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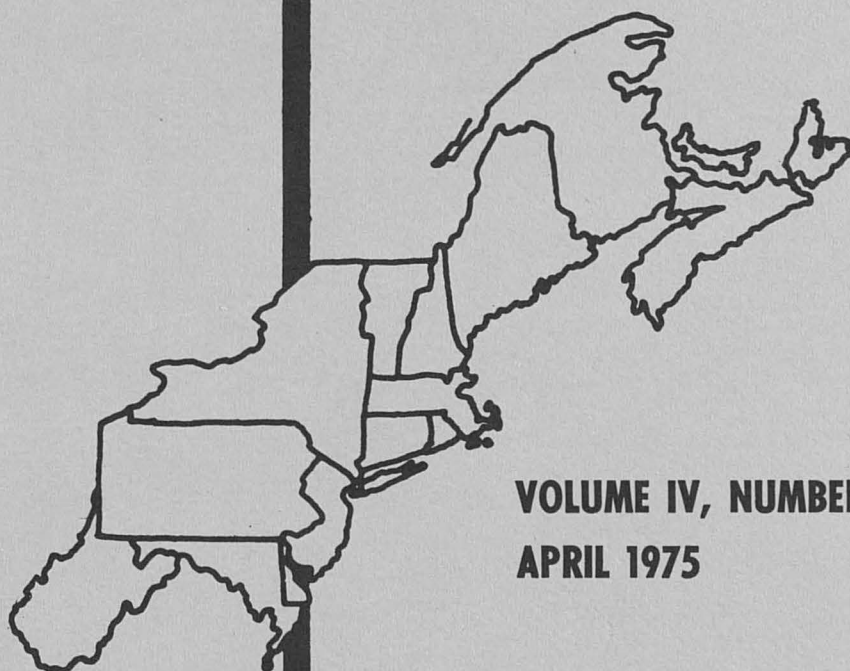
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JOURNAL OF THE

Northeastern Agricultural Economics Council



**VOLUME IV, NUMBER 1
APRIL 1975**

FARM AND NON-FARM ALTERNATIVES
FOR INCREASING INCOMES OF SMALL NEW YORK STATE DAIRY FARMS

Christopher Wardle and Richard N. Boisvert
Former Research Assistant and Assistant Professor
Department of Agricultural Economics
Cornell University

Cochrane [2] has described the shape of modern agriculture as a world with highly productive, commercial farmers at one extreme and the world of poor, low-production farmers at the other. In the highly productive world, technology and farm expansion have resulted in increased yields and production on many farms. In contrast, many low-production farms provide no more than poverty level incomes for the farm operators and their families. Their problems stem largely from the fact that many of these farm operators are old, poorly educated and have limited and poor quality resources. Many have been unable to take advantage of the exploding technology and the scale economies accompanying increases in farm size. A third group, the "transition" group, forms the continuum between the two extremes. Some of its members, like young farmers just getting started, are improving their operations and moving into the "commercial world." For others, who perhaps lack the financing or managerial capacity to compete in a modern agriculture, the transition is in the opposite direction.

While no sectors of agriculture were immune to falling prices and incomes as production increases outstripped demand increases throughout the 1960's, the impact on the last two groups was quite severe.^{1/} For many low-production farms and the smaller transition farms, migration out of agriculture or greater reliance on non-farm income to supplement family income were the only solutions. USDA [12] estimates indicate that the percentage of farms with sales between \$2,500 to \$10,000 decreased from 32.3 percent in 1960 to 21.6 percent in 1970. During the same

^{1/}

In the past two years increased foreign demand and reduced domestic supplies have contributed to the reversal of this trend. The ratio [11] of the index of prices paid to prices received has risen from 96 in 1970 to 118 in 1973 (1967 = 100). However, livestock feeders and dairy farmers, who purchase large quantities of feed from other sectors of agriculture have not fared as well. For New York State dairy farmers, the 17 percent rise in the price of milk between 1972 and 1973 was accompanied by a 16 percent increase in the index of prices paid.

period income from non-farm sources grew from an average of \$1,705 to \$5,181.

To compound the problems of families on small farms, the transition out of agriculture is not always easy. Advanced age, the lack of education and training and other factors which contribute to farm income problems also stifle these families' efforts to find adequate employment in the non-farm sector [7]. The rural poor, in many cases, become the urban poor, thus serving only to aggravate present urban problems.

