What Makes Some Farms Pay: A Business Analysis of 114 Farms in Eaton County, Michigan
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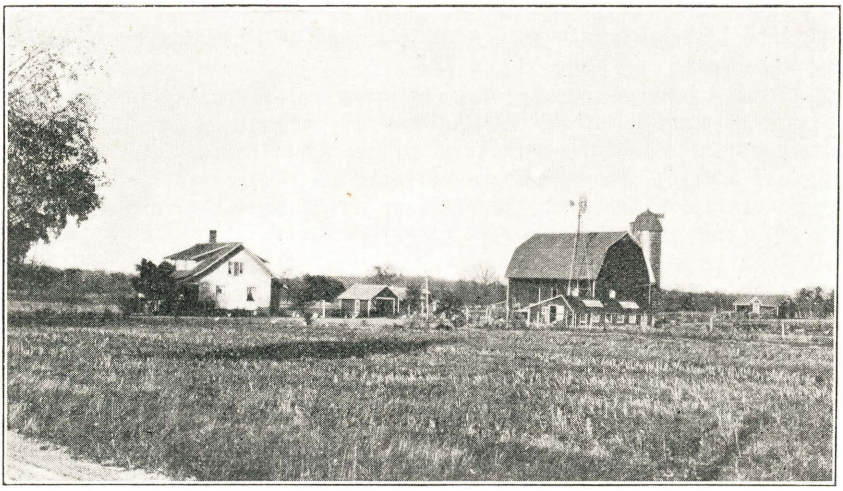
A Business Analysis of 114 Farms in Eaton County, Michigan

E. B. HILL AND F. T. RIDDELL



AGRICULTURAL EXPERIMENT STATION

MICHIGAN STATE COLLEGE
Of Agriculture and Applied Science

FARM MANAGEMENT SECTION

East Lansing, Michigan

SUMMARY

1. There are large differences in the amount of profit obtained from even adjoining farms.

2. These differences are due, to a considerable extent, to the variation in the skill and ability of the operators in the organization and management of their businesses.

3. Important factors to consider in the farm business are, (1) size, (2) amount and efficiency of livestock, (3) acres, kinds, and yields of crops, (4) balance between the crop and livestock enterprises, (5) man labor and power efficiency. Page 4.

4. The higher incomes are usually obtained on the farms with the larger volume of business. Pages 8 and 17.

5. Most of the successful farmers in this area are keeping from 25 to 50 per cent more livestock, with a 15 to 40 per cent higher production per unit, than are the less successful ones. Pages 11 and 12.

6. An average of the 114 farms shows that 57 per cent of the total farm receipts was from livestock, 36 per cent from the sale of crops, and 7 per cent from miscellaneous sources. Page 10.

7. The more successful group of farmers obtained about two-thirds of their total farm receipts from livestock, and about one-third from the sale of crops. Page 10.

8. Cattle, mostly dairy, were the source of 35 per cent of the total farm receipts and 61 per cent of the total livestock receipts. Thus, it is highly important to have this enterprise on an efficient, profitable basis. Pages 11 and 12.

9. In this area the more successful farmers grow a larger acreage of feed crops, corn, alfalfa, oats, and barley and a smaller acreage of cash crops, wheat and beans, than did the less successful ones. Pages 13 and 14.

10. Man labor was 25 to 50 per cent more efficient on the higher profit farms than on the lower profit farms within the same size group. Pages 14 and 15.

11. One-third of the 114 farms had tractors. Not many farms below 140 acres in size were equipped with tractors. Pages 15 and 16.

12. On farms of similar size, the operating expenses remained about the same regardless of income. On the farms with a larger income, the added expenses were much less than the increase in returns from the additional volume of business handled on these farms. Pages 16 and 17.

13. How the various factors discussed in this bulletin affect the financial returns on individual farms is shown for three different size groups by showing the results from a representative farm of the higher profit farms, and a representative farm of the lower profit farms of each group. These comparisons are shown in Tables 7, 8, and 9. Pages 18, 19, and 20.

