are presented on the growing conditions for 1969 and for the period 1947-67.

In general, the 1969 growing season can be characterized as having near normal temperatures, a slightly shorter growing season and about normal annual rainfall. Conditions varied from area to area in the State. Data are presented for nine weather stations. The rainfall is reported by months for the growing season. May, June, and July were wet in most areas while August and September were dry (Table 2).

Table 2. GROWING SEASON RAINFALL  
Selected Stations, 1947-67 and 1969

| Station      | May     |      | June    |      | July    |      | August  |      | September |      |
|--------------|---------|------|---------|------|---------|------|---------|------|-----------|------|
|              | 1947-67 | 1969 | 1947-67 | 1969 | 1947-67 | 1969 | 1947-67 | 1969 | 1947-67   | 1969 |
| Alfred       | 3.43    | 1.60 | 3.68    | 5.23 | 3.51    | 4.38 | 3.34    | 1.65 | 2.88      | 1.00 |
| Auburn       | 2.64    | 5.41 | 2.61    | 5.50 | 3.25    | 3.43 | 2.80    | 1.01 | 2.12      | 1.26 |
| Batavia      | 3.02    | 4.12 | 2.62    | 4.68 | 2.85    | 3.86 | 3.54    | 1.81 | 2.71      | 2.60 |
| Canton       | 3.33    | 3.31 | 2.88    | 6.06 | 3.40    | 3.42 | 4.00    | 2.45 | 3.25      | 2.61 |
| Lowville     | 3.26    | 5.90 | 2.77    | 6.79 | 3.15    | 2.92 | 3.73    | 1.80 | 2.82      | 2.16 |
| Norwich      | 3.54    | 2.42 | 4.16    | 4.60 | 4.02    | 3.86 | 3.13    | 2.54 | 3.24      | 1.56 |
| Poughkeepsie | 3.10    | 3.27 | 2.98    | 4.16 | 3.23    | 5.06 | 3.76    | 3.60 | 3.31      | 3.25 |
| Salem        | 3.55    | 3.66 | 3.40    | 4.06 | 3.87    | 3.85 | 3.45    | 3.00 | 3.35      | 3.26 |
| Utica        | 3.40    | 4.87 | 3.20    | 5.27 | 4.46    | 1.16 | 3.60    | 3.86 | 3.06      | 2.86 |

SOURCE: Climatological Data, New York, Environmental Data Service, ESSA, U.S. Department of Commerce.

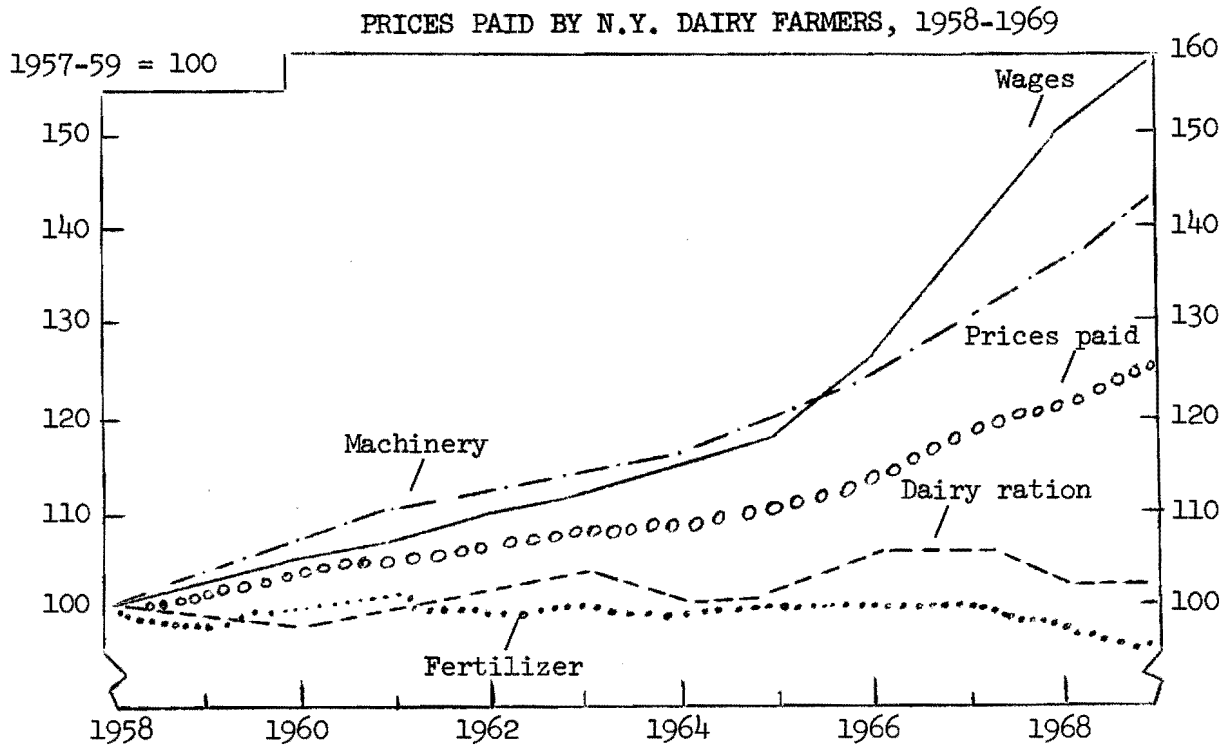
Prices

Prices are an important business factor. The relationship of prices received to prices paid determines the general level of incomes. A look at the 1969 price situation for the major items dairymen sell gives some perspective on the price climate for the year of this study.

Milk prices for 1969 averaged \$5.66 compared with \$5.43 in 1968 and \$4.14 in 1962. Both dairy and slaughter cow prices in 1969 were at new highs for recent years. In general, prices received by dairymen in 1969 were good.

Table 3. PRICES RECEIVED FOR MILK AND COWS BY N.Y. FARMERS, 1958-69

| Year | Milk<br>3.5% B.F.<br>(cwt.) | Slaughter<br>cows<br>(cwt.) | Dairy<br>cows<br>(head) | Monthly farm price<br>per 100 pounds<br>of milk, 1969 |
|------|-----------------------------|-----------------------------|-------------------------|---|
| 1958 | \$4.55                      | \$17.30                     | \$255                   | January \$5.86  |
| 1959 | 4.58                        | 17.80                       | 284                     | February 5.80   |
| 1960 | 4.31                        | 15.00                       | 278                     | March 5.57  |
| 1961 | 4.20                        | 14.60                       | 260                     | April 5.40  |
| 1962 | 4.14                        | 14.26                       | 245                     | May 5.21  |
| 1963 | 4.15                        | 14.01                       | 234                     | June 5.18   |
| 1964 | 4.21                        | 13.17                       | 237                     | July 5.67   |
| 1965 | 4.27                        | 13.91                       | 238                     | August 6.07   |
| 1966 | 4.79                        | 17.35                       | 271                     | September 6.32  |
| 1967 | 5.07                        | 17.32                       | 303                     | October 6.42  |
| 1968 | 5.43                        | 17.72                       | 320                     | November 6.37   |
| 1969 | 5.66                        | 19.42                       | 336                     | December 6.08   |



While prices paid by New York dairy farmers generally have been rising, some items have changed more than others. Farm wages have increased the most. Fertilizer prices have declined slightly, and feed prices have fluctuated but have changed little. The overall index of prices paid by New York dairy farmers in 1969 was up 5 percent from 1968 and was 22 percent higher than 1959.

Table 4. PRICES PAID BY NEW YORK DAIRY FARMERS, 1958-1969

| Year | Index 1957-59 = 100 |            |       |           | Prices paid<br>by New York<br>dairy farmers | Dairy<br>ration<br>(cwt.) | Wages<br>per month<br>with house |
|------|---------------------|------------|-------|-----------|---|---------------------------|----------------------------------|
|      | Feed                | Fertilizer | Wages | Machinery |   |                           |                                  |
| 1958 | 100                 | 100        | 100   | 100       | 100   | \$3.52                    | \$199                            |
| 1959 | 100                 | 99         | 103   | 104       | 102   | 3.55                      | 204                              |
| 1960 | 99                  | 100        | 106   | 107       | 104   | 3.55                      | 210                              |
| 1961 | 100                 | 101        | 107   | 110       | 105   | 3.61                      | 214                              |
| 1962 | 102                 | 100        | 110   | 112       | 106   | 3.68                      | 218                              |
| 1963 | 104                 | 100        | 112   | 114       | 108   | 3.79                      | 222                              |
| 1964 | 101                 | 99         | 115   | 116       | 108   | 3.72                      | 228                              |
| 1965 | 102                 | 100        | 118   | 120       | 110   | 3.79                      | 236                              |
| 1966 | 106                 | 100        | 126   | 124       | 113   | 4.00                      | 254                              |
| 1967 | 106                 | 100        | 138   | 130       | 118   | 4.00                      | 280                              |
| 1968 | 103                 | 98         | 150   | 136       | 121   | 3.70                      | 302                              |
| 1969 | 103                 | 94         | 160   | 144       | 126   | 3.70                      | 316                              |

## SUMMARY OF THE FARM BUSINESS

Labor, Livestock, and Crops Grown

A farmer must manage on the basis of the resources available to him. An early step in analyzing a dairy farm business is to look at the people, the livestock, and the land resources that were used. The averages for the labor, livestock, and crops used on the 511 farms are shown in Table 5.

Table 5. LABOR FORCE, LIVESTOCK NUMBERS, AND ACRES OF CROPS GROWN  
511 New York Dairy Farms, 1969

| Item  | My<br>farm | Average of<br>511 farms | Range |     |
|---|------------|-------------------------|-------|-----|
|   |            |                         | High  | Low |
| <u>Labor</u>  |            |                         |       |     |
| Months of:  |            |                         |       |     |
| Operators   | _____      | 14.0                    |       |     |
| Family unpaid                                       | _____      | 2.3                     |       |     |
| Family paid   | _____      | 2.1                     |       |     |
| Hired   | _____      | 6.1                     |       |     |
| Other   | _____      | .2                      |       |     |
| Total months  | _____      | 24.7                    |       |     |
| Man equivalent (No. men)                            | _____      | 2.1                     | 9.2   | 1.0 |
| <u>Livestock (number)</u>                           |            |                         |       |     |
| Cows  | _____      | 60                      | 278   | 18  |
| Heifers   | _____      | 40                      | 226   | 0   |
| <u>Crops (acres grown)* - Data from 502 farms**</u> |            |                         |       |     |
| Hay   | _____      | (492) 84                | 417   | 14  |
| Hay crop silage                                     | _____      | (76) 30                 | 397   | 2   |
| Corn silage   | _____      | (470) 45                | 250   | 4   |
| Corn for grain                                      | _____      | (170) 30                | 231   | 2   |
| Oats  | _____      | (195) 24                | 98    | 2   |
| Total acres of crops                                | _____      | (502) 159               | 817   | 12  |

\* Average for farms reporting so acres do not add to total. Number of farms growing is in parenthesis.

\*\* Nine farms omitted all crop information.

Partnerships are relatively common on New York dairy farms. Eighty-two of the 511 farms had two or more operators with a total of 597 operators. Thus about one-sixth of the farms were partnerships.