While the USDA-agricultural college complex has contributed to production efficiency in agriculture, recent evidence [15, 4, 5] supports the contention that few of the benefits reach the operators of small farms. A recent study in Missouri [15] indicated that farmer contact with the Cooperative Extension Service is highly correlated with farm size. The benefits from government commodity programs of the past decade tended to be concentrated among larger commercial farms [3, 8, 10, 12].

Increased concern for the problems facing families on small farms is evident. Extension leaders and university faculty [5] have discussed new approaches and programs to deal directly with problems of limited resource farm families. Such efforts are also recognized as an integral part of more broadly defined rural development objectives.

Objectives

The purpose of the study on which the remainder of the paper is based was to begin to identify the nature and seriousness of the problems faced by small farms in New York State. Because of the complex nature of these problems and the importance of the agricultural sector in rural areas, attention is focused on a broad view of problems in agriculture. A responsibility to help farmers improve the farm operations, as well as advise them on their non-farm alternatives, is recognized.

The Study and Research Procedure

Although there are small dairy farms throughout the State, a small dairy farming area in central New York (Chenango County and northwest Otsego County) was selected for study. Much of the study area contains soils (Lordstown-Volusia and Lackawanna-Wellsboro soil associations) which are poorly drained, highly acidic and have inherently low fertility levels. These conditions, coupled with the hilly terrain make the study area less suitable for agriculture than many other parts of the State. According to the 1969 Census of Agriculture [9] 46 percent of the farms in this area had sales of \$15,000 or less. Although farms of this size are expected to become fewer in number, area extension agents expect a substantial number to remain because of conservative attitudes toward expansion and debt, limited land, age and limited full-time job alternatives.

Data for the analysis were collected by personal interviews. After careful deliberation with extension agents in the area, a sample of farms with fewer than 39 dairy cows was randomly selected.^{2/} Farms in this size group were judged the least likely to ever become large commercial operations, thus representing our target population. Forty percent of the dairy farms in the area were in this size group; area agents agreed that this group of farms was least likely to make use of existing extension programs.

Analysis of Survey Results

The analysis of the survey results is divided into three distinct sections. The first section summarizes the income situation of the sample farms by comparing the farm incomes with those of similar size dairy farms throughout the State.^{3/} In the second section a more formal analysis of the resource productivity and management practices of the sample farms is discussed. The third section examines the impact of non-farm employment on family income as well as on the farming operation.

Farm Incomes. Farm income figures for both samples begin to show the extent of the income problems on small farms in the study area (Table 1). The average farm income was \$4,387. On 48 percent of the farms, farm incomes were less than \$4,000, while only 5 percent had incomes of \$10,000 or more. These figures contrast sharply to farm incomes of the New York State sample, which average \$9,046. Only 15 percent of them had incomes of less than \$4,000, while 46 percent had farm incomes of at least \$10,000.

Management Practices and Resource Productivity. Several factors are important in explaining the difference in farm incomes. The average size of the dairy herds for the New York State sample was 32.8 cows, almost five cows larger than the 28.0 cow average for the study area sample (Figure 1). Since most of the revenue accrues from milk sales, this larger farm size, as measured by number of cows, undoubtedly explains part of the income difference.

^{2/} Wardle [13] explains the exact procedure by which this cutoff point was determined.

^{3/} Such a comparison must be interpreted with some caution since the effects of the difference, soil, climate and other physical factors which affect farm performance could not be accounted for directly. In addition, the statewide sample is composed of cooperators in Cornell's Farm Record Program. While this sample is not completely representative, and is likely to contain the better managers, one can argue that the performance of these better operations is ideal for comparisons designed to uncover management problems.

Table 1
Farm Incomes of Small Dairy Farms
In the Study Area and New York State

Farm Income ^{a/}	Study Area Sample		New York State Sample	
<u>Dollars</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Less than 2,000	20	26	5	7
2,000 - 3,999	17	22	6	8
4,000 - 5,999	14	18	13	17
6,000 - 7,999	16	20	6	8
8,000 - 9,999	7	9	12	16
10,000 - 14,999	4	5	26	35
15,000 and more	<u>0</u>	<u>0</u>	<u>7</u>	<u>9</u>
TOTAL	78	100	75	100

Average Farm Income

\$4,387

\$9,046

Chi Square Statistic = 40.70^{b/}

Degrees of Freedom = 5

^{a/}

Farm Income is defined as total farm receipts minus total farm expenses, where total farm receipts include all farm cash receipts plus increases in livestock and feed inventories; and total farm expenses include all cash operating expenses, depreciation and unpaid family labor, but not interest paid. For this reason, farm income is not strictly comparable to wages and salaries of non-farm workers.