14. Simple farm accounts, kept for a period of years, serve as a good means of studying and improving the farm business. A number of the best farmers in this area kept farm accounts.

WHAT MAKES SOME FARMS PAY

A Business Analysis Survey of 114 Farms in Benton and Oneida Townships, Eaton County, Michigan

E. B. HILL AND F. T. RIDDELL, FARM MANAGEMENT SECTION

"It would be impossible with present prices for a farmer to make money even if given a farm," stated a 57-year-old farmer in Eaton county to the College representative who visited his farm in March, 1928.

A short distance down the road, another somewhat younger farmer who had purchased his farm just a year ago was visited. He would not sell it now for $1,000 more than the purchase price. He was getting along satisfactorily and was optimistic concerning the future of the farm business.

In another section of the township, a young man was visited who had just purchased the farm on which he had been a tenant for nine years.

On still another farm, the son had returned within the last year and taken over the home farm.

Who Is On the Right Track

One often hears the sentiment expressed by the first farmer. If it were true, then the business of farming would be unattractive indeed. However, three neighbors of this downcast individual disagree with him for they are just starting out to do the thing he stated to be impossible.

Those who are familiar with the farming situation are aware that out of the six to nine farmers ordinarily found on a square mile of land in many areas in Michigan or elsewhere, two or three may be doing quite well, two or three may be about breaking even, while the remaining two or three are likely to be delinquent in their taxes and are generally unsuccessful. There are many reasons for this situation, some of which are beyond the control of the individual farmer and thus beyond the scope of this report. Some of the reasons for lack of success, however, can be eliminated by proper farm management, which involves the organization of the business as well as the methods and practices used in the operation of the various enterprises. Most of these factors are within the control of the farm operator. What should he do?

To throw light on the general agricultural situation in South Central Michigan and to learn more about what makes some farms pay, a detailed study of the farm business for the year ending March 1, 1928, was made on 114 farms in Eaton county. This county was selected because it is fairly typical of a considerable area in the south-central part of the Lower Peninsula. This area consists of Ingham, Livingston, Eaton, most of Jackson, Barry, Clinton, and Ionia and parts of Calhoun, Washtenaw, Genesee, Shiawassee, and Kent counties.

Factors Which Affect the Farm Income*

In a careful study of a number of farms it soon becomes evident that there are certain definite things which greatly influence the financial returns derived from the business.

These definite things are to be found in the organization and operation of the business. The ones considered in this report are: (1) size of business, (2) numbers and kinds of livestock, (3) annual production or returns per cow, sow, ewe, and hen, (4) acres and kind of crops, (5) crop yields per acre, (6) balance between crop and livestock enterprises, (7) man labor efficiency, and (8) ratio of expenses plus net decreases to receipts plus net increases.

Farm operators in Eaton and in other counties who have a similar type of farming may compare their own farm business with the averages of the different groups and with the groups within which their farms would fall on the basis of acreage. Comparisons may be made with the average of all farms in the group, and, with the exception of Group E, with the averages of the higher and the lower profit farms in the group.

The results of this study should aid farm operators in Central Michigan in laying out a program based upon good farm organization and management principles which may aid in making their business more profitable in the future.

What Were the Farm Incomes

Although it was not the primary purpose of this study to obtain farm income figures, it was necessary to obtain these for use as a guide in determining the most profitable type of farm organization and management. Too often, farm income figures are given too much publicity as indicators of either farm prosperity or depression, and their main purpose, which is to serve as a guide in the analysis of the farm business, is forgotten.

As shown in Table 1 on page 8 the average total capital investment for the 114 farms exclusive of the dwelling was $11,535. The range was from $6,089 in Group A to $24,938 in Group F. The average amount of man labor per farm, including the operator, was equivalent to 1.4 men with a range of from one on the farms of the smaller size to 2.25 on the farms of the larger size group.

The net farm income is the difference between the farm receipts and the farm expenses when allowance has been made for changes in inventory and when the pay for work performed by members of the family other than the operator is charged as an expense. The estimated value of the house, and the resulting depreciation, interest, and insurance on the house were omitted. In other words, the farm business was neither charged nor credited with the dwelling. Such costs are considered personal business.

The net farm income represents the returns from the capital invested and the pay for the operator's labor and management. The average net farm income was $1,186 for the 114 farms included in this survey. The range was from an average of $795 per farm on the group of farms ranging from 37 to 60 acres in size to $2,103 as the average for the group of farms 221 acres or larger in size.

*For a discussion of terms used in this report, turn to the "Explanation of Terms" on pages 21 and 22 of this bulletin.

The amount of money which represents the interest earned on the investment is determined by deducting from the net farm income, an allowance for the operator's physical labor. For this area, $720 was considered to be a reasonable allowance for the operator's labor. This difference, obtained by subtracting the operator's labor charge, when divided by the total capital investment and multiplied by 100 gives the rate earned on the investment.

The average rate of interest earned by those 114 farms was 4.0 per cent. The average total investment was $11,535. The average rate of interest earned by the various groups ranged from 1.2 per cent for group A to 5.5 per cent for group F.

Figure 1.—This herd of nine cows represents the average number of cows found on the more profitable 141 to 180 acre farms in Benton Township, Eaton County. The returns from cattle, mostly dairy, comprises 61 per cent of the total livestock returns and 35 per cent of the total farm receipts.

Probably the rate of interest earned is the best measure of financial success for farms with a large capital investment. Another measure of financial return which is of more significance than the rate earned, especially on farms with a comparatively low investment, is called the labor and management wage.

The operator's labor and management wage is the amount of money left as pay for his own physical labor, managing ability and risk after deducting from the net farm income, a reasonable charge for interest, usually 5 per cent, on the total farm investment.

The average operator's labor and management wage on the 114 farms, was $609 after deducting an interest charge of five per cent of the total capital investment as an expense. The range in labor and management wage was from $491 for group A to $856 for group F.

Description of the Area

Eaton county is a general farming region in which dairying, supplemented most frequently by wheat and beans as cash crops, predominates. Sheep, hogs, and poultry are minor livestock enterprises. Important feed crops are corn, oats, alfalfa, and mixed hay. Sugar beets are grown on a few farms. The practice of growing sweet clover for pasture is part of the crops program on a number of farms. Most farms have permanent pasture on the more rough and on the undrained portions of the farm.

Some people consider the locality in which this survey was made to be a little better than the average of the farming regions of Central Michigan. This may be true for the locality as a whole, for there is but little waste land in these townships; however, there are equally good farms to be found in the other counties in this area. In general, however, the farm buildings are painted and in good condition and give the appearance of a successful farming region.

The soils in this area are for the most part medium to high in fertility. They are mainly loams of the Miami* type and are underlain with compact to moderately compact, limey clay. Small areas of Conover* loam are found in the lower sections. The topography varies from level to rolling.

Farms Grouped by Size

Since there are rather extreme variations in the farm acreage in this and most every other section of the area, it was considered advisable for the purpose of analysis to group the farms on the basis of the number of acres operated. The 114 farms ranged in size from 37 acres to 580 acres. They were sorted into six groups. Group A includes 13 farms ranging in size from 37 to 60 acres; B, 32 farms from 61 to 100 acres; C, 35 farms from 101 to 140 acres; D, 16 farms from 141 to 180 acres; E, 8 farms from 181 to 220 acres; and F, 10 farms 221 acres or over. In the tables 1, 2, 3, 4, 5, and 6 in this report, important factors of each group are summarized separately, while in Tables 11a and 11b are presented a summary of all farms and of each group.

Each group was further subdivided on the basis of the labor income of the operator. Where the number of farms in the group was large enough, they were arranged in three main classes. The one-third having the highest labor income was called the higher profit group, the one-third having the lowest labor income was called the lower profit group. In each group there were one to three farms which were not included in the analysis of the higher, lower, or medium profit groups. On these farms the operator received a considerable portion of his income from outside sources, such as from trucking milk, hauling gravel, from operating a threshing machine, or the like.

*These are the names of types of soils as used by the Soil Survey, U. S. D. A. and the Soils Section of the Michigan Experiment Station. The following description of each is by J. O. Veatch of this station.

Miami type. Plow soil generally a loam; subsoil moderately compact clay; generally acid in plow soil, alkaline or limey at shallow depths; fair humus; retentive of moisture; natural fertility intermediate; level to rolling land; well adapted to general farming; manuring necessary; responds to commercial fertilizer; liming beneficial but not everywhere essential for clover and alfalfa.

Conover loam. Plow soil loam; subsoil clay; humus fair to high; plow soil acid but in places alkaline; subsoil limey; moisture high; fertility intermediate to high, level land; requires artificial drainage for best results; well adapted for general farming.

a faster rate than the expenses plus net decreases. In other words, the larger sized business is handled with a smaller proportional overhead. On farms of about the same acreage, the general overhead expenses tended to be about the same regardless of income. In the more profitable group of farms, the additional expenses due to the increase in volume of business were much less than the resulting increase in receipts.

Within each of the groups where the size of the farms was about the same, the variation in size of business was usually found to be due to differences in the amount of livestock. Within each group, however, were occasional farmers who carried on a successful specialized type of business in which the type of organization differed from the general group. The fruit

Figure 3.—Hogs were kept on 70 of the 114 farms. They supplied 13 per cent of the livestock receipts and seven per cent of the total receipts from the farm.

and specialized crop farmers were examples of those who deviated from the general practices.

In the section where this study was made, many farmers are increasing the size of their business by renting crop or pasture land, draining or clearing more land, adding more livestock, adding or increasing the size of minor enterprises such as poultry, hogs, sheep, or truck crops, or by intensifying production through better farm practices.

It should be remembered, however, that the small volume of business on some farms is due to the advanced age of the operator, who has the farm clear of debt and no longer strives to do as much as a younger man who is paying principal and interest in the purchase of a farm. The older man tends to reduce the size of business and farm less intensively in accordnace with his needs.

How Much Livestock

"I am through with so much cash crop farming and am increasing my livestock," stated one 40-year-old, successful farmer who farms about 50 acres of land, stocked with nine cows, one brood sow, and a small poultry flock. Most of the more successful farmers in this area are keeping from 25 to 50 per cent more livestock than the less successful group and are obtaining 15 to 40 per cent higher production per unit from a better grade of stock which is efficiently cared for.

The amount of livestock combined with the production per animal, have an important bearing upon the financial success of the farmer in Central Michigan. The major livestock enterprise for the entire region is the dairy, which was the source of 61 per cent of the total receipts from livestock. Sheep supplied 15 per cent, hogs 13 per cent and poultry 10 per cent of the livestock receipts.

The best indication of the relative importance of sales of crops and livestock and livestock products in the area is provided in Table 2, which shows what percentage of the total receipts are obtained from crop and livestock sales. Farmers who obtained a considerable portion of their income from outside sources such as from operating threshing machines, and hauling milk or gravel were not included in this table.

Table 2.—The relative proportion of crop sales and returns from livestock on the higher and lower profit farms in Eaton County, Michigan.

Group size	Percentage that crop sales are of total income		Percentage that receipts and net* increases of livestock are of total income	
Acres	Higher profit farms	Lower profit farms	Higher profit farms	Lower profit farms
37–60	22	51	66	45
61–100	36	31	60	64
101–140	32	39	64	54
141–180	28	48	66	45
Over 181	28	38	66	59

*By net increases is meant the difference between opening inventory plus purchases and closing inventory plus sales.

A summary of the returns from all of the 114 farms shows that 36 per cent of the total receipts came from crop sales and 57 per cent from livestock receipts plus net increases in livestock. On the more successful farms, however, a larger proportion of the income was derived from livestock and a smaller proportion from crop sales than was obtained by the average of the group. For the most part, it seems desirable as a basis for this area to obtain about one-third of the farm income from the sale of crops and two-thirds from livestock. Specialties on different farms may change this ratio. Much depends on the operator of the business.

The foregoing results may be due to the fact that with farms organized as they are at present in this area, livestock induces a higher labor, building, and capital efficiency, provides a satisfactory use for rough pasture land, and a market for low-priced roughages produced on the farm.

Amount and Kind of Livestock

While the dairy enterprise was of major importance on most of the farms in this area, on many farms the income from that source was exceeded by the combined receipts from the other livestock enterprises. Hog prices for the year ending March 1, 1928 were low and this enterprise did not contribute as much to the farm receipts as would sometimes be obtained. Variations in emphasis on the different livestock enterprises depends upon the prices anticipated as well as upon the type of soil and the contour of the land in so far as they affect the crops grown, the pasture and building facilities available, and the personal desires of the farmer.

On the farms ranging in size from 36 to 60 acres, 70 per cent of the livestock income came from cows, 7 per cent from hogs, 8 from sheep, and 15 from poultry. On the 141 to 180 acre farms, 60 per cent came from the

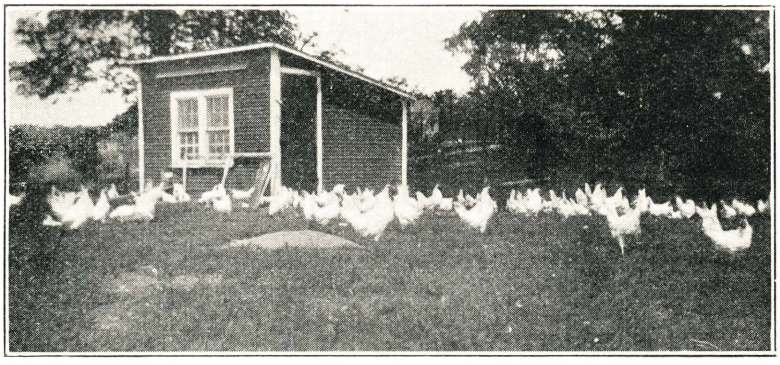


Figure 4.—A farm poultry flock in Eaton County. Poultry is an important minor enterprise in this area, especially on the smaller farms. There was an average of 67 hens per farm on these 114 farms. The enterprise accounted for 10 per cent of the livestock receipts and six per cent of the total farm receipts in addition to the eggs and meat for home use.

dairy, 17 from hogs, 15 from sheep, and 6 from poultry. Thus a somewhat greater diversity is evident on the larger farm units. On the farms of smaller acreages, greater emphasis was placed on the dairy and poultry enterprises. These more intensive enterprises are necessary on the small farm as a means of increasing the size of the business by more fully utilizing the labor and capital.

Table 3 lists the number and kinds of livestock on the higher profit and the lower profit farms of the different size groups. For example, the more successful farms in the 61-100 acre group had an average of 6 cows and 93 hens. Three kept one brood sow each, and two kept an average of 25 ewes. On the nine less successful farms of the same size group, there were an average of 4 cows and 64 hens. Seven of the nine kept one brood sow and three kept an average of 20 ewes. The gross income per cow in the same group was $196 for the most profitable and $142 for the less profitable group. Income per hen was $3.16 and $1.53 respectively.

The average value of the dairy products sold per cow on the 114 farms was $106. The increase in cattle inventory plus the sale of stock averaged $35 per cow. This made a gross return per cow of $141. The average gross income from hogs on the per sow basis was $140, of the sheep on the ewe basis $10, and the gross income per hen was $2.17, for the entire number of 114 farms included in this survey.

Table 3.—A summary of the livestock enterprises on 114 farms in Eaton County, showing the numbers and kind of livestock and the gross income per unit of livestock, on the higher and lower profit farms in 1928.

Groups Range in acres	A (13 farms) 37–60		B (32) 61–100		C (35) 101–140		D (16) 141–180		E* (8) 181–220	F (10) 221 and over	
Number of farms in lower and higher profit groups	4 high	4 low	9 high	9 low	10 high	10 low	8 high	8 low	8 all	5 high	5 low
Farm income	$1,011	$592	$1,540	$562	$1,776	$439	$2,037	$804	$1,409	$2,710	$1,496
Labor and management wage	680	338	1,155	159	1,235	-66	1,250	233	728	1,442	271
Acres in farm, average	55	51	83	77	122	121	156	161	202	339	272
Average number of cows	6	3	6	4	7.2	4.7	9	5	9	13	11
Dairy products sold per cow	$123	$100	$134	$107	$118	$86	$123	$96	$98	$122	$75
Cattle increase per cow	18	11	62	35	40	25	48	20	28	40	33
Average number of sows on farms keeping sows	(3)† 1	(1)† 1	(3) 1	(7) 1	(7) 1.4	(3) 2.3	(6) 4	(5) 2	(6) 2.5	(5) 4.3	(4) 4
Gross income from hogs, per sow	$123	$152	$106	$114	$150	$173	$148	$117	$138	$177	$157
Average number of ewes on farms keeping sheep	(2)†18	(1)†20	(2) 25	(3) 20	(5) 41	(7) 28	(7) 41	(6) 41	(3) 45	(4) 96	(3) 49
Gross income from sheep, per ewe	$12	$13	$16	$9	$12	$6	$8	$8	$20	$11	$14
Average number of hens	83	66	93	64	90	48	68	59	63	70	83
Gross income per hen	$1 90	$2 00	$3 16	$1 53	$3 22	$1 89	$1 78	$1 67	$2 03	$1 16	$2 07

*Not enough farms in Group E to give a representative grouping of high and low profit farms.
†Number of farmers in the group keeping the stock indicated is given in ( ).

There were two outstanding factors noted in connection with the production practices on the more successful farms. One factor is the crops program by means of which an attempt is made to produce much of the feed required by the livestock. High protein hay in the form of alfalfa and high protein pasture in the form of sweet clover are important parts of the plan. The second factor is the general livestock breeding program over a period of years for the purpose of improving the quality and productiveness of the stock. Many of the less successful farmers had no such program, were not particular as to the kind of sire used, and were likely to shift their plans from year to year.

Although this analysis shows the importance of livestock, a farm operator should use care in increasing his herd and flock too rapidly. In some instances, the operator may not be a livestock man or he may not have the proper housing facilities to adequately care for his stock. Before increasing the number of stock on the farm, the operator should assure himself that he has the housing, the feed, the ability, and the willingness to take the care necessary to make the enterprise a profitable one.

Concerning Crops in This Area

In most all groups, the more successful farmers grew a larger acreage of the feed crops, corn, alfalfa, oats, and barley, in connection with their larger livestock program than did their less successful neighbors. They grew a smaller acreage of wheat and beans than did the less successful farmers. Beans in 1927, however, were about two-thirds of a crop and thus the returns from the crop were not as large as would sometimes be obtained, also the yields of corn were much below the average. Thus, the profit from both the cash crop and the livestock end of the farm business were affected by low yields.

In Eaton county in 1925, about 23 per cent of the improved land in farms was in hay (2.2 per cent in alfalfa) 15 per cent in corn, 13 per cent in oats,

Figure 5.—Alfalfa is a profitable feed crop in this region. In Eaton County in 1923, about 23 per cent of the improved land in farms was in hay. About 10 per cent of the acreage in hay was in alfalfa. (Picture by Farm Crops Department).

8 per cent in beans, 7 per cent in wheat, 1 per cent in rye, 1 per cent in barley, 1.1 per cent in potatoes, and 0.4 per cent in sugar beets.

Table 4 shows the general crop plan of the higher and lower profit farms in each of the different size groups. Typical rotations found on these farms are: (1) clover, corn or beans, oats or barley, and wheat; (2) clover, corn, oats and wheat; (3) clover, corn, oats, sweet clover pasture, sugar beets, barley; and (4) corn or beans, oats, wheat, sweet clover, and with one field in alfalfa hay.

A number of farms were studied which had a short and a long rotation. The short rotation was corn, barley or oats, sweet clover pasture; the long rotation was corn or beans, barley or oats seeded to alfalfa which was grown for three years.

Table 4.—The kind of crops, the average number acres of each and the yields per acre on the higher and lower profit farms of each size group in Eaton County.

Groups—number farms in acres	A (13) 40–60		B (32) 61–100		C (35) 101–140		D (16) 141–180		E (8) 181–220	F (10) 221 and over	
Number of farms in higher and lower profit groups	4 high	4 low	9 high	9 low	10 high	10 low	8 high	8 low	8	5 high	5 low
Farm income	$1,011	$592	$1,540	$562	$1,776	$439	$2,037	$804	$1,409	$2,710	$1,496
Crops, acres in	36	40	57	47	73	75	95	82	111	160	137
Wheat, acres	(2)*13	(3) 12	(7) 14	(5) 16	(7) 11	(9) 12	(6) 16	(6) 19	(6) 27	28	32
Beans, acres	(2) 10	(4) 10	(9) 12	(6) 10	(5) 14	(10)17	(6) 16	(7) 26	(6) 25	(4) 28	(5) 29
Corn, acres	12	7	10	9	15	11	20	12	19	30	18
Oats, acres	6	4	9	9	15	11	19	13	16	28	25
Barley, acres	(1) *3	0	(2) 4	(2) 2	(4) 6	(4) 8	(2) 3	(2) 5	(2) 15	(2) 10	(1) 4
Alfalfa, acres	(2) *5	0	(4) 4	(3) 8	(6) 6	(3) 8	(6) 10	(2) 12	(2) 19	(3) 29	(1) 25
Other hay, acres	3	7	10	12	16	16	16	14	18	25	24
Pasture, not woods	6	7	14	15	26	29	44	45	51	148	60
Yield per acre—Wheat, bu	29	24	31	28	32	24	32	28	30	29	25
Beans, bu	12	13	10	8	10	6	9	9	9	10	8
Oats, bu	51	46	45	34	43	38	44	36	41	40	46
Barley, bu	(1)*60	.....	(1)*14	(3) 27	(4) 30	(4) 36	(2) 59	(2) 25	(2) 37	(2) 23	(1) 44
Hay, tons	1.4	1.4	2.0	1.6	1.6	1.3	1.7	1.6	1.6	1.4	1.6

*Number of farmers growing the crop indicated is given in brackets ( ). The figure following ( ) shows the average acreage of the crop on the farms growing it.

The production per acre of the major crops was in most all cases higher with the more successful farmers. This is brought out clearly in the yield figures shown in the lower half of Table 4.

For the most part, the yields of wheat on the more profitable farms averaged from three to eight bushels more per acre than on the less profitable farms in the same size groups, beans yielded two to four bushels more, and oats five to ten bushels more than on the less successful farms. In other words, for successful operation of the farm, it is necessary that the operator obtain good yields per acre and a good production per animal.

Lime is being used with profit on some farms of this region. On other farms, however, alfalfa and the clovers are being grown successfully without the additional use of lime. Where new seedings of these crops are to be made the surface soil and the subsoil should be tested to determine whether or not lime should be added. Commercial fertilizer is commonly used on wheat. A smaller number of farmers fertilize their spring grains and corn. Observations and the experiences of recent years, are showing the value of this practice and the use of commercial fertilizers for all crops is increasing.

Labor and Power Efficiency

The labor efficiency on these farms, as measured by the amount of work actually accomplished, was from 50 to 100 per cent higher on the farms of the higher profit groups than on the farms in the lower profit groups. This was due largely to the better organization of the farm business and to a larger volume as a result of more livestock, more acres of crops, and other factors which increase the size of the farm business and improves the distribution of labor throughout the year.

Since labor is one of the major costs of farm operations it is necessary that an adequate amount of productive work be provided at all times of the year in order to make the best use of the available labor. The more suc-

cessful farms, as may be observed from Table 5, have better labor efficiency than the less successful farms. Much of this may be accounted for by the proper organization of the business. An adequate amount of productive livestock provides winter work, with the result that available labor may be profitably employed throughout the year. Several places were visited where three or four hours of work a day in the winter would complete all the necessary tasks.

Table 5.—This summary shows the average number of acres operated per farm in the higher and lower profit groups of the different size groups, as well as farm income, man equivalent, labor efficiency, number of power units and the distribution of tractors and trucks on these farms in Eaton County.

Groups	Acres operated (average)	Farm income	Man equivalent per farm	Productive work days per man	Crop acres per man	Number with tractor	Number with truck	No. power units per farm (apx.)
(A) 4 high	55	$1,011	1.0	249	55	0	1	3
4 low	51	592	1.1	193	46	0	0	3
(B) 9 high	83	1,540	1.2	257	48	1	1	3
9 low	77	562	1.1	220	43	2	2	3
(C) 10 high	122	1,776	1.2	328	60	2	1	4
10 low	121	439	1.5	228	50	4	2	4
(D) 8 high	156	2,037	1.5	335	65	3	2	5
8 low	161	804	1.7	268	48	5	2	5
(E) 8 all	202	1,409	1.9	267	57	4	2	6
(F) 5 high	339	2,710	2.3	347	70	3	2	6
5 low	272	1,496	2.2	281	62	5	2	7

The measure of man labor efficiency used in this study was the number of productive work days per man per year. Productive work is labor on productive livestock and crops. A productive man work day is the amount of productive work accomplished on the average by one man in ten hours. In the explanation of terms on pages 21 and 22 is found the basis for determining man labor efficiency. It is usually considered that a fairly efficient man does an amount of work that could be accomplished in about 300 productive work days per year. The average of the 114 farms give 269 productive work days per man. It will be noted in Group A, Table 11b, that there are only 197 productive work days per year per man. In the group B the average goes up to 226. It is not until we reach Group C that we approach an efficiency of labor that is more than the average. In Group D we find the average productive work days per man to be nearly 300, and in Group F it exceeds the 300 mark.

Another measure of the efficiency of man labor is the number of acres of crops per worker. On the 114 farms, an average of 53 acres of crops were worked per man. In Group A, which contains the smallest of the farms, a man handled 49 acres of crops and in Group F, which contains the largest of these farms, a man handled 66 acres of crops.

Tractors

One-third of these 114 farms had tractors. Table 5 presents an interesting study on the distribution of power equipment on the larger and smaller farms. Not many tractors were on farms below the C group of 141 to 180

acres in size. In this group, one-half of the farmers owned a tractor. In the F group, farms of over 220 acres, eight farmers out of 10 owned tractors.

One of the major questions concerned in the purchase of a tractor is whether or not the size of business is large enough to pay for the operation of this type of power equipment. Higher efficiency in the use of tractor power is obtained on the larger farms. Thus it would seem in most cases that a farmer needed a larger farm than the average before the tractor and accompanying equipment would be a profitable unit in the farm business.

The introduction of the tractor requires many adjustments in the power and equipment program on the farm. Unless the operator senses the adjustments to be made and changes his business accordingly, he will not often obtain the anticipated satisfactory financial returns as a result of this major investment.

A somewhat common practice on a number of these farms was to hire a man and tractor to do some of the fall and spring plowing. The advantage of this practice on many farms is quite evident. By hiring some or all of the plowing done, it removes the peak load of the work required of the horses. One farmer was visited who had plowed during one year with his tractor and equipment over 150 acres for his neighbors. Thus the farmer operating a smaller business may often avail himself of some of the advantages of additional power without having the disadvantage of the higher overhead charges.

This same arrangement is followed even to a greater extent with the truck. Only 17 of the 114 farmers owned trucks. Many of the small trucking jobs, such as hauling hogs, wool, and grain to market were handled by neighbors owning trucks or by regular truckers, usually on a weight and mile basis. This was thought by many farmers to be the most satisfactory way of handