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COMPARISON OF FARM BUSINESSES OF
REGISTERED AND GRADE HERDS

New York, 1984

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Receipts

The farm receipts for the year show the general nature and size of the business. Below are the sources and average amounts of receipts for these 114 registered herds and 213 grade herds for 1984.

Table 7. FARM RECEIPTS BY REGISTERED AND GRADE HERDS
327 New York Dairy Farms, 1984

| Item | Registered | | Grade | |
|--------------------------------|------------|---------|-----------|---------|
| | Amount | Percent | Amount | Percent |
| Milk sales | \$177,114 | 88 | \$202,060 | 90 |
| Crop sales | 1,744 | 1 | 2,020 | 1 |
| Dairy cattle sold | 14,325 | 7 | 12,310 | 5 |
| Calves & other livestock sales | 2,302 | 1 | 3,082 | 1 |
| Gas tax refunds | 159 | -- | 211 | -- |
| Government payments | 2,268 | 1 | 3,679 | 2 |
| Custom machine work | 585 | -- | 313 | -- |
| Other | 3,038 | 2 | 3,448 | 1 |
| Total cash receipts | \$201,535 | 100 | \$227,123 | 100 |
| Increase in livestock | 2,091 | | 2,759 | |
| Increase in feed & supplies | 2,043 | | 2,634 | |
| Livestock appreciation | - 2,271 | | - 3,852 | |
| Machinery appreciation | 5,498 | | 4,146 | |
| Real estate appreciation | 6,000 | | 6,317 | |
| Total Farm Receipts | \$214,896 | | \$239,127 | |

Total cash receipts and total farm receipts were higher for the grade herds than for the registered. This is accounted for by the larger number of cows (83 vs. 96). Receipts from livestock sold, however, was larger for the registered herds and accounted for 7% of the cash receipts compared with 5% for the grade herds. This is probably a significant difference between the two kinds of herds.

The average price received for milk for the registered herds was \$13.56 compared with \$13.44 for the grade herds. The milk sales per cow were also higher for the registered herds. Dairy cattle sales per cow were higher for the registered herds.

Table 8. INCOME ANALYSIS BY REGISTERED AND GRADE HERDS
327 New York Dairy Farms, 1984

| Item | Registered | Grade |
|------------------------------|------------|---------|
| Average price/cwt. milk sold | \$13.56 | \$13.44 |
| Milk sales per cow | \$2,134 | \$2,105 |
| Dairy cattle sales per cow | \$173 | \$128 |
| Total cash receipts/cow | \$2,428 | \$2,318 |

Expenses

Total farm expenses exceeded \$200,000 per farm for both types of herds. For both groups of farms feed, labor, and interest were the three largest cash expense items.

Table 9. FARM EXPENSES BY REGISTERED AND GRADE HERDS
327 New York Dairy Farms, 1984

| Item | Registered | | Grade | |
|--------------------------------|------------|---------|-----------|---------|
| | Amount | Percent | Amount | Percent |
| Hired labor | \$ 17,195 | 10 | \$ 21,347 | 11 |
| <u>Feed</u> | | | | |
| Dairy concentrate | 42,841 | 26 | 50,436 | 27 |
| Other feed | 2,505 | 2 | 2,668 | 1 |
| <u>Machinery</u> | | | | |
| Machine hire | 1,557 | 1 | 1,758 | 1 |
| Machinery repairs | 8,980 | 5 | 10,392 | 6 |
| Auto expense (farm share) | 411 | -- | 486 | -- |
| Gas and oil | 6,364 | 4 | 7,440 | 4 |
| <u>Livestock</u> | | | | |
| Replacement livestock | 1,060 | 1 | 1,467 | 1 |
| Breeding fees | 3,559 | 2 | 2,834 | 2 |
| Veterinary and medicine | 3,761 | 2 | 4,421 | 2 |
| Milk marketing | 14,229 | 9 | 14,813 | 8 |
| Other livestock expense | 8,646 | 5 | 7,879 | 4 |
| <u>Crops</u> | | | | |
| Fertilizer and lime | 8,262 | 5 | 10,041 | 5 |
| Seeds and plants | 2,792 | 2 | 3,297 | 2 |
| Spray, other crop expense | 2,645 | 2 | 3,038 | 2 |
| <u>Real Estate</u> | | | | |
| Land, building, fence repair | 2,700 | 2 | 2,445 | 1 |
| Taxes | 4,570 | 3 | 4,828 | 3 |
| Insurance | 2,851 | 2 | 2,986 | 2 |
| Rent | 3,860 | 2 | 3,887 | 2 |
| <u>Other</u> | | | | |
| Telephone (farm share) | 618 | -- | 603 | -- |
| Electricity (farm share) | 4,414 | 3 | 4,843 | 3 |
| Interest paid | 17,299 | 10 | 22,075 | 12 |
| Miscellaneous | 2,563 | 2 | 2,320 | 1 |
| Total Cash Expenses | \$163,682 | 100 | \$186,304 | 100 |
| <u>Noncash Items</u> | | | | |
| Expansion livestock | \$ 328 | | \$ 943 | |
| Machinery depreciation | 15,014 | | 15,520 | |
| Building depreciation | 6,876 | | 8,113 | |
| Unpaid family labor | 1,904 | | 1,433 | |
| Interest on equity capital @5% | 17,962 | | 16,137 | |
| TOTAL FARM EXPENSES | \$205,766 | | \$228,450 | |
| Total farm expense/cow | \$2,479 | | \$2,380 | |

Receipts

Trends in the farm receipts for registered and grade herds can be observed in tables 10 and 11 below.