^{b/}

A χ^2 test was used to test the hypothesis that the distribution of farm income is the same for each group [1, p. 278]. The hypothesis was rejected at the .01 level, indicating that it is unlikely that this difference in distribution of incomes between the two groups could have occurred by chance alone.

However, other factors such as production rates and the efficiency of resource use, also help explain the differences in farm income. Not only was the average herd size smaller for the study area farms, the average milk produced per cow was 9,597 pounds for the study area, 2,612 pounds less than the 12,209 pound average for the New York State sample. Although production rates in both groups ranged from 5,000 pounds per cow to over 18,000 pounds per cow, average production rates for the study area sample were concentrated at the low end of the distribution (Figure 2). Fifty-four percent of the farms had production rates less than 10,000

Figure 1
Herd Size of Small Dairy Farms

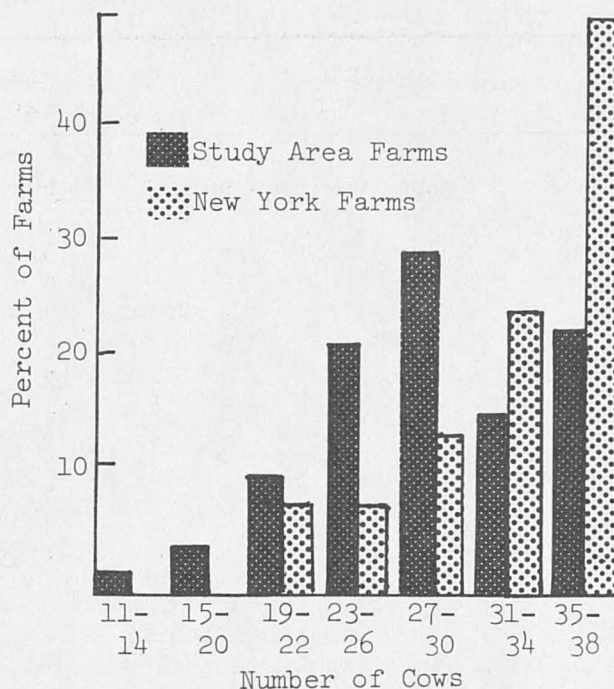


Figure 2
Milk Sales Per Cow
on Small Dairy Farms

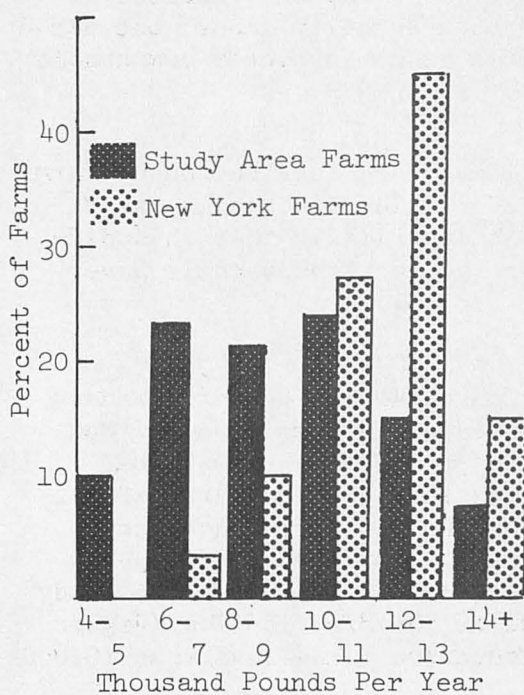
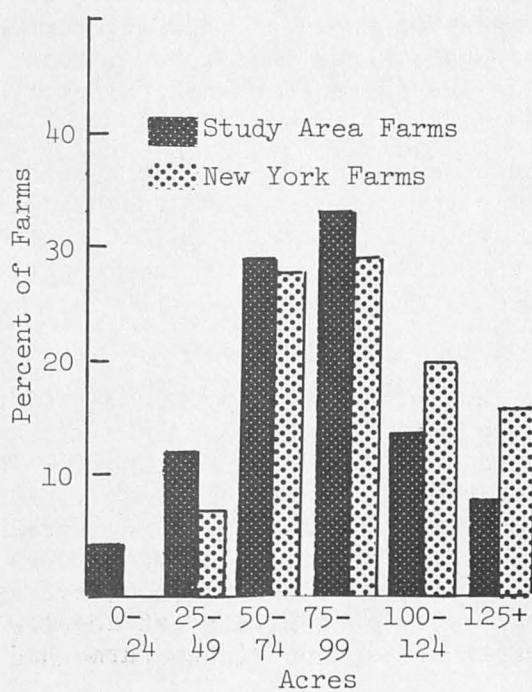


