



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

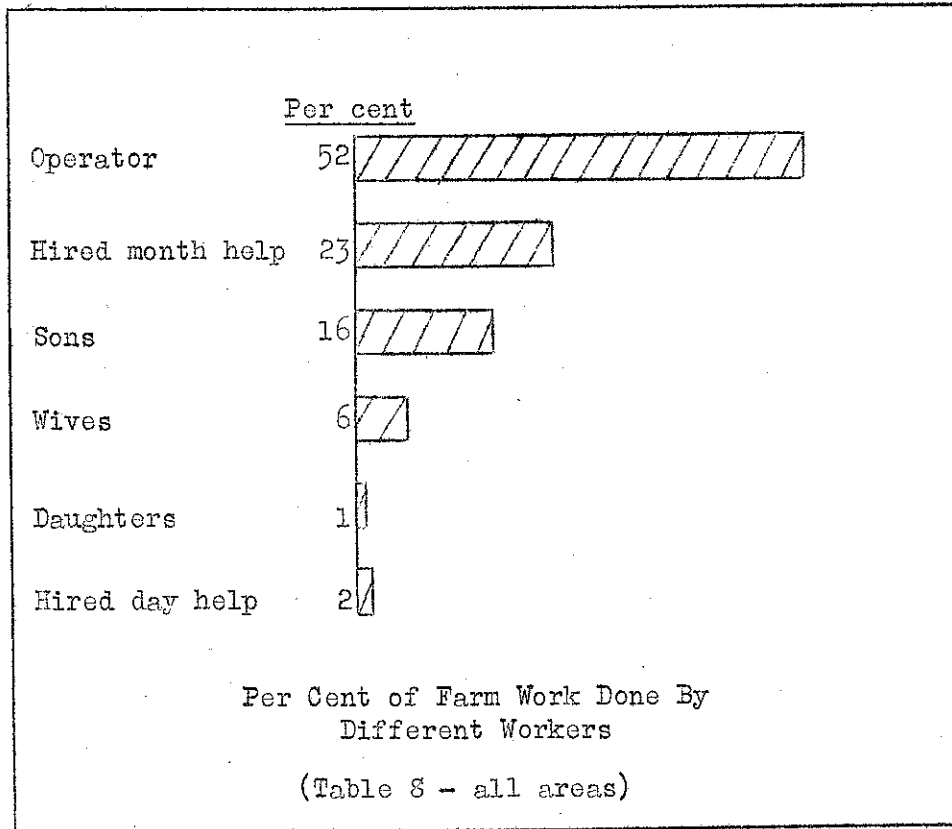
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

*File*

*File Copy Bierly*

USE AND COST OF LABOR  
ON DAIRY FARMS IN NEW YORK



by

Ivan R. Bierly,  
Department of Agricultural Economics,  
New York State College of Agriculture

and

Josiah C. Folsom,  
Division of Farm Population and Rural Welfare,  
Bureau of Agricultural Economics

USE AND COST OF LABOR ON DAIRY FARMS IN NEW YORK

C O N T E N T S

	<u>Page</u>
INTRODUCTION . . . . .	1
Location and description of the areas studied . . . . .	1
Orange County . . . . .	2
Chenango County . . . . .	2
Cayuga County . . . . .	2
St. Lawrence and Cattaraugus Counties . . . . .	2
AMOUNTS AND KINDS OF LABOR USED PER FARM . . . . .	3
Man-months of work per farm by each type or worker . . . . .	3
Cost of hired labor and value of unpaid labor per farm . . . . .	4
Variation in the size of the farm labor force . . . . .	5
Per cent of farmers reporting hired month help and unpaid family workers . . . . .	6
Average length of working day for different workers . . . . .	8
Man hours of work per day per farm . . . . .	9
Size of herd and per cent of work done by each kind of worker . . . . .	12
Per cent of farms on which wives milked cows . . . . .	13
Work done off the farm . . . . .	14
MAN HOURS OF DIRECTLY PRODUCTIVE WORK PER MONTH . . . . .	15
Hours of directly productive work required monthly on livestock and crops . . . . .	15
USE OF EQUIPMENT ON DAIRY FARMS . . . . .	18
Kinds of equipment used on dairy farms . . . . .	18
Use of milking machines on farms with different numbers of cows . . . . .	19
Method of milking and time required to care for a cow per year . . . . .	19
Size of herd and amount of labor per cow . . . . .	22
Time spent hauling milk . . . . .	22
WAGE RATES, AND THE FARM LABOR SUPPLY SITUATION . . . . .	23
Farm wage rates by areas . . . . .	23
Perquisites provided to farm labor . . . . .	25
Comparison of returns to the farm operator and cost of hiring a man for 12 months . . . . .	27
The farm labor supply situation . . . . .	28
SUMMARY . . . . .	30
APPENDIX . . . . .	32

# USE AND COST OF LABOR ON DAIRY FARMS IN NEW YORK<sup>1/</sup>

## INTRODUCTION

The current and prospective farm labor shortage in New York has aroused much public interest in the farmer's labor problems. Because dairying is the major enterprise on most New York farms, problems arising from this situation are of major importance to dairy farmers.

Farm business summary records were obtained by the survey method on dairy farms in five areas in New York State for the year ending April 30, 1940. Detailed data on costs and returns on the dairy enterprise were also included. Information on these records concerning the cost and use of labor on these farms provided most of the data for this report.

### Location and Description of the Areas Studied

The areas surveyed were selected to represent the different systems of dairy farming in New York State. About 110 records were taken in each area (table 1). Within each area no selection of the farms was made, except to require that the milk from at least 6 cows must have been marketed by the farm in fluid form during the year. For all areas there was an average per farm of 20 cows and 156 acres of land, 64 of which were used for crops.

TABLE 1. NUMBERS OF LIVESTOCK AND ACRES OF IMPORTANT CROPS PER FARM  
Five Areas in New York, 1939-40

Item	Orange County	Chenango County	Cayuga County	St. Lawrence County	Cattaraugus County
Number of farms	114	104	105	117	102
<u>Average numbers of livestock per farm</u>					
Cows	28	20	14	19	19
Heifers, 1 year or more	4	6	4	5	5
Heifer calves	3	5	4	4	4
Herd bulls	0.8	0.8	0.7	0.8	0.9
Bull calves	0.2	0.3	1.4	0.4	0.3
Horses	2.3	2.6	3.3	2.6	2.3
Hens	48	122	87	53	50
<u>Average acres of important crops per farm</u>					
Corn <sup>1/</sup>	8.7	8.0	15.3	9.5	5.1
Hay	50.5	36.5	34.3	45.2	36.2
Grains	0.1	6.7	23.9	14.4	11.0
Cabbage	---	1.1	0.2	---	---
Dry beans	---	---	1.3	---	---
Market peas	---	1.3	---	---	---
Market beans	---	1.8	---	---	---
Acres, all crops*	60	58	78	70	53
Total acres per farm	143	157	143	150	187

<sup>1/</sup>Includes corn for silage, grain, and fodder. \* Includes other minor crops.

<sup>1/</sup> The Agricultural Planning Field Service, B.A.E. provided part of the clerical help used in the preparation of this report.

Orange County

Orange County is in the center of the intensive dairy farming region near the New York City market. Herds in this area averaged larger than in any of the other areas surveyed. Income from the dairy enterprise provided almost 90 per cent of the total farm receipts. Under the intensive practices followed, dairymen commonly purchase most of their herd replacements. Livestock other than dairy are relatively less important than in some of the other areas. Commonly, only those crops are grown that are needed to provide roughage feeds for livestock, and almost all of the concentrates are purchased.

Chenango County

Poultry and cash crops are commonly combined with the dairy enterprise on farms in Chenango County, which is located in South-Central New York. Although both poultry and cash crops are a relatively smaller proportion of the total farm business than the dairy enterprise on most farms in this area, the hens and market peas and beans do provide an important share of the income on some farms. For all farms surveyed in the year of the survey, the dairy enterprise provided two-thirds of the farm income. Most of the cow replacements are raised. All of the roughage needed for the livestock, and part of the concentrates, are produced on most farms.

Cayuga County

Herds in this area averaged the smallest of the five areas surveyed, but many farmers in this general-farming area in the central part of the State are gradually increasing the size of their dairy herds. More than three-fifths of the farm receipts for the year 1939-40, however, were from the dairy enterprise. Most of the herd replacements in this area are raised on the home farm. Larger amounts of corn silage are produced on farms in this region than in any of the other areas surveyed. Many of the farms still produce some hay to sell. About two-thirds of the concentrates required by the dairy herds are home-grown. Most of the purchased concentrates are supplements needed to add to home-produced grains in the dairy ration. The principle cash crops produced are winter wheat and dry beans.

St. Lawrence and Cattaraugus Counties

St. Lawrence County in Northern New York and Cattaraugus County in the western part of the State are both in specialized dairy farming areas, but in both sections somewhat less intensive production practices are usually followed than in the other areas. One-fifth of the farms surveyed in St. Lawrence County sold their milk to cheese factories, and one-half of those in Cattaraugus County delivered their milk to a condensery. All other farms in these areas and all farms in the other areas, were inspected either for the New York City market, or upstate markets.

Nearly all herd replacements are raised by farmers in these areas. Crops produced are the needed roughages, and a part of the grain required by the livestock.

## AMOUNTS AND KINDS OF LABOR USED PER FARM

Man-months of work per farm  
by each type of worker

A typical dairy farm provided almost 24 man-months of work during the year, and was thus a two-man business (table 2). There was some variation between areas. In Chenango and Cayuga Counties, the average was a two-man business; in Orange County about two and one-third men, or their equivalent; and in St. Lawrence and Cattaraugus Counties slightly less than two men. In each area there were some one-man farms and some farms on which the operator and three to four hired men, or their equivalent in family labor, were used. Sons paid wages regularly were included as hired men.

TABLE 2. AVERAGE MAN-MONTHS OF WORK PER FARM BY EACH TYPE OF WORKER  
Five Areas in New York, 1939-40

Item	Orange County	Chenango County	Cayuga County	St. Lawrence County	Catta- raugus County	All areas
<u>Man equivalent<sup>1</sup></u>						
Range	1.3-5.2	1.0-4.4*	1.1-4.2	1.0-3.8	1.0-5.5	1.0-4.5
Average	2.3	2.0*	2.0	1.8	1.8	2.0
<u>Average man-months of work per farm by:</u>						
Operator	12.0	12.0	12.0	12.0	12.0	12.0
Unpaid family workers	7.0	4.8	5.5	6.2	5.4	5.6
Men hired by month	8.0	6.5	5.2	3.2	4.0	5.2
Men hired by day	0.6	0.8*	0.9	0.5	0.7	0.7
Total	27.6	24.1	23.6	21.9	22.1	23.5
<u>Per cent of total man- months of work per farm by:</u>						
Operator	44	50	51	55	54	51
Unpaid family workers	25	20	23	28	25	24
Men hired by month	29	27	22	15	18	22
Men hired by day	2	3	4	2	3	3
Total	100	100	100	100	100	100

\*Does not include piece workers hired to harvest market peas and beans.