Table 10. FARM RECEIPTS BY REGISTERED AND GRADE HERDS
New York Dairy Farms, 1977, 1980 and 1983

| Item | 1977 | | 1980 | | 1983 | |
|-----------------------|------------|-----------|------------|-----------|------------|-----------|
| | Registered | Grade | Registered | Grade | Registered | Grade |
| Milk sales | \$ 91,260 | \$ 96,538 | \$129,063 | \$137,024 | \$177,371 | \$192,457 |
| Crop sales | 759 | 815 | 1,801 | 1,534 | 1,821 | 1,928 |
| Dairy cattle sold | 7,262 | 5,841 | 12,728 | 10,394 | 13,140 | 10,630 |
| Other livestock sales | 1,630 | 1,216 | 3,128 | 2,455 | 2,378 | 2,824 |
| Gas tax refunds | 147 | 153 | 133 | 123 | 214 | 158 |
| Government payments | 377 | 359 | 409 | 393 | 898 | 1,914 |
| Custom work | 180 | 207 | 235 | 185 | 330 | 360 |
| Other | 1,081 | 1,208 | 1,663 | 1,229 | 2,508 | 3,165 |
| Total Cash Receipts | \$102,696 | \$106,337 | \$149,160 | \$153,337 | \$198,660 | \$213,436 |
| Inc. in livestock | 3,551 | 3,105 | 5,710 | 4,690 | 4,121 | 3,835 |
| Inc. in supplies | 134 | 461 | 3,643 | 5,022 | 3,852 | 3,554 |
| TOTAL FARM RECEIPTS | \$106,381 | \$109,903 | \$158,513 | \$163,049 | \$206,633 | \$220,825 |

Total farm receipts were higher for the grade herds than for registered herds in 1977, 1980, 1983 and 1984. Average herd size for grade herds was higher than for registered herds in all years, this accounts in part for the larger total farm receipts in the grade herds. Total milk sales increased over the period with the grade herds selling more than the registered herds. Receipts from dairy cattle sold were higher for the registered herds. Dairy cattle sales increased by 75% and 78% in registered and grade herds respectively from 1977 to 1980. From 1980 to 1984 the increase was 13% for registered and 18% for grade herds.

Average price received per cwt. milk sold was slightly higher for registered than for grade herds in all years reported. Milk sales per cow also were higher in registered herds with a difference of \$104 in 1980, but this dropped to \$29 in 1984. Dairy cattle sales per cow were higher for registered herds in all years reported with a difference of \$27 in 1977, \$47 in 1980, \$42 in 1983 and \$45 in 1984. The differences in the 1980's have been consistent.

Table 11. INCOME ANALYSIS BY REGISTERED AND GRADE HERDS
New York Dairy Farms, 1977, 1980 and 1983

| Item | 1977 | | 1980 | | 1983 | |
|-------------------------|------------|---------|------------|---------|------------|---------|
| | Registered | Grade | Registered | Grade | Registered | Grade |
| Milk av. price/cwt. | \$9.78 | \$9.74 | \$12.79 | \$12.78 | \$13.70 | \$13.61 |
| Milk sales/cow | \$1,383 | \$1,379 | \$1,956 | \$1,852 | \$2,163 | \$2,115 |
| Dairy cattle sales/cow | \$108 | \$81 | \$184 | \$137 | \$160 | \$118 |
| TOTAL CASH RECEIPTS/COW | \$1,612 | \$1,570 | \$2,402 | \$2,203 | \$2,423 | \$2,345 |

Expenses

Total farm expenses per farm were greater for the grade herds than the registered for the four years reported. The larger number of cows explains part of this. Total farm expenses per cow, however, were higher for registered herds in the four years reported.

Table 12. FARM EXPENSES BY REGISTERED AND GRADE HERDS
New York Dairy Farms, 1977, 1980 and 1983