Figure 3
Cropland of Small Dairy Farms



pounds, while only 22 percent had production rates above 12,000 pounds. The reverse is true for the State sample. Sixty percent of the farms had production rates in excess of 18,000 pounds, but only 14 percent had production rates below 10,000 pounds.

Despite the lower production rates, purchased feed costs were 31 percent higher for the study area. The study area purchased an average of \$2.15 of feed per hundredweight of milk sold compared with \$1.64 for the New York State sample. These figures suggest that feed cost control on study area farms was poor. However, other factors also help explain the difference.

With an average of 16.3 fewer acres of cropland (Figure 3), lower hay and corn silage yields and most likely poorer quality hay, study area farms were producing less home grown feed than were farms in the statewide sample.^{4/} The averages of hay equivalent produced were 5.0 and 6.5 tons per cow for the two groups, respectively. Less roughage per cow helps explain why the farmers in the study area are feeding higher levels of concentrate per cow, although average milk production levels are also lower.

Feeding programs of 54 individual farms for which data were available were examined. The quantities of roughage and concentrate required to produce the milk sold in 1972 were compared to the amounts of roughage actually fed.^{5/} Since the exact quality of roughage was unknown, roughage and concentrate requirements were computed twice, first assuming poor quality forage (45 percent TDN) and then good quality forage.^{6/}

The comparisons suggested two important results. First, if it is assumed that most of the forage fed in 1972 was of poor quality, 21 farms were feeding levels of concentrate which exceeded those required by their 1972 level of milk production. These comparisons between required and actual feeding also indicate that a substantial number of farms had inadequate forage to meet their herds' needs. If it was assumed that forage quality was poor and consequently its intake at a minimum, 10 farms had inadequate roughage. These farms were obliged to substitute concentrate for hay and corn silage. Given the 1972 price of concentrate, both of these situations would have been costly.

^{4/} The average corn silage yields on study area farms was 7.8 tons per acre, while that of New York farms was 10.8 tons [14]. The fact that poor crop weather may have influenced yields in the rest of the state more than in the study area makes these results even more striking.

^{5/} The procedure is explained by Wardle [13].

^{6/} Given the poor crop growing and harvesting weather in 1972, it was reasonable to assume the TDN of the best hay made that year would not exceed 50 percent.

The authors admit these conclusions are tentative. Since the overall production potential and response of cows on small farms in the study area to dairy concentrate is unknown, no definite conclusions can be drawn from this comparison with experimental feed response data. Other factors such as forage quality and mastitis control, a practice followed by only 57 percent of the farmers, may have also contributed to low production levels and caused feed to be used inefficiently.^{7/} However, these findings, do suggest that the feeding programs on the study area farms could possibly be improved.

To supplement the evaluation of the feeding programs, present fertilization programs were compared, farm by farm, to programs which would yield maximum economic returns [6]. The different fertilizers available to farmers in the study area were matched with the fertilizer nutrient requirements of each farm. In cases where two fertilizers met the same requirements, the cheaper one was chosen. By multiplying the amount of fertilizer and lime required by the cost of fertilizer and lime in 1972, the total cost of the recommended fertilization program for each farm was obtained. These programs were compared with the amount actually spent by each farmer on fertilizer in 1972. The results showed that 38 out of 54 spent less on their fertilization programs than the ideal fertilization program recommended for their farm. On the average, farms were underspending by \$172.^{8/}

^{7/}

It is interesting to note that in the study area sample of farms, 28 percent of the farms raised no corn silage at all. The ratio of acres of corn silage to acres of hay was 16.5 and .30 for the State sample and the study area sample, respectively. Since corn normally would produce more nutrients (energy) per acre than hay, this fact may partially explain why feed costs are high. While increasing the amount of corn silage is an "accepted" practice, there may be good reasons, no suitable land or inadequate machinery, why so little corn is raised on study area farms.