<sup>1</sup>Calculated by dividing the total man-months of work on a farm by 12.

The full-time operator in Orange County, on the average, worked 44 per cent of the total man-months put in on his farm. In this area one-fourth of the work was done by unpaid family workers, and 29 per cent by hired month help. As in each of the other areas, the man-months of work done by men hired by the day was a relatively small share of the total. The importance of this help when needed should not, however, be minimized.

The harvesting of market peas and beans in Chenango County was done as piece work by large crews of workers, which were engaged and overseen by a labor contractor rather than directly by the farm operator. Farmers do not know the man-days of work done by such crews. Consequently this work could not be included as

part of the labor force as here presented. Attention will be given later in this report to the relative importance of this kind of help on farms in this area. Unpaid family workers did one-fifth of the total labor in Chenango County, or a somewhat smaller share than in the other areas. The farm operator accounted for one-half, and hired month help somewhat more than one-fourth of the total man-months of work done.

Men hired by the day to harvest field crops were a slightly more important part of the total in Cayuga County than in the other areas. Unpaid family labor and hired month help each put in more than one-fifth of the labor on farms in this area. The farm operator accounted for about one-half of the work done.

In the somewhat more extensive dairy sections in St. Lawrence and Cattaraugus Counties, the farm operator accounted for a larger share, and hired month help a smaller share, of the work than in the other areas. Unpaid family workers accounted for one-fourth or more of the man-months of work in each of these areas.

For all areas, the operator did about one-half of the work, with the other half about equally divided between unpaid family workers and hired help. In terms of months this meant that of the average of almost 24 man-months of work per farm, the operator accounted for 12 and unpaid family workers and hired help each about 6 man-months. In Orange County hired help, including the month equivalent of day help, worked almost 9 man-months per farm, as compared to less than an average of 4 per farm in St. Lawrence County.

Cost of hired labor and value  
of unpaid labor per farm

The total cost of hired labor per farm for all areas averaged almost \$300, ranging from \$179 in St. Lawrence County to \$447 in Orange County (table 3). The value of unpaid family workers' time varied between areas considerably less than the cost of hired labor, and averaged \$263 per farm for all areas. The total value of the operator's time, including his estimate of the value of his time and privileges provided by the farm, was more than \$1,000 in each area. Unpaid labor, including unpaid family workers and the operator, accounted for about four-fifths of the total value of all labor per farm in each area; in St. Lawrence County the value of all unpaid labor made up 88 per cent of the total.

TABLE 3. COST OF HIRED LABOR AND VALUE OF UNPAID LABOR PER FARM,  
Five Areas in New York, 1939-40

Kind of labor	Orange County	Chenango County	Cayuga County	St. Lawrence County	Cattaraugus County	All areas
<u>Hired labor</u>						
Month help*	\$ 404	\$ 327	\$ 246	\$ 147	\$ 188	\$ 254
Day help†	43	46‡	54	32	38	42
Total hired labor	\$ 447	\$ 373	\$ 300	\$ 179	\$ 226	\$ 296
<u>Unpaid labor</u>						
Family workers††	\$ 330	\$ 234	\$ 276	\$ 289	\$ 227	\$ 263
Operator**	1,344	1,124	1,138	1,056	1,044	1,117
Total unpaid labor	\$1,674	\$1,358	\$1,414	\$1,345	\$1,271	\$1,380
Total, all workers	\$2,121	\$1,731	\$1,714	\$1,524	\$1,497	\$1,676

\* Includes wage, and value of board at \$15 a month, or perquisites.

† Includes board, when provided, at 50 cents a day.

‡ Does not include piece-work hired by a contractor to harvest market peas and beans.

†† Includes value of time as estimated by the operator and board at \$15 a month.

\*\* Includes value of his time and privileges provided by the farm, as estimated by the operator.

Variation in the size of  
the farm labor force

Within each of the areas the variation in size of the farm labor force was about the same, so the five areas were grouped together when sorted according to the man-equivalent, or amount of labor used, per farm (table 4). On the farms in the two smallest groups, the farm operator constituted from about two-thirds to 90 per cent of the total labor force. This 40 per cent of the farms contributed on 26 per cent of the total milk production. In contrast, on the largest one-fifth of the farms there were two or more full-time workers, or their equivalent in part-time help, besides the operator. This 20 per cent of the farms alone produced 33 per cent of the milk. Fifty-seven per cent, or almost three-fifths, of the milk was produced on the 40 per cent of the farms in the two- and three-man groups. The total amount of productive work per farm increased between the groups at about the same rate as the amount of milk produced.

TABLE 4. VARIATION IN SIZE OF FARM LABOR FORCE,  
542 Farms in Five Areas in New York, 1939-40

Farms grouped according to amount of labor used	Average number of men*	Per cent of labor force composed of:		Per cent of total milk produced
		Unpaid family workers	Hired help	
Smallest fifth	1.1	7	4	12
Next fifth	1.5	19	11	14
Next fifth	1.9	28	19	17
Next fifth	2.3	29	26	24
Largest fifth	3.1	26	41	33
All farms	2.0	24	25	100

\* Includes the farm operator.



Per cent of farmers reporting hired  
month help and unpaid family workers

Nearly all dairy farmers have help, even though in infrequent cases only exchange labor, to do their work. In this study, one farmer in 3 had hired month help during both the summer and winter seasons (table 5). More than two-fifths of the farmers reported aid from their wives and sons directly on farm operations during both seasons, but only one in 15 had help from daughters. Work done by unpaid family labor other than directly on farm operations was not included in this study.

The summer season was considered, for all workers, except sons and daughters to be the period during which the cows were on pasture (from about May 15 to October 25), and the winter season was the balance of the year. For sons and daughters who were attending school, the vacation period was considered to be the summer season.

TABLE 5. PER CENT OF FARMERS USING HIRED MONTH HELP  
AND EACH KIND OF UNPAID FAMILY WORKER,  
542 Farms in Five Areas in New York, 1939-40

Kind of worker	Per cent of farms reporting persons working					
	Full day*	Less than full day*	Total	: Full day*	Less than full day*	Total
	All season			Summer Season <sup>†</sup> Part of season		
Hired month help	34.9	1.8	36.7	: 14.2	0.9	15.1
Operators' sons <sup>‡</sup>	26.4	19.6	46.0	: 5.2	4.4	9.6
Operators' wives <sup>‡</sup>	1.1	43.4	44.5	: 0.9	0.4	1.3
Operators' daughters <sup>‡</sup>	0.2	6.8	7.0	: 0.4	1.3	1.7
	All season			Winter Season <sup>†</sup> Part of season		
Hired month help	30.2	3.1	33.3	: 9.2	2.4	11.6
Operators' sons <sup>‡</sup>	16.2	30.4	46.6	: 2.4	2.2	4.6
Operators' wives <sup>‡</sup>	0.6	39.1	39.7	: 0.2	2.6	2.8
Operators' daughters <sup>‡</sup>	0.2	6.3	6.5	: -	0.2	0.2

\* Full day for these calculations was set at 9 hours for the summer and 8 hours for the winter, somewhat conforming to the minimum number of hours worked by a farm operator. The part day was any smaller number of hours.

<sup>†</sup> Summer season was considered, for all workers except sons and daughters, to be the period during which the cows were on pasture (from about May 15 to October 25), and the winter season was the balance of the year. For sons and daughters who were attending school, the vacation period was considered to be the summer season.

<sup>‡</sup> Includes a few fathers, brothers, and other persons not otherwise classified.  
<sup>#</sup> For unpaid family workers, hours per day were recorded in terms of man-equivalent hours. Some unpaid part-day workers were actually putting in longer hours than the number of man-equivalent hours indicates.

The amount of time required for farm work is reduced during the winter, and farmers cut expenses then by employing fewer hired men. Nearly all of the hired month help worked a full day regularly in the season during which they were hired while most of the work done by wives and daughters consisted of less-than-full-day work. During the summer the majority of the sons did full-day work, but less-than-full-day work by sons as well as daughters was most common during the winter season while many of them were attending school. Consequently, in most cases, a lower proportion of farmers reported help from each kind of worker in winter than in summer.

Part-season help by hired month hands and unpaid family workers occurred much less frequently than full-season work. Wives and daughters were reported to be doing only part-season work on fewer than 3 per cent of the farms both seasons. Part-season work was done on about one-tenth of the farms by sons during the summer and on 5 per cent of the farms in the winter; month help was hired more frequently for part-season work.

There were some rather striking differences between counties in the extent of use of some kinds of labor. Full-time work of sons during the summer was found on 39 per cent of the farms in Cattaraugus County, but on only one-fifth to one-quarter of the farms in other areas. Similarly, three-fifths of the St. Lawrence County farmers had part-time help from their wives during the summer, as compared to fewer than one-third of the farms in each of the other areas.

As noted previously, very few daughters helped with the farm work. In Orange County, however, one out of 5 farmers had help from daughters regularly during the whole year. Hired month help was employed for the full year by half of the farmers in Orange County in contrast to use of this kind of help on fewer than one-quarter of the St. Lawrence County farms.

reporting

The number of each kind of worker per farm/was usually about one (table 6). There was an average of 1.2 sons doing full-time work both summer and winter on farms reporting them, and slightly more than one hired man both seasons on farms having hired men.

TABLE 6. AVERAGE NUMBER OF CERTAIN KINDS OF WORKERS PER FARM  
ON DAIRY FARMS REPORTING THEM\*  
542 Farms in Five Areas in New York, 1939-40

Kind of worker	Number per farm reporting persons working				
	Full day	Less than full day	:	Full day	Less than full day
	Summer Season				
	All season			Part of season	
Operators' wives	1.0	1.0	:	1.0	1.0
Operators' sons	1.2	1.3	:	1.2	1.6
Operators' daughters	1.0	1.3	:	1.0	1.0
Hired month help	1.2	1.0	:	1.1	1.2
	Winter Season				
	All season			Part of season	
Operators' wives	1.0	1.0	:	1.0	1.0
Operators' sons	1.1	1.3	:	1.0	1.2
Operators' daughters	1.0	1.4	:	-	1.0
Hired month help	1.2	1.1	:	1.2	1.0

\* The footnotes to table 5 also apply to this table.