The average man equivalent was 2.1 with 9.2 the largest. This indicates that these were family type farms. Family members provided 18.4 months of labor compared with 6.3 months hired or three-fourths was family labor.



### Capital Investment

Capital is a major resource in a farm business. The end-of-year inventory is used as the measure of capital investment. The dairymen are encouraged to inventory items at "fair market value" or what they might bring at a well-attended sale.

Table 6. FARM INVENTORY VALUES, JANUARY 1, 1970  
511 New York Dairy Farms

| Item                  | My farm  | Average of 511 farms | % of total |
|-----------------------|----------|----------------------|------------|
| Machinery & equipment | \$ _____ | \$ 27,110            | 22         |
| Livestock             | _____    | 28,949               | 24         |
| Feed and supplies     | _____    | 8,269                | 7          |
| Land & buildings      | _____    | 56,893               | 47         |
| TOTAL INVESTMENT      | \$ _____ | \$121,221            | 100        |

Total investment at the end of the year for the 511 farms averaged \$121,000. The range was from \$26,000 to \$616,000. The investment in machinery and livestock on these farms was about equal to the land and building investment. The value of the personal property including feed and supplies on these dairy farms exceeded the value of the real property.

There were 28 farms with investments of less than \$50,000 but there were 30 with investments of \$250,000 or more. Ten percent of the farms had investments of over \$200,000. The distribution of total investment per farm is shown below.

#### Distribution of Farms by Total Investment

| <u>Total investment</u> | <u>Number of farms</u> | <u>Percent of farms</u> |
|-------------------------|------------------------|-------------------------|
| Under \$50,000          | 28                     | 5                       |
| \$50,000 - 74,999       | 103                    | 20                      |
| 75,000 - 99,999         | 121                    | 24                      |
| 100,000 - 124,999       | 80                     | 16                      |
| 125,000 - 149,999       | 57                     | 11                      |
| 150,000 - 199,999       | 70                     | 14                      |
| 200,000 - 249,999       | 22                     | 4                       |
| \$250,000 or more       | 30                     | 6                       |
| TOTAL                   | 511                    | 100                     |

Receipts

An examination of the receipts tells much about the nature of the business. The receipts are a partial indication of the accomplishments of the operation.

Table 7. FARM RECEIPTS  
511 New York Dairy Farms, 1969

| Item                                   | My<br>farm | Average of<br>511 farms | Percent<br>of total |        |
|--|------------|-------------------------|---------------------|--------|
| Milk sales                             | \$ _____   | \$44,143                | 88                  |        |
| Livestock sold                         | _____      | 4,471                   | 9                   |        |
| Crop sales                             | _____      | 428                     | 1                   |        |
| Government payments                    | _____      | 286                     | 1                   |        |
| Gas tax refund                         | _____      | 81                      | --                  |        |
| Machine work                           | _____      | 94                      | --                  |        |
| Machinery sold                         | _____      | 92                      | --                  |        |
| Work off farm                          | _____      | 68                      | --                  |        |
| Miscellaneous                          | _____      | <u>607</u>              | <u>1</u>            |        |
| Total Cash Receipts                    | \$ _____   | \$50,270                | 100                 |        |
| Increase in inventory                  | _____      | <u>9,392</u>            |                     |        |
| <b>TOTAL FARM RECEIPTS</b>             | \$ _____   | <b>\$59,662</b>         |                     |        |
|  |            |                         |                     |        |
| Average price per cwt.<br>of milk sold | \$ _____   | \$5.80                  | High                | Low    |
|  |            |                         | \$7.56              | \$4.29 |

Milk sales on these 511 farms accounted for 88 percent of the total cash receipts. Livestock sold, the second largest item, accounted for an additional 9 percent. The cash flow into the business on these farms averaged \$50,000. Increase in inventory, which is a non-cash receipt, averaged \$9,392 or 16 percent of the total farm receipts. Composition of the increase is shown below.

Composition of Increase In Inventory

| Inventory<br>Item     | Average<br>Increase | Percent of<br>total |
|-----------------------|---------------------|---------------------|
| Land and buildings    | \$3,623             | 39                  |
| Machinery & equipment | 2,650               | 28                  |
| Livestock             | 2,204               | 23                  |
| Feed and supplies     | <u>915</u>          | <u>10</u>           |
| TOTAL                 | \$9,392             | 100                 |

The average price per hundredweight of milk sold by the 511 farms in 1969 was \$5.80. The average price is calculated by dividing the gross milk receipts for the year by the total pounds of milk sold. The variation in average price received is shown below:

Variation in Average Milk Price

| <u>Average price<br/>received for milk</u> | <u>Number<br/>of farms</u> | <u>Percent<br/>of farms</u> |
|--|----------------------------|-----------------------------|
| Below \$5.50                               | 60                         | 12                          |
| \$5.50 - 5.74                              | 230                        | 45                          |
| 5.75 - 5.99                                | 149                        | 29                          |
| 6.00 - 6.24                                | 33                         | 6                           |
| 6.25 - 6.49                                | 17                         | 3                           |
| Over \$6.50                                | <u>22</u>                  | <u>5</u>                    |
| TOTAL                                      | 511                        | 100                         |

It is often said that there is nothing a dairyman can do about the price he receives for his milk. This may be true as it pertains to the price at a particular time. The variation shown here does indicate that the average annual prices received for milk by farmers do vary. Some of this is due to management practices. Seasonality of production and butterfat test are two management items that affect the average price for the year.

Gross receipts are sometimes used as a measure of size of business. The census of agriculture uses this measure in classifying farms. The distribution of total farm receipts of the 511 farms in 1969 is shown below:

Distribution of Farms by Total Farm Receipts

| <u>Total farm<br/>receipts</u> | <u>Farms</u>  |                |
|--------------------------------|---------------|----------------|
|                                | <u>Number</u> | <u>Percent</u> |
| \$ 10,000 - 19,999             | 12            | 2              |
| 20,000 - 29,999                | 53            | 10             |
| 30,000 - 39,999                | 111           | 22             |
| 40,000 - 49,999                | 91            | 18             |
| 50,000 - 59,999                | 54            | 11             |
| 60,000 - 79,999                | 77            | 15             |
| 80,000 - 99,999                | 44            | 8              |
| 100,000 - 119,999              | 40            | 8              |
| \$120,000 and over             | <u>29</u>     | <u>6</u>       |
| TOTAL                          | 511           | 100            |

There were no farms among the 511 with total farm receipts of less than \$10,000; on the other hand, nearly one-half the farms had receipts of over \$50,000 and 6 percent had receipts of \$120,000 or more.

Expenses

Dairymen today buy many inputs for their operations. In addition to knowing the total expenses it is helpful to have a breakdown by specific items.

Table 8. FARM EXPENSES  
511 New York Dairy Farms, 1969

| Item                          | My farm  | Average of 511 farms | Percent of total |
|-------------------------------|----------|----------------------|------------------|
| Hired labor                   | \$ _____ | \$ 3,518             | 12               |
| Dairy concentrate             | _____    | 10,781               | 37               |
| Other feed                    | _____    | 280                  | 1                |
| Machine hire                  | _____    | 247                  | 1                |
| Machinery repairs             | _____    | 1,857                | 6                |
| Auto expense (farm share)     | _____    | 233                  | 1                |
| Gas and oil                   | _____    | 1,243                | 4                |
| Breeding fees                 | _____    | 475                  | 2                |
| Veterinary and medicine       | _____    | 733                  | 3                |
| Milk hauling                  | _____    | 481                  | 2                |
| Other livestock expense       | _____    | 1,473                | 5                |
| Lime and fertilizer           | _____    | 1,961                | 7                |
| Seeds and plants              | _____    | 535                  | 2                |
| Spray, other crop expense     | _____    | 510                  | 2                |
| Land, building, fence repair  | _____    | 952                  | 3                |
| Taxes                         | _____    | 1,270                | 4                |
| Insurance                     | _____    | 735                  | 3                |
| Electricity (farm share)      | _____    | 649                  | 2                |
| Telephone (farm share)        | _____    | 144                  | --               |
| Miscellaneous                 | _____    | 922                  | 3                |
| Total Cash Operating Expenses | \$ _____ | \$28,999             | 100              |
| New machinery*                | _____    | 6,367                |                  |
| Real estate**                 | _____    | 3,955                |                  |
| Livestock purchases**         | _____    | 2,271                |                  |
| Unpaid labor                  | _____    | 701                  |                  |
| Decrease in inventory         | _____    | --                   |                  |
| TOTAL FARM EXPENSES           | \$ _____ | \$42,293             |                  |

\* Depreciation \$3,625 - see page 22 for calculations.

\*\* Number reporting purchase of real estate, 271; livestock, 340.

The expense classification used on page 10 is taken from the "Cornell Farm Account Book." Lists of the items included in each category in Table 8 are presented on the inside back cover of that account book.

Unpaid family labor refers to work done by members of the family who are not paid cash wages. For the 511 farms, this item was calculated by determining the number of months of unpaid labor performed and charging this to the business at \$300 per month.

Decrease in inventory is the amount that the beginning inventory exceeds the end inventory. Since this indicates a "using up" of capital items, it is considered as a farm expense. Some individual farms had a decrease, but the net inventory change for the 511 farms was an increase.

Total farm expenses for the 511 farms averaged \$42,300 or \$116 per day. The cash operating expenses averaged \$29,000 or 69 percent of the total. Expenditures for capital items like machinery, buildings, and livestock are often paid for by loans rather than cash. It is for this reason that they are separated in this classification.

The cash operating expenses averaged \$480 per cow. When capital items and unpaid labor were included, the total farm expenses averaged \$705 per cow.

Farm expenses can be classified in various ways. Another way to study expenses is to divide them on the basis of fixed, variable, and capital items. This is shown below:

| <u>Capital expenses (investments)</u> |              | <u>Operating expenses (variable)</u> |            |
|---------------------------------------|--------------|--------------------------------------|------------|
| Machinery                             | \$ 6,367     | Labor                                | \$ 4,219   |
| Real estate                           | 3,955        | Feed                                 | 11,061     |
| Livestock                             | <u>2,271</u> | Machinery repairs                    | 1,857      |
| Total Capital                         | \$12,593     | Gas & oil                            | 1,243      |
|                                       |              | Machine hire                         | 247        |
|                                       |              | Auto                                 | 233        |
| <u>Overhead expenses (fixed)</u>      |              | Livestock expenses                   | 3,162      |
| Property taxes                        | \$ 1,270     | Fertilizer & lime                    | 1,961      |
| Insurance                             | 735          | Other crop expenses                  | 1,045      |
| Land & building repairs               | 952          | Miscellaneous                        | <u>922</u> |
| Electricity                           | 649          | Total Variable                       | \$25,950   |
| Telephone                             | <u>144</u>   |                                      |            |
| Total Fixed Overhead                  | \$ 3,750     |                                      |            |

The variable expenses on these farms accounted for 61 percent of the grand total. These are items over which the operator has direct control. The fixed items accounted for only nine percent of the total and capital items 30 percent. The variable expenses are the ones the dairymen must make decisions on daily.

Income

Researchers have developed a number of ways to measure the income from a farm business. The measure to be used depends on the point from which the results are being studied. Several common measures are reported here. The user can select the measure that best fits his situation.