^{8/}

There are several shortcomings in using the above method of comparing actual fertilization and lime rates with optimum rates. First, there was no way of knowing how much of the fertilizer used in 1972 was bought in 1971. If substantial amounts had been carried over, this would have decreased the gap between actual and optimum application rates. However, it is just as likely that some farms bought part of their 1973 fertilizer requirements in 1972. Thus the randomness of when purchases were made would tend to eliminate bias. More seriously, this method cannot accurately determine the optimum fertilizer or lime rates for individual farms. To do this soil tests on each farm would have to be taken. The production functions for crops and fertilizer on each farm would have to be known.

Despite their crudeness, these calculations indicate farms in the study area tended to apply fertilizer at rates below the optimum level, contributing to the low crop yields. Unfortunately, the rates at which fertilizer was applied to different crops on each farm were unknown. Thus the net marginal increase in crop yields resulting from using the optimal fertilization rates could not be estimated.

The discussion up to this point has focused on several important management practices. While the analysis suggests that both improvement of each of the farm practices and expansion may lead to higher farm incomes, it has been difficult to isolate the effects of each. Since each of the alternatives was examined separately, the level of other important factors could not be controlled. To help isolate the effects of important changes in the farm organization, a whole farm production function was estimated for 54 farms in the sample. A Cobb-Douglas function, estimated by ordinary least squares was used.

$$Y = \alpha X_1^{\beta_1} X_2^{\beta_2} X_3^{\beta_3} X_4^{\beta_4} X_5^{\beta_5} X_6^{\beta_6} X_7^{\beta_7} U$$

where

Y = gross farm sales,	X ₄ = value of machinery,
X ₁ = unpaid family labor,	X ₅ = value of livestock,
X ₂ = operator labor,	X ₆ = crop acres, and
X ₃ = dairy concentrate expenses,	X ₇ = other cash expenses.

The results of the production function analysis are reported in Table 2. For the average farmer in the study area, the results suggest that limited expansion may lead to higher farm incomes. Returns to livestock and machinery investment are relatively high, 17.7 and 10.6 percent, respectively. The value of the marginal product of cropland (\$18.14) exceeds the cost of renting land in the study area.

The analysis also suggests that increases in feed inputs (marginal product of dairy concentrate is \$1.55) and inputs represented by "other cash expenses" may improve farm income. These results are not completely consistent with the earlier analysis. Finally, the increases in the value of gross sales resulting from the use of additional labor are extremely low. They support the hypothesis that labor on farms with limited resources may be underemployed.^{9/}

^{9/} The results of the production function analysis must be interpreted with caution when used to recommend changes in the farm organization. Controversy over the best way to measure capital inputs and the reliability of estimates based on cross section data are among the most important concerns. Also, since the variables are aggregate in nature one can say little about the organizational changes needed.

Table 2
Estimated Production Function
For 54 Small Dairy Farms in the Study Area

Input	Regression Coefficient	Standard Error	Marginal Product ^{a/}
(X ₁) Family labor (months)	0.014	0.020	60.918
(X ₂) Operator labor (months)	0.002	0.041	4.694
(X ₃) Dairy concentrate expenses (\$)	0.411	0.049	1.552
(X ₄) Machinery value (\$)	0.087	0.036	0.177
(X ₅) Livestock value (\$)	0.096	0.058	0.106
(X ₆) Land (acres)	0.059	0.028	18.139
(X ₇) Cash expenses (\$)	0.344	0.045	1.120

$$R^2 = 0.927$$

^{a/} Marginal products for each input were estimated at the geometric mean of Y (gross sales) and the input X_i,

$$MP_{X_i} = \frac{\frac{\partial Y}{\partial X_i}}{\frac{Y}{X_i}} \cdot Y$$

In this specification of the production function the marginal products can be interpreted as the change in the value of gross sales that could be expected if the respective input X_i were increased by one unit. In the case of both the machinery and livestock variables, the marginal products represent the rate of return on investment.

Non-Farm Employment. On exactly half of the farms in the study area sample, either the operator, his spouse, or both worked off the farm in 1972. To better understand the role of non-farm employment in the study area, these "dual farms" were compared with full time farms in the study area.