| Item | 1977 | | 1980 | | 1983 | |
|-------------------------|------------|-----------|------------|-----------|------------|-----------|
| | Registered | Grade | Registered | Grade | Registered | Grade |
| Hired labor | \$ 7,331 | \$ 8,268 | \$ 10,661 | \$ 11,208 | \$ 15,536 | \$ 18,374 |
| <u>Feed</u> | | | | | | |
| Dairy concentrate | 26,036 | 28,605 | 35,526 | 38,522 | 44,548 | 47,891 |
| Other feed | 1,224 | 1,315 | 1,675 | 1,426 | 1,909 | 2,353 |
| <u>Machinery</u> | | | | | | |
| Machine hire | 804 | 747 | 1,153 | 1,149 | 1,392 | 1,625 |
| Machinery repairs | 4,631 | 4,745 | 6,699 | 6,762 | 8,854 | 9,231 |
| Auto expense (FS) | 337 | 342 | 450 | 364 | 640 | 510 |
| Gas & oil | 2,939 | 2,936 | 5,395 | 5,737 | 6,164 | 7,120 |
| <u>Livestock</u> | | | | | | |
| Replacement animals | 2,231 | 2,602 | 2,268 | 2,700 | 1,868 | 2,067 |
| Breeding fees | 1,526 | 1,165 | 2,267 | 1,537 | 3,430 | 2,418 |
| Veterinary expense | 1,832 | 1,620 | 2,779 | 2,621 | 4,161 | 3,888 |
| Milk marketing | 2,237 | 2,384 | 3,616 | 3,513 | 12,586 | 13,061 |
| Other expenses | 3,580 | 3,442 | 5,592 | 4,716 | 8,285 | 7,209 |
| <u>Crops</u> | | | | | | |
| Fertilizer & lime | 4,340 | 4,960 | 6,632 | 6,892 | 7,581 | 9,623 |
| Seeds & plants | 1,476 | 1,512 | 2,002 | 2,056 | 2,532 | 3,020 |
| Other expenses | 1,292 | 1,408 | 1,744 | 1,651 | 2,584 | 2,956 |
| <u>Real estate</u> | | | | | | |
| Repairs | 1,730 | 1,579 | 2,771 | 2,043 | 2,999 | 2,432 |
| Taxes | 2,552 | 2,613 | 3,309 | 3,183 | 4,642 | 4,710 |
| Insurance | 1,767 | 1,705 | 2,522 | 2,554 | 2,849 | 2,807 |
| Rent | 1,139 | 1,285 | 1,903 | 2,017 | 2,975 | 4,370 |
| <u>Other</u> | | | | | | |
| Telephone (FS) | 385 | 370 | 487 | 477 | 650 | 575 |
| Electricity (FS) | 1,727 | 1,704 | 2,485 | 2,528 | 4,079 | 4,205 |
| Interest paid | 5,555 | 7,491 | 9,759 | 13,824 | 15,904 | 20,182 |
| Miscellaneous | 1,403 | 1,058 | 2,063 | 1,832 | 2,834 | 2,194 |
| Total Cash Expenses | \$ 78,094 | \$ 83,856 | \$113,758 | \$119,312 | \$159,002 | \$172,821 |
| <u>Noncash items</u> | | | | | | |
| Expansion livestock | -- | -- | 768 | 1,292 | 695 | 955 |
| Machinery deprec. | 5,611 | 5,919 | 10,268 | 11,029 | 13,611 | 14,403 |
| Building deprec. | 2,669 | 2,684 | 4,265 | 4,510 | 7,165 | 6,797 |
| Unpaid family labor | 1,200 | 1,200 | 1,500 | 1,500 | 1,824 | 1,322 |
| Int. on equity cap. | 14,252 | 12,724 | 27,833 | 23,825 | 17,494 | 15,298 |
| Total Farm Expenses | \$101,826 | \$106,383 | \$158,392 | \$161,468 | \$199,791 | \$211,596 |
| TOTAL FARM EXPENSES/COW | \$1,520 | \$1,478 | \$2,296 | \$2,125 | \$2,436 | \$2,351 |

Financial Summary of Year's Business

The financial summary of the year's operation reflects the results of management. Researchers have developed a number of ways to measure the returns from a farm business. Seven measures are reported below.

Table 13. MEASURES OF FARM BUSINESS INCOMES
By Registered and Grade Herds
327 New York Dairy Farms, 1984

| Measure | Registered | Grade |
|---|------------|----------|
| Net cash farm income: | | |
| Per farm | \$37,853 | \$40,819 |
| Per cow | \$456 | \$425 |
| Labor and management income: | | |
| Per operator | \$-73 | \$3,080 |
| Per cow | \$-1 | \$42 |
| Labor, management and ownership income: | | |
| Per operator | \$20,370 | \$20,314 |
| Return on equity capital: | | |
| Including real estate appreciation | 1.1% | 1.5% |
| Excluding real estate appreciation | -1.4% | -0.6% |

Labor and management income per operator is a basic measure generally used in comparing farm businesses. This measures the return to the operator for his labor and management. It is an indication of how well the operator has been able to "put it all together" or in brief indicates his managerial ability. The other measures of farm business incomes used in table 13 reflect the relative returns as related to other features of the business.

The average 1984 labor and management income per operator was minus \$73 for the registered herds and plus \$3,080 for the grade herds. On a per cow basis the labor incomes were minus \$1 and \$42. For both measures the grade herds paid better than the registered herds.

In 1984 the labor, management and ownership income per operator was about the same for the registered and grade herds. This measures the return to the operator for all his inputs, i.e. his labor, equity capital, managerial ability, and any appreciation on assets owned.

Return on equity capital is computed since it is a common measure used in nonfarm businesses. It measures the return to capital when the estimated value of the operator's labor and management is subtracted from the returns leaving the residue as a return to capital. Return to capital in farm businesses traditionally has been low. When appreciation was excluded the return to farm equity capital was a minus. For both measures of return to equity capital in 1984 the grade herds had a slightly better return than the registered herds.

Table 14. MEASURES OF FARM BUSINESS INCOMES BY REGISTERED AND GRADE HERDS
New York Dairy Farms 1977, 1980, and 1983

| Measure | 1977 | | 1980 | | 1983 | |
|--|------------|----------|------------|----------|------------|----------|
| | Registered | Grade | Registered | Grade | Registered | Grade |
| Net cash farm income: | | | | | | |
| Per farm | \$24,602 | \$22,481 | \$35,402 | \$34,025 | \$39,658 | \$40,615 |
| Per cow | \$373 | \$321 | \$536 | \$460 | \$484 | \$446 |
| Labor & mgt. income: | | | | | | |
| Per operator | \$3,688 | \$2,914 | \$98 | \$1,285 | \$5,345 | \$6,939 |
| Per cow | \$56 | \$42 | \$2 | \$17 | \$65 | \$76 |
| Labor, mgt. & ownership income per operator | \$18,113 | \$17,026 | \$40,935 | \$41,612 | \$14,726 | \$16,855 |
| Return on equity capital: | | | | | | |
| Incl. real estate appreciation | 4.0% | 3.3% | 9.8% | 11.9% | -0.5% | 0.4% |
| Excl. real estate appreciation | 2.2% | 1.0% | 6.8% | 7.8% | -1.4% | -1.2% |

Net cash income per farm increased from 1977 to 1980 and there were only small differences between the registered and grade herds. From 1977 to 1980 the increase was 44% and 51%, and from 1980 to 1983 there was only a 12% and a 19% increase for the registered and grade herds. Net cash income per cow was higher in the registered herds and it increased from 1977 to 1980 but dropped in 1983 and again in 1984 for both types of herds.