Without the assistance of other members of the farm family, the farmers would not have been able to carry on operations as they were doing. In these war times all possible employment of farm family members is increasingly necessary. It is the logical thing for farmers to have their boys do some work on the farm. The small proportion of farms with sons doing full-time work on farms studied in counties such as Chenango (22 per cent of the farms in the summer) contrasts sharply with practices in Cattaraugus where 39 per cent of the farmers had such help. Probably farm wives cannot do much more farm work than they now are doing, in addition to their domestic and other work. In this study time spent in caring for the garden was not included with the farm work. It should be recognized that this important job is usually done by the farmer's wife in addition to the farm work shown here. Although the contribution of farm wives directly on farm operations was a relatively small part of the total farm labor force, that of daughters on the farms studied was still less. The question naturally arises as to whether the girls on farms can do more farm work during the present war-time emergency period.

Although the present level of farm employment is still high, war-time demands for men may force some reduction in the use of hired labor. Some of the more-experienced regular help is being withdrawn from farms by the armed forces and by industry. The same is true of farmers' grown sons. To continue the present rate of farm production, or even increase it, the workers now leaving farms will have to be replaced in large measure, perhaps by use of some less experienced and less efficient workers, and perhaps partly by extending the length of the working day of some members of the farm family.

Average length of working day  
for different workers

As an average for all areas, the farm operators worked 12 hours a day during the summer season (table 7). Farmers in Orange County averaged 11.2 hours a day which was the lowest, and in Chenango and Cayuga Counties 12.3 hours a day, the highest during this season. This was the actual number of working hours; time for meals was not included. Hired month hands in each area put in only a slightly shorter day than the farm operator, except in Orange County where the hours for each were the same. Sons who were paid a regular wage were included as hired men.

TABLE 7. AVERAGE LENGTH OF WORKING DAY FOR DIFFERENT WORKERS ON DAIRY FARMS,  
Five Areas in New York, 1939-40

Item	Orange	Chenango	Cayuga	St. Lawrence	Cattaraugus	All areas
	County	County	County	County	County	
Hours worked per day during						
Summer season						
Operator	11.2	12.3	12.3	11.8	11.6	12.0
Hired month help†	11.2	11.4	11.9	11.6	10.9	11.4
Son*	8.5	7.9	8.5	9.1	8.5	8.5
Wife*	3.7	2.9	1.6	3.9	3.7	3.1
Daughter*	2.6	2.2	2.8	5.8	2.8	3.3
Winter season						
Operator	10.7	11.3	11.3	10.4	9.8	10.8
Hired month help†	10.7	10.6	10.9	9.4	9.8	10.2
Son*	5.4	5.5	5.1	6.3	6.0	5.7
Wife*	3.3	2.7	1.0	2.9	2.7	2.6
Daughter*	2.1	0.5	1.2	2.7	1.0	1.4
All year						
Operator	10.9	11.7	11.7	11.0	10.6	11.3
Hired month help†	10.9	11.0	11.3	10.4	10.3	10.7
Son*	6.5	6.3	6.3	7.3	6.9	6.6
Wife*	3.5	2.8	1.3	3.3	3.1	2.8
Daughter*	2.3	1.1	1.7	3.8	1.6	2.0

†Sons who were paid a regular wage were included with the hired month help.  
\*Time of unpaid family workers was converted at the time the records were taken, to a man-equivalent basis, when the person working was not equivalent to a man. Thus many unpaid workers actually worked longer hours than indicated above.

During the winter season with its lesser amount of outdoor work, the farm operators put in from one-half hour a day less than during the summer season in Orange County, to almost two hours a day less in Cattaraugus County. For all areas, however, their average day during the winter season still included almost 11 hours of work. During the winter, men hired by the month put in just as long a day as the operator in Orange and Cattaraugus Counties, with a somewhat shorter day for hired help than for the operator being most common in each of the other areas.

For all areas for the year, the farm operator worked 11.3 hours a day as compared to 10.7 hours a day for men hired by the month. In Chenango and Cayuga Counties an average working day for the year for both the farm operator and his hired month hand was longer than in the other areas. Although it still included more than 10 hours, the average working day for the year was shortest in Cattaraugus County.

Since dairy cows must be milked twice each day at about 12-hour intervals, the dairy farmer's day must start early in the morning, and it ends late in the evening. Thus dairy farming operations require a somewhat longer working day during the whole year than some other types of farming.

In enumeration, the number of hours put in by unpaid family workers was converted to a man-equivalent basis. Hence the extent of their contribution to the labor force is here comparable, for the farms on which they were reported, with that of the operator or hired man. It should be recognized, however, that the indicated length of the working day for unpaid family workers, and especially for sons and daughters, does not represent the full number of hours of time put in on farm work.

In each area, sons who were not paid a wage, including those who were only part-time helpers as well as those who were doing the work of a full man, worked from 8 to 9 man-equivalent hours a day. Because many of them were attending school during the winter season, their average during this part of the year was 5.7 man-equivalent hours a day, or about 3 hours a day less than during the summer

Those wives who assisted directly with the farm work in the summer in addition to their domestic and other duties, worked about 3 man-equivalent hours a day on the farm in each area except Cayuga County. During the winter season, wives who continued to assist with farm work put in slightly less time than during the summer.

Daughters who did farm work tended to accomplish slightly fewer man-equivalent hours a day than the farmers' wives, except in St. Lawrence and Cayuga Counties during the summer. This time was still further reduced during the winter season when many daughters were attending school.

As an average for the year, sons worked from 6 to 7 man-equivalent hours a day. Farmers' wives who helped with the farm work, put in the equivalent of about 3 man-hours a day for the year, except in Cayuga County, and daughters from 1 to nearly 4 man-equivalent hours a day.

#### Man hours of work per day per farm

During the summer season, total man hours per farm in an average working day varied from about 23 hours in Cattaraugus County to almost 28 hours in Orange County (table 8, and figure 1). In each area except Orange County, about one-half

of the total man hours in the summer were put in by the farm operator. During this season, hired month help accounted for about one-fifth and sons, including both full-time and part-time workers, about one-sixth of an average day's work. Although day help when needed to harvest crops is an important part of the labor force, this type of worker contributed only about 5 per cent of the man hours of work done during the summer season.

TABLE 8. TOTAL MAN-HOURS OF WORK IN AN AVERAGE WORKING DAY, AND PROPORTION OF WORK DONE BY DIFFERENT WORKERS, Five Areas in New York, 1939-40

Item	Orange County	Chenango County <sup>†</sup>	Cayuga County	St. Lawrence County	Cattaraugus County	All areas
	Total man-hours per day per farm					
Summer	27.8	24.8	24.6	23.6	22.8	24.4
Winter	23.8	20.9	19.4	17.5	17.6	19.6
Year	25.6	22.7	21.8	20.2	20.0	21.8

Per cent of total man-hours per day by each kind of worker

	Summer season					
	Orange County	Chenango County <sup>†</sup>	Cayuga County	St. Lawrence County	Cattaraugus County	All areas
Operator	40	50	50	50	51	49
Hired month help	30	26	23	16	19	22
Sons*	18	15	18	17	18	17
Wives*	6	4	2	10	8	6
Daughters*	2	**	1	1	**	1
Day help <sup>#</sup>	4	5	6	6	4	5
Total	100	100	100	100	100	100
	Winter season <sup>‡</sup>					
Operator	45	54	58	59	56	55
Hired month help	30	28	23	14	21	23
Sons*	15	14	17	17	16	16
Wives*	7	4	2	9	6	5
Daughters*	3	-	-	1	1	1
Total	100	100	100	100	100	100
	Year					
Operator	43	52	54	55	53	52
Hired month help	30	27	23	15	21	23
Sons*	16	15	18	17	17	16
Wives*	6	4	2	9	7	6
Daughters*	3	**	**	1	**	1
Day help <sup>#</sup>	2	2	3	3	2	2
Total	100	100	100	100	100	100

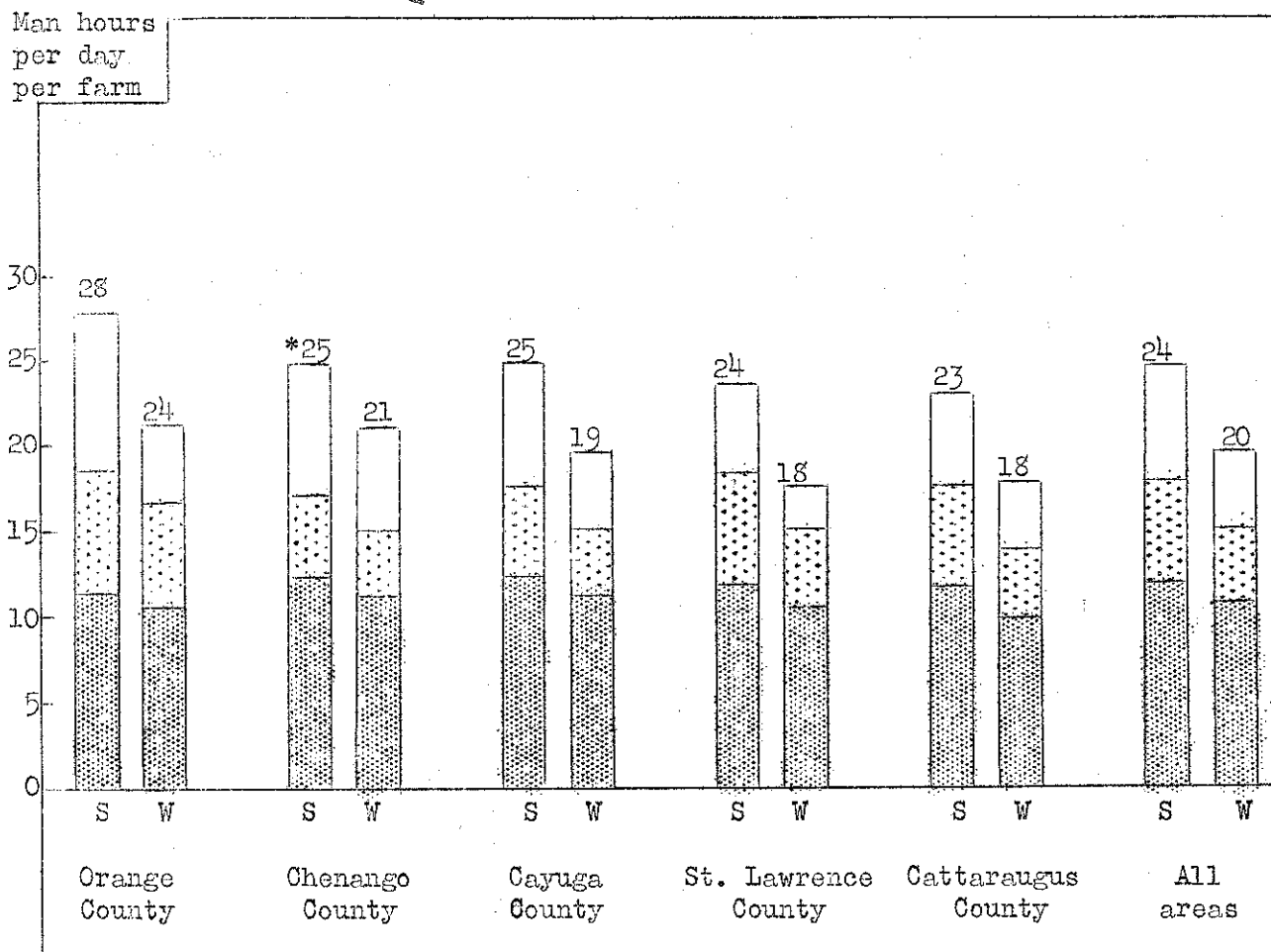
\* Includes only unpaid workers; time per day was converted to equivalent hours of a man.