The average total family income of these "dual farms" is \$9,906, some 47 percent above that of the average full time farm income of \$6,728.

As Table 3 indicates, this difference is largely due to income earned from non-farm jobs. By engaging in some kind of non-farm employment, all but 5 percent of the families on "dual farms" were able to raise family incomes above \$4,000, while 23 percent of the full time farms had incomes below \$4,000. At the other extreme, 46 percent of the "dual farms" had family incomes greater than \$10,000; only 15 percent of the full time farms had incomes this high.

Table 3
Sources of Family Income on 39 Dual Farms
and 39 Full Time Farms in the Study Area in 1972

Sources	Dual Farms	Full Time Farms
Average farm income	\$4,012	\$4,703
Average non-farm wages	4,587	--
Average farm wages to wife	684	1,211 ^{a/}
Average other non-farm income	<u>623</u>	<u>754</u>
TOTAL Average Family Income	\$9,906	\$6,728

^{a/}

To equitably measure total family income, an estimated wage for the wife's farm labor was included as a source of income. This was done since farm income was computed using family labor as a cost.

There were several reasons given for engaging in off farm employment. For 28 farmers and 24 wives the reasons were economic in nature. Over half of them worked off the farm because their farm incomes were too low to support the family; only 17 percent sought non-farm employment for non-economic reasons. None of them viewed the off farm job as a first step in the transition out of agriculture. On the contrary, one fourth of them used wages from non-farm jobs to finance or expand their farming operations.

Those farmers and wives who worked off the farm tended to work either relatively few hours or full time on their jobs. The average yearly non-farm income for the men was \$3,297. Although the women worked more hours, their yearly incomes averaged only \$3,190.

Choice of non-farm occupation reflects both the limited job availabilities in the area as well as the difficulty of scheduling non-farm work around a dairy operation. Twenty-eight percent of the men and 32 percent of the women found employment as local public officials. Thirty-seven percent of the men found it relatively easy to schedule school bus driving around the dairy operation. A majority of the women (56 percent) were employed as clerical or service workers.

Since on "dual farms," either the operator, spouse, or both spent time working off the farm, it was expected that the performance of "dual farms" would fall considerably below that of full time farms. However, this was not the case. As Table 4 shows, the average farm income on "dual farms" was \$4,012 in 1972, 15 percent below that of full time farms.^{10/}

Table 4
Farm Income for 39 Dual Farms
and 39 Full Time Farms in 1972

Farm Income	Dual Farms		Full Time Farms	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
<u>Dollars</u>				
Negative	6	15	3	8
Less than 2,000	5	13	6	15
2,000 - 3,999	9	23	8	20
4,000 - 5,999	7	18	7	18
6,000 - 7,999	6	15	10	26
8,000 - 9,999	3	8	4	10
10,000 and more	<u>3</u>	<u>8</u>	<u>1</u>	<u>3</u>
TOTAL	39	100	39	100
Average Farm Income	\$4,012		\$4,703	

While the impact of non-farm employment on the farm was not significant from a statistical standpoint, investigation of the farm characteristics was continued to determine if the farm problems facing both groups were similar.

Herd size figures suggest that "dual farms" may have kept fewer cows because of their non-farm commitments. Their average herd size was 28.2 cows compared to 29.7 cows on full time farms. The difference in herd size is not adequately reflected by the averages. For both groups, the modal size category was 27 to 30 cows. However, 39 percent of dual farms had herd sizes below the modal value, and 30 percent above. The opposite was true for the full time farms where only 29 percent had herd sizes below the modal category and 43 percent had herds above.

^{10/} To test the hypothesis that the level of farm income is independent of work off the farm, a χ^2 test for independence was performed [1]. The χ^2 test statistic was 6.49 (5 d.f.) indicating no basis on which to reject the hypothesis at the 25 percent level.

With smaller herds, one would expect to find less cropland on "dual farms." However, "dual farms" had an average of 3.5 more crop acres than full time farms. With slightly more cropland and smaller herds, "dual farms" appeared to be farming less intensively than full time farms.