Labor, management and ownership income was similar in both registered and grade herds, and it increased by over 100% from 1977 to 1980 then dropped sharply in 1983. Return on equity capital, both including and excluding real estate appreciation followed the same pattern. These results are mainly due to the changes in the livestock and real estate appreciation which was \$4,228, \$19,185, and \$-6,700, in 1977, 1980 and 1983 respectively for all the herds in the business summary for those years.

In 1977 all seven of the farm income measures observed in table 14 were slightly better for the registered herds than for the grade herds. In contrast for 1980, 1983 and 1984 the income measures for the grade herds were higher than for the registered. In all years the differences were relatively small.

Size of herd and capital efficiency are two factors that affect the various farm business income measures. Size is important in spreading fixed costs over more units while the greater the capital per productive unit the higher the interest costs charged to the business. In the four years studied the grade herds were larger and had lower capital investments per cow. These are reflected in the comparison of the various income measures shown above.

Farm Family Financial Situation

The financial situation is an important part of a farm business summary. It affects the current cash outflow and future capital investment decisions. A farmer may have a good labor income, but a high debt payment schedule may seriously restrict his management possibilities.

Table 15. FARM FAMILY FINANCIAL SITUATION BY REGISTERED AND GRADE HERDS
327 New York Dairy Farms, January 1, 1985

| Item | Registered | | Grade | |
|-----------------------------------|------------|---------|-----------|---------|
| | Amount | Percent | Amount | Percent |
| <u>Assets</u> | | | | |
| Livestock | \$128,917 | 24 | \$120,196 | 21 |
| Feed and supplies | 39,010 | 7 | 43,967 | 8 |
| Machinery and equipment | 96,708 | 18 | 103,464 | 18 |
| Land and buildings | 244,770 | 46 | 262,077 | 47 |
| Co-op investment | 8,144 | 2 | 9,823 | 2 |
| Accounts receivable | 16,214 | 3 | 18,575 | 3 |
| Cash and checking accounts | 2,665 | -- | 3,425 | 1 |
| Total Farm Assets | \$536,428 | 100 | \$561,527 | 100 |
| Savings accounts | 3,300 | | 2,830 | |
| Cash value life insurance | 3,591 | | 2,133 | |
| Stocks and bonds | 3,783 | | 1,955 | |
| Nonfarm real estate | 7,025 | | 4,654 | |
| Auto (personal share) | 1,648 | | 1,808 | |
| All other | 7,515 | | 6,456 | |
| TOTAL ASSETS | \$563,290 | | \$581,363 | |
| <u>Liabilities</u> | | | | |
| Long term (mortgage, etc.) | \$ 99,052 | 56 | \$135,602 | 57 |
| Intermediate term | 69,877 | 40 | 90,465 | 38 |
| Short term | 4,131 | 2 | 4,315 | 2 |
| Other farm debt | 4,122 | 2 | 8,401 | 3 |
| Total Farm Liabilities | \$177,182 | 100 | \$238,783 | 100 |
| Nonfarm Liabilities | 463 | | 1,145 | |
| TOTAL LIABILITIES | \$177,645 | | \$239,928 | |
| Farm Net Worth (equity capital) | \$359,246 | | \$322,744 | |
| Family Net Worth | \$385,645 | | \$341,435 | |
| Percent Equity (total) | 68% | | 59% | |
| Farm debt per cow | \$2,109 | | \$2,437 | |
| Scheduled debt payments/cow | \$472 | | \$525 | |
| Scheduled debt payments as % milk | 22% | | 25% | |
| Cash available for debt payments | \$35,524 | | \$40,953 | |

The measures above suggest that the registered herds were in a somewhat better financial position than the grade herds. The same was true for the earlier years reported in table 16.

Table 16. FARM FAMILY FINANCIAL SITUATION BY REGISTERED AND GRADE HERDS
New York Dairy Herds, 1977, 1980, and 1983