\*\* Less than 0.5 per cent.

<sup>†</sup> Does not include hired piece-work in harvesting cash crops.

<sup>#</sup> For these calculations, day help was assumed to have worked 10 hours a day.

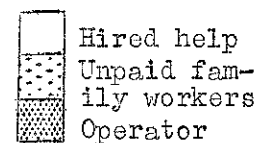
<sup>‡</sup> Practically no day help was hired on these farms during the winter season.



\*Does not include hired piece-work in harvesting cash crops.

FIGURE 1. MAN HOURS PER DAY PER FARM BY THE OPERATOR, UNPAID FAMILY WORKERS AND HIRED HELP

S = summer  
W = winter



During the winter season man hours per day averaged 19.6 for all areas, or almost 5 hours a day less than during the summer. Since almost no day help was hired during this season, and each worker put in slightly fewer hours per day than during the summer, the farm operator accounted for a larger share of the total than during the summer. As an average for the year for all counties, the farmer accounted for 52 per cent of the working time, and hired month help 23 per cent - or just the same as for all unpaid family workers, including wives, sons, and daughters (see chart on cover). The proportion of the hours of work done on the farm by the operator was slightly higher than his share of the months of work because the operator put in a larger day than the other workers.

Size of herd and per cent of work done by each kind of worker

In each area except Cayuga County, where dairy herds were smallest and other farm work a relatively greater share of the total, the per cent of work done by each kind of worker on farms with herds of each size was about the same (table 9). On farms with fewer than 15 cows, as an average for all areas, about 70 per cent of the work was done by the farm operator, 20 per cent by unpaid family workers and about 10 per cent by hired men (figure 2). In other words, farms with herds of this size were essentially one-man businesses.

Farms with 15 to 25 cows were about two-man businesses. Hired help provided about one-fifth, unpaid family workers one-fourth, and the operator a little more than one-half of the man power. More than two-fifths of the work was done by hired workers, and a slightly smaller proportion by the farm operator on farms with 25 cows or more.

Altogether the farm family provided nine-tenths of the man power on farms with fewer than 15 cows, four-fifths on those with 15 to 25 cows, and less than three-fifths on the farms with 25 cows or more.

TABLE 9. NUMBER OF COWS PER FARM AND PER CENT OF WORK DONE BY EACH KIND OF WORKER, Five Areas in New York, 1939-40

Cows per farm	Number of farms	Per cent of work done by:			
		Operator	Unpaid family labor	Hired help	All workers
<u>Orange County</u>					
Fewer than 15	12	72	22	6	100
15 to 25	38	54	21	25	100
25 or more	64	41	26	33	100
<u>Chenango County*</u>					
Fewer than 15	39	75	17	8	100
15 to 25	36	59	20	21	100
25 or more	29	35	17	47	100
<u>Cayuga County</u>					
Fewer than 15	69	64	21	15	100
15 to 25	29	47	25	28	100
25 or more	7	33	12	55	100
<u>St. Lawrence County</u>					
Fewer than 15	41	72	22	6	100
15 to 25	56	57	30	13	100
25 or more	20	41	22	37	100
<u>Cattaraugus County</u>					
Fewer than 15	32	69	20	11	100
15 to 25	47	64	22	14	100
25 or more	23	43	25	32	100
<u>All areas</u>					
Fewer than 15	193	71	20	9	100
15 to 25	206	57	24	19	100
25 or more	143	38	20	42	100

\* Does not include hired piece-work in harvesting cash crops.

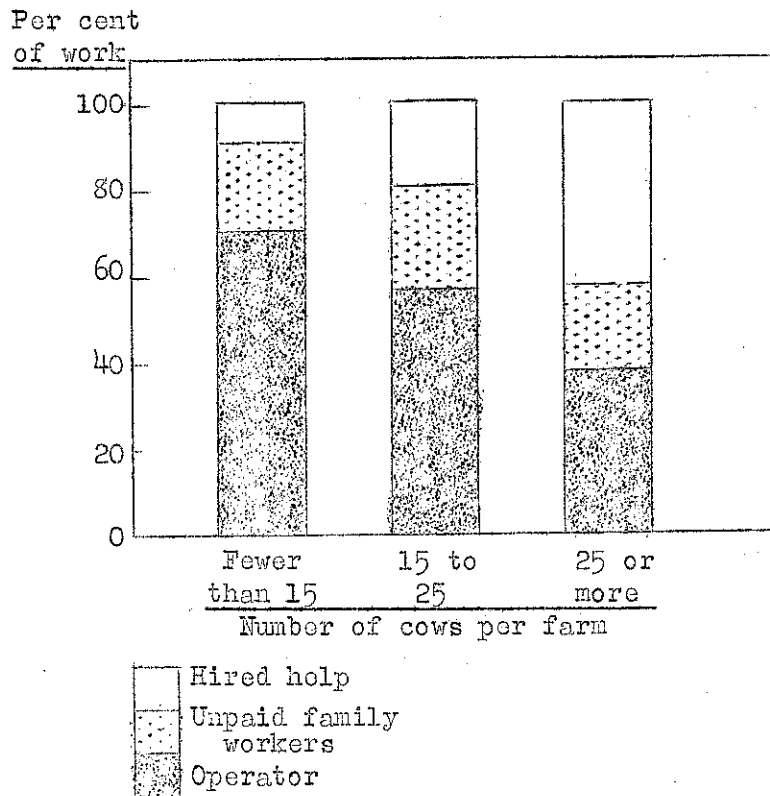


FIGURE 2. PER CENT OF WORK DONE (ALL AREAS) BY THE OPERATOR UNPAID FAMILY WORKERS, AND HIRED HELP ON FARMS WITH DIFFERENT NUMBER OF COWS,

Hired help provided less than one-tenth of the man-power on farms with fewer than 15 cows, about one-fifth on those with 15 to 25 cows, and more than two-fifths on the farms with 25 cows or more.

Per cent of farms on which  
wives milked cows

On one-third of the 542 farms surveyed, the farmer's wife regularly helped milk the cows (table 10). There was, however, considerable variation in this respect between areas. In each of Orange, St. Lawrence, and Cattaraugus Counties, where the dairies on most farms constituted most of the farm business, almost one-half of the wives helped regularly with the milking. In Cayuga and Chenango Counties, however, only 11 per cent and 14 per cent, respectively, of the wives milked cows. In addition to those wives who milked cows, a considerable number in each area cared for the poultry, washed milking utensils, assisted in feeding the livestock, and helped with other farm operations. This was especially true in Chenango and Cayuga Counties where the poultry was commonly cared for by the wife, and where farming was generally most diversified.



TABLE 10. NUMBER AND PER CENT OF FARMS ON WHICH WIVES  
REGULARLY HELPED MILK COWS\*  
Five Areas in New York, 1939-40

Area	Farms on which wife helped milk cows	
	Number	Per cent
Orange County	50	44
Chenango County	14	14
Cayuga County	12	11
St. Lawrence County	57	49
Cattaraugus County	47	46
All areas	180	33

\*Includes a few farms on which a sister or mother of the operator helped milk cows.

Work done off the farm<sup>1/</sup>

Income from short periods of work done off the farm was included with the farm income for the farms in this study, although part-time farms on which 25 per cent or more of the total receipts were from off-the-farm sources were not included. In Orange County only about one-fourth of the farmers did some work off the farm, while such work was done by more farmers in each of the other areas (table 11). About two-fifths of all the farmers surveyed did some work off the farm. Man labor on other farms and machine work, both of which were largely concerned with haying and silo-filling, were the most common types of work done. Team work and trucking were in most instances also done for other farmers. A few farmers in each area spent some time on jury duty, or on other types of work not related to farming.

TABLE 11. PER CENT OF FARMERS DOING DIFFERENT KINDS OF WORK OFF THE FARM<sup>1/</sup>  
Five Areas in New York, 1939-40

Kind of work done off the farm	Orange	Chenango	Cayuga	St. Lawrence	Cattaraugus	All
	County	County	County	County	County	areas
Per cent of farmers doing work off the farm						
Man labor on other farms	15	20	17	19	23	19
Machine work	4	22	23	15	17	18
Trucking	5	9	14	8	8	9
Team work	3	6	8	5	8	6
Jury, etc.	3	5	14	1	6	6
All farms <sup>1/</sup>	24	47	57	38	45	42

<sup>1/</sup> Percentages for all farms are smaller than the totals of all kinds because some farmers did more than one type of work.

For farmers working off the farm, the average number of such days of work varied from only 17 in Cayuga, where nearly three-fifths of the farmers reported some work of that kind, to 49 days in Orange County (table 12). For all areas, there was an average of 31 days, or about 5 weeks of off-the-farm work reported by those doing such work. As an average for all farmers in the study, only 13

<sup>1/</sup> Exchenance labor was not included.

days, or about 2 weeks, of work was done away from the farm. Since by far the largest share of this work was done for other farmers, there seems to be small possibility of decreasing the need for hired workers by reducing the amount of work done off the farm.

TABLE 12. AVERAGE DAYS OF WORK DONE OFF THE FARM\*  
Five Areas in New York, 1939-40

Area	Per cent of farmers doing work off the farm	Average days per farm	
		For farmers working off the farm	For all farms
Orange County	24	49	12
Chenango County	47	38	18
Cayuga County	57	17	9
St. Lawrence County	38	25	10
Cattaraugus County	45	36	16
All areas	42	31	13

\* Does not include exchange labor.

#### MAN HOURS OF DIRECTLY PRODUCTIVE WORK PER MONTH

##### Hours of directly productive work required monthly on livestock and crops

Directly productive work on the principal livestock and crop enterprises required that the working force on an average farm in the counties surveyed accomplished a little more than 5,200 man-hours of directly productive work during a year. The range of averages was from a little less than 4,400 per farm in Cattaraugus County to more than 6,100 hours in Orange County.<sup>1/</sup>

On dairy farms since the cows are the major part of the farm business and require care during the whole year, the productive work is much more evenly distributed throughout the year than is the case with productive work on farms depending principally on crops. The low month in requirement of productive work was January with from 6 to 8 per cent of the year's work, and the high point in most areas, was in July with from 11 to 12 per cent (table 13, and figure 3). In Cayuga County the peak occurred in September when silo filling and wheat planting were done. In Chenango County almost 14 per cent of the year's work was done in August when the market bean crop was harvested. Doing about one-seventh of the year's crop and livestock work in this one month was accomplished by the addition of hired bean-pickers to the farm labor force. These workers were engaged by a contractor in gangs, and were thus not employed directly by the farms.