Table 9. FARM INCOME AND LABOR INCOME  
511 New York Dairy Farms, 1969

| Item                              | My farm  | Average of 511 farms | Percent of receipts |
|-----------------------------------|----------|----------------------|---------------------|
| Total farm receipts               | \$ _____ | \$59,662             | 100                 |
| Total farm expenses               | _____    | 42,293               | 71                  |
| FARM INCOME                       | \$ _____ | \$17,369             | 29                  |
| Interest on average capital at 7% | _____    | 8,157                | 14                  |
| Labor income per farm             | \$ _____ | \$ 9,212             | 15                  |
| Number of operators               | _____    | 597                  |                     |
| LABOR INCOME PER OPERATOR         | \$ _____ | \$ 7,885             |                     |

Farm income measures the return from the business to all capital and the operator's labor and management. Farm income is the difference between total receipts, including increase in inventory, and total expenses, including decrease in inventory but excluding interest payments.

Labor income is the return to the farm operator for his labor and management. This is the measure most commonly used when studying or comparing farm businesses. To get the labor income, a 7 percent interest charge on all capital is subtracted from the farm income. Prior to 1969, a 5 percent interest charge has been made. In making income comparisons with 1968 and earlier, the difference in interest rate charged must be kept in mind.

Distribution of Labor Incomes Per Operator

| Labor income per operator | Farms  |         |
|---------------------------|--------|---------|
|                           | Number | Percent |
| Minus                     | 40     | 8       |
| 0 - \$ 4,999              | 128    | 25      |
| \$ 5,000 - 9,999          | 177    | 35      |
| 10,000 - 14,999           | 109    | 21      |
| 15,000 - 19,999           | 30     | 6       |
| 20,000 - 24,999           | 15     | 3       |
| \$25,000 or more          | 12     | 2       |

Table 10. FARM CASH OPERATING INCOME AND REPAYMENT ABILITY  
511 New York Dairy Farms, 1969

| Item                         | My<br>farm | Average of<br>511 farms |
|------------------------------|------------|-------------------------|
| Total cash receipts          | \$ _____   | \$50,270                |
| Total cash operating expense | _____      | <u>28,999</u>           |
| FARM CASH OPERATING INCOME   | \$ _____   | \$21,271                |
| Family cash living expenses* | _____      | <u>6,310</u>            |
| REPAYMENT ABILITY            | \$ _____   | \$14,961                |

\* Estimated at \$5,400 per operator per year.

Farm cash operating income reflects the cash available from the year's operation of the farm business for family living, interest and debt payments, and new capital purchases or investments. A family may have had additional cash available if some member of the family had a non-farm income, or if money were inherited or borrowed.

Repayment ability is a measure of the amount of cash available for debt payments. It is calculated by deducting family living expenses from the farm cash operating income. It is assumed here that new machinery, real estate, and livestock are purchased with borrowed capital. This measure is useful in planning debt repayment schedules.

Rate of return on investment is calculated by deducting a charge for the operator's labor from the "farm income." This is then divided by the average investment for the year to determine the rate of return on investment. In the above calculation, \$5,400 has been used arbitrarily as the value of the operator's labor. This is comparable to what "good" hired men earn. Rate of return really reflects the return to capital and management.

Table 11. RATE OF RETURN ON INVESTMENT  
511 New York Dairy Farms, 1969

| Item                         | My<br>farm | Average of<br>511 farms |
|------------------------------|------------|-------------------------|
| Farm income                  | \$ _____   | \$ 17,369               |
| Value of operator's labor*   | _____      | <u>6,310</u>            |
| Return on investment         | \$ _____   | \$ 11,059               |
| Average capital investment   | \$ _____   | \$116,525               |
| RATE OF RETURN ON INVESTMENT | _____ %    | 9.4%                    |

\* \$5,400 per operator. Some farms had more than one operator.

Farm income as calculated here is the return from the business for three major input items; (1) the operator's labor input, (2) the operator's management input, and (3) the total capital input.

In calculating operator's labor income, the first two inputs are combined, and in calculating rate of return on investment the last two are combined.

In non-farm businesses another measure is sometimes used, namely, "profit." This can be done where the management inputs are actually hired. In some farm management studies, the management input has been valued at 8 percent of the cash farm receipts, and the operator's labor at the average wage for hired men with houses. Using this method, the farm income can be separated as follows:

|                      |                                  |         |
|----------------------|----------------------------------|---------|
| Farm Income \$17,369 | Operator's labor @ \$80/week     | \$4,860 |
|                      | Management @ 8% of cash receipts | 4,022   |
|                      | Interest on capital @ 7%         | 8,157   |
|                      | Profit                           | 330     |

Income from a business can also be calculated in relation to various input units. For example, since these are family-type farms, the labor and management return can be figured on a per man basis. This is shown below:

Returns to All Labor

|                                 |            |
|---------------------------------|------------|
| Labor income per farm           | \$ 9,212   |
| Value hired labor               | 3,518      |
| Value unpaid labor              | <u>701</u> |
| Total returns to labor          | \$13,431   |
| Average man equivalent          | 2.1        |
| Returns per man equivalent      | \$ 6,396   |
| Returns per hour (3,000 hrs/yr) | \$ 2.13    |

In like manner, returns can be calculated on the basis of production units or on a per cow basis. These are given below:

Returns Per Cow

|                               |        |
|-------------------------------|--------|
| Cash operating income per cow | \$ 355 |
| Farm income per cow           | \$ 289 |
| Labor income per cow          | \$ 154 |



## ANALYSIS OF THE FARM BUSINESS

This part of the report includes a systematic analysis of the farm business to determine strengths and weaknesses. Five business factors are examined. These are: size of business, rates of production, labor efficiency, capital efficiency, and cost control. The 1969 averages for selected measures for each of these factors are reported along with general relationships of each to labor income.

The measures examined here are interrelated. This means that all factors should be examined before arriving at major conclusions.

Size of Business

Size of farm has an effect on other factors such as labor efficiency, cost control, and capital efficiency. The prices received and paid by a farmer are often affected by the volume which is a function of size. Farm management studies have shown that, in general, larger farm businesses make larger labor incomes. Two basic reasons for this are that larger businesses make possible more efficient use of overhead inputs such as labor and machinery, and there are more units of production (milk) on which to make a profit.

Table 12. MEASURES OF SIZE OF BUSINESS  
511 New York Dairy Farms, 1969

| Measure              | My farm | Average of 511 farms |
|----------------------|---------|----------------------|
| Number of cows       | _____   | 60                   |
| Total acres in crops | _____   | 159                  |
| Man equivalent       | _____   | 2.1                  |
| Total work units     | _____   | 692                  |
| Pounds of milk sold  | _____   | 761,700              |
| Total farm receipts  | _____   | \$59,660             |
| Total investment     | _____   | \$121,220            |

Number of cows is the average number in the herd for the year. Where available, the D.H.I.C. annual average is used.

Total acres in crops includes all acres on which crops were harvested during the 1969 year. It does not include cropland pasture or uncropped land.

Man equivalent is the amount of labor available on the farm during the year in terms of full-time man years. Work by part-time workers and family members is converted to 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 handled. A man work unit is the average amount of productive work accomplished in ten hours.

Table 13. COWS PER FARM AND LABOR INCOME  
511 New York Dairy Farms, 1969

| Number of cows | Number of farms | Percent of farms | Labor income per operator |
|----------------|-----------------|------------------|---------------------------|
| Less than 25   | 9               | 2                | \$ 3,640                  |
| 25 - 39        | 102             | 20               | 4,920                     |
| 40 - 54        | 180             | 35               | 6,740                     |
| 55 - 69        | 88              | 17               | 8,980                     |
| 70 - 84        | 49              | 10               | 10,230                    |
| 85 - 99        | 30              | 6                | 10,420                    |
| 100 - 114      | 22              | 4                | 14,120                    |
| 115 - 129      | 14              | 3                | 12,360                    |
| 130 and over   | 17              | 3                | 14,840                    |

The relationship of size of business and labor income was observed for size as measured by number of cows and by man equivalent. The pattern was the same for both measures, the larger the business the higher the labor income per operator up to 115 cows and to a 3.0 man equivalent after which the incomes varied. The number of farms in the larger groups were relatively small so cannot be used as conclusive evidence.

The 1969 relationship is consistent with that of earlier studies. A well-managed large farm will provide the operator a higher income than a well-managed small one. However, a large farm poorly managed can lose more than a poorly managed small farm.

Man equivalent is often used as a measure of size. It is of interest that 88 percent of the farms had man equivalents of less than 3.0 (Table 14). Half of the farms had less than 2.0 men.

Table 14. MAN EQUIVALENT PER FARM AND LABOR INCOME  
511 New York Dairy Farms, 1969

| Man equivalent | Number of farms | Percent of farms | Number of cows | Labor income per operator |
|----------------|-----------------|------------------|----------------|---------------------------|
| 1.0 - 1.4      | 133             | 26               | 38             | \$ 6,390                  |
| 1.5 - 1.9      | 116             | 23               | 47             | 6,980                     |
| 2.0 - 2.4      | 141             | 28               | 60             | 8,610                     |
| 2.5 - 2.9      | 56              | 11               | 78             | 10,340                    |
| 3.0 - 3.4      | 31              | 6                | 91             | 7,030                     |
| 3.5 - 3.9      | 11              | 2                | 127            | 15,430                    |
| 4.0 and over   | 23              | 4                | 141            | 10,750                    |

### Rates of Production

Rates of production are the result of the production practices used. It is a measure of how well the technology is being utilized. Rates of dairy and crop production are factors to observe on a dairy farm.

Table 15. MEASURES OF RATES OF PRODUCTION  
511 New York Dairy Farms, 1969

| Measure                     | My farm | Average of 511 farms |
|-----------------------------|---------|----------------------|
| Pounds of milk sold per cow | _____   | 12,700               |
| Tons hay per acre           | _____   | 2.8                  |
| Tons corn silage per acre   | _____   | 16                   |
| Bushels of oats per acre    | _____   | 57                   |
| Bushels grain corn per acre | _____   | 76                   |
| Bushels of wheat per acre   | _____   | 36                   |

Pounds of milk sold per cow is calculated by dividing the total pounds of milk sold by the average number of cows. The average for the 511 farms was 12,700 pounds per cow with a range from 6,700 pounds to 18,200 pounds. Because some milk is used in the home and fed to calves, D.H.I.C. production levels will usually be somewhat higher than actual pounds of milk sold.

When grouped on the basis of pounds of milk sold per cow, the higher the rate of production the higher the labor income per operator (table 16). The farms with the higher rates of production also had larger herds. The herds with higher rates of production bought more feed per cow but it apparently was a profitable expenditure.

Table 16. MILK SOLD PER COW AND LABOR INCOME  
511 New York Dairy Farms, 1969

| Pounds of milk sold per cow | Number of farms | Number of cows | Feed bought per cow | Labor income |
|-----------------------------|-----------------|----------------|---------------------|--------------|
| Under 10,000                | 44              | 50             | \$130               | \$ 1,740     |
| 10,000 - 10,999             | 53              | 52             | 145                 | 4,360        |
| 11,000 - 11,999             | 77              | 59             | 160                 | 7,880        |
| 12,000 - 12,999             | 114             | 64             | 165                 | 8,020        |
| 13,000 - 13,999             | 111             | 64             | 196                 | 9,140        |
| 14,000 - 14,999             | 75              | 62             | 217                 | 10,700       |
| 15,000 and over             | 37              | 61             | 228                 | 12,030       |

Labor Efficiency

Accomplishments per worker are used to measure labor efficiency. With wage rates rising more than any other cost item, it is important to keep output in line with wage rates. Labor efficiency is a major factor in any farm business analysis.