| Item | 1977 | | 1980 | | 1983 | |
|--------------------------|------------|-----------|------------|-----------|------------|-----------|
| | Registered | Grade | Registered | Grade | Registered | Grade |
| Assets | | | | | | |
| Livestock | \$ 62,010 | \$ 54,040 | \$123,059 | \$112,287 | \$128,740 | \$114,841 |
| Feed & supplies | 21,051 | 20,949 | 27,720 | 30,849 | 37,141 | 40,290 |
| Machinery & equipment | 55,291 | 55,367 | 75,676 | 76,536 | 90,503 | 97,108 |
| Land & buildings | 144,638 | 152,919 | 191,654 | 199,823 | 238,949 | 246,283 |
| Co-op investment | 3,691 | 3,822 | 4,424 | 4,941 | 7,526 | 9,601 |
| Accounts receivable | 6,154 | 7,257 | 10,570 | 11,805 | 14,813 | 16,231 |
| Bank accounts | 1,484 | 1,941 | 3,048 | 2,221 | 1,948 | 2,491 |
| Total Farm Assets | \$294,319 | \$296,295 | \$436,151 | \$438,462 | \$519,620 | \$526,845 |
| Savings accounts | 3,310 | 2,961 | 3,394 | 2,734 | 3,019 | 2,744 |
| Cash value life ins. | 3,470 | 2,398 | 4,666 | 3,339 | 2,736 | 2,635 |
| Stocks and bonds | 3,416 | 1,739 | 3,737 | 2,677 | 3,846 | 2,370 |
| Nonfarm real estate | 1,974 | 2,376 | 6,037 | 5,879 | 6,334 | 5,392 |
| Auto (personal share) | 1,029 | 806 | 1,636 | 1,283 | 1,639 | 1,503 |
| All other | 3,307 | 1,287 | 7,746 | 5,651 | 6,901 | 7,200 |
| TOTAL ASSETS | \$310,825 | \$307,862 | \$463,367 | \$460,025 | \$544,095 | \$548,689 |
| Liabilities | | | | | | |
| Long term | \$ 52,707 | \$ 64,128 | \$ 72,845 | \$100,285 | \$100,842 | \$122,962 |
| Intermediate term | 27,587 | 39,648 | 39,015 | 54,984 | 60,681 | 83,729 |
| Short term | 2,741 | 2,675 | 3,884 | 5,038 | 3,477 | 3,998 |
| Other farm debt | 7,686 | 8,072 | 11,146 | 13,428 | 4,738 | 10,191 |
| Total Farm Liab. | \$ 90,721 | \$114,523 | \$126,890 | \$173,735 | \$169,738 | \$220,880 |
| Nonfarm Liab. | 1,246 | 849 | 484 | 1,684 | 512 | 1,312 |
| TOTAL LIABILITIES | \$ 91,967 | \$115,372 | \$127,374 | \$175,419 | \$170,250 | \$222,192 |
| Farm New Worth | \$203,598 | \$181,772 | \$309,261 | \$264,727 | \$349,882 | \$305,965 |
| Family Net Worth | \$218,858 | \$192,490 | \$335,993 | \$284,606 | \$373,845 | \$326,497 |
| Percent Equity (total) | 70% | 63% | 73% | 62% | 69% | 60% |
| Farm debt per cow | \$1,375 | \$1,613 | \$1,839 | \$2,286 | \$2,021 | \$2,350 |
| Scheduled debt payment: | | | | | | |
| per cow | \$225 | \$266 | \$357 | \$462 | \$433 | \$485 |
| % milk sales | 16% | 20% | 19% | 26% | 20% | 24% |
| Cash available for debts | \$18,157 | \$17,972 | \$28,407 | \$31,015 | \$57,601 | \$62,485 |

The trend in farm assets and farm liabilities was upward for both registered and grade herds from 1977 to 1984. Farm assets increased by 82% and 90%, farm liabilities by 95% and 109%, and farm net worth by 76% and 78% respectively for registered and grade herds.

Analysis of the Farm Business

Research has shown that certain factors controlled by management affect farm incomes. In analyzing a farm business, we examine the business factors of size, rates of production, labor efficiency, capital efficiency and cost control. For a dairy farm it is helpful to examine the dairy practices along with the business factors.

Business Factors

Table 17. AVERAGE OF BUSINESS FACTORS FOR REGISTERED AND GRADE HERDS
327 New York Dairy Farms, 1984

| Factor | Average | |
|------------------------------|------------|-----------|
| | Registered | Grade |
| Number of farms | 114 | 213 |
| <u>Size</u> | | |
| Worker equivalent | 2.92 | 3.25 |
| Number of cows | 83 | 96 |
| Number of heifers | 76 | 81 |
| Total crop acres | 248 | 299 |
| Total end inventory | \$506,586 | \$526,565 |
| <u>Rates of Production</u> | | |
| Milk produced per cow | 16,836 | 16,384 |
| Milk sold per cow | 15,737 | 15,657 |
| Tons hay equivalent per acre | 2.7 | 2.7 |
| Tons corn silage per acre | 14.5 | 14.1 |
| <u>Labor Efficiency</u> | | |
| Cows per person | 28 | 30 |
| Milk sold per person | 447,000 | 462,000 |
| <u>Capital Efficiency</u> | | |
| Farm capital per worker | \$173,000 | \$162,000 |
| Farm capital per cow | \$6,000 | \$5,400 |
| Farm capital per cwt. milk | \$39 | \$35 |
| <u>Cost Control</u> | | |
| Feed purchased per cow | \$516 | \$525 |
| % feed is of milk receipts | 24% | 25% |
| Labor cost/cwt. milk | \$2.38 | \$2.31 |
| Machine cost/cwt. milk | \$2.84 | \$2.70 |
| Veterinary and medicine/cow | \$45 | \$46 |
| Breeding expense/cow | \$43 | \$30 |
| Real estate expense per cow | \$168 | \$147 |
| TOTAL FARM EXPENSE PER COW | \$2,479 | \$2,380 |

The registered herds had higher rates of production and lower feed costs than the grade herds while the grade herds were larger, had better labor efficiency, more efficient use of capital and generally better cost control.

Table 18. AVERAGE OF BUSINESS FACTORS FOR REGISTERED AND GRADE HERDS
New York Dairy Farms, 1977, 1980, and 1983