<sup>1/</sup> Calculations in this section of the report are based largely on unpublished data furnished by the Department of Agricultural Economics of the New York State College of Agriculture. They take no account of the additional time spent on some very minor crops and livestock, nor on other than directly productive work - such as farm maintenance. The data are given in the Appendix.

TABLE 13. PER CENT OF TOTAL HOURS OF DIRECTLY PRODUCTIVE WORK  
PER FARM DURING THE YEAR IN EACH MONTH,  
Five Areas in New York, 1939-40

Area	Per cent of year's productive work in:												Total all months
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Orange	7.9	7.8	8.7	8.0	7.4	9.2	11.2	7.1	8.1	7.9	7.9	8.8	100
Chenango	6.7	6.6	7.3	7.1	7.1	12.8	9.8	13.5	7.4	7.1	7.2	7.4	100
Cayuga	6.4	6.5	7.1	7.4	8.1	9.1	10.9	10.2	12.0	8.3	6.7	7.3	100
St. Lawrence	7.4	7.3	8.2	8.0	8.2	9.1	11.2	8.4	8.9	7.7	7.4	8.2	100
Cattaraugus	7.7	7.6	8.5	8.2	8.1	8.8	10.9	8.4	8.1	7.5	7.7	8.5	100
All areas	7.1	7.0	7.8	8.0	7.9	9.2	11.2	10.3	8.7	7.6	7.3	7.9	100

During the winter season work on cows increases both in terms of hours and as a proportion of the total productive work. In midwinter they receive fully a third more time than in summer. In general, the same is true of heifers and hens.

This method of ascertaining and describing the time of occurrence of and extent of peaks in labor requirements has several important limitations. In the first place the percentage figures used to distribute the amount of productive work per farm between the several months are averages for farms located in all parts of the State. Thus, for example, any actual differences in the distribution between the months of time spent on cows in different sections of the State under different systems of farming, is largely eliminated by the method used. As noted in the Appendix Table 1 the actual number of man hours per cow in each of the areas as found in the analysis of the dairy enterprise records was used here.

Furthermore, the results as presented are the averages for more than 100 farms in each area, and there are quite wide differences in the amounts and kinds of crops grown as well as in numbers of livestock on different farms in each area. This would be especially true in Chenango and Cayuga Counties where a number of crops were grown. The actual amount of work to harvest peas and beans on farms growing them in Chenango County is considerably greater than that for the average of all farms surveyed in this area. On the other hand, this kind of work would not be found at all on farms not growing these crops.

It should also be emphasized that the hours of work shown are only for the important livestock and crops in each area, and do not include any of the necessary farm maintenance and other work that is not directly productive. Even considering these qualifications of the data, however, the material presented show when and why the important peaks in labor requirements occur in each of the areas, and give some idea of the relative importance of these peaks in these five sections of the State.

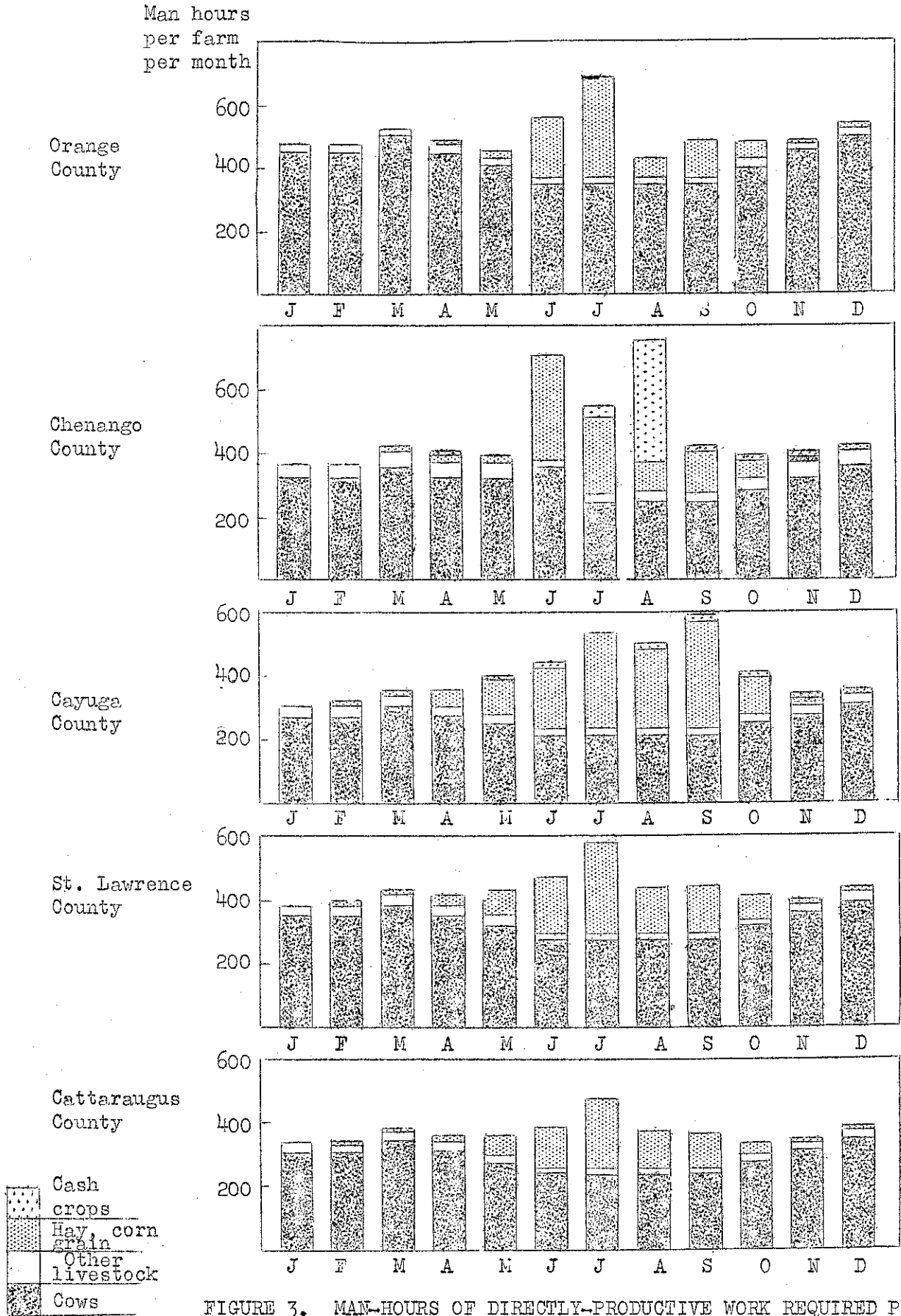


FIGURE 3. MAN-HOURS OF DIRECTLY-PRODUCTIVE WORK REQUIRED PER FARM PER MONTH ON IMPORTANT LIVESTOCK AND CROP ENTERPRISES

## USE OF EQUIPMENT ON DAIRY FARMS

Kinds of Equipment Used on Dairy Farms

Although the dairy was the major share of the farm business on nearly all of the farms surveyed, only about one-fifth of the farms used milking machines for 9 months or more during the year (table 14). In Cattaraugus County only 13 per cent of the farms used milking machines for this long a period, and in the other areas the proportion varied up to 30 per cent, in Chenango County.

TABLE 14. PER CENT OF FARMS HAVING SPECIFIED KINDS OF EQUIPMENT,  
Five Areas in New York, 1939-40

Kind of equipment	Orange	Chenango	Cayuga	St. Lawrence	Cattaraugus	All
	County	County	County	County	County	areas
	Per cent of farms having					
<u>Milking machines</u>						
Used 9 months, or more	24	30	20	17	13	21
Used less than 9 months	6	5	4	14	18	9
Not used	4	11	5	5	13	7
All farms owning milking machines	34	46	29	36	44	37
-----						
Water cups for cows	61	46	57	74	29	53
Electric milk coolers	43	16	53	3	3	24
Tractors	33	39	61	44	41	44
Trucks	63	54	46	38	32	47

Several farmers in each area that owned milking machines either did not use them at all or used them for less than 9 months. Of the farmers surveyed in St. Lawrence and Cattaraugus Counties, 14 and 18 per cent, respectively, used their milking machines less than 9 months. Since most of the milk on the farms in these areas was produced during the summer months, it was not uncommon for farmers to use machines during the peak production season when labor requirements elsewhere on the farm were also greatest and to milk the cows by hand during the winter months.

In Chenango County, 11 per cent, and in Cattaraugus County 13 per cent of the farmers did not use their machines at all. The proportion of farmers that did not use their machines was considerably smaller in the other areas. For all areas, 16 per cent of the farmers surveyed, or 43 per cent of those owning machines, either did not use their machines at all or used them less than 9 months of the year.

Water cups were used on more than one-half of the farms in each area, except Chenango and Cattaraugus Counties, and occurred most frequently in St. Lawrence County. Electric milk coolers were used on only about one-fourth of the farms surveyed. Only 3 per cent of the farms in St. Lawrence County where part of the farmers sold their milk to cheese factories, and in Cattaraugus County, where about one-half of the farms sold to a condensery, cooled their milk in this way. Tractors were used on about two-fifths of the farms in each area, except in Cayuga County. In this area, where the most crops were grown, three-fifths of the farmers had tractors.

Use of milking machines on farms  
with different numbers of cows

As would be expected, the proportion of farms using milking machines increased as the number of cows per farm increased (table 15). Only 14 farms or 7 per cent, of the 193 farms with fewer than 15 cows used milking machines during 9 months or more of the year. One-fifth of those with 15 to 25 cows used machines most of the year, and almost two-fifths of the farms with 25 cows or more milked with machines.

TABLE 15. PER CENT OF FARMS WITH HERDS OF DIFFERENT SIZES THAT USED MILKING MACHINES NINE MONTHS OR MORE,  
542 Farms in Five Areas in New York, 1939-40

Number of cows per farm	Number of farms	Farms using milking machines 9 months or more	
		Number	Per cent
Fewer than 15	193	14	7
15 to 25	206	42	20
25 or more	143	56	39
All farms	542	112	21

Because so few of the farms with fewer than 15 cows used machines, this group was omitted in the analysis of efficiency in use of labor on farms with and without milking machines. Farms that used machines for fewer than 9 months were also omitted.

Method of milking and time required  
to care for a cow per year

The total number of man hours put in directly on the cows was divided by the average number of cows on the farm to obtain the number of man-hours of labor for the year per cow. In determining the number of hours of labor on cows, time spent feeding and milking the cows, hauling milk, and cleaning utensils and the barn, and other time directly on the cows, was included, but the time required to haul the manure from the barn to the field, to care for young stock, and other farm operations was not included.