Despite a slightly more intensive use of cropland on full time farms, milk production per cow averaged 10,062 pounds, 10 percent higher than on "dual farms." Only three percent of full time farms had production rates of less than 6,000 pounds per cow; 17 percent of "dual farms" had equally poor production rates. Twenty-eight percent of full time farms had production rates of at least 12,000 pounds per cow, compared to 16 percent for the "dual farms." These figures suggest that milk production may have suffered on some "dual farms" as a result of non-farm employment.

With some family labor participating in non-farm employment, "dual farms" tended to use their family farm labor more efficiently than full time farms. They kept on the average 21.7 cows per man versus 19.2 per man on full time farms. Despite this difference, "dual farms" had average milk sales of 193,837 pounds per man, only 3,698 pounds of milk per man more than on full time farms. The explanation is due largely to lower milk production rates and smaller herds.

If herd size and milk production were the only factors explaining farm income, the gap in average farm incomes between "dual farms" and full time farms would have been larger than \$751. However, the average amount of dairy feed purchased per cow was \$231 on full time farms and \$185 on "dual farms," while the average cost of dairy feed per hundred-weight of milk sold was \$2.31 and \$2.00, respectively. Part of this difference in feed costs was due to the different milk production levels on dual and full time farms. Part was also due to the smaller crop acreage and consequently more intensive farming practiced on full time farms. With slightly higher than average hay production rates but lower corn silage production rates than on "dual farms," full time farms produced an average of 12 percent less roughage per cow than did "dual farms."^{11/} With less roughage per cow, full time farms were obliged to feed higher levels of concentrate than "dual farms."

Summary and Policy Implications

This study has been a first step in identifying the problems of limited resource dairy farms in central New York State. Survey results have reinforced the belief that the solutions to their problems are not simple and in many cases will involve improving both farm and non-farm alternatives.

11/

Full time farms produced on the average 2.0 tons of hay per acre and 6.9 tons of corn silage per acre, while dual farms produced 1.9 tons per acre of hay and 8.6 tons per acre of corn silage.

There are several good reasons why both kinds of alternatives should be considered. First, migration to the city has never provided a guarantee of escaping poverty for farmers in this "transition" group [7]. With existing unemployment problems in both rural and urban areas, farmers leaving agriculture today may have more difficulty finding non-farm jobs than ever before. The fact that the average age of the farm operators in the sample was 49 years suggests that transition completely out of agriculture may be quite difficult for many of them.

Another reason for exploring farm alternatives is the farmers' reluctance to leave the land. The strong identification with agriculture as a lifestyle came through time and again in the interviews; 95 percent of the farmers felt the farm environment was the best place to raise children. Fifty-eight percent also agreed that farmers tend to stay in agriculture because they value the high degree of independence which farming gives them.

In fact, very few farmers had any plans for leaving agriculture. Over the next five years, 17 percent expected to retire, but a third of these planned to hand over the farm to their sons. The remaining 83 percent of the farmers interviewed planned to stay in farming, though 12 percent of them expected to switch from dairying to beef or heifer raising.

The physical resources of the study area are of poorer quality than those found in many other agricultural regions of New York State. Consequently, many of the agricultural operations have limited physical and financial resources. Since good farmland for expansion is limited, it is reasonable to conclude that much of the farming in the region will continue to be on a small scale.

For these reasons, it is unlikely that the lot of the small dairy farmer situated in the study area will improve appreciably in the foreseeable future. However, it is also just as unlikely that the small farmer will disappear entirely from the region. Despite income problems, a sizeable group will remain on the land for at least some time to come. This persistence is in part due to the attachment many small farmers have to the land and farming as a lifestyle.

Several possible alternatives which would help farmers remain in agriculture and at the same time improve their standards of living, were explored. The first of these dealt with improving the present farm practices on the study area farms. Feeding practices, fertilization programs and mastitis control were three of the most important areas that looked like they could be improved. Preliminary analysis suggested that overfeeding was a problem on many farms, as was underfertilization. Efforts to make farms self-sufficient in roughage production, thus eliminating the need to substitute concentrate for roughage would be desirable. More detailed analysis would be needed to isolate the exact nature of the problems on each individual farm. In many cases, improvement might begin by encouraging the farmers to keep better records so that problems could be identified early. At the time of the interviews, only 35 percent of

the farmers kept individual milk production records and only 18 percent kept any kind of comprehensive management records.

The possibility of expanding the farming operation to the point where all available family labor is fully employed was also considered. The expansion of two of the sample farms which had underemployed family labor was simulated. While limited space prevents a report of the results, Wardle [13] explains that expansion at the margin could lead to increases in farm income, a finding consistent with the production function analysis reported earlier.^{12/}

The debt position of study area farms did not appear to be a major obstacle to small scale expansion. Average liabilities for study area farms were \$14,571, with average annual debt payments of \$3,163. Twenty-seven percent of study area farms were debt free. While in some instances the low debt position on some area farms may reflect a reluctance by lending institutions to loan money to small farms, farmers' attitudes toward the use of credit also limit expansion possibilities. Although 90 percent of the farm operators had used long-term credit at one time or another and 96 percent of them agreed that to remain in agriculture a farmer had to be willing to borrow, only 60 percent of the 46 farmers planning expansion over the next five years said they would be willing to borrow to finance the expansion.

The final major alternative considered was non-farm employment. In most instances non-farm jobs substantially increased family incomes and had little impact on farm incomes. However, the primary reason that many farm businesses did not suffer substantially is that these farmers had access to more family labor. In situations where this labor supply was not available, non-farm employment to supplement family income may not be a particularly attractive alternative since it would mean a substantial reduction in the size of the farming operation that could be maintained.

Further, a comparison of jobs currently held by dual operators and their wives with employment growth patterns in the study area, revealed that non-farm employment trends have not been favorable for farmers wishing to find non-farm jobs. If present trends continue, it will become increasingly difficult for farmers to obtain part-time jobs off the farm.

Unlike many of the policy prescriptions in the past designed to deal with poverty in agriculture, the results of this study do not indicate or suggest making every farm into a highly efficient commercial operation. On the contrary the study suggests that some farmers, who would find it difficult outside of agriculture, could benefit from improved management practices and limited expansion. Others could be helped to find full time

^{12/}

In both cases, the plans for expansion were assumed to include modest increases in herd size and crop acres. In addition, some machinery was purchased and pole barns were built to help house the increased livestock numbers.

jobs off the farm, while a third group might be urged to continue to improve their farming operations and supplement their farm income from part-time employment off the farm.

To meet these needs, a concentrated program of job development in rural areas must be combined with an expanded program by the Extension Service to meet the needs of limited resource farm families. Table 5 indicates that while operators of small farms believe that Extension is concerned with the "right" problems, many of the farmers said they did not work with Extension because they felt Extension's programs frequently did not meet the needs of the small farmers. As one farmer put it:

"Many of the cropping recommendations made for larger farms are not much use to me. They don't take into account the fact that much of my cropland is not worth a damn, that I only grow a few acres of corn each year, and that half of my machinery is worn out."

Table 5
Areas in Which Extension Should Work

Areas of Dissatisfaction	Responses	
	Number	Percent
Milk production improvement	7	14
Feeding programs	7	14
Breeding	2	4
Land improvement	8	16
Cropping information	16	32
Fertilizer and pesticides	4	8
Purchasing equipment and financing expansion	<u>4</u>	<u>8</u>
TOTAL	50 ^{a/}	100

^{a/}

The responses of the 37 operators who were dissatisfied with Extension Services present programs appear in this table. The number of responses exceeds the number of persons stating dissatisfaction with Extension Services because some gave more than one response.

If the managerial skills of these farmers are to be improved and expansion of farming operations conducted wisely, Extension must work more closely with operators of limited resource farms. Technical assistance programs [5] for small dairy operations in other parts of the

country have paid large dividends. These programs involved more than 300 dairy farmers with an average of 30 cows and the benefit-cost ratio to the assistance program was estimated at 1.8.

Other programs are springing up across the country [5]. All of them involve close interaction with Extension agents and Extension aides. Contact is on a one-to-one basis which permits the agent and his aides to grasp, understand and work with problems faced by individual farmers. Extension bulletins and service letters addressing themselves to the needs of small farmers are used as a secondary means of communication.

Initially, such a program would have to be started on a small scale, concentrating on farms located within a specific part of the study area which express a desire to work more closely with Extension. This will allow the agent and his aides to focus their attention on the problems of farmers who want advice. The success and growth of such a program is largely dependent on the ability of the agent and his aides to work with and understand the problems faced by small farmers. Acceptance of the program is likely to result from the reputation it gains with a few farmers. In this way, the problem of imposing a new program on those farmers unwilling to participate, can be avoided.

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