| Factor | 1977 | | 1980 | | 1983 | |
|----------------------------|------------|-----------|------------|-----------|------------|-----------|
| | Registered | Grade | Registered | Grade | Registered | Grade |
| Number of farms | 123 | 240 | 127 | 256 | 125 | 230 |
| <u>Size factors</u> | | | | | | |
| Man equivalents | 2.4 | 2.4 | 2.6 | 2.7 | 2.8 | 3.1 |
| Number of cows | 66 | 70 | 66 | 74 | 82 | 91 |
| Number of heifers | 53 | 51 | 56 | 55 | 73 | 73 |
| Total crop acres | 202 | 216 | 215 | 247 | 241 | 285 |
| Total farm inventory | \$282,989 | \$283,274 | \$418,109 | \$419,495 | \$493,894 | \$494,894 |
| <u>Rates of production</u> | | | | | | |
| Milk produced/cow | 14,895 | 14,762 | 16,254 | 15,549 | 16,921 | 16,318 |
| Milk sold/cow | 14,133 | 14,166 | 15,200 | 14,400 | 15,800 | 15,500 |
| Tons hay equiv/acre | 2.6 | 2.3 | 2.6 | 2.4 | 2.5 | 2.6 |
| Tons corn silage/acre | 14.9 | 13.9 | 15.0 | 14.4 | 14.0 | 13.3 |
| <u>Labor efficiency</u> | | | | | | |
| Cows per worker | 27 | 29 | 26 | 28 | 30 | 30 |
| Milk sold/worker | 385,455 | 409,752 | 391,200 | 401,600 | 470,909 | 459,091 |
| <u>Capital efficiency</u> | | | | | | |
| Farm capital/worker | \$116,938 | \$117,055 | \$162,058 | \$157,114 | \$179,598 | \$160,680 |
| Farm capital/cow | 4,288 | 4,047 | 6,060 | 5,520 | 6,023 | 5,438 |
| Farm cap/cwt. milk | 30 | 29 | 40 | 38 | 38 | 35 |
| <u>Cost control</u> | | | | | | |
| Feed purchased/cow | \$394 | \$409 | \$538 | \$521 | \$543 | \$526 |
| % feed of milk recpt. | 29% | 30% | 28% | 28% | 25% | 25% |
| Labor cost/cwt. milk | \$1.88 | \$1.80 | \$2.32 | \$2.23 | \$2.22 | \$2.23 |
| Mach. cost/cwt. milk | \$1.98 | \$1.86 | \$3.01 | \$2.94 | \$2.71 | \$2.66 |
| Vet. expense/cow | \$28 | \$23 | \$42 | \$35 | \$51 | \$43 |
| Breeding exp/cow | \$23 | \$17 | \$34 | \$21 | \$42 | \$27 |
| Real estate exp/cow | \$109 | \$103 | \$159 | \$132 | \$164 | \$157 |
| Total farm exp/cow | \$1,543 | \$1,520 | \$2,400 | \$2,182 | \$2,436 | \$2,325 |

Trends in the business factors for the years 1977 to 1984 indicate the dynamic nature of the dairy industry. All measures of size increased from 1977 to 1984. Cow numbers in the registered herds increased 26% and in the grade herds 37%. Worker equivalents increased by 22% and 35%, and crop acres by 23% and 38% respectively for registered and grade herds.

Rates of production as shown by milk sold per cow increased 11% for both registered and grade herds. Crop yield increased relatively less than production per cow. Labor efficiency as measured by milk sold per worker increased by 16% and 13% while capital per cow increased by 40% and 33% respectively for the registered and grade herds. Capital as reflected in equipment affects labor efficiency.

Cost control is a key factor. Total farm expenses per cow increased by 61% and 57% respectively for registered and grade herds. Breeding expenses per cow increased by 87% and 76% respectively.

Dairy Practices

Much information on dairy practices is collected by the Dairy Herd Improvement record system. With the use of computers, a number of helpful management factors are calculated and made available to the farmer for use in making his dairy management decisions. These are reported on this page.

Table 19. AVERAGE OF DAIRY FACTORS FOR REGISTERED AND GRADE HERDS
327 New York Dairy Farms, 1984

| Factor | Average | |
|---|------------|---------|
| | Registered | Grade |
| Number of farms | 114 | 213 |
| Feeding index | 117 | 118 |
| Rate of roughage feeding | 2.4 | 2.4 |
| Pounds concentrates fed/cow | 5,568 | 5,360 |
| % net energy from concentrates | 44 | 44 |
| % net energy from succulents | 36 | 38 |
| % net energy from hay | 13 | 12 |
| % net energy from pasture | 7 | 5 |
| Projected minimum calving interval (months) | 13.0 | 12.7 |
| Days dry | 62 | 61 |
| % days in milk | 86 | 86 |
| Breedings per conception | 1.9 | 1.7 |
| % leaving herd as culls | 30% | 33% |
| Age at first calving (months) | 28 | 28 |
| Age all cows (months) | 52 | 50 |
| Bodyweight all cows (lbs.) | 1,290 | 1,240 |
| Bodyweight at first calving (lbs.) | 1,150 | 1,100 |
| Income over value feed | \$1,388 | \$1,325 |

Feeding practices for the registered and grade herds were similar but with some differences. The registered herds fed more pounds of concentrates per cow and depended a little more on dry hay and pasture for net energy than did the grade herds.

Breeding practices information showed the registered herds to have a longer minimum calving interval and more breedings per conception than the grade herds. The age at first calving was the same for both groups.

Percent leaving as culls was lower for the registered herd, but with more leaving as dairy cows than the grade herds. The registered herds were older (52 months vs 50) and the cows were larger than those in the grade herds.

Table 20. AVERAGE OF DAIRY FACTORS FOR REGISTERED AND GRADE HERDS
New York Dairy Farms, 1977, 1980, and 1983

