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COMBINING FARMING WITH OFF-FARM JOBS IN NORTHEASTERN MINNESOTA

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Background and Introduction

This report deals with the "cut-over area" of northeastern Minnesota. It is a forested area, abounding in lakes and constituting a portion of Minnesota's famous vacationland. Virgin forests have been largely displaced by later growths of timber and brush and by cleared areas in farms. The area includes the iron mines upon which our nation has depended so largely for its sources of steel and iron.

From an agricultural viewpoint, this part of the State has always been a "problem area". In producing crops, farmers must contend with short and somewhat uncertain growing seasons. This circumscribes their choice of crops and consequently their production opportunities. Land clearing is a back-breaking or expensive job. This tends to limit the size of the farm business and the possibility of obtaining a satisfactory income from farming. Distances to markets for agricultural products are great, and transportation costs are relatively high. Hence it is difficult to market any bulky or low-value farm product. These and other limitations have hampered the growth and prosperity of farming in the area.

On the other side of the picture, the normally ample rainfall and the cool summers are ideally suited to production of grass and legumes (hay and pasture). Pasture of limited value can be obtained without clearing the land of trees and brush. Some grain crops - oats, for example - can be grown successfully. This combination of circumstances has made livestock production, and particularly dairy production, the dominant type of farming in the area.

The main problem for the farmer is to build up a sufficiently large business to provide a satisfactory income for the family. Many farmers have sought jobs

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away from the farm as an alternative way to increase the family income. During the decade of full employment just past, these jobs were not hard to find, and an increasing number of farm operators in the area became part-time farmers or stopped farming altogether. In Carlton and Itasca Counties, the number of farms declined by 19 percent between 1950 and 1954. The number of part-time farmers increased by about 11 percent.

The Problem

The general purpose of the study reported here was to examine and evaluate a combination of farming and off-farm work, as compared with full-time farming, as a means of making a living. The reasons why farmers tend to shift toward more farming or toward more work off the farm were analyzed. The obstacles to be overcome in making adjustments and the factors to be considered in casting a proper balance between these alternatives were examined.

Method of Study

Data were obtained from a survey of 144 farms in Itasca and Carlton Counties made during August and September 1955. The survey included many of the usual items of physical inputs and outputs, and of income and expense and also considerable detail concerning off-farm employment.

Itasca County was chosen because of the diversity of problems or situations found there. This county had most of the problems of production and marketing that could be found anywhere in the region. In addition, it contains part of the mining area, which constitutes an important source of off-farm employment.

Carlton County was selected partly because work had been done there in both 1940 and 1945 and the changes that have since been made could be observed. However, the principal reason for the choice was that more "Grade A" milk is produced in Carlton County than elsewhere in the area, and a greater proportion of it goes into fluid uses.

Settlement within these counties is scattered but tends to concentrate in "islands" or groups of farms that are often rather close together. These groupings became the bases for selecting the segments in which survey schedules were obtained.

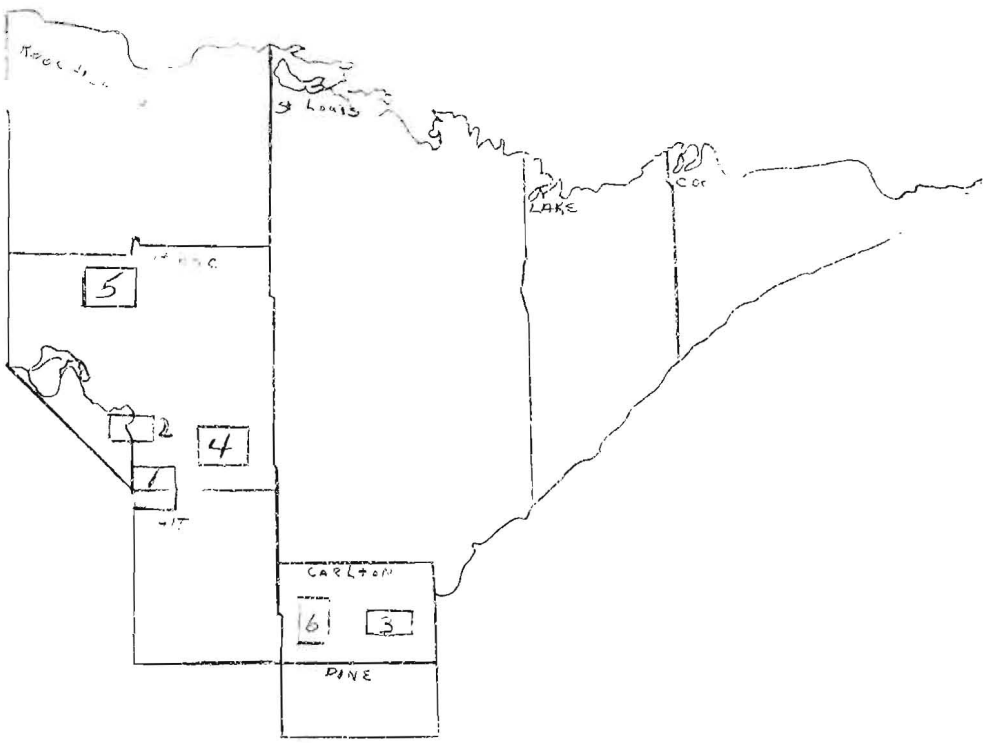
To qualify as a farm for purposes of this survey, the operator had to have 5 or more milk cows or the equivalent in other farm enterprises. To qualify as a part-time farmer, the operator had to receive $500.00 or more per year from employment away from the farm. Custom work as it is customarily defined was considered as farm rather than off-farm income.

Records were obtained from 57 part-time operators, from instances in which the wife or some other family member worked off the farm, and 76 full-time farmers. Considerable difficulty was encountered in obtaining schedules because of the many rural residents whose places did not qualify as farms under the definition previously made. An additional difficulty arose because many farm operators were away at their off-farm jobs when their farms were visited. Since this report deals chiefly with the problems of part-time farmers, data for full-time farms are seldom given. However, considerable use was made of these data for comparative purposes.