Table 17. MEASURES OF LABOR EFFICIENCY  
511 New York Dairy Farms, 1969

| Measure                     | My farm | Average of 511 farms |
|-----------------------------|---------|----------------------|
| Pounds of milk sold per man | _____   | 362,700              |
| Number of cows per man      | _____   | 29                   |
| Work units per man          | _____   | 330                  |
| Crop acres per man          | _____   | 74                   |

Pounds of milk sold per man is determined by dividing the total pounds of milk sold by the man equivalent. This is probably the best measure of labor efficiency for dairy farms. This averaged 362,700 pounds per man on the 511 farms but ranged from a low of 104,000 pounds to a high of 840,000.

Labor accomplishments (efficiency) depends on a number of things. Among these are the amount of mechanization, the field and building layout, the work methods used, and the abilities of the workers. All of these are management items under the control of the operator.

The relationship of labor efficiency to labor income was very definite on the 511 farms. The higher the pounds of milk sold per man, the higher the income. The higher output per man was accomplished in part at least by more and higher producing cows (table 18). It is interesting to observe that 63, or nearly one farm in eight, sold half a million pounds or more of milk per man.

Table 18. MILK SOLD PER MAN AND LABOR INCOME  
511 New York Dairy Farms, 1969

| Pounds of milk sold per man | Number of farms | Number of cows | Lbs. milk per cow | Labor income per operator |
|-----------------------------|-----------------|----------------|-------------------|---------------------------|
| Under 200,000               | 16              | 31             | 9,100             | \$ -220                   |
| 200,000 - 299,999           | 126             | 48             | 11,400            | 4,920                     |
| 300,000 - 399,999           | 192             | 58             | 12,800            | 7,130                     |
| 400,000 - 499,999           | 114             | 62             | 13,100            | 9,540                     |
| 500,000 and over            | 63              | 97             | 13,700            | 16,100                    |

### Capital Efficiency

The capital investment on the dairy farms included in these summaries has more than doubled in the last decade. The average end-of-year inventory on the 511 farms was over \$120,000. Capital is a key input item so attention must be given to measures of capital efficiency.

Capital is a cost to the business and like other costs it can get out of line. Capital costs are affected by the size of the total investment and the rate paid for borrowed money.

In the analysis here, only the amount of the investment is considered since details on credit costs are not readily available. This does not mean that credit costs are not important.

Table 19. MEASURES OF CAPITAL EFFICIENCY  
511 New York Dairy Farms, 1969

| Measure                                    | My farm  | Average of 511 farms |
|--|----------|----------------------|
| Total capital per man                      | \$ _____ | \$57,700             |
| Total capital per cow                      | _____    | 2,020                |
| Machinery and equipment per cow            | _____    | 450                  |
| Land and building investment per cow       | _____    | 950                  |
| Land and building investment per crop acre | _____    | 365                  |
| Total capital per cwt. milk sold           | _____    | 16                   |
| Capital turnover (capital ÷ receipts)      | _____    | 2.0                  |

Capital efficiency is often associated with size of herd. For this reason, the 511 farms were sorted on the basis of number of cows and the capital efficiency measures were calculated. There seemed to be no consistent relationship between size and capital efficiency.

Table 20. SIZE OF HERD AND CAPITAL EFFICIENCY  
511 New York Dairy Farms, 1969

| Number of cows | Number of farms | Capital Investment Per Cow |             |           |
|----------------|-----------------|----------------------------|-------------|-----------|
|                |                 | Total                      | Real estate | Machinery |
| Under 40       | 111             | \$2,040                    | \$ 980      | \$480     |
| 40 - 54        | 180             | 1,930                      | 880         | 460       |
| 55 - 69        | 88              | 2,010                      | 930         | 470       |
| 70 - 84        | 49              | 2,120                      | 950         | 490       |
| 85 - 99        | 30              | 2,000                      | 940         | 410       |
| 100 and over   | 53              | 2,000                      | 1,000       | 400       |

Cost Control

Keeping costs under control is a challenge to most businessmen. Dairy men are no exception. With average expenses of \$3,500 per month there are many items to watch. In this section of the analysis several important costs are examined.

Feed Costs

Purchased feed is the largest single expense item on most New York dairy farms. For the 511 farms in 1969, dairy concentrate accounted for 37 percent of the cash operating expenses. For this reason, feed is the first item examined in the "cost control" section.

Dairy feed costs are affected by many things. It is difficult to find a satisfactory single measure of feed cost control. Consequently the feed situation generally is looked at in the business analysis of feed costs. Below are some measures related to feed costs on a dairy farm.

Table 21. ITEMS RELATED TO FEED COSTS  
511 New York Dairy Farms, 1969

| Item  | My farm  | Average of 511 farms |
|---|----------|----------------------|
| <u>Feed expense</u>                               |          |                      |
| Dairy feed purchased                              | \$ _____ | \$10,781             |
| Feed purchased as % of milk receipts              | _____ %  | 24%                  |
| Feed purchased per cwt. of milk sold              | \$ _____ | \$1.42               |
| Feed purchased per cow                            | \$ _____ | \$180                |
| Crop expense per cow                              | \$ _____ | \$50                 |
| Total feed and crop expense per cow               | \$ _____ | \$230                |
| Total feed and crop expense per cwt. of milk sold | \$ _____ | \$1.81               |
| <u>Roughage harvested (hay equivalent)</u>        |          |                      |
| Hay (tons)  | _____    | 228                  |
| Corn silage (tons ÷ 3)                            | _____    | 218                  |
| Hay crop silage (tons ÷ 2 or 3)*                  | _____    | 9                    |
| Total tons hay equivalent                         | _____    | 455                  |
| Tons hay equivalent per cow                       | _____    | 7.6                  |
| <u>Other considerations</u>                       |          |                      |
| Acres in crops per cow                            | _____    | 2.6                  |
| Lime and fertilizer expense per cow               | \$ _____ | \$33                 |
| Lime and fertilizer expense per crop acre         | \$ _____ | \$13                 |
| Number of heifers per 10 cows                     | _____    | 6.7                  |

\* Depending on moisture content of silage

Feed cost is influenced by a number of factors. On the production side, it is affected by the amount of home-grown grains, quality and quantity of the roughage, and the number of youngstock. On the purchasing side, it is influenced by the farmer's ability to purchase concentrates at low costs.

Feed purchased as percent of milk receipts is calculated by dividing feed purchased by milk receipts. This measure can be used to determine whether the feed costs are in line. The amount of home grown grain must be considered as you evaluate this measure. Milk prices also influence this factor.

Feed purchased per cow is calculated by dividing the total expense for dairy concentrate by the average number of cows. Because this also includes the amount spent for calf and heifer feed, it actually represents the feed cost per cow and the replacements being raised.

Total crop expense per cow is calculated by dividing the total money spent for fertilizer and lime, seeds and plants, spray, and other crop expense by the average number of cows. This represents the direct cash costs of the dairyman for growing feed.

Total feed and crop expense is determined by adding the purchased feed expense to total crop expense. This indicates the total amount spent by the dairyman to provide the feed requirements of the herd. If the dairyman gets a high amount of nutrients per dollar spent and feeds these nutrients so as to get efficient milk production per unit of nutrient, he will keep his feed and crop expense per hundredweight of milk down.

Number of heifers per ten cows is figured by dividing the number of heifers by the number of cows and multiplying by ten.

Table 22. PERCENT PURCHASED FEED IS OF MILK RECEIPTS AND LABOR INCOME  
511 New York Dairy Farms, 1969

| % Feed is of milk | Number of farms | Number of cows | H.E. per cow | Lbs. milk per cow | Labor income per operator |
|-------------------|-----------------|----------------|--------------|-------------------|---------------------------|
| Over 40%          | 10              | 51             | 6.5          | 12,700            | \$2,020                   |
| 35 - 39           | 31              | 53             | 7.5          | 12,300            | 4,050                     |
| 30 - 34           | 93              | 60             | 7.1          | 12,600            | 6,650                     |
| 25 - 29           | 140             | 55             | 7.7          | 12,800            | 7,870                     |
| 20 - 24           | 124             | 63             | 7.2          | 12,600            | 9,500                     |
| Under 20%         | 113             | 68             | 8.1          | 12,100            | 9,240                     |

In general, the lower the percent of the milk check going for purchased feed the higher the income (table 22). However, when the percent was less than 20, the pounds of milk per cow and the income were down slightly. This may indicate that there is a level below which it is not profitable to go.

Power and Machinery Costs

Mechanization on dairy farms has been taking place at a relatively rapid pace. This increases the importance of analyzing the power and machinery costs. On the 511 farms, net power and machinery costs accounted for 24 percent of the total farm expenses in 1969. Below are the calculations of the power and machinery costs and related factors.

Table 23. POWER AND MACHINERY COST\*  
511 New York Dairy Farms, 1969

| Item  | My<br>farm | Average of<br>511 farms | Percent<br>of total |
|---|------------|-------------------------|---------------------|
| Beginning inventory                             | \$ _____   | \$24,460                |                     |
| New machinery purchased                         | _____      | <u>6,367</u>            |                     |
| Total (No. 1)                                   | \$ _____   | \$30,827                |                     |
| End inventory                                   | \$ _____   | \$27,110                |                     |
| Machinery sold                                  | _____      | <u>92</u>               |                     |
| Total (No. 2)                                   | \$ _____   | <u>\$27,202</u>         |                     |
| Depreciation (Total No. 1<br>minus Total No. 2) | \$ _____   | \$ 3,625                | 36                  |
| Interest at 7% on av. inventory                 | _____      | 1,805                   | 18                  |
| Gas and oil                                     | _____      | 1,243                   | 12                  |
| Machinery repairs                               | _____      | 1,857                   | 18                  |
| Bale ties                                       | _____      | 68                      | 1                   |
| Milk hauling                                    | _____      | 481                     | 5                   |
| Machine hire                                    | _____      | 247                     | 2                   |
| Auto expense (farm share)                       | _____      | 233                     | 2                   |
| Electricity (farm share)                        | _____      | <u>649</u>              | <u>6</u>            |
| Total power and machinery cost                  | \$ _____   | \$10,208                | 100                 |
| Less:   |            |                         |                     |
| Gas tax refund                                  | \$ _____   | \$81                    |                     |
| Income from machine work                        | _____      | <u>94</u>               |                     |
|   |            | \$ 175                  |                     |
| NET POWER AND MACHINERY COST                    | \$ _____   | \$10,033                |                     |
| -----   |            |                         |                     |
| Net machinery cost:                             |            |                         |                     |
| per cow   | \$ _____   | \$ 167                  |                     |
| per crop acre                                   | \$ _____   | \$ 64                   |                     |
| per cwt. milk sold                              | \$ _____   | \$ 1.32                 |                     |
| per man   | \$ _____   | \$ 4,780                |                     |

\* Does not include insurance, housing, or value of labor used in operation or repair



Labor and Machinery Costs

The primary justification given for more mechanization is to reduce labor costs. However, if a machine is added without expanding size or reducing the labor force, costs will be increased. "Labor and machinery cost" provides a measure of the efficiency of the operator's machinery and labor combination.