When the farms with 15 to 25 cows were grouped according to the method of milking, there was an average of 19 cows for the group that milked by hand and also for the group that milked by machines (table 16 and figure 4). Herds in this size-group that were milked by hand required 194 hours in a year to care for a cow, as compared to 162 hours per cow in herds milked by machines. The difference between these two groups amounted to 32 hours per cow in favor of farms using machines. A few more of the farmers that milked by hand also hauled their own milk, so a very small part of this difference was due to time spent hauling milk. An average of almost two men worked on the farms in each group. In both groups 10 cows were kept per man, but because of the higher average rate of production on farms with machines more milk was produced per man on these farms. It should be noted also that the two men on farms using machines during the year accomplished more total productive work, as indicated by the larger number of productive man work units per farm.

TABLE 16. METHOD OF MILKING, TIME REQUIRED TO CARE FOR A COW PER YEAR,  
AND OTHER FACTORS,  
305 Farms in Five Areas in New York, 1939-40

Method of milking	Number of farms	Man			Cows per man	Number of men per farm	Productive man work units per farm†	Pounds milk produced per cow‡	Cans milk sold per day per man**
		Number of cows per farm	hours per cow per year	Per cent farmers hauling own milk					
<u>15 to 25 cows</u>									
by hand	140	19	194	46	10	1.9	445	6,157	1.9
by machine*	42	19	162	38	10	1.9	476	7,215	2.3
<u>25 cows or more</u>									
by hand	67	34	185	70	12	2.8	710	6,278	2.4
by machine*	56	36	142	71	13	2.7	804	6,997	2.9

\* Farms using machine for 9 months or more.

† Total productive man work units per farm is a measure of the total amount of productive work done on the farm, including all enterprises. A productive man work units is the average amount of directly productive work accomplished in a 10-hour day by a man working under average farm conditions in New York.

‡ All milk was standardized to 3.7 per cent butterfat.

\*\* Forty-quart cans.

For the farms with 25 cows or more that were milked by hand, an average of 2.8 men cared for 34 cows, as compared to 36 cows for about the same number of men on farms that used machines. On farms milking by hand, 185 hours of labor were used per cow, while on farms using machines, 142, or 43 fewer hours, were used.

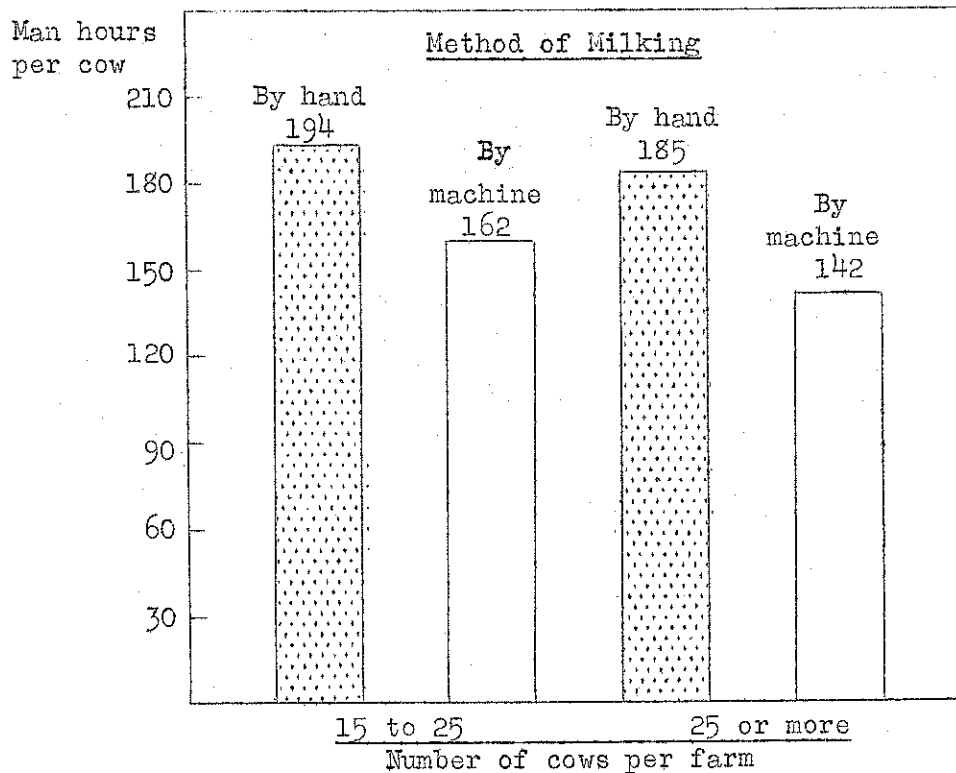


FIGURE 4. METHOD OF MILKING AND TIME REQUIRED TO CARE FOR A COW PER YEAR

The amount of milk sold per day per man is one measure of the product output per man on a dairy farm. It is influenced not only by the number of cows kept per man, but also by the rate of milk production. Farms that used machines, had higher rates of milk production, on the average, than farms on which milking was done by hand. The fact that 20 per cent more milk was sold per man on farms using milking machines is, nevertheless, significant, especially for the herds with 25 cows or more in which more cows were kept per man on farms using machines. On the farms with 15 to 25 cows most of the increased output per man on farms using machines was the result of the higher rate of milk production on these farms.

When the difference in the amount of labor per cow on farms with 15 to 25 cows in favor of those using machines was converted to an annual basis, it amounted to 608 hours per farm, or the equivalent in man hours of about 2 months of work by a full-time man (table 17). On a daily basis, the difference was 1.7 man hours per farm, or 0.9 hour per man.

TABLE 17. DIFFERENCE IN AMOUNT OF LABOR PER COW ON FARMS MILKING  
BY HAND AND BY MACHINES,  
305 Farms in Five Areas in New York, 1939-40

Number of cows per farm	Number of farms	Number of cows per farm	Difference in amount of labor per cow in favor of farms using machines			
			Hours per cow	Hours per farm per year	Hours per day	Hours per day per man
15 to 25	182	19	32	608	1.7	0.9
25 or more	123	35	43	1,505	4.1	1.5

For the large-sized herds with 25 cows or more, the average difference in amount of labor per farm for the year was 1,505 hours, 4.1 man-hours a day, or 1.5 hours a day per man. In terms of man-months of labor, this would probably be about the equivalent of 5 months of work.

This method of calculating the amount of saving in time spent by use of milking machines is subject to several qualifications. For example, the calculations have been based on the average number of cows in each group. The saving in time for the year or per day, assuming the same saving per cow, on the 15-cow herds that were included in the 15-to-25 cow group would obviously be smaller than that indicated for the average number of cows in this group. The same would apply to farms with fewer than the average of 35 cows in the group with 25 cows or more. Presumably, however, the saving in time attributed to the use of machines would be greater than average in the larger-than-average sized herds in each group. It may, furthermore, be true that the farms that were using machines had better-organized barns or other facilities for caring for the cows, or that the farms in these groups were run by operators who were better-than-average managers. Since no measure of such factors was available, their effect on the amount of time required to care for the cows in this study have been assumed to be about equal as between farms that milked by hand or by machines.

An added factor in the situation that deserves major consideration is the fact that the apparent savings in time spent on the cows due to the use of a milking machine are still a relatively small share of the total hours of work done on a dairy farm, and in most instances probably would not enable the saving



of the time of a full man even on a strictly dairy farm. The saving of time by use of machines, nevertheless, might on some farms enable the farm operator and his regular unpaid family or hired workers to take care of more of the work during the summer season with less temporary month help or day help, without extending further the length of their already long working day. To do this might, of course, mean lengthening the haying and silo-filling seasons, and the period during which some other farm operations have been done in the past. Furthermore, the added time to care for milking utensils, as a result of use of a milking machine, might need to be added to the other chores regularly done by some members of the household other than the farm operator.

Size of herd and amount  
of labor per cow

The number of man hours to keep a cow tended to decrease as the number of cows in the herd increased, both for farms on which cows were milked by hand and for those on which cows were milked by machines (table 18). Herds with 25 cows or more that were milked by hand, averaged 185 man hours per cow, as compared to 194 hours per cow in the smaller-sized herds.

TABLE 18. AMOUNT OF LABOR PER COW ON HERDS OF DIFFERENT SIZES,  
WITH AND WITHOUT MILKING MACHINES,  
305 Farms in Five Areas in New York, 1939-40

Number of cows per farm	Number of farms	Number of cows per farm	Man hours per cow per year	Per cent of farms hauling milk	Number of men per farm	Cows per man	Cans of milk sold per day per man
<u>Milked by hand</u>							
15 to 25	140	19	194	46	1.9	10	1.9
25 or more	67	34	185	70	2.8	12	2.4
<u>Milked by machine</u>							
15 to 25	42	19	162	38	1.9	10	2.3
25 or more	56	36	142	71	2.7	13	2.9

Between the size-of-herd groups for farms using machines, there was an average annual decrease of about 20 man hours per cow. These decreases in the amount of time required to care for a cow were found despite the fact that more of the farmers with the larger herds hauled their milk to the plants.

As would be expected along with the above relationships of size of herd to the amount of labor used per cow, the number of cows kept per man increased as the size of herd increased. In terms of putput of milk per day per man, about one-half a can more of milk was sold daily per man on farms with the large herds as compared to the farms with the smaller herds.

Time spent hauling milk

The milk was delivered to the plant by the farmer on two-thirds of the farms in Orange County, about one-half of the farms in Chenango, Cayuga, and St. Lawrence Counties, and only one-sixth of the farms in Cattaraugus County (table 19). In the latter area distances from the farms to the plants averaged considerably greater than in the other areas.

TABLE 19. PER CENT OF FARMS HAULING MILK AND AMOUNT OF TIME  
REQUIRED TO HAUL MILK PER FARM\*,  
542 Farms in Five Areas in New York, 1939-40

Area	Per cent of farms hauling own milk*	Hours per farm per day for farms hauling own milk*	Man hours per farm per year	
			For farms hauling own milk	For all farms
Orange County	67	0.8	294	196
Chenango County	48	0.6	220	106
Cayuga County	50	0.6	233	115
St. Lawrence County	52	0.8	292	152
Cattaraugus County	16	0.9	330	52
All areas	47	0.7	269	126

\* For farmers hauling milk all year to milk plants.

Although less than an hour a day was required to haul milk, the total amount of time per farm on these farms in a year was equivalent to from 3 to 4 weeks full-time work of one man. Since slightly less than one-half of all the farms surveyed hauled their milk, on an average for all farms the time required to haul milk was equivalent to only about 2 weeks of a man's time.