Description of the Area

As a part-time farming study, the area to which the study reported here can be applied is difficult to describe geographically. So far as northeastern Minnesota is concerned, it is more or less applicable wherever outside employment opportunities are available and are acceptable alternatives to full-time farming. No doubt conditions similar to those on the farms surveyed are present on many other farms in Itasca and Carlton Counties and also in northern Pine, northern Aitkin, eastern Cass, and southern St. Louis County, and perhaps in Lake County as well (Fig. 1).

Figure 1. Northeastern Minnesota Showing Segments where Schedules were Taken



The kinds of employment opportunities that were readily available to farm operators vary among the segments in which the survey was taken. All of them had in common such local employment opportunities as driving a school bus, working in local business establishments, and road work. However, areas 1, 2, and 4 are located within easy commuting distance of the iron mines and many farm operators have found employment there. Areas 3 and 6 are near enough to the industrial area surrounding Duluth and Superior so that a considerable number of farm operators commute to jobs. Area 5 is somewhat isolated from mining and industrial employment but offers many opportunities for work in the woods.

Agricultural development also differs among segments. Areas 3 and 6 in Carlton County and area 2 in Itasca County are more highly developed than the other areas. This is true for such measurements as size of farm business, proportion of land in crops, and size of dairy herd. Many of the farms in these areas

produced "Grade A" milk and most of the milk was sold as milk rather than as butterfat in cream. Area 5 is probably the least well developed area. In this area, the only market for dairy products was as butterfat in cream. Farms were small and home-grown feed was limited. Distances to market were long, and interest rates on loans were high. Problems in this area approach closely those of a typical pioneer community.

Land Use

Lack of agricultural development in the area covered by the study reported is apparent. Of the 1.7 million acres of total land area of Itasca County and the 550,000 acres in Carlton County, only about 225,000 in each county were in farms in 1954. Only 13 percent of Itasca County and 41 percent of Carlton County were in farms.

Lack of development, as well as lack of alternatives, is evident also in the picture of land use on the farms in these counties (Table 1). In Itasca County, the number of acres in permanent pasture exceeded the number of acres of cropland including both hay and rotation pasture. About 85 percent of this permanent pasture was woods pasture, which is likely to have very low productivity. Woods not pastured also exceeded all cropland in total acreage. In Carlton County, the acreage of permanent pasture equaled that of all cropland, with about three-fourths of the pasture classified as woods.

With only a third of the land in farms available as cropland, opportunities to produce satisfactory incomes were limited. But this is not the whole of the picture. Seventy-five percent of the cropland in Itasca County and 82 percent in Carlton County were in hay and pasture crops. Hence only 20 to 25 percent of the cropland was used to feed grains or cash crops.

The largest acreage of intertilled crops was in corn. However, less than 1,200 acres of corn were harvested for all purposes in 1954 in the two counties. Corn was grown on less than 10 percent of the farms. Practically all of it was

Table 1. Land use in Carlton and Itasca Counties [1/]

Land uses	Carlton		Itasca	
	Farms reporting	Acreages harvested	Farms reporting	Acreages harvested
	number	acres	number	acres
INTERTILLED CROPS:				
Corn (All)	156	1,013	118	752
Potatoes	736	475	1,074	1,110
Soybeans	2	7	10	56
Vegetables	89	342	42	139
Total	--	1,837	--	2,057
SMALL GRAINS:				
Wheat	6	26	30	118
Oats	671	6,430	633	8,239
Barley	31	154	71	357
Rye	17	123	13	154
Mixed	26	418	47	600
Buckwheat	5	31	10	61
Flax	12	201	16	226
Other	1	2	3	12
Total	--	7,385	--	9,767
HAY CROPS:				
Alfalfa and mixture	206	4,907	587	11,255
Clover, timothy and mixtures	1,379	45,764	1,042	25,575
Small-grain hay	85	535	117	648
Wild hay	123	1,387	131	1,479
Other hay	85	1,580	154	2,711
Grass silage	104	1,335	52	1,016
Grass seed	13	67	110	987
Total	--	55,575	-	43,671
BERRIES:				
Strawberries	14	3	4	4
Raspberries	4	1	6	6
Other	-	5	-	1
Total	--	9	--	11
CROPLAND, PASTURE	462	10,305	425	7,139
OTHER CROPLAND	376	6,951	403	6,529
TOTAL CROPLAND	--	82,063	--	69,174
WILD HAY	--	1,387	--	1,479
OPEN PERMANENT PASTURE	752	22,334	479	10,710
WOODS PASTURED	1,085	59,296	1,255	61,101
WOODS NOT PASTURED	750	43,680	1,044	68,983
TOTAL CROPS AND PASTURE	--	165,080	--	142,464
OTHER LAND IN FARMS	--	17,594	--	23,098
TOTAL LAND IN FARMS	--	226,354	--	234,545
LAND NOT IN FARMS	--	325,503	--	1,478,856
GRAND TOTAL LAND AREA	--	551,857	--	1,713,401

1/ 1954 Census of Agriculture

utilized as silage, fodder, or a soiling crop. Only 14 farmers harvested corn for grain in 1954.

Approximately 1,500 acres of potatoes were grown in the two counties. There were many growers so that the average acreage per farm was small. However, a few farms had substantial commercial acreages of potatoes. Nevertheless, both the acreage grown and the number of commercial growers have been declining rapidly, indicating that most of the farmers in these counties have not established potatoes as a paying cash crop.

Among the small grains, oats were most important. This crop constitutes the major portion of the feed grains produced in the area.

The largest acreage in any crop was in hay. Clover and mixtures containing clover made up about 74 percent of the total hay acreage. Alfalfa and mixtures containing alfalfa occupied another 17 percent of the hay acreage. All other types of hay including wild hay were relatively unimportant.

Livestock on Farms

The numbers of various kinds of livestock in Carlton and Itasca Counties are shown in table 2. Eighty-nine percent of the farmers reported cattle and calves. All except a few of these livestock are parts of dairy enterprises. All other livestock were relatively unimportant. The hogs raised were mainly for home use or for sale as feeder pigs. Likewise, the few beef cattle fed out were chiefly for home use. Most cattle sold were dairy stock. There were 282 farm flocks of sheep in the two counties, but 212 of the flocks were in Itasca County. Such obstacles as market outlets, fencing, disease, parasites, and predators have discouraged production of sheep.