Table 24. LABOR AND MACHINERY COST  
511 New York Dairy Farms, 1969

| Item                                  | My<br>farm      | Average of<br>511 farms |
|---------------------------------------|-----------------|-------------------------|
| Labor cost:                           |                 |                         |
| Value of operators' labor*            | \$ _____        | \$ 6,310                |
| Hired labor                           | _____           | 3,518                   |
| Unpaid family labor                   | _____           | 701                     |
| Total Labor Cost                      | \$ _____        | \$10,529                |
| Net power and machinery cost (p. 22)  | _____           | 10,033                  |
| <b>TOTAL LABOR AND MACHINERY COST</b> | <b>\$ _____</b> | <b>\$20,562</b>         |
| -----                                 |                 |                         |
| Labor cost:                           |                 |                         |
| per cow                               | \$ _____        | \$ 175                  |
| per cwt. milk sold                    | \$ _____        | \$ 1.38                 |
| Labor and machinery cost:             |                 |                         |
| per cow                               | \$ _____        | \$ 342                  |
| per cwt. milk sold                    | \$ _____        | \$ 2.70                 |

\* Values at \$5,400 per operator. Some farms had more than one operator.

Labor and machinery cost per cow appears to have an effect on labor income (table 25). As the labor and machinery cost per cow decreased the labor income increased. The five percent of the farms with a machinery cost per cow of less than \$250 had the highest average labor income.

Table 25. LABOR AND MACHINERY COST PER COW AND LABOR INCOME  
511 New York Dairy Farms, 1969

| Labor & Machinery<br>cost per cow | Number<br>of farms | Percent<br>of farms | Labor income<br>per operator |
|-----------------------------------|--------------------|---------------------|------------------------------|
| \$500 and over                    | 13                 | 3                   | \$ 3,520                     |
| \$450 - \$499                     | 32                 | 6                   | 4,960                        |
| \$400 - \$449                     | 67                 | 13                  | 4,950                        |
| \$350 - \$399                     | 128                | 25                  | 7,230                        |
| \$300 - \$349                     | 154                | 30                  | 8,630                        |
| \$250 - \$299                     | 91                 | 18                  | 10,240                       |
| Less than \$250                   | 26                 | 5                   | 14,050                       |

Miscellaneous Cost Control Measures

Cost control applied to all expenditures both large and small. Reducing various cost items to a per cow or per acre basis provides cost control measures which are easy to understand and they can be used for analyzing farms of various sizes. These factors are influenced by a number of things so must be used with that in mind.

Table 26. COST CONTROL MEASURES  
511 New York Dairy Farms, 1969

| Item                                | My<br>farm | Average of<br>511 farms |
|-------------------------------------|------------|-------------------------|
| <u>Overhead</u>                     |            |                         |
| Land and building repair per cow    | \$ _____   | \$ 16                   |
| Taxes per cow                       | _____      | 21                      |
| Insurance per cow                   | _____      | 12                      |
| Electricity per cow                 | _____      | 11                      |
| <u>Machinery</u>                    |            |                         |
| Machinery depreciation per cow      | \$ _____   | \$ 60                   |
| Machinery repair per cow            | _____      | 31                      |
| Gas and oil per cow                 | _____      | 21                      |
| Net machinery cost per cow          | _____      | 167                     |
| <u>Dairy</u>                        |            |                         |
| Veterinary and medicine per cow     | \$ _____   | \$ 12                   |
| Breeding fees per cow               | _____      | 8                       |
| Other livestock expense per cow     | _____      | 25                      |
| <u>Crop</u>                         |            |                         |
| Fertilizer and lime per crop acre   | \$ _____   | \$ 13                   |
| Seeds and plants per crop acre      | _____      | 3                       |
| Other crop expense per crop acre    | _____      | 3                       |
| Gas and oil per crop acre           | _____      | 8                       |
| <u>General</u>                      |            |                         |
| Total labor per cow*                | \$ _____   | \$175                   |
| Total feed and crop expense per cow | _____      | 234                     |
| Total expenses per cow              | _____      | 705                     |
| Total expenses per \$100 receipts   | _____      | 71                      |

\* Using \$5,400 per year for operator's labor.

### Combination of Factors

Individual factors have been examined in the analysis up to this point. It has been suggested that these factors are interrelated. In this section, the combination of factors is studied. The factors used here are size, rates of production, labor efficiency, and cost control as measured by number of cows, pounds of milk sold per cow, pounds of milk sold per man, and percent purchased feed was of milk receipts.

For each factor, the farms were divided on the basis of whether they were above or below the average for the 511 farms. They were then grouped on the basis of the number of factors better than average. The combination of factors above and below average within the three middle groups varied.

Table 27. COMBINATION OF FACTORS ABOVE AVERAGE\* AND LABOR INCOME  
511 New York Dairy Farms, 1969

| Number of factors<br>above average | Number<br>of farms | Percent<br>of farms | Labor income<br>per operator |
|------------------------------------|--------------------|---------------------|------------------------------|
| 4 factors better than average      | 43                 | 8                   | \$15,470                     |
| 3 factors better than average      | 106                | 21                  | 11,170                       |
| 2 factors better than average      | 121                | 24                  | 8,090                        |
| 1 factor better than average       | 165                | 32                  | 5,830                        |
| 0 factors better than average      | 76                 | 15                  | 3,180                        |

\* Factors were:

Size - number of cows - average 60

Rates of production - pounds of milk sold per cow - average 12,700

Labor efficiency - pounds of milk sold per man - average 362,700

Cost control - percent purchased feed was of milk receipts - average 24%

The relationship between the number of factors better than average and labor income is shown in table 27. As the number of factors better than average decreased, labor incomes decreased at a rapid rate. In order to get a labor income higher than good hired men's wages, it appears that a business must be above average in at least two factors.

It is important in managing a farm business to give attention to all major factors affecting the business. Concentrating on only one or two factors, and neglecting the others, will not give the kind of net income most farmers want.

### Comparison by Herd Size

In making an analysis of an individual farm business, it is helpful to compare it with businesses of approximately the same size. On the following four pages, the business summary and business factors for the 511 farms are shown for six herd size groups. These data also illustrate the effect of size on various business factors.

Table 28.

FARM BUSINESS SUMMARY BY HERD SIZE  
511 New York Dairy Farms, 1969

| Item                                    | My<br>farm | Farms with less<br>than 40 cows | 40 to 54<br>cow farms | 55 to 69<br>cow farms |
|---|------------|---------------------------------|-----------------------|-----------------------|
| <u>Capital Investment (End of Year)</u> |            |                                 |                       |                       |
| Machinery and equipment                 | \$         | \$15,746                        | \$21,044              | \$ 29,285             |
| Livestock                               |            | 15,123                          | 21,839                | 29,570                |
| Feed and supplies                       |            | 3,988                           | 5,524                 | 8,187                 |
| Land and buildings                      |            | 32,459                          | 40,270                | 57,586                |
| TOTAL INVESTMENT                        | \$         | \$67,316                        | \$88,677              | \$124,628             |
| <u>Receipts</u>                         |            |                                 |                       |                       |
| Milk sales                              | \$         | \$22,853                        | \$32,529              | \$ 45,406             |
| Livestock sold                          |            | 2,333                           | 3,288                 | 4,941                 |
| Crop sales                              |            | 199                             | 304                   | 399                   |
| Miscellaneous receipts                  |            | 738                             | 991                   | 993                   |
| Total Cash Receipts                     | \$         | \$26,123                        | \$37,112              | \$ 51,739             |
| Increase in inventory                   |            | 5,097                           | 5,935                 | 11,793                |
| TOTAL FARM RECEIPTS                     | \$         | \$31,220                        | \$43,047              | \$ 63,532             |
| <u>Expenses</u>                         |            |                                 |                       |                       |
| Hired labor                             | \$         | \$ 620                          | \$ 1,660              | \$ 3,216              |
| Dairy feed                              |            | 5,920                           | 8,263                 | 11,242                |
| Other feed                              |            | 268                             | 167                   | 233                   |
| Machine hire                            |            | 164                             | 186                   | 219                   |
| Machinery repair                        |            | 860                             | 1,344                 | 1,729                 |
| Auto expense (farm share)               |            | 189                             | 228                   | 246                   |
| Gas and oil                             |            | 736                             | 991                   | 1,185                 |
| Breeding fees                           |            | 265                             | 360                   | 526                   |
| Veterinary and medicine                 |            | 333                             | 564                   | 766                   |
| Other livestock expense                 |            | 991                             | 1,357                 | 1,815                 |
| Lime and fertilizer                     |            | 809                             | 1,263                 | 1,854                 |
| Seeds and plants                        |            | 238                             | 389                   | 554                   |
| Spray and other crop expense            |            | 216                             | 362                   | 504                   |
| Land, bldg., fence repair               |            | 480                             | 783                   | 863                   |
| Taxes and insurance                     |            | 1,126                           | 1,493                 | 1,944                 |
| Elec. and tel. (farm share)             |            | 483                             | 633                   | 775                   |
| Miscellaneous expenses                  |            | 381                             | 613                   | 832                   |
| Total Cash Operating Exp.               | \$         | \$14,079                        | \$20,656              | \$ 28,503             |
| New machinery                           |            | 3,664                           | 4,794                 | 7,422                 |
| New real estate                         |            | 2,114                           | 2,305                 | 5,365                 |
| Purchased livestock                     |            | 1,109                           | 1,406                 | 2,084                 |
| Unpaid family labor                     |            | 857                             | 703                   | 716                   |
| TOTAL FARM EXPENSES                     | \$         | \$21,823                        | \$29,864              | \$ 44,090             |
| <u>Financial Summary</u>                |            |                                 |                       |                       |
| Total Farm Receipts                     | \$         | \$31,220                        | \$43,047              | \$ 63,532             |
| Total Farm Expenses                     |            | 21,823                          | 29,864                | 44,090                |
| Farm Income                             | \$         | \$ 9,397                        | \$13,183              | \$ 19,442             |
| Interest on av. capital at 7%           |            | 4,534                           | 6,000                 | 8,311                 |
| Labor Income per Farm                   | \$         | \$ 4,863                        | \$ 7,183              | \$ 11,131             |
| Number of operators                     |            | 112                             | 195                   | 118                   |
| LABOR INCOME PER OPERATOR               | \$         | \$ 4,819                        | \$ 6,631              | \$ 8,301              |

Table 28 Contd.