| Factor | 1977 | | 1980 | | 1983 | |
|----------------------------|------------|-------|------------|---------|------------|---------|
| | Registered | Grade | Registered | Grade | Registered | Grade |
| Number of farms | 123 | 240 | 127 | 256 | 125 | 230 |
| Feeding index | 118 | 120 | 104 | 108 | 115 | 115 |
| Rate of roughage feeding | 2.3 | 2.3 | 1.9 | 2.0 | 2.2 | 2.2 |
| Lbs. concentrate fed/cow | 5,573 | 5,606 | 5,793 | 5,885 | 6,500 | 6,200 |
| % net energy/concentrates | 47 | 48 | 47 | 48 | 46 | 47 |
| % net energy/succulents | 32 | 33 | 32 | 33 | 36 | 37 |
| % net energy from hay | 13 | 13 | 14 | 13 | 12 | 12 |
| % net energy from pasture | 9 | 7 | 7 | 6 | 6 | 4 |
| Calving interval (mo.) | 12.9 | 13.0 | 13.1 | 13.0 | 13.1 | 13.0 |
| Days dry | 62 | 62 | 61 | 61 | 61 | 61 |
| % days in milk | 86 | 86 | 86 | 86 | 86 | 86 |
| Breedings/conception | 1.7 | 1.7 | 1.9 | 1.8 | 1.8 | 1.8 |
| % leaving as culls | 26 | 30 | 24 | 27 | 30 | 31 |
| Age at 1st calving (mo.) | 29 | 29 | 28 | 28 | 28 | 28 |
| Age all cows (mo.) | 55 | 54 | 53 | 53 | 52 | 50 |
| Bodyweight all cows (lbs.) | 1,250 | 1,230 | 1,280 | 1,250 | 1,280 | 1,240 |
| Bodyweight 1st calving | 1,080 | 1,070 | 1,120 | 1,100 | 1,120 | 1,100 |
| Income over feed value | \$875 | \$827 | \$1,340 | \$1,237 | \$1,455 | \$1,387 |

Except for some small differences the registered and grade herds were similar with respect to the dairy practices studied in 1977, 1980 and 1983. Pounds concentrates fed per cow was higher in the grade herds in 1977 and 1980, but lower in 1983 than the registered herds.

Percent of the herd leaving as culls was higher for the grade herds for all three years. The registered herds tended to have slightly heavier cows and a heavier bodyweight at first calving than the grade herds.

Income over feed cost was higher in the registered herds for all three years, and this agrees with the higher net cash income per cow in these herds.

Table 21. SELECTED DAIRY MANAGEMENT FACTORS FOR REGISTERED AND GRADE HERDS
327 New York State Dairy Farms, 1984

| Factor | Registered | Grade |
|---|------------|--------|
| Number of farms | 114 | 213 |
| Fat test | 3.70 | 3.63 |
| Pounds fat produced per cow | 619 | 594 |
| Protein test | 3.25 | 3.22 |
| Pounds protein produced per cow | 545 | 528 |
| Value of concentrates fed per cow | \$494 | \$509 |
| Percent value of concentrates is of total feed value per cow | 60% | 61% |
| Value of feed per cwt. of milk | \$4.92 | \$5.06 |
| Pounds succulents fed per cow | 15,629 | 17,228 |
| Pounds dry roughages fed per cow | 2,904 | 2,637 |
| Percent of cows not bred after 100 days | 3% | 4% |
| Days open cows not bred | 85 | 87 |
| Days open all cows | 104 | 105 |
| Percent first calf cows entering herd | 32% | 31% |
| Percent other cows entering herd | 2% | 2% |
| Percent dairy cows leaving herd | 4% | 1% |
| Cow days in milk 3 times | 672 | 5,282 |
| Number of cows milked 3 times | 44 | 191 |

When the project for merging DHI and farm business information was started in 1974 a number of the more commonly used dairy practices were selected for study. These have continued to be used and reported in the publications. However, interest was expressed in studying some of the other DHI factors so special work was done on a number of additional items for 1982, 1983 and 1984. The 1984 data for the registered and grade herds are shown in table 21.

A number of interesting differences are reported above. The registered herds had higher fat test, more pounds of fat produced per cow and more pounds of protein produced per cow than the grade herds. The value of feed per cwt. of milk produced was also lower for the registered than the grade herds. The grade herds fed more succulents but less dry hay than the registered herds.

Replacements were reported as either first calf heifers or other cows. The grade herds purchased more replacements than the registered herds. On the other hand the registered herds had a higher percent leaving as dairy cows than the grade herds.

Table 22.

FARM BUSINESS SUMMARY FOR REGISTERED HERDS
114 New York Dairy Farms, 1984

| <u>CAPITAL INVESTMENT</u> | | | <u>RECEIPTS</u> | |
|------------------------------|-----------|-----------|--------------------------------|-----------|
| | 1/1/84 | 1/1/85 | | |
| Livestock | \$129,064 | \$128,884 | Milk sales | \$177,114 |
| Feed & supplies | 36,967 | 39,010 | Crop sales | 1,744 |
| Machinery & equipment | 92,338 | 95,856 | Dairy cattle sold | 14,325 |
| Land & buildings | 236,728 | 242,836 | Livestock sales | 2,302 |
| TOTAL INVESTMENT | \$495,097 | \$506,586 | Gas tax refund | 159 |
| <u>EXPENSES</u> | | | Government payments | 2,268 |
| Labor | | | Machine work | 585 |
| Hired | | \$ 17,195 | Miscellaneous | 3,038 |
| Feed | | | TOTAL CASH RECEIPTS | \$201,535 |
| Dairy concentrate | | 42,841 | Increase in livestock | 2,091 |
| Hay and other | | 2,505 | Increase in feed & supplies | 2,043 |
| Machinery | | | Livestock appreciation | - 2,271 |
| Machine hire | | 1,557 | Machinery appreciation | 5,498 |
| Machinery repair | | 8,980 | Real estate appreciation | 6,000 |
| Auto expense | | 411 | TOTAL FARM RECEIPTS | \$214,896 |
| Gas and oil | | 6,364 | <u>FINANCIAL SUMMARY</u> | |
| Livestock | | | Total cash receipts | \$201,535 |
| Replacement animals | | 1,060 | Total cash expenses | 163,682 |
| Breeding fees | | 3,559 | NET FARM CASH FLOW | \$ 37,853 |
| Veterinary, medicine | | 3,761 | Total receipts (excl. apprec.) | \$205,669 |
| Milk marketing | | 14,229 | Total farm expenses | 205,766 |
| Other livestock expense | | 8,646 | LABOR & MGT. INCOME/FARM | \$ - 97 |
| Crops | | | Number of operators | 1.33 |
| Lime and fertilizer | | 8,262 | LABOR & MGT. INCOME/OPERATOR | \$ - 73 |
| Seeds and plants | | 2,792 | <u>BUSINESS FACTORS</u> | |
| Spray and other | | 2,645 | Worker equivalent | 2.92 |
| Real estate | | | Number of cows | 83 |
| Land, building, fence repair | | 2,700 | Number of heifers | 76 |
| Taxes | | 4,570 | Acres of hay crops | 129 |
| Insurance | | 2,851 | Acres of corn silage | 57 |
| Rent | | 3,860 | Total acres of crops | 248 |
| Other | | | Lbs. of milk sold | 1,306,200 |
| Telephone (farm share) | | 618 | Lbs. of milk sold/cow | 15,737 |
| Electricity (farm share) | | 4,414 | Tons hay crops/acre | 2.7 |
| Interest paid | | 17,299 | Tons corn silage/acre | 14.5 |
| Miscellaneous | | 2,563 | Lbs. of milk sold/worker | 447,329 |
| TOTAL CASH EXPENSES | | \$163,682 | Cows per worker | 28 |
| Expansion livestock | | 328 | % feed is of milk sales | 24% |
| Machinery depreciation | | 15,014 | Feed & crop exp/cwt. milk | \$4.52 |
| Building depreciation | | 6,876 | Labor cost/cow | \$374 |
| Unpaid labor | | 1,904 | Machinery cost/cow | \$446 |
| Interest on farm equity @ 5% | | 17,962 | Av. price/cwt. milk | \$13.56 |
| TOTAL FARM EXPENSES | | \$205,766 | | |

Table 23.

FARM BUSINESS SUMMARY FOR GRADE HERDS
213 New York Dairy Farms, 1984

| <u>CAPITAL INVESTMENT</u> | | | <u>RECEIPTS</u> | |
|------------------------------|-----------|-----------|--------------------------------|-----------|
| | 1/1/84 | 1/1/85 | | |
| Livestock | \$121,289 | \$120,196 | Milk sales | \$202,060 |
| Feed & supplies | 41,333 | 43,967 | Crop sales | 2,020 |
| Machinery & equipment | 99,920 | 101,996 | Dairy cattle sold | 12,310 |
| Land & buildings | 253,780 | 260,406 | Livestock sales | 3,082 |
| TOTAL INVESTMENT | \$516,322 | \$526,565 | Gas tax refund | 211 |
| <u>EXPENSES</u> | | | Government payments | 3,679 |
| Labor | | | Machine work | 313 |
| Hired | | \$ 21,347 | Miscellaneous | 3,448 |
| Feed | | | TOTAL CASH RECEIPTS | \$227,123 |
| Dairy concentrate | | 50,436 | Increase in livestock | 2,759 |
| Hay and other | | 2,668 | Increase in feed & supplies | 2,634 |
| Machinery | | | Livestock appreciation | - 3,852 |
| Machine hire | | 1,758 | Machinery appreciation | 4,146 |
| Machinery repair | | 10,392 | Real estate appreciation | 6,317 |
| Auto expense | | 486 | TOTAL FARM RECEIPTS | \$239,127 |
| Gas and oil | | 7,440 | <u>FINANCIAL SUMMARY</u> | |
| Livestock | | | Total cash receipts | \$227,123 |
| Replacement animals | | 1,467 | Total cash expenses | 186,304 |
| Breeding fees | | 2,834 | NET FARM CASH FLOW | \$ 40,819 |
| Veterinary, medicine | | 4,421 | Total receipts (excl. apprec.) | \$232,516 |
| Milk marketing | | 14,813 | Total farm expenses | 228,450 |
| Other livestock expense | | 7,879 | LABOR & MGT. INCOME/FARM | \$ 4,066 |
| Crops | | | Number of operators | 1.32 |
| Lime and fertilizer | | 10,041 | LABOR & MGT. INCOME/OPERATOR | \$ 3,080 |
| Seeds and plants | | 3,297 | <u>BUSINESS FACTORS</u> | |
| Spray and other | | 3,038 | Worker equivalent | 3.25 |
| Real estate | | | Number of cows | 96 |
| Land, building, fence repair | | 2,445 | Number of heifers | 81 |
| Taxes | | 4,828 | Acres of hay crops | 147 |
| Insurance | | 2,986 | Acres of corn silage | 79 |
| Rent | | 3,887 | Total acres of crops | 299 |
| Other | | | Lbs. of milk sold | 1,503,100 |
| Telephone (farm share) | | 603 | Lbs. of milk sold/cow | 15,657 |
| Electricity (farm share) | | 4,843 | Tons hay crops/acre | 2.7 |
| Interest paid | | 22,075 | Tons corn silage/acre | 14.1 |
| Miscellaneous | | 2,320 | Lbs. of milk sold/worker | 462,492 |
| TOTAL CASH EXPENSES | | \$186,304 | Cows per worker | 30 |
| Expansion livestock | | 943 | % feed is of milk sales | 25% |
| Machinery depreciation | | 15,520 | Feed & crop exp/cwt. milk | \$4.62 |
| Building depreciation | | 8,113 | Lime & fertilizer/crop acre | \$34 |
| Unpaid labor | | 1,433 | Machinery cost/cow | \$423 |
| Interest on farm equity @ 5% | | 16,137 | Av. price/cwt. milk | \$13.44 |
| TOTAL FARM EXPENSES | | \$228,450 | | |