Table 2. Numbers of various kinds of livestock and numbers of farms reporting, Carlton and Itasca Counties 1/

Kind of livestock	Number of farms reporting 2/	Percentage of all farms	Number of head		
			Total	Average	
				All farms	Farms reporting
	(number)	(percent)	(number)	(number)	(number)
Cattle and calves	2,921	87	45,198	14	15
Milk cows	2,667	80	20,882	6	8
Heifers and heifer calves	2,613	78	16,424	5	6
Steers and bulls, including bull calves	2,273	68	6,921	2	3
Sheep and lambs	282	8	10,629	3	38
Hogs	1,001	30	4,736	1	5

1/ U.S. Census, 1954.
2/ Total number of farms in the 2 counties was 3,344.

Part-time Farming

General

Many different combinations of farming and off-farm employment were found in northeastern Minnesota. Some operators confined their off-farm job activities to occasional odd jobs for short periods of time. Other operators had full-time jobs throughout the year. Many who worked in the mines or at such seasonal activities as highway or railroad construction, worked full time during the summer but had no winter employment other than farming. Another group worked full time in the woods during the winter and spent the summer farming. Still others -- for instance, school bus drivers -- worked only at part-time jobs for all or part of the year. In some instances, the wife provided the outside source of income. School teaching was a common employment for wives. Although this is a special type of part-time family organization, it was ruled out as part-time farming for this study.

The Advantages and Disadvantages of Part-time Farming

The chief advantage of accepting employment away from the farm is increased family income. On the average, part-time farmers obtain higher incomes than full-time farmers. This reason for taking an outside job was expressed frequently by

the farmers themselves. Furthermore, the income received from wages may be obtained immediately and without large investment in plant and equipment. No capital savings or borrowing are involved. This also means that the income received is largely available for family living.

The return per hour of labor from an off-farm job usually exceeds the return that can be made from farming. Ordinarily, hours and wage rates are fixed and income can be estimated fairly accurately in advance. As some of the farmers express it, "As long as you are working, it is easier and surer." This added certainty of income probably makes family budgeting simpler and such things as installment credit easier to obtain.

A less common advantage of off-farm employment concerns retirement benefits. A few operators are employed in occupations in which retirement programs are in force. These are in addition to the regular social security program, for which full-time farmers as well as part-time operators are eligible.

The distaste for off-farm employment probably centers mainly around the regimentation that it entails. One who takes an off-farm job is no longer his own boss. He must contend with a different set of human relationships. He loses control of many things, and this loss of control may bother him. He cannot know how long the job will last or how abruptly it will be terminated. This injects an element of insecurity into his planning. He must satisfy a "boss" and be satisfied by one. Otherwise, he is unhappy. While farming operations regiment the use of his time to a considerable degree, off-farm employment is likely to do so more rigidly and more completely.

In a sense, part-time farming is an unstable or unbalanced way of making the family living. For some families, it is considered as a transitional phase. The family feels that it is headed either toward full-time farming or toward full-time work in nonfarming occupations. On these farms, the conflict between the two activities may be greater than their supplementation. Either the farming activity

or the job activity is circumscribed by the time and effort placed on the other. It is only on farms where there is unused family labor or where the operator has time and energy he is willing to expend beyond the requirements of his off-farm job that a permanent balance may be expected.

The balance that makes part-time farming a permanent possibility is complicated by seasonality of employment. Many farmers in northeastern Minnesota find summer jobs that end with the coming of winter. It is more difficult to find employment in winter. Part-time farming fits into this picture fairly well. It gives the operator something to do as well as income during the period when he might otherwise remain unemployed. No doubt this is one of the main reasons for the expansion of part-time farming in the area. By using family labor, working harder and longer hours themselves, and hiring custom work done, these farmers succeed in overcoming the summer conflict and then become full-time farmers for the winter.

Such winter employment as working in the woods would appear to combine better with farming than does summer employment. Under this arrangement, the operator can work full time at farming during the growing season. The advantage is not great, however, as added chore time in winter takes up much of the difference, especially in an area where haying and grain harvesting are the main summer activities.

From these descriptions, it becomes evident that the problem is one of resolving various aspects of maximizing money income, security, independence, job satisfaction, and use of family labor resources in the way that appears to be most satisfactory for each family involved.

Employment Off the Farm

The part-time farmers were engaged in a variety of jobs. Table 3 provides a picture of the types of employment, wage rates, and hours worked for 35 of the part-time farmers interviewed. Most of the men who worked in the woods worked

Table 3. Off-farm employment: type of work, wage rates, and hours worked by 35 part-time farmers

Case No.	Type of work	Wage rate	Unit	Hours worked in 1954	Length of work-day	Days worked per week
		(dollars)				(number)
1.	Highway truck driver	1.35	hour	555	9	2
2.	Dumpman - mines	2.00	"	1,000	8	5
3.	Mine worker	1.92	"	1,980	8	5
4.	Highway construction worker	2.00	"	1,750	9	6
5.	School bus driver	1/	1/	540	3	5
6.	Carpenter	2.00	hour	1,484	8	5
7.	Truck loader - mines	1.48	"	1,216	8	5
8.	Carpenter in Greenland	1000.00	month	1/	1/	1/
9.	School bus driver	150.00	"	540	3	5
10.	Mine worker	2.00	hour	1,507	8	5
11.	Mine worker	1.70	"	1,773	8	5
12.	Mine worker	2.17	"	1,843	8	5
13.	Machine operator - mines	1.90	"	1,939	8	5
14.	Mine worker	1.80	"	1,667	8	5
15.	Mine worker	2.15	"	884	8	5
16.	Highway worker	1.40	"	2,071	10	4
17.	Truck driver	275.00	month	2,400	8	6
18.	Mine worker	1.97	hour	1,523	8	4
19.	Odd jobs worker	1.60	"	972	1/	1/
20.	Hatchery worker	1.80	"	944	9	6
21.	Railroad section worker	1.54	"	779	8	5
22.	Crane operator	2.00	"	1,300	8	5
23.	Railroad extra gang worker	1.54	"	706	8	5
24.	Farm worker	1.13	"	1/	1/	1/
25.	Lumberyard worker	1.25	"	1/	1/	1/
26.	Feed mill worker	1.25	"	2,112	8	6
27.	Mechanic	65.00	week	1,733	8	6
28.	Mine worker	250.00	month	1,280	8	5
29.	Mine worker	2.64	hour	2,083	8	5
30.	Mine worker	2.64	"	1,780	8	5
31.	Telephone employee	1.50	"	2,933	8	5
32.	8 months in woods, and other jobs	1.30	"	2,115	1/	1/
33.	$2,780 mechanic; $817 as school bus driver	1/	1/	1/	1/	1/
34.	$2,500 in woods; $1,000 as school bus driver	1/	1/	1/	1/	1/
35.	$3,315 in woods	1/	1/	1/	1/	1/