Many dairy farmers will doubtless find it necessary to discontinue hauling their own milk as a result of tire and gasoline rationing, and of other measures that are anticipated as a result of the war emergency. The amount of time saved by such action will vary slightly with the distance from the farm to the milk plant, and from the farm buildings to the road or other point at which the milk might be picked up by a collecting truck. Furthermore, some trips to town for feed or other items that formerly were taken care of at the same time as the milk was hauled will still be necessary. In some areas increased delivery of feed to the farm by dealers, if possible, might minimize the need for such trips. It does seem reasonable to conclude, nevertheless, that some time could be saved by shifting from farmer-delivery to route-pickup of milk. This saving would be especially important during seasons of peak labor requirements.

#### WAGE RATES, AND THE FARM LABOR SUPPLY SITUATION

##### Farm wage rates by areas

For the year 1939-40 there was relatively little variation in wage rates for hired month or day help between areas (table 20). In general, the level of farm wage rates tends to vary with time and between areas with changes or differences in farmers' incomes. Partly because of the ease of movement of workers, however, differences between areas tend to be rather small. Accordingly in this study rates of payment of hired help tended to be somewhat higher in Orange County where the operator's returns were greatest, and lowest in Cattaraugus County where the smallest return, on the average, was made by the farm to the operator.

TABLE 20. WAGE RATES FOR DIFFERENT KINDS OF HELP,  
Five Areas in New York, 1939-40

Kind of help	Orange County	Chenango County	Cayuga County	St. Lawrence County	Cattaraugus County	All areas
Wage rates per month for hired workers and value of time of unpaid workers						
Hired month help						
With board*	\$45	\$42	\$43	\$43	\$39	\$42
Without board						
Wage	48	47	43	37	43	43
Perquisites	18	13	15	10	16	13
Total	\$66	\$60	\$58	\$47	\$59	\$57
Unpaid family workers <sup>†</sup>	48	48	51	47	42	47
Wage rates per day for hired workers						
Hired day help						
With board <sup>‡</sup>	\$2.67	\$2.11	\$2.34	\$2.29	\$2.10	\$2.24
Without board	2.57	2.25	1.65	2.31	2.43	2.22

\* Includes board at \$15 a month.

<sup>†</sup> Value of unpaid family labor per month was estimated by the farm operator.

<sup>‡</sup> Includes board at 50 cents a day.

The value of the operator's time, including his estimate of the value of his time as worker and manager and privileges provided by the farm, on an hourly basis was 36 cents in Orange County, and 28 to 29 cents in the other areas (table 21). This was about twice the value per hour of the time of unpaid family workers, including in the value of their time an estimated wage and board. In general, the cost of hired month help per hour, including wages, board, and privileges, averaged only 15 to 16 cents an hour.

TABLE 21. AVERAGE VALUE OF DIFFERENT KINDS OF LABOR PER HOUR  
Five areas in New York, 1939-40

Kind of labor	Orange County	Chenango County	Cayuga County	St. Lawrence County	Cattaraugus County
Cents per hour					
Operator*	36	29	29	29	28
Unpaid family labor*	15	14	15	14	13
Hired month help*	16	16	15	15	15
Average, all labor	24	22	23	22	22

\* Included in the total value of each kind of labor were the following:

Operator - Value of his time and privileges provided by the/<sup>farm</sup>as estimated by the operator.

Unpaid family labor - Value of time as estimated by the operator, and board at \$15 a month.

Hired month help - Wages paid and value of board at \$15 a month, and perquisites when provided.

In recent months many hired farm hands have left farms for more remunerative work in factories. As has previously been indicated, workers hired by the month, on the average, put in more than 11 hours a day during the summer and in most cases 10 hours or more a day during the winter season. Because they put in more hours per day on the farm, even though at quite a low rate per hour, the total return to the farm worker compares more favorably with the factory worker than the rate per hour on the farm might indicate. The very fact, however, that higher monetary returns may now often be obtained along with shorter working hours has added to the attractiveness of factory work in the viewpoint of the hired farm hand.

#### Perquisites provided to farm labor

Perquisites are part payment for services in addition to money wages. Farmers can give some of them with little trouble or added cost. But they save laborers considerable expense and raise their real wages. In other studies, the addition of board or perquisites at farm values to money wages has been found to raise the amount of total remuneration of farm laborers with board by four-fifths more than their money wages, and of those not boarded to one-half more than cash wages.<sup>1/</sup>

Data obtained by this survey showed that almost 4 out of 5 dairy farmers were hiring month help, that 4 of each 5 that hired gave board (table 22). The non boarded were usually unmarried men who were given a room in the farm house. Men not given board were more often married.

In this study, farmers who gave perquisites reported giving total farm values per year averaging \$268. They hired an average of 16.7 man-months of labor without board. This meant that perquisites amounted to slightly more than \$16 per man-month for men hired without board, or \$193 per man-year. Average farm wage rates without board were \$43 a month. The perquisites thus added 37 per cent to the worker's wage. The saving in expense to the laborer probably raised his real wage even more.

Farmers who hire month help probably need to give, and many undoubtedly are giving, more attention to perquisites as a means of attracting and holding good workers. Some farmers who usually hire single men may find it necessary to hire married men. Those who hire without giving board may be able to give more perquisites, both in kind and in amount. Half of the farmers in this study who hired men without board were not giving perquisites. It seems reasonable that many of them could have done so without much extra cost to the farmer. The saving in expense to the laborers would certainly be considerably more than the farm value of products provided. Probably the most difficult perquisite to provide is a place in which the hired man's family may live. Remodelling some building on the farm for this purpose, if possible, might solve this problem on some farms

<sup>1/</sup> Folsom, Josiah C., Perquisites and Wages of Hired Farm Laborers, U.S. Dept. of Agriculture Technical Bulletin 213. Washington, D.C., January, 1931

TABLE 22. PERQUISITES OF DAIRY FARM LABORERS HIRED BY THE MONTH  
Five Areas in New York, 1939-40

Item	Orange County	Chenango County	Cayuga County	St. Lawrence County	Cattaraugus County	All areas
<u>Number of farms</u>						
Hiring month help:						
With board	61	61	70	82	59	333
Without board	28	18	12	5	15	78
With and without board	1	4	6	1	4	16
Not hiring month help	24	25	17	29	24	115
All farms	114	104	105	117	102	542
<hr/>						
Man-months of help hired without board, per farm	17.0	21.3	11.2	12.5	21.5	16.7
<hr/>						
<u>Number of farms giving specified perquisites</u>						
Fruit and vegetables	6	12	10	3	5	36
Wood	11	10	9	2	5*	37
Milk	13	13	12	4	5	47
Eggs	3	1	5	2	2	13
Meat	3	1	4	1	4	13
Dwelling	12	12	9	4	5	42
One or more perquisites	13	13	12	5	5	48
<hr/>						
Per cent of farms hiring men without board and giving perquisites	45	59	67	83	26	51
<hr/>						
<u>Average annual farm values of perquisites per farm giving</u>						
Fruit and vegetables	\$19	\$42	\$33	\$32	\$49	\$36
Wood	65	56	40	75	74*	58
Milk	96	76	38	32	88	69
Eggs	8	8	7	44	7	19
Meat	22	1	21	3	10	22
Dwelling	148	140	103	77	21	134
One or more perquisites	303	287	184	172	445	268
<hr/>						
<u>Average farm values of perquisites for 12 man- months of work</u>	\$214	\$162	\$187	\$165	\$249	\$193

\*Includes one farm on which there was a gas well and this kind of fuel was provided for the hired help.

Comparison of returns to the  
farm operator and cost of hiring  
a man for 12 months

Labor income is the monetary return to the farm operator for his year's work and management, after allowing 5 per cent interest on the investment in the farm. It is a measure of the return to the farm owner that is, in general, comparable to the wages paid to hired workers. It should be kept in mind that the position of the operator as a manager as well as worker on the farm involves a great deal more responsibility than that of the hired man whose job is largely one of following instructions. Necessarily also the operator bears all the risks incident to owning and operating the farm.

For all areas the average labor income for the year 1939-40 was \$431, with a range of from \$298 in Cattaraugus County to \$700 in Orange County (table 23). There was more variation between the areas in the return to the operator than in the wages of hired help. It was found that the average labor income of farmers in Orange County exceeded the annual cash wage of men hired with board, the most frequent kind of hired men, by \$340, as compared to about \$150 in Cayuga and St. Lawrence Counties, \$100 in Chenango County, and only \$10 in Cattaraugus County. For all areas the difference averaged \$104, or about \$9 a month, in favor of the farm operator. Annual cash wages of men hired without board were larger than the operator's labor income in each area except Orange County, and for all areas averaged about \$90 more.

TABLE 23                      COMPARISON OF RETURNS TO THE FARM OPERATOR  
AND COST OF HIRING A MAN FOR 12 MONTHS  
Five Areas in New York, 1939-40

Item	Orange County	Chenango County	Cayuga County	St. Lawrence County	Cattaraugus County	All areas
<u>Monetary returns for the year</u>						
Operator's labor income*	\$700	\$439	\$468	\$379	\$298	\$431
<u>Cash wage of hired help</u>						
with board	360	324	336	336	288	327
without board	576	564	516	444	516	520
<u>Total returns for the year, including board and/or privileges</u>						
To the operator†	\$1,155	\$857	\$907	\$737	\$686	\$835
<u>To hired help</u>						
with board‡	540	504	516	516	468	507
without board‡	792	720	696	564	708	682

\* Labor income is the return to the farm operator for his year's work and management, after allowing 5 per cent interest on investment.

† Includes privileges provided by the farm.

‡ Includes wages, and board at \$15 a month.

The value of privileges, including use of dwelling, provided by the farm to the operator varied between areas from \$358 in St. Lawrence County to \$445 in Orange County, with an average of \$404 for all farms surveyed. In measuring the total return from the farm to the operator, the value of these privileges was added to the labor income. Similarly for month help without board, the value of perquisites provided by the farm was added to the cash wage to get total returns, and for men hired with board, a value for board at the rate of \$15 a month was added. Since privileges provided the farm operator were of considerably greater value than either the board or perquisites provided month help, total returns to the operator averaged \$328 greater than the return to the month help with board and \$153 greater than that of the man hired without board. The difference in favor of the farm operator was greatest in Orange County. In Cattaraugus County the annual wage including perquisites, of the unboarded month laborer was actually about \$20 more than the total return to the farm operator for his year's work and management.

#### The farm labor supply situation

Farmer demand for hired labor as per cent of normal has been rising on the whole in New York since January 1940, and had increased 22 per cent by April, 1942. Supply as per cent of normal fell 55 per cent during the same period. The result was a sharp decline in the supply of labor as a per cent of demand to only 49 per cent of normal. In the same period average wage rates for farm labor without board for the State have risen from \$44.00 to \$70.25, or an increase of 60 per cent (figure 5). Earnings of factory workers rose more than \$40 a month.

These situations are due to vastly increased demands at higher rates of pay for labor for war production industries, and also to the increased demand for men by the nation's armed forces. The industrial demand factor has been most effective and disturbing to farmers in areas in which war plants have been expanded or newly constructed.