FARM BUSINESS SUMMARY BY HERD SIZE  
511 New York Dairy Farms, 1969

| Item                                    | My<br>farm | 70 to 84<br>cow farms | 85 to 99<br>cow farms | Farms with 100<br>or more cows |
|---|------------|-----------------------|-----------------------|--------------------------------|
| <u>Capital Investment (End of Year)</u> |            |                       |                       |                                |
| Machinery and equipment                 | \$ _____   | \$ 37,166             | \$ 37,605             | \$ 52,665                      |
| Livestock                               | _____      | 39,007                | 45,462                | 62,377                         |
| Feed and supplies                       | _____      | 13,014                | 14,020                | 19,053                         |
| Land and buildings                      | _____      | 72,324                | 86,472                | 132,358                        |
| TOTAL INVESTMENT                        | \$ _____   | \$161,511             | \$183,559             | \$266,453                      |
| <u>Receipts</u>                         |            |                       |                       |                                |
| Milk sales                              | \$ _____   | \$ 55,712             | \$ 70,436             | \$100,501                      |
| Livestock sold                          | _____      | 5,687                 | 8,540                 | 8,759                          |
| Crop sales                              | _____      | 562                   | 864                   | 1,002                          |
| Miscellaneous receipts                  | _____      | 1,524                 | 1,784                 | 2,858                          |
| Total Cash Receipts                     | \$ _____   | \$ 63,485             | \$ 81,624             | \$113,120                      |
| Increase in inventory                   | _____      | 14,513                | 17,243                | 16,965                         |
| TOTAL FARM RECEIPTS                     | \$ _____   | \$ 77,998             | \$ 98,867             | \$130,085                      |
| <u>Expenses</u>                         |            |                       |                       |                                |
| Hired labor                             | \$ _____   | \$ 5,061              | \$ 7,774              | \$ 12,572                      |
| Dairy feed                              | _____      | 13,588                | 17,144                | 22,561                         |
| Other feed                              | _____      | 230                   | 657                   | 598                            |
| Machine hire                            | _____      | 330                   | 324                   | 556                            |
| Machinery repair                        | _____      | 2,146                 | 2,890                 | 5,057                          |
| Auto expense (farm share)               | _____      | 272                   | 298                   | 247                            |
| Gas and oil                             | _____      | 1,499                 | 1,757                 | 2,741                          |
| Breeding fees                           | _____      | 593                   | 849                   | 897                            |
| Veterinary and medicine                 | _____      | 957                   | 1,418                 | 1,501                          |
| Other livestock expense                 | _____      | 2,526                 | 3,413                 | 4,867                          |
| Lime and fertilizer                     | _____      | 2,685                 | 3,803                 | 5,204                          |
| Seeds and plants                        | _____      | 691                   | 922                   | 1,252                          |
| Spray and other crop expense            | _____      | 679                   | 999                   | 1,199                          |
| Land, bldg., fence repair               | _____      | 1,181                 | 1,528                 | 2,127                          |
| Taxes and insurance                     | _____      | 2,784                 | 3,032                 | 4,393                          |
| Elec. and tel. (farm share)             | _____      | 903                   | 1,230                 | 1,667                          |
| Miscellaneous expenses                  | _____      | 1,194                 | 1,691                 | 2,536                          |
| Total Cash Operating Exp.               | \$ _____   | \$ 37,319             | \$ 49,729             | \$ 69,975                      |
| New machinery                           | _____      | 7,661                 | 8,786                 | 13,055                         |
| New real estate                         | _____      | 6,134                 | 9,070                 | 6,169                          |
| Purchased livestock                     | _____      | 2,990                 | 5,181                 | 5,638                          |
| Unpaid family labor                     | _____      | 637                   | 480                   | 526                            |
| TOTAL FARM EXPENSES                     | \$ _____   | \$ 54,741             | \$ 73,246             | \$ 95,363                      |
| <u>Financial Summary</u>                |            |                       |                       |                                |
| Total Farm Receipts                     | \$ _____   | \$ 77,998             | \$ 98,867             | \$130,085                      |
| Total Farm Expenses                     | _____      | 54,741                | 73,246                | 95,363                         |
| Farm Income                             | \$ _____   | \$ 23,257             | \$ 25,621             | \$ 34,722                      |
| Interest on av. capital at 7%           | _____      | 10,798                | 12,246                | 18,058                         |
| Labor Income per Farm                   | \$ _____   | \$ 12,459             | \$ 13,375             | \$ 16,664                      |
| Number of operators                     | _____      | 60                    | 42                    | 70                             |
| LABOR INCOME PER OPERATOR               | \$ _____   | \$ 10,175             | \$ 9,554              | \$ 12,617                      |

Table 29.

SELECTED BUSINESS FACTORS BY HERD SIZE  
511 New York Dairy Farms, 1969

| Item                          | My<br>farm | Farms with less<br>than 40 cows | 40 to 54<br>cow farms | 55 to 69<br>cow farms |
|-------------------------------|------------|---------------------------------|-----------------------|-----------------------|
| Number of farms               |            | 111                             | 180                   | 88                    |
| <u>Size of Business</u>       |            |                                 |                       |                       |
| Number of cows                |            | 33                              | 46                    | 62                    |
| Pounds of milk sold           |            | 397,000                         | 568,400               | 791,000               |
| Crop acres                    |            | 91                              | 124                   | 152                   |
| Man equivalent                |            | 1.4                             | 1.7                   | 2.2                   |
| Total work units              |            | 387                             | 533                   | 687                   |
| <u>Rates of Production</u>    |            |                                 |                       |                       |
| Milk sold per cow             |            | 12,000                          | 12,400                | 12,800                |
| Tons hay per acre             |            | 2.5                             | 2.7                   | 2.9                   |
| Tons corn silage per acre     |            | 14                              | 15                    | 15                    |
| Bushels of oats per acre      |            | 58                              | 53                    | 57                    |
| <u>Labor Efficiency</u>       |            |                                 |                       |                       |
| Cows per man                  |            | 24                              | 27                    | 28                    |
| Pounds milk sold per man      |            | 283,600                         | 334,400               | 359,500               |
| Work units per man            |            | 276                             | 314                   | 312                   |
| Crop acres per man            |            | 65                              | 73                    | 69                    |
| <u>Feed Costs</u>             |            |                                 |                       |                       |
| Feed purchased per cow        | \$         | \$ 179                          | \$ 180                | \$ 181                |
| Crop expense per cow          | \$         | \$ 38                           | \$ 44                 | \$ 47                 |
| Feed and crop expense per cow | \$         | \$ 217                          | \$ 222                | \$ 228                |
| Feed cost per cwt. milk       | \$         | \$ 1.49                         | \$ 1.45               | \$ 1.42               |
| Feed and crop exp./cwt. milk  | \$         | \$ 1.81                         | \$ 1.81               | \$ 1.79               |
| % Feed is of milk receipts    | %          | 26%                             | 25%                   | 25%                   |
| Hay equivalent per cow        |            | 7.1                             | 7.6                   | 7.4                   |
| Crop acres per cow            |            | 2.8                             | 2.7                   | 2.5                   |
| Fertilizer and lime/crop acre | \$         | \$ 9                            | \$ 10                 | \$ 12                 |
| <u>Machinery Costs</u>        |            |                                 |                       |                       |
| Total machinery costs         | \$         | \$ 5,672                        | \$ 7,625              | \$ 10,284             |
| Machinery cost per cow        | \$         | \$ 172                          | \$ 166                | \$ 166                |
| Machinery cost per man        | \$         | \$ 4,051                        | \$ 4,485              | \$ 4,675              |
| Machinery cost per cwt. milk  | \$         | \$ 1.43                         | \$ 1.34               | \$ 1.30               |
| Machinery cost per crop acre  | \$         | \$ 62                           | \$ 61                 | \$ 68                 |
| <u>Capital Efficiency</u>     |            |                                 |                       |                       |
| Investment per man            | \$         | \$ 48,083                       | \$ 52,163             | \$ 56,649             |
| Investment per cow            | \$         | \$ 2,040                        | \$ 1,928              | \$ 2,010              |
| Investment per cwt. milk sold | \$         | \$ 17                           | \$ 16                 | \$ 16                 |
| Land and buildings per cow    | \$         | \$ 984                          | \$ 875                | \$ 929                |
| Machinery investment per cow  | \$         | \$ 477                          | \$ 457                | \$ 472                |
| Return on investment          | %          | 6.1%                            | 8.6%                  | 10.3%                 |
| <u>Other</u>                  |            |                                 |                       |                       |
| Price per cwt. milk sold      | \$         | \$ 5.76                         | \$ 5.72               | \$ 5.74               |
| Acres hay and hay crop silage |            | 59                              | 75                    | 88                    |
| Acres corn silage             |            | 17                              | 30                    | 40                    |

Table 29 Contd. SELECTED BUSINESS FACTORS BY HERD SIZE  
511 New York Dairy Farms, 1969

| Item                            | My<br>farm | 70 to 84<br>cow farms | 85 to 99<br>cow farms | Farms with 100<br>or more cows |
|---------------------------------|------------|-----------------------|-----------------------|--------------------------------|
| Number of farms                 |            | 49                    | 30                    | 53                             |
| <u>Size of business</u>         |            |                       |                       |                                |
| Number of cows                  |            | 76                    | 92                    | 133                            |
| Pounds of milk sold             |            | 969,800               | 1,198,900             | 1,693,300                      |
| Crop acres                      |            | 204                   | 236                   | 322                            |
| Man equivalent                  |            | 2.3                   | 3.0                   | 3.7                            |
| Total work units                |            | 889                   | 1,086                 | 1,480                          |
| <u>Rates of production</u>      |            |                       |                       |                                |
| Milk sold per cow               |            | 12,800                | 13,000                | 12,700                         |
| Tons hay per acre               |            | 3.0                   | 3.1                   | 2.9                            |
| Tons corn silage per acre       |            | 17                    | 16                    | 16                             |
| Bushels oats per acre           |            | 65                    | 54                    | 57                             |
| <u>Labor efficiency</u>         |            |                       |                       |                                |
| Cows per man                    |            | 33                    | 31                    | 36                             |
| Pounds milk sold per man        |            | 421,700               | 399,600               | 457,600                        |
| Work units per man              |            | 387                   | 362                   | 400                            |
| Crop acres per man              |            | 89                    | 79                    | 87                             |
| <u>Feed costs</u>               |            |                       |                       |                                |
| Feed purchased per cow          | \$         | \$ 179                | \$ 186                | \$ 170                         |
| Crop expense per cow            | \$         | \$ 53                 | \$ 62                 | \$ 58                          |
| Feed & crop expense per cow     | \$         | \$ 232                | \$ 248                | \$ 228                         |
| Feed cost per cwt. milk         | \$         | \$ 1.40               | \$ 1.43               | \$ 1.33                        |
| Feed & crop cost exp./cwt. milk | \$         | \$ 1.82               | \$ 1.91               | \$ 1.78                        |
| % Feed is of milk receipts      | ---        | 24%                   | 24%                   | 22%                            |
| Hay equivalent per cow          |            | 8.4                   | 7.7                   | 7.3                            |
| Crop acres per cow              |            | 2.7                   | 2.6                   | 2.4                            |
| Fertilizer & lime/crop acre     | \$         | \$ 13                 | \$ 16                 | \$ 16                          |
| <u>Machinery Costs</u>          |            |                       |                       |                                |
| Total machinery costs           | \$         | \$ 12,245             | \$ 14,772             | \$ 22,205                      |
| Machinery costs per cow         | \$         | \$ 161                | \$ 161                | \$ 167                         |
| Machinery cost per man          | \$         | \$ 5,324              | \$ 4,924              | \$ 6,001                       |
| Machinery cost per cwt. milk    | \$         | \$ 1.26               | \$ 1.23               | \$ 1.31                        |
| Machinery cost per crop acre    | \$         | \$ 60                 | \$ 51                 | \$ 69                          |
| <u>Capital efficiency</u>       |            |                       |                       |                                |
| Investment per man              | \$         | \$ 70,222             | \$ 61,186             | \$ 72,014                      |
| Investment per cow              | \$         | \$ 2,125              | \$ 1,995              | \$ 2,003                       |
| Investment per cwt. milk sold   | \$         | \$ 17                 | \$ 15                 | \$ 16                          |
| Land and building per cow       | \$         | \$ 952                | \$ 940                | \$ 995                         |
| Machinery investment per cow    | \$         | \$ 489                | \$ 409                | \$ 396                         |
| Return on investment            |            | 10.8%                 | 10.3%                 | 10.7%                          |
| <u>Other</u>                    |            |                       |                       |                                |
| Price per cwt. milk sold        | \$         | \$ 5.74               | \$ 5.88               | \$ 5.94                        |
| Acres hay and hay crop silage   |            | 108                   | 110                   | 142                            |
| Acres corn silage               |            | 58                    | 73                    | 104                            |

Farm Business Chart

The chart on the next two pages is a tool for use in analyzing a dairy farm business. It is essentially a series of measuring sticks combined into one tool.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS  
511 New York Dairy Farms,\* 1969

| Size of Business |             |                  | Rates of Production      |                   |                           | Labor Efficiency |                          |
|------------------|-------------|------------------|--------------------------|-------------------|---------------------------|------------------|--------------------------|
| Man equivalent   | No. of cows | Pounds milk sold | Pounds milk sold per cow | Tons hay per acre | Tons corn silage per acre | Cows per man     | Pounds milk sold per man |
| 4.1              | 134         | 1,724,400        | 15,500                   | 4.7               | 22                        | 45               | 582,000                  |
| 2.8              | 88          | 1,158,900        | 14,300                   | 3.8               | 19                        | 37               | 485,300                  |
| 2.4              | 71          | 914,600          | 13,800                   | 3.3               | 18                        | 34               | 440,400                  |
| 2.2              | 61          | 785,500          | 13,300                   | 3.0               | 17                        | 31               | 398,900                  |
| 2.0              | 54          | 676,800          | 12,900                   | 2.8               | 15                        | 29               | 365,500                  |
| 1.8              | 48          | 608,200          | 12,400                   | 2.5               | 15                        | 28               | 340,900                  |
| 1.6              | 44          | 547,700          | 12,000                   | 2.4               | 14                        | 26               | 315,600                  |
| 1.4              | 40          | 484,400          | 11,400                   | 2.1               | 12                        | 24               | 291,800                  |
| 1.2              | 36          | 416,400          | 10,600                   | 1.9               | 10                        | 22               | 257,800                  |
| 1.1              | 29          | 309,000          | 9,000                    | 1.3               | 8                         | 18               | 202,200                  |

\* These farms are considerably above the average for all farms in New York State. For example, the median number of cows for the 511 farms was 51 compared with 38 for all farms in the State.

The Farm Business Chart is a tool which can be used in analyzing a business to determine the strong and weak points. The chart shows how far the individual farm is above or below the midpoint of the 511 farms for each factor.

The figure at the top of each column is the average of the top 10 percent of the farms for that factor. For example, the figure 4.1 at the top of the column headed "Man equivalent" is the average man equivalent on the 10 percent of the farms with the most men. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. The figure at the bottom of each column (1.1 for Man equivalent) is the average for the 10 percent of the farms which ranked lowest in that factor.

Each column of the chart is independent of the others. The farms which are in the top 10 percent for one factor would not necessarily be the same farms which make up the top 10 percent for any other factor.

This chart is used in analyzing a particular dairy business by drawing a line through the figure in each column which shows where the farm being analyzed stands for that factor. This helps identify the strengths and weaknesses. Summarize these and list them at the bottom of the next page.



Farm Business Chart cont'd.

The cost control factors are ranked from low to high. For cost control factors, the lowest cost is not necessarily the most profitable. In some cases, the "best" might be somewhere near the average. Many things affect the level of these costs, and these items must be taken into account when analyzing the factors.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS  
511 New York Dairy Farms, 1969

| Cost Control        |                            |                        |                                |
|---------------------|----------------------------|------------------------|--------------------------------|
| Feed bought per cow | % Feed is of milk receipts | Machinery cost per cow | Labor & machinery cost per cow |
| \$ 79               | 12%                        | \$ 99                  | \$246                          |
| 119                 | 17                         | 123                    | 280                            |
| 142                 | 20                         | 137                    | 304                            |
| 154                 | 22                         | 146                    | 322                            |
| 170                 | 24                         | 156                    | 337                            |
| -----               |                            |                        |                                |
| 187                 | 26                         | 166                    | 352                            |
| 201                 | 28                         | 178                    | 367                            |
| 218                 | 30                         | 193                    | 390                            |
| 239                 | 32                         | 215                    | 424                            |
| 288                 | 38                         | 262                    | 485                            |

Based on the analyzed results shown on the business chart, list below the strong and weak points of the business. Then identify the major problems.

STRONG POINTS:

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WEAK POINTS:

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MAJOR PROBLEMS:

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After identifying problems, consider alternative ways of solving each problem. Each alternative should be studied in detail. A budgeting form can be used for projecting the likely results of each alternative.

## SUPPLEMENTAL COMPARISONS

Cost of Producing Milk

The cost of producing milk can be calculated by using the total farm business summary if the operations have dairy as the only principal enterprise. The average cost per hundredweight of producing milk on the 511 farms and comparisons with earlier years is shown on page 33.

Trends

The manager of any business must keep abreast of current trends. This is essential if he is to keep his business in tune with the times. It is also important as one develops plans for the future.

Trends can be measured in different ways. One way is to compare similar business studies to observe changes that have occurred. On page 34, selected farm business summary factors are given for 1959, 1964, 1968, and 1969.

Changes in the businesses of these New York dairymen stand out. The size as measured by numbers of cows, acres in crops, and pounds of milk all increased. The labor force showed the least change. The pounds of milk sold in 1969 was more than double that of 1959. Capital investment and total farm receipts also were more than double.

The price of milk in 1969 was \$1.07 cents per hundredweight more than in 1959. Total farm expenses more than doubled, but the major cost control measures changed much less. For example, the percent feed cost of milk receipts was less in 1969 than in 1959, and feed bought per hundredweight of milk sold changed little. The machinery cost per hundredweight of milk sold was up only slightly.

Pounds of milk sold per cow in 1969 was up about 35 percent over that of 1959. Crop yields were up with corn silage going from 11 to 16 tons per acre. Labor efficiency showed a marked change in going from 182,000 pounds of milk sold per man in 1959 to 363,000 in 1969 or about double.

Operating Statements

Operating statements are common in business accounting. In farm accounting, business summaries are prepared and business factors calculated. This is essentially an operating statement for the farm business. Operating statements based on the study of the 511 dairy farms for 1969 are presented on pages 35 and 36. Here the highlights of the year's operations are presented on one page.

The statement on page 36 is based on the average for all 511 farms. However, in making comparisons or establishing goals, one is often interested in what the "better" businesses accomplish. For this purpose, the 10 percent of the farms with the highest labor incomes were grouped together and an operating statement prepared (page 35).

## COST OF PRODUCING MILK

By adding an estimate of the value of the operator's labor and interest on the capital investment to the total farm expenses, the farm cost of producing milk can be calculated. The value of the operator's time for 1969 was estimated at \$450 per month. Receipts for items other than milk are credited against the total cost. This assumes that these items were produced at cost.

Table 30. AVERAGE FARM COST OF PRODUCING MILK  
511 New York Dairy Farms, 1969

| Item  | My Farm  | Average of<br>511 Farms |
|---|----------|-------------------------|
| Total farm expenses                                       | \$ _____ | \$42,293                |
| Interest at 7% on average capital                         | _____    | 8,157                   |
| Value of operator's labor                                 | _____    | 6,310*                  |
| Total Costs   | \$ _____ | \$56,760                |
| Total farm receipts                                       | \$ _____ | \$59,662                |
| Less milk sales   | _____    | 44,143                  |
| Other Income  | \$ _____ | \$15,519                |
| Cost of producing milk<br>(total costs less other income) | \$ _____ | \$41,241                |
| Hundredweights of milk sold                               | _____    | 7,617                   |
| Cost per cwt. of milk sold                                | \$ _____ | \$5.41                  |
| Average price received                                    | \$ _____ | \$5.80                  |

\* Figured at \$5,400 per operator (there were 597 operators on 511 farms).

The average cost of producing milk using the whole farm figures has been calculated for selected years and is shown below. The average price received is also reported.

## Cost of Producing Milk and Prices Received

| Year | Operator's<br>labor | Cwt. milk<br>sold | Cost<br>per cwt. | Av. price<br>received |
|------|---------------------|-------------------|------------------|-----------------------|
| 1959 | \$3,600             | 3,274             | \$4.76           | \$4.73                |
| 1964 | 3,600               | 4,504             | 4.55             | 4.40                  |
| 1967 | 5,400               | 6,166             | 4.86             | 5.25                  |
| 1968 | 5,400               | 7,152             | 4.98             | 5.52                  |
| 1969 | 5,400               | 7,617             | 5.41*            | 5.80                  |

\* Used 7% interest charge. In previous years 5% was used.

Table 31. SELECTED FARM BUSINESS SUMMARY FACTORS  
New York Dairy Farms, Selected Years, 1959-1969

| Item                                       | Year     |          |                        |                        |
|--|----------|----------|------------------------|------------------------|
|  | 1959     | 1964     | 1968                   | 1969                   |
| Number of farms                            | 542      | 434      | 568                    | 511                    |
| <u>Financial Summary</u>                   |          |          |                        |                        |
| Average capital invested                   | \$47,840 | \$57,187 | \$107,854              | \$116,525              |
| Total farm receipts                        | \$22,548 | \$25,634 | \$ 53,247              | \$ 59,662              |
| Total farm expenses                        | \$16,255 | \$19,551 | \$ 37,717              | \$ 42,293              |
| Labor income per operator                  | \$ 3,489 | \$ 2,958 | \$ 8,724<br>(\$6,868)* | \$ 9,879<br>(\$7,885)* |
| <u>Size of Business</u>                    |          |          |                        |                        |
| Number of cows                             | 35       | 40       | 58                     | 60                     |
| Pounds of milk sold                        | 327,400  | 450,400  | 715,200                | 761,700                |
| Crop acres                                 | 104      | 104      | 155                    | 156                    |
| Man equivalent                             | 1.8      | 1.7      | 2.1                    | 2.1                    |
| Total work units                           | 557      | 507      | 692                    | 692                    |
| <u>Rates of Production</u>                 |          |          |                        |                        |
| Milk sold per cow                          | 9,360    | 11,260   | 12,300                 | 12,700                 |
| Tons hay per acre                          | 2.0      | 2.0      | 2.8                    | 2.8                    |
| Tons corn silage per acre                  | 11       | 12       | 14                     | 16                     |
| <u>Labor Efficiency</u>                    |          |          |                        |                        |
| Cows per man                               | 19       | 24       | 28                     | 29                     |
| Pounds milk sold per man                   | 181,900  | 264,900  | 340,600                | 362,700                |
| Work units per man                         | 309      | 298      | 330                    | 330                    |
| <u>Cost Control Factors</u>                |          |          |                        |                        |
| Machinery cost per cow                     | \$ 111   | \$ 109   | \$ 151                 | \$ 167                 |
| Machinery cost/cwt. milk                   | \$ 1.18  | \$ .97   | \$ 1.22                | \$ 1.32                |
| Feed bought per cow                        | \$ 113   | \$ 155   | \$ 163                 | \$ 180                 |
| Feed bought/cwt. milk                      | \$ 1.32  | \$ 1.38  | \$ 1.32                | \$ 1.42                |
| Feed & crop expense/cwt. milk              | \$ 1.73  | \$ 1.65  | \$ 1.69                | \$ 1.68                |
| % Feed is of milk receipts                 | 26%      | 31%      | 24%                    | 24%                    |
| <u>Capital Efficiency</u>                  |          |          |                        |                        |
| Total investment per man                   | \$27,387 | \$34,493 | \$ 53,302              | \$ 57,724              |
| Total investment per cow                   | \$ 1,408 | \$ 1,466 | \$ 1,930               | \$ 2,020               |
| Machinery investment/cow                   | \$ 295   | \$ 315   | \$ 435                 | \$ 452                 |
| Total investment/cwt. milk                 | \$ 15    | \$ 13    | \$ 16                  | \$ 16                  |
| <u>Other</u>                               |          |          |                        |                        |
| Price per cwt. milk sold                   | \$ 4.73  | \$ 4.40  | \$ 5.52                | \$ 5.80                |
| Acres hay & hay crop silage                | 62       | 90       | 90                     | 85                     |
| Acres corn silage                          | 15       | 19       | 41                     | 42                     |
| Total acres in crops/cow                   | 3.0      | 2.6      | 2.7                    | 2.6                    |
| Lime & fertilizer expense<br>per crop acre | \$ 7     | \$ 9     | \$ 11                  | \$ 13                  |
| Farm income per cow                        | \$ 180   | \$ 152   | \$ 268                 | \$ 290                 |
| Labor income per cow                       | \$ 111   | \$ 81    | \$ 175                 | \$ 154                 |

SOURCE: A.E. Res. 92, A.E. Res. 175, and A.E. Res. 304

\* Labor income using a 7% interest charge on all capital.

Table 32.

FARM BUSINESS SUMMARY  
Top 10 Percent of the Farms by Labor Income  
511 New York Dairy Farms, 1969

| <u>CAPITAL INVESTMENT</u>    |                  |                  | <u>RECEIPTS</u>               |                  |
|------------------------------|------------------|------------------|-------------------------------|------------------|
|                              | <u>1/1/69</u>    | <u>1/1/70</u>    |                               |                  |
| Machinery & equipment        | \$ 38,521        | \$ 42,890        | Milk sales                    | \$77,943         |
| Livestock                    | 43,210           | 47,689           | Livestock                     | 7,191            |
| Feed & supplies              | 12,742           | 15,289           | Crop sales                    | 794              |
| Land & buildings             | 84,429           | 90,387           | Government payments           | 622              |
| <b>TOTAL INVESTMENT</b>      | <b>\$178,902</b> | <b>\$196,255</b> | Gas tax refund                | 66               |
|                              |                  |                  | Machine work                  | 179              |
|                              |                  |                  | Machinery sold                | 192              |
|                              |                  |                  | Work off farm                 | 26               |
|                              |                  |                  | Miscellaneous                 | <u>1,160</u>     |
|                              |                  |                  | Total Cash Receipts           | \$88,173         |
|                              |                  |                  | Increase in inventory         | <u>17,352</u>    |
|                              |                  |                  | <b>TOTAL FARM RECEIPTS</b>    | <b>\$105,525</b> |
| <u>EXPENSES</u>              |                  |                  | <u>FINANCIAL SUMMARY</u>      |                  |
| <u>Labor</u>                 |                  |                  | Total Farm Receipts           | \$105,525        |
| Hired                        |                  | \$ 8,360         | Total Farm Expenses           | <u>69,913</u>    |
| Unpaid                       |                  | 340              | Farm Income                   | \$ 35,612        |
| <u>Feed</u>                  |                  |                  | Interest on av. capital at 7% | <u>13,130</u>    |
| Dairy concentrate            |                  | 17,531           | Farm Labor Income             | \$ 22,482        |
| Hay and other                |                  | 361              | Number of operators           | <u>53</u>        |
| <u>Power and Machinery</u>   |                  |                  | <b>LABOR INCOME/OPERATOR</b>  | <b>\$ 21,633</b> |
| Machine hire                 |                  | 213              |                               |                  |
| Machinery repair             |                  | 3,071            | <u>BUSINESS FACTORS</u>       |                  |
| Auto expense                 |                  | 234              | Man equivalent                | 2.6              |
| Gas and oil                  |                  | 1,848            | Number of cows                | 98               |
| Electricity                  |                  | 942              | Number of heifers             | 61               |
| Milk hauling                 |                  | 1,137            | Acres of hay                  | 97               |
| <u>Livestock</u>             |                  |                  | Acres of corn silage          | 75               |
| Breeding fees                |                  | 735              | Acres of other crops          | 63               |
| Veterinary, medicine         |                  | 1,264            | Lbs. of milk sold             | 1,340,000        |
| Other livestock expense      |                  | 2,322            | Lbs. milk sold/cow            | 13,700           |
| <u>Crop</u>                  |                  |                  | Tons hay/acre                 | 3.3              |
| Fertilizer and lime          |                  | 3,556            | Tons corn silage/acre         | 16               |
| Seeds and plants             |                  | 918              | Lbs. of milk sold/man         | 515,400          |
| Bale ties                    |                  | 81               | Cows per man                  | 38               |
| Spray and other              |                  | 674              | % Feed is of milk receipts    | 22%              |
| <u>Real Estate</u>           |                  |                  | Feed & crop expense/cwt. milk | \$1.70           |
| Land, building, fence repair |                  | 1,644            | Lime & fertilizer/crop acre   | \$15             |
| Taxes                        |                  | 1,966            | Machinery cost/cow            | \$161            |
| Insurance                    |                  | 1,030            | Av. price/cwt. milk           | \$5.82           |
| Rent                         |                  | 845              |                               |                  |
| <u>Capital Items</u>         |                  |                  |                               |                  |
| New machinery                |                  | 10,176           |                               |                  |
| Purchased livestock          |                  | 3,256            |                               |                  |
| New real estate              |                  | 6,492            |                               |                  |
| <u>Other</u>                 |                  |                  |                               |                  |
| Telephone                    |                  | 188              |                               |                  |
| Miscellaneous                |                  | <u>729</u>       |                               |                  |
| <b>TOTAL FARM EXPENSES</b>   |                  | <b>\$ 69,913</b> |                               |                  |

Table 33.

FARM BUSINESS SUMMARY  
Average of 511 New York Dairy Farms, 1969

| <u>CAPITAL INVESTMENT</u>    |           |           | <u>RECEIPTS</u>               |          |
|------------------------------|-----------|-----------|-------------------------------|----------|
|                              | 1/1/69    | 1/1/70    |                               |          |
| Machinery & equipment        | \$ 24,460 | \$ 27,110 | Milk sales                    | \$44,143 |
| Livestock                    | 26,745    | 28,949    | Livestock sold                | 4,471    |
| Feed & supplies              | 7,354     | 8,269     | Crop sales                    | 428      |
| Land & buildings             | 53,270    | 56,893    | Government payments           | 286      |
| TOTAL INVESTMENT             | \$111,829 | \$121,221 | Gas tax refund                | 81       |
|                              |           |           | Machine work                  | 94       |
|                              |           |           | Machinery sold                | 92       |
|                              |           |           | Work off farm                 | 68       |
|                              |           |           | Miscellaneous                 | 607      |
|                              |           |           |                               |          |
|                              |           |           | Total Cash Receipts           | \$50,270 |
|                              |           |           | Increase in inventory         | 9,392    |
|                              |           |           | TOTAL FARM RECEIPTS           | \$59,662 |
|                              |           |           |                               |          |
| <u>EXPENSES</u>              |           |           | <u>FINANCIAL SUMMARY</u>      |          |
| <u>Labor</u>                 |           |           | Total Farm Receipts           | \$59,662 |
| Hired                        |           | \$ 3,518  | Total Farm Expenses           | 42,293   |
| Unpaid                       |           | 701       | Farm Income                   | \$17,370 |
| <u>Feed</u>                  |           |           | Interest on av. capital at 7% | 8,157    |
| Dairy concentrate            |           | 10,781    | Farm Labor Income             | \$ 9,213 |
| Hay and other                |           | 280       | Number of operators           | 597      |
| <u>Power and Machinery</u>   |           |           | LABOR INCOME/OPERATOR         | \$ 7,885 |
| Machine hire                 |           | 247       |                               |          |
| Machinery repair             |           | 1,857     |                               |          |
| Auto expense                 |           | 233       |                               |          |
| Gas and oil                  |           | 1,243     |                               |          |
| Electricity                  |           | 649       |                               |          |
| Milk hauling                 |           | 481       |                               |          |
| <u>Livestock</u>             |           |           |                               |          |
| Breeding fees                |           | 475       |                               |          |
| Veterinary, medicine         |           | 733       |                               |          |
| Other livestock expense      |           | 1,473     |                               |          |
| <u>Crop</u>                  |           |           |                               |          |
| Fertilizer and lime          |           | 1,961     |                               |          |
| Seeds and plants             |           | 535       |                               |          |
| Bale ties                    |           | 68        |                               |          |
| Spray and other              |           | 442       |                               |          |
| <u>Real Estate</u>           |           |           |                               |          |
| Land, building, fence repair |           | 952       |                               |          |
| Taxes                        |           | 1,270     |                               |          |
| Insurance                    |           | 735       |                               |          |
| Rent                         |           | 453       |                               |          |
| <u>Capital Items</u>         |           |           |                               |          |
| New machinery                |           | 6,367     |                               |          |
| Purchased livestock          |           | 2,271     |                               |          |
| New real estate              |           | 3,955     |                               |          |
| <u>Other</u>                 |           |           |                               |          |
| Telephone                    |           | 144       |                               |          |
| Miscellaneous                |           | 469       |                               |          |
| TOTAL FARM EXPENSES          |           | \$ 42,293 |                               |          |
|                              |           |           |                               |          |
|                              |           |           | Man equivalent                | 2.1      |
|                              |           |           | Number of cows                | 60       |
|                              |           |           | Number of heifers             | 40       |
|                              |           |           | Acres of hay                  | 81       |
|                              |           |           | Acres of corn silage          | 42       |
|                              |           |           | Total acres of crops          | 159      |
|                              |           |           | Lbs. of milk sold             | 761,700  |
|                              |           |           | Lbs. milk sold/cow            | 12,700   |
|                              |           |           | Tons hay/acre                 | 2.8      |
|                              |           |           | Tons corn silage/acre         | 16       |
|                              |           |           | Lbs. of milk sold/man         | 362,700  |
|                              |           |           | Cows per man                  | 29       |
|                              |           |           | % Feed is of milk receipts    | 24%      |
|                              |           |           | Feed & crop expense/cwt. milk | \$1.68   |
|                              |           |           | Lime & fertilizer/crop acre   | \$13     |
|                              |           |           | Machinery cost/cow            | \$167    |
|                              |           |           | Av. price/cwt. milk           | \$5.80   |