1/ Not available.

on a piecework basis or as small independent operators. Typical wage rates for summer jobs averaged close to $2.00 per hour.

Age of Operators

The average age of the part-time farmers surveyed was 41 years. Table 4 shows the distribution by various age groups. Eighty-nine percent of all part-time operators were between the ages of 25 and 55.

Table 4. Age distribution of operators

Age group	Number	Percent
Under 25 years	0	0
25 - 34 years	19	31
35 - 44 years	17	28
45 - 54 years	18	29
55 - 64 years	6	10
65 - 74 years	0	0
75 years and over	1	2
All operators	61	100

Young men just starting to farm and those with families of young children found it necessary to take jobs in industry in order to support their families and to obtain capital with which to expand their farming operations. When the children become old enough to help on the farm they can aid in making part-time farming possible. Furthermore, these are the men who are most likely to be employed by industry when they seek employment.

Size of Farms

In total acreage, the part-time farms covered by the study reported averaged 216 acres. Quarter-section farms were most common. The distribution of sizes in both total and crop acreages are shown in Table 5.

Table 5. Distribution of sample part-time farms by size and acreages in crops

Size group	Number of farms	Ave. size	Ave. acreage in crops 1/
		acres	acres
Under 70 acres	1	60	5
70 - 99 acres	4	82	10
100 - 139 acres	10	117	13
140 - 179 acres	16	156	15
180 - 219 acres	12	193	14
220 - 259 acres	6	239	18
260 - 499 acres	10	344	26
500 acres and over	3	575	42
All farms	62	216	17

1/ Excluding acres in hay

Measured in total acreage, size is not especially meaningful in this area. Much of the land is covered with brush, trees or stones, or is swampy and poorly drained. While this land is a part of the farm, it may have no use for farming.

The average acreage in crops excluding hay was 17 acres. There was only a slight relationship between the acreage in crops and the size of the farm. The distribution of farms by acreage in crops is shown in table 6.

Table 6. Distribution of sample part-time farms by acreage in crops other than hay

Acreage in crops	Number of farms	Percentage of farms
Under 10 acres	18	29
10 - 19 acres	23	37
20 - 29 acres	8	13
30 - 39 acres	8	13
40 - 49 acres	3	5
50 acres and over	2	3
All farms	62	100

Two-thirds of the part-time farms had less than 20 acres of crops other than hay. Although this acreage may seem small, it is about the same as that of the full-time farms included in the study.

The average acreage in hay on the part-time farms was 50 acres. However, some of the farmers did not cut all of their hay acreage. These farms averaged

92 acres in pasture, most of which was woods or brush pasture with very low carrying capacity. Even so, it is likely that the available pasture land was somewhat underutilized.

Crops on Farms

It has been stated that northeastern Minnesota is primarily a grass and small grain area. Part-time farms are no exception to this general rule. The average acreages of the different classes of crops on part-time farms are shown in the tabulation below.

Crop	Acres
Intertilled	3
Small Grain	14
All hay	50
All pasture	92

Table 7. Distribution of sample part-time farms by acreage in intertilled crops

Acreage in intertilled crops	Number of farms	Percentage of farms
None	40	64
1 - 4	6	9
5 - 9	10	17
10 -14	4	6
15 -19	1	2
20 -24	1	2
All farms	62	100

Table 8. Distribution of farms by acreage in small grain crops

Acres	Number	Percent
None	12	19
1 - 9	17	28
10 -19	20	32
20 -29	6	10
30 -39	2	3
40 -49	3	5
50 - over	2	3
All farms	62	100

Corn for silage or fodder was the intertilled crop most frequently grown. None of the part-time farmers grew corn for grain. Potatoes or rutabagas were grown on a few farms but the acreages were small. Both crops use more labor than most part-time farmers have available. Among the small grains, oats were favored. An occasional field of mixed grains or barley or a little flax or rye was found.

Livestock

Because the cropping pattern on part-time farms is limited mainly to grass and oats, the livestock is limited chiefly to dairy cows. On most of the farms, one or two head of cattle were raised to provide meat for the household. Practically none was raised for sale. Many farmers raised hogs for home use. A few farrowed a limited number of pigs to be sold as feeder pigs. As much of the feed had to be purchased, few hogs were raised for market. Sheep were not commonly raised by part-time farmers, despite the fact that most of them had plenty of grass and hay. Apparently, the odds against sheep in the form of care at lambing time, disease, insect pests, and predators were too great to make them popular. Poultry would appear to be naturally fitted to farms where family labor contributes much to the farming operations. But because much of the feed must be purchased, local markets are not good, and relatively expensive housing must be provided, few commercial poultry flocks were found on part-time farms. Typically, the size of flocks was kept down to the level of home use. No turkeys were raised by any of the part-time farmers surveyed.

All of the 62 part-time farmers kept some milk cows, with the numbers ranging from 2 to 22. The average was 12½. The distribution of milk cow numbers is shown in table 9. Almost three-fourths of the farmers kept from 6 to 15 cows.

Table 9. Distribution of sample part-time farms by number of milk cows

Number of cows	Number of farms	Percent of farms
Under 5	4	6
6 - 10	24	39
11 - 15	20	32
16 - 20	9	15
21 - 25	5	8
All farms	62	100

The farmer with 22 cows worked for the railroad during the summer. He had an 18-year-old son who worked full time on the farm. His wife helped out during the summer and this farmer wanted to continue off-farm work because he believed it gave him more income than he could get by expanding his farming business. The second highest in number of cows also had ample labor available. In this instance, the operator runs a milk route that takes 1½ or 2 hours a day. The rest of his time is devoted to farming. A 25-year-old son spends full time on the farm.

Labor Supply

The number of hours of labor that part-time operators are able and willing to put into their farming operations vary widely. In the group covered by the study, they reported, varied from 20 to more than 70 hours per week. The number depends on such things as hours of off-farm work, regularity and seasonality of employment, and the operator's willingness and energy.

Family labor may be the key to the possibility of part-time farming on many farms. Much of the time, it may take the form of helping with the milking and the other chore work. In other instances, it may extend to all the farmwork. Table 10 shows the kind of family labor on the part-time farms studied.

Table 10. Distribution of sample part-time farms by family labor supply

Labor Source	Number of farms	Percent
Wife only	20	33
Wife and sons	11	18
Son or sons-in-law	7	12
Other	4	7
None	18	30

Ordinarily, part-time farmers in northeastern Minnesota do not use hired labor. Seventy-one percent of them hired no labor. Only 10 percent of the farmers paid out more than $200 for hired labor during the year. The largest payment was $685. In most instances, the labor hired was utilized for short periods in harvesting oats and hay.

Custom Work

Part-time farmers used custom work to a considerable extent in carrying out their farming operations. Limited size of business and limited time for doing farmwork combined to make this desirable. Frequently, the small scale of operation made it uneconomical to own the more expensive and specialized machines. These farmers also lacked the additional time necessary to do some jobs at critical periods. The amount spent on various types of custom work on each of the part-time farms is shown in table 11. Forty-four of the 62 farmers hired some custom work done or did some custom work for others. Custom work was most commonly used for grain harvesting (cutting, binding, threshing, or combining), followed by hay harvesting, usually baling. Only a few farmers hired plowing or planting done. Several of the farmers hired more than one kind of service.

Machinery on Farms

In general, the part-time farms were well equipped with machinery. Each of the farmers had at least one tractor and a few had two. All had plows and other soil-fitting machinery. Practically all had drills. Corn and potato machinery

Table 11. Custom work hired and work done for others, part-time farmers surveyed 1/

Farm	Custom work hired					Work done for others	
	Plowing or planting	Grain harvest	Hay harvest	Miscellaneous Description	Miscellaneous Cost	Type of work	Amount earned
	(dollars)				(dollars)		(dollars)
1		50.00					
2		12.00	84.00				
3	80.00			Bulldozing	500.00		
4	18.00	70.00	70.00				
5		40.00	30.00				
6	40.00	10.00	310.00			Sprayed potatoes	65.00
7	42.00						
8				Silo filling	160.00		
9		27.00	98.00				
10		19.50	20.00				
11		25.00				Baling hay	30.00
12		50.00					
13		25.00					
14				Silo filling	200.00		
15			100.00				
16		45.00					
17				Sheep shearing	20.00		
18	34.00						
19		40.00	30.00	Chopping	100.00		
20			11.00				
21		20.00	40.00				
22		15.00	50.00				
23			96.00				
24			40.00				
25		72.00					
26		20.00					
27		93.00					
28						Threshing	450.00
29		85.00					
30		60.00					
31			112.00			Road work	55.00
32		6.00					
33		60.00				Hay baling	350.00
34							
35		25.00					
36			76.00	Bulldozing	100.00		
37		7.00					
38		25.00	100.00				
39		63.00	100.00				
40	25.00						
41		40.00					
42			37.00	Silo filling	230.00		
43		10.00					
44						Hay baling	300.00

1/ No custom hired work or work done for others reported by 18 part-time operators.

were found on more farms than were growing these crops. Side-delivery rakes were universal on part-time farms. If farms were not equipped with balers, they had hay loaders. Pick-up balers were found on about a third of the farms. A number of the farms had milking machines, even though the small number of milk cows hardly justified their cost.

In general, the machinery was in good condition. Machinery rated very good or excellent on more farms than it rated poor or fair. Apparently, on some of the farms, income obtained from off-farm work has gone into the purchase of farm machinery and it may be difficult to recover the cost from the farming operations. The decision to buy was made on the basis of the immediate and apparent need to save labor rather than on a longer term plan of organization.

Work Units

For part-time farms where labor is characteristically a limiting factor, it would be desirable to get a measure of the size of the business in terms of labor requirements. This can be done roughly in terms of "work units". A work unit as used here is the average accomplishment of a farmworker, in a 10-hour day, working on crops and livestock at average efficiency. The number of work units for each acre of crop and for each class of livestock are presented in table 12.

Part-time farms vary considerably in size of business as measured by work units. About half of the farms had enough work units to equal or closely approximate a one-man full-time farm run by the operator alone.

The percentage distribution of part-time farms by number of work units is shown below:

Number work units	Percentage of farms
Under 150	8
150 - 199	15
200 - 249	15
250 - 299	25
300 - 349	25
350 and over	12

These farms have little opportunity to increase in size on a part-time farming basis.

Table 12. Number of work units for each acre of crop and class of livestock 1/

Type of crop	Unit	Work units	Type of livestock	Unit	Work units
Corn-grain	acre	1.5	Milk cows	head	15.0
Silage fodder	"	1.0	Beef cows	"	5.0
Small grains	"	1.0	Heifers	"	3.0
Potatoes	"	4.0	Steers	"	3.0
Alfalfa	"	1.0	Bulls	"	5.0
Mixed hay	"	.7	Calves	"	3.0
Other hay	"	.6	Ewes	"	.3
			Other sheep	"	.15
			Pigs	"	.8
			Laying hens	hen	.3
			Young chicks	chick	.1

1/ Estimated work units (modified and adapted from other Minn. areas).

Family Incomes

The family incomes as used in the study reported consist of two parts. The first part is the net realized income from farming, which includes the gross income from farming minus the cash operating expenses and the value of farm products used in the home. It does not include inventory changes. Hence it is the sum left over to pay the farmer for his labor and for the depreciation and use of his own capital and rent for his own land. The second part consists of the wages or salaries obtained from working at off-farm employment. Farm and nonfarm income are not strictly comparable. On the one hand, the cost of obtaining the farm income is taken out in determining the net income. This is not true for the nonfarm income. For example, the cost of commuting was not subtracted from wages or salaries received. On the other hand, the farm income shown is not all spendable for family living. No depreciation costs were removed, and no provision was made to provide funds for capital improvements on the farm.

Family incomes on these part-time farms averaged $3,529 in 1954. It was slightly lower ($3,339) if the families where the wife worked are omitted from

the calculation. The average family income was made up of $2,085 of wages and salaries, $1,068 of income from farming, $303 of wages earned by the wife, and $73 of other income. The other income consists of veterans' payments. About two-thirds of the incomes of these part-time farmers came from wages and salaries.

Among the families who chose to obtain their family incomes partly from farming and partly from off-farm employment, incomes varied greatly. The highest family income was $9,211; the lowest was $334. The highest net income from farming was $5,464; the lowest was a loss of $1,666. The highest income from wages or salary was $5,500. Some families had above-average incomes from both the farm and outside wages. Others with high incomes obtained them mainly from wages or chiefly from the farm. In some families, the wages brought in by the wife's employment exceeded the operator's income. Data for individual farms are given in table 13.

In a general way, the higher wage incomes were associated with lower farm incomes and vice versa (table 14). Farm needs and the off-farm job compete directly for the operator's time and labor. Operators with high wage incomes usually spend a larger part of the year on their off-farm jobs and their farming enterprises may suffer as a result.

On about one-fifth of the part-time farms, the net incomes from farming operations were negative, that is, they showed a loss. On these farms, the family incomes averaged $2,363 and incomes from wages $2,884. The operator spent a part of his wage income to support the farm. On these borderline farms, it is likely that the farm income seldom contributes much to the family income. The farm is more a place to live and perhaps a form of unemployment insurance than a source of income.

Table 13. Sample part-time farms arrayed according to amount and source of family income

Farm rank	Total family income	Operator's wages or salary	Net income from farm	Wife's wages or salary	Farm rank	Total family income	Operator's wages or salary	Net income from farm	Wife's wages or salary
		(dollars)					(dollars)		
1	9,211	4,000	5,211	--	36	3,293	1,555	1,738	--
2	8,614	--	5,464	3,150	37	3,205	1,100	2,105	--
3	7,552	3,000	4,552	--	38	3,142	4,000	-858	--
4	6,183	1,100	2,383	2,700	39	3,069	1,800	1,269	--
5	6,147	5,500	647	--	40	3,007	3,315	-308	--
6	6,006	5,000	1,006	--	41	2,998	451	-153	2,700
7	5,682	5,414	268	--	42	2,948	1,600	448	900
8	5,562	--	2,562	3,000	43	2,937	2,640	297	--
9	5,236	3,500	1,736	--	44	2,755	--	955	1,800
10	5,168	975	2,068	2,125	45	2,642	1,087	1,555	--
11	4,780	4,600	180	--	46	2,560	1,200	1,360	--
12	4,603	1,862	2,741	--	47	2,493	3,600	-1,107	--
13	4,537	--	3,137	1,400	48	2,459	2,000	459	--
14	4,278	3,800	478	--	49	2,373	1,055	1,318	--
15	4,240	4,029	211	--	50	2,350	825	1,525	--
16	4,239	3,000	1,239	--	51	2,306	1,700	606	--
17	4,234	4,700	-466	--	52	2,217	1,350	867	--
18	4,189	3,000	1,189	--	53	2,109	536	1,573	--
19	4,158	3,300	858	--	54	1,924	--	760	1,164 1/
20	4,134	3,015	1,119	--	55	1,888	750	1,138	--
21	4,086	3,500	586	--	56	1,875	2,185	-310	--
22	3,998	2,900	1,098	--	57	1,871	600	1,271	--
23	3,961	1,200	2,761	--	58	1,870	2,130	-260	--
24	3,922	2,640	1,282	--	59	1,655	1,170	485	--
25	3,890	3,597	293	--	60	1,493	900	593	--
26	3,809	--	2,645	1,164 1/	61	1,273	534	739	--
27	3,673	--	1,738	1,935	62	1,013	886	127	--
28	3,661	3,800	-139	--	63	739	800	-61	--
29	3,622	780	2,842	--	64	634	1,500	-866	--
30	3,567	3,000	567	--	65	334	2,000	-1,666	--
31	3,542	2,749	793	--					
32	3,433	2,968	465	--					
33	3,403	--	973	2,400 1/					
34	3,375	3,430	-55	--					
35	3,302	1,900	1,402	--					

1/ Other income

Table 14. Income distribution of sample part-time farms in N.E. Minnesota (65 farms)

	Total family income	Income from operator's wages	Net income from farm	Other income (wife or vets.)	Percentage of total income		
					Wages	Farm	Other
	(dollars)	(dollars)	(dollars)	(dollars)			
Average of all families	3,529	2,085	1,068	373	60	30	10
Highest 1/3 of farms:							
Total family income	5,310	3,009	1,739	562	57	33	10
Income-operator wages	4,604	3,822	782	0	83	17	-
Income from farm	4,431	1,287	2,441	703	29	55	16
Middle 1/3 of farms:							
Total family income	3,415	2,025	957	433	59	28	13
Income-operator's wages	2,909	1,912	826	171	65	27	8
Income from farm	3,234	2,138	893	255	66	27	7
Lowest 1/3 of farms:							
Total family income	1,856	1,218	503	135	67	27	6
Income-operator's wages	3,046	513	1,585	948	17	52	31
Income from farm	2,910	2,884	-137	164	99	-	1

The average incomes of part-time farmers exceeded those of full-time farm families by a considerable margin. The income distribution of 65 full-time farmers in N.E. Minnesota is shown in the tabulation below:

Income groups	Total family income
Average of all families	$1,792
1/3 with highest incomes	3,107
1/3 with middle incomes	1,577
1/3 lowest incomes	855

The average income of the highest one-third of these farmers was $422 less than the average of all part-time operators. The average of all full-time farmers was slightly less than that of the lowest 1/3 of the part-time farms. The average of all full-time farms was $293 less than the average income from wages alone for the part-time operators.

Dairying

Dairying is the chief source of farm income on part-time farms. A relatively few operators produced Grade A milk and sold to a fluid milk market. Most of them

sold their dairy products for manufacture. About half of them sold whole milk and the other half sold only cream. The type of market was determined partly by location within the region, partly by the size of the dairy enterprise, and partly by choice. In one local area studied, the only market available was a cooperative creamery that handled only cream. In most areas, operators could choose from alternative outlets. Frequently, those operators with small herds and little product to market stored their cream for a time and hauled it to market themselves.

Table 15 summarizes the dairy enterprise on both part-time and full-time farms. Part-time farmers have slightly smaller herds, produce a little less butterfat per cow, and have a somewhat smaller income per cow and per farm than do full-time farmers.

Table 15. Dairy enterprise on full and part-time farms

Item	Unit	Part-time farms			Full-time farms		
		Average	High	Low	Average	High	Low
Milk cows	Number	12.5	22	2	14.3	50	4
Butterfat per cow	Pound	227	359	100	238	468	98
Value of dairy products sold:							
per farm	Dollars	2133	8324	500	2785	10293	300
per cow	"	173	308	50	202	462	49
Feed purchased	"	579	2472	0	918	3446	0

Organization of Part-time Farms

It has been pointed out that, in general, the organization of part-time farms does not differ greatly from that of other farms. Most of the part-time farms are essentially dairy farms so far as cash income is concerned. However, the amount of time that the operator spends on his off-farm job limits his availability for farmwork. As a result, family labor, hired labor, or custom work must be provided to supplement the labor of the operator, or the size of the enterprise must be curtailed.

Included in the study were 8 farms whose operators worked more than 2,000 hours each at off-farm employment during the year. This is roughly equivalent to a full-

time job for the entire year. Also included were 16 farms whose operators worked between 1,000 and 2,000 hours each at off-farm employment. This approximates employment for half the year. The acreages of the various classes of crops and the kinds and numbers of livestock on these farms are shown in table 16.

Table 16. Land use and kinds and numbers of livestock, sample part-time farms whose operators worked off-farm 1,000 or more hours during the year

		Farms where operator worked at off-farm jobs							
		2,000 hours or more				1,000-1,999 hours			
Item	Unit	Ave.	Highest	Lowest	Percentage reporting	Ave.	Highest	Lowest	Percentage reporting
Crops:	Acres								
Intertilled	"	1/	4	0	13	5	21	0	50
Grain	"	13	26	0	75	14	30	0	90
Hay	"	39	76	20	100	35	95	0	94
Livestock:	Number								
Milk cows	"	10	16	5	100	9	15	2	100
Beef cows, bulls, steers	"	1	2	1	75	2	13	0	75
Calves, heifers	"	10	14	5	100	9	15	2	100
Sheep	"	0	0	0	-	13	75	0	25
Pigs	"	2	6	0	40	4	20	0	69
Laying hens	"	47	100	0	40	34	200	0	50

1/ Less than 1 acre

The average acreages in crops were similar for the two groups. Both intertilled and small grain acreages were about the same as the averages for the entire group of farms. Hay acreages were considerably smaller than the average for all farms; probably this difference reflects the reduction in amount of available labor on the farm. While the crop acreages did not differ much on the farms in the two groups shown in table 19, the proportion of farmers growing intertilled and grain crops was substantially higher in the group who had employment for half the year. Livestock numbers were about the same in both groups, but the variation between the highest and lowest in each group was considerable.

Net income from farming was only slightly higher for the half-time than for the full-time group and both were under $1,000 (table 17). Close to half of this income was in the form of family living from the farm. It should be recognized that if the half-time operators are employed during the summer, they may have no more time for farming during that period than the farmers who work off the farm for the entire year. Variations in farm income from farm to farm were considerable.

Table 17. Income from farming and off-farm employment, sample part-time operators who worked 1,000 hours or more during the year

Income	Farms where operator worked at off-farm jobs					
	2,000 hours or more			1,000 to 1,999 hours		
	Average	Highest	Lowest	Average	Highest	Lowest
	(dollars)			(dollars)		
Income from farming:						
Gross receipts 1/	2,505	4,435	1,114	2,384	7,084	936
Cash operating expense	1,735	3,953	821	1,582	3,329	940
Net farm income	770	1,282	211	802	5,211	-1,666
Value family living	(368)	(564)	(119)	(350)	(763)	(139)
Wages and salaries	3,565	5,500	2,640	3,101	4,700	1,800

1/ Includes family living from the farm

This reflects differences in size and organization resulting from different amounts of available family labor, abilities of individual operators, and the particular conditions that affect the farms during the year.

The breakdown of farm cash expenses is shown in table 18. Main items of expense are feed bought, fuel and electricity, and taxes. Those who worked at full-time jobs throughout the year spent more on feed purchased and fuel and electricity. Total cash operating expenses were higher for the group of operators employed full-time off the farm.

Part-time farming is largely a coordinated family mode of operation. Without family participation, less part-time farming would be done than is now the case. Nearly all of the farms in both these groups used considerable amounts of family

Table 18. Average expenses, part-time farms whose operators worked 1,000 hours or more at off-farm employment

Item	On farms whose operators worked 2,000 hours or more at off-farm work	On farms whose operators worked 1,000 to 1,999 hours at off-farm work
	(dollars)	(dollars)
Fuel and electricity	355	319
Machinery and tractor repairs	88	96
Building and fence repairs	64	67
Feed bought	553	353
Hired labor and custom work	183	151
Milk hauling	27	47
Livestock bought	68	48
Taxes	284	383
Miscellaneous	113	118
Total	1,735	1,582

labor. On 60 percent of the farms, the wife helped with the farmwork. Her contribution varied from about an hour a day, or 365 hours a year, to 5 hours a day, or 1,800 hours a year. The most common contribution was one or two hours a day, and the time was spent chiefly in helping with the milking and doing chore work. About a third of the farmers indicated that they had sons who helped with the farmwork. In most instances, there was only the one son, but on three of the farms there were two. The boys ranged in age from 12 to 21 years and the average age of the group was 16. On most of the farms where sons worked, the wife helped out also. Labor was hired on only 3 of the 26 farms. The amount spent for hired labor on these farms was $48, $120, and $148, respectively. No custom work was hired. Four of the farmers gave no indication of use of either family or hired help. On these farms, the operators worked long hours in addition to their outside employment. They grew about the average acreages of grain and hay and kept 5 milk cows. Their net farm earnings averaged $350. It is doubtful that this income was worth the extra effort entailed unless the need for additional income was very great.

Farms in this group were well-equipped with machinery, and in general, the overall condition of the equipment was good to very good. On only 3 farms did the

enumerator rate the machinery as poor or fair. All of the farms had at least one tractor, and 20 percent of them had 2. All had the usual plows, harrows, and other soil-fitting machines. For grain harvesting, 50 percent of the group had binders. One farmer had a combine. For forage harvesting, almost half of the farmers had hay balers, most of which were of the pick-up variety. Most of them had hay loaders. One farmer had a field chopper. Despite the fact that they had few milk cows, about half the farms had milking machines. Although data on machinery investment were not obtained, the amount of capital tied up in machinery was probably high for the limited size of the farming operations.

On the whole, these farmers were in good financial circumstances. Half of them were free from debt. About one-fourth had real estate or chattel mortgages of less than $1,000 and the remaining fourth had mortgages of $1,000 or more. The average debt of the last group was $2,550. The maximum debt was $6,000. This farmer was the youngest of the group; he borrowed to buy his farm, obtain equipment, and pay operating expenses.

As dairying was the main source of farm income, comparing this group of farmers with others in the study reported will indicate how well they farm. Table 19 shows the costs and returns from dairy cows for this particular group of farms and for (1) the 20 farms in the study that were highest in value of dairy products sold per cow and (2) the 20 farms that were median in value of dairy products sold per cow. The comparison is not very favorable to the group who have a great deal of off-farm employment. Lower production per cow and higher feed costs combine to cut their "return above feed" to about half that of the median group and only about 1/5 that of the highest group. Undoubtedly, lack of coordinated management and interest, as well as lack of time at critical periods, contribute to the poorer showing of this group.

Table 19. Costs and returns from dairy cows, sample part-time farmers

Item	Unit	Farm operators worked 1,000 hours or more off farm	Value of dairy products sold per cow: 20 highest farms	Value of dairy products sold per cow: 20 median farms
Cows	Number	10.0	18.6	11.6
Butterfat per cow	Pounds	211	325	229
Price received per pound of butterfat	Dollars	.72	.97	.73
Average per cow:				
Feeds fed:				
Grain		1,689	2,282	1,355
Hay		7,900	6,623	7,184
Silage		-	4,766	1,831
Feed cost:				
Grain	Dollars	28	31	20
Hay	"	57	46	50
Silage	"	-	11	4
Commercial feed	"	34	76	28
Total feed cost	"	119	164	102
Value of products sold per cow	"	152	317	167
Return over feed cost	"	33	153	65
Cash return above purchased feed cost	"	118	267	140
Average net farm income	"	791	3,488	1,697
Average spendable income	"	4,047	3,488	1,697

The success of the group with highest value of dairy products sold was due largely to the higher price received for the milk. These farmers sold to a limited fluid milk market; their success could not be generally duplicated under existing market conditions. Even with conditions as favorable as they were for this group of farmers, it took a herd of about 25 milk cows to equal the income of the average part-time farmer who was employed at least half the year at off-farm work. Operated at the level of efficiency of the median or average farmer and with butterfat instead of fluid milk prices, it is doubtful that the income of the part-time farmer could be equaled by a one-man operation. It would take a 29-cow herd to yield $4,000

above "purchased feed" alone. Add the cost of other feed and other farm expenses and the herd would need to be much larger to attain a $4,000 net income.

These data indicate that an off-farm job is difficult to equal through an increase in size or efficiency of farming operations in northeastern Minnesota. Only the favored few who can operate efficiently and sell their product in a favorable but limited market can expect to attain an income comparable to that of an average operator who has an off-farm job for a substantial part of the year.

Observations and Conclusions

Under present conditions, the agricultural resources of northeastern Minnesota are limited and difficult to exploit. Farms of adequate size are difficult to develop because of soil variations, woods, rocks, and swamps. The climate and soils limit the production alternatives. Location limits marketing possibilities. Inadequate volume of production limits the processing industry possibilities.

Income for family living can usually be obtained more readily in employment other than farming. This has led to the rapid increase in part-time farming.

Part-time farming is frequently a transition phase during which the operator is either getting out of farming or getting into it on a full-time scale. In the former situation, he will eventually become a rural resident or he will move to town. In the latter situation, he may invest his income from off-farm work in farm capital investments. He may build new farm buildings or buy new machinery from income the farm has not earned. In many instances, this is capital that the farm cannot repay.

As the decision regarding whether or not the operator wants to become a full-time farmer is a fluid one (it can be changed at any time), it would be good policy for many operators to save their incomes in liquid form (bank accounts, bonds, etc.) until they are ready to make a final decision. They can then invest it all at one time in building up an economic farming unit if this is the direction in which they wish to turn.

Successful part-time farming usually depends on family labor. If this labor consists of the willing cooperation of the housewife, it may continue for a considerable period of time. If it depends on children, they may leave the farm as soon as they are grown. However, when properly organized, off-farm work may be a source of added family income when it is most needed.

There appear to be few possibilities of improving farm incomes so that full-time farming can compete successfully with off-farm employment for providing maximum income. By shifting to Grade A milk and developing a stable fluid milk outlet, a few farmers may succeed. However, most farmers who sell only cream or milk for manufacture find it difficult to develop a farming unit that will provide as much income as a regular off-farm job.