New York farm wage rates have risen more proportionately than have the earnings of the State's factory workers since 1939. But in actual dollars and cents the factory people have had decidedly the best of it, especially when it is considered that the higher rates of pay were obtained with fewer hours of work than is required on the farm. The relatively more favorable opportunity for work offered by industry is attractive not only to hired farm workers but to operators as well, especially in areas near war industries.

1/ Data compiled from U. S. Dept. of Agriculture quarterly farm labor reports. "Normal" for both supply and demand for labor is the farm reporter's concept of that term as applied to the situation in his area.

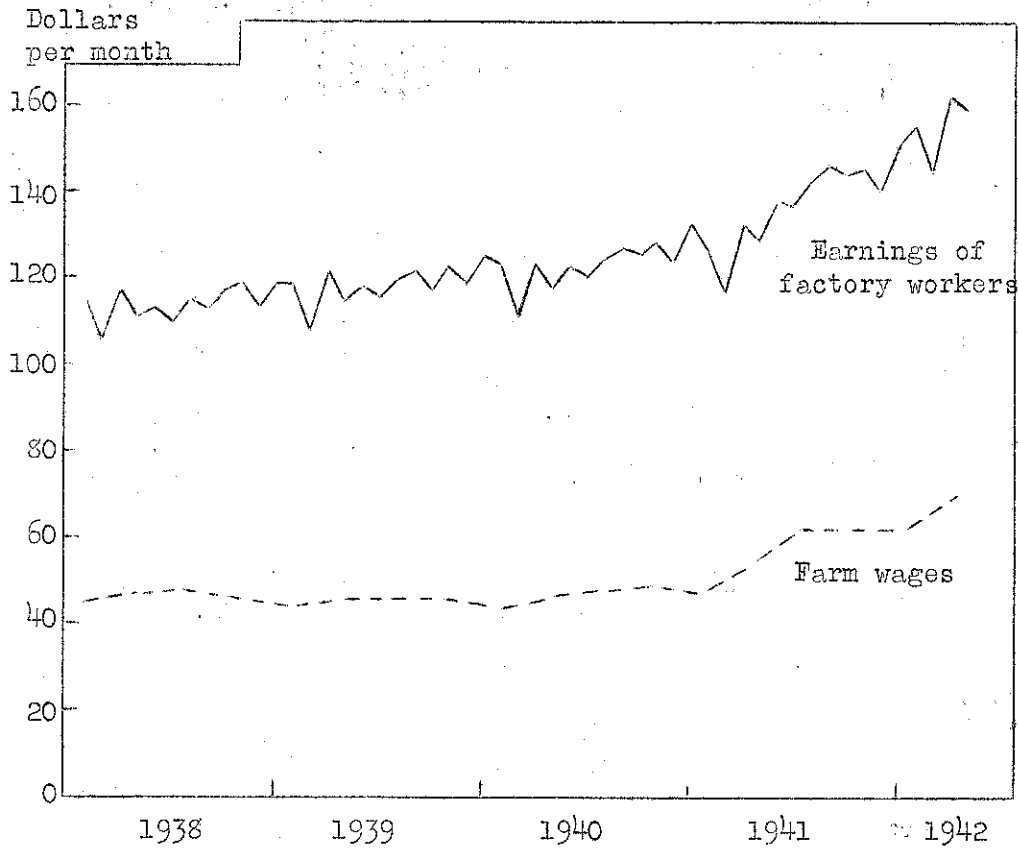


FIGURE 5. COMPARISON OF NEW YORK FARM WAGES WITHOUT BOARD AND EARNINGS OF NEW YORK STATE FACTORY WORKERS, PER MONTH.

Sources: New York State Department of Labor and Bureau of Agricultural Economics, U.S.D.A.

For the country as a whole, farmer income and wage rate experience in this war has so far followed that of World War I, but with these differences: both farm wage rates and farm incomes have risen faster than they did twenty-five years ago, and, to the advantage of farmers, incomes rather faster than wages now, and faster than farmers' incomes during the first stages of the last war period.<sup>1/</sup> Without much doubt the same trends apply in some measure to New York State.

In the present and probable war-time future, farmers must expect increased difficulty in obtaining hired labor. Some will meet this condition by paying higher wages; others will increase the use of family help; still others probably will not be able to obtain sufficient help to maintain production. Larger farm incomes would enable farmers to compete more favorably with industry for labor and then would contribute to the solution of the farm labor problem.

<sup>1/</sup> From "The Farm Labor Situation", April 1942, B.A.E., U.S.D.A.



## SUMMARY

The data on which this report is largely based were taken from farm-business-summary and dairy-enterprise cost records obtained for the year 1939-40 on about 110 dairy farms in each of five areas in New York. The counties in which the surveys were made were Orange, Chenango, Cayuga, St. Lawrence, and Cattaraugus. The areas were selected to represent the different systems of dairy farming in New York.

A typical dairy farm provided almost 24 man-months of work during the year, and was thus a two-man business. In Chenango and Cayuga Counties, the average was a two-man business; in Orange County about two and one-third men, or their equivalent; and in St. Lawrence and Cattaraugus Counties slightly less than two men. In each area there were some one-man farms and some farms on which the operator and three to four hired men, or their equivalent in family labor, were used. For all farms, the operator did about one-half the man-months of work, with the other half about equally divided between unpaid family workers and hired help.

The total cost of hired labor per farm for all areas averaged almost \$300, ranging from \$179 in St. Lawrence to \$447 in Orange County.

The smallest one-fifth of the farms, on which the operator made up about 90 per cent of the labor force, produced only 12 per cent of the milk, as compared to 33 per cent of the milk from the largest one-fifth of the farms which used two full-time men in addition to the operator, or their equivalent in unpaid family help.

In this study one farmer in three had hired month help the year round, and, in addition, some farmers hired men by the month for part of each season. More than two-fifths of the farmers reported aid from their wives and sons regularly during the year, but only one in 15 had help from daughters. Most of the work done by wives and daughters was part-time work.

As an average for all areas, the farm operators worked 12 hours a day during the summer, and about 11 hours a day during the winter season. In general, hired month help tended to put in a slightly shorter day than the farm operator during both seasons. Most unpaid family workers helped only part-time directly with farm operations, though some sons put in just as long a day during the whole year as the operator and some others did so while not attending school.

As an average for all areas, 24.4 man-hours of work were required per day during the summer months, and 19.6 man-hours per day during the winter season, with an average of about 22 man-hours a day for the year.

The farm family provided nine-tenths of the man-power on farms with fewer than 15 cows, four-fifths on those with 15 to 25 cows, and less than three-fifths on the farms with 25 cows or more. The farmers' wives helped milk cows on one-third of the farms.

About two-fifths of the farmers reported doing some work besides exchange labor off the farm, with an average of 31 days for those who did such work, or 13 days per farm for all farms. Most of this work was done on other farms.

On a dairy farm during the winter months from about 7 to 8 per cent of the year's directly productive work is required each month, while from 9 to 11 or 12 per cent of the year's productive work must be done during the summer months of June, July, and August.

Although more than one-third of the farmers owned milking machines, only one-fifth used them 9 months or more. Several farmers in each area did not use their machines at all. On farms with 15 to 25 cows, that were milked by machines, 32 fewer hours of man labor were required to care for a cow during the year than on farms with the same-sized herds that were milked by hand. Similarly on farms with 25 cows or more, there was a difference of 43 man-hours per cow per year in favor of those farms using machines. A significant difference in the amount of labor used per cow in favor of the large-sized herds also was found when the farms were grouped according to size of herd, whether milking by hand or machine.

For farms that hauled their own milk to the plants, almost three-quarters of an hour was required per day. On a yearly basis this amounted to 269 man-hours per farm hauling milk. Some of this time probably would be saved by a unified milk-pickup system.

Wage rates varied relatively little between areas, but tended to be highest in Orange County, where farmers' incomes were also greatest, and lowest in Cattaraugus County where farmers' returns were smallest.

Only about one-half of the farms that hired men without board gave perquisites. Average farm value of perquisites when provided amounted to \$193 for 12 man-months of work.

Operator's labor incomes exceeded the cash wage of a man hired for 12 months with board in each area. The margin in favor of the operator was considerably greater in Orange County than in the other areas. The annual cash wage of a month help without board exceeded the operator's labor income in each area except Orange County. Total returns for the year including values of board and/or privileges showed a somewhat greater return to the operator in nearly all cases than to hired workers. Necessarily the operator's position as owner and manager involves much more responsibility and risk than that of an employee.

Since January 1940, farm demand for labor as a per cent of normal has increased about one-fifth and the supply as a per cent of normal has declined more than one-half during the same period. Average farm wage rates without board in New York State have increased more than \$25 a month or 60 per cent in the last 2 years. New York farm wage rates have risen more proportionately than have the earnings of New York State factory workers since 1939, but earnings of New York State factory workers per month far exceed farm wage rates. And especially when it is considered that the higher rates of pay are obtained with fewer hours of work than on the farm. For the country as a whole, farmer income and wage rate experience in this war has, in general, so far followed that of World War I.

## APPENDIX

TABLE 1. PERCENTAGE DISTRIBUTION OF MAN LABOR BY MONTHS ON VARIOUS ENTERPRISES IN NEW YORK<sup>1/</sup>

Enterprise	Unit	Per cent of total hours of man labor per year in:												Total hours of man labor per unit
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Cows	cow	9	9	10	9	8	7	7	7	7	8	9	10	2/
Heifers	heifer	11	10	11	11	9	5	4	5	5	7	11	11	20
Hens	100 hens	10	9	9	9	7	7	7	8	7	9	9	9	200
Alfalfa	acre	-	3	-	-	-	13	50	21	13	-	-	-	13
Other hay	acre	-	-	-	-	-	28	59	11	1	1	-	-	10
Silage	acre	-	-	-	3	10	17	7	3	39	18	1	2	35
Wheat	acre	-	-	-	-	-	-	13	60	23	4	-	-	115
Oats	acre	-	1	2	12	25	1	-	40	18	1	-	-	15
Peas														
market	acre	-	-	-	2	2	90	4	-	-	2	-	-	220
canning	acre	-	-	-	21	12	27	36	-	-	1	3	-	19
Snap beans, market	acre	-	-	-	-	2	2	3	93	-	-	-	-	220

<sup>1/</sup> Results of Farm Cost Accounts (unpublished), Department of Agricultural Economics, New York State College of Agriculture.

<sup>2/</sup> Man hours per cow was varied between the areas according to the average number of man-hours per cow as found in the analysis of the dairy enterprise records. The following number of man-hours was used per cow in each area:

Orange County	191 hours
Chenango County	179 hours
Cayuga County	219 hours
St. Lawrence County	207 hours
Cattaraugus County	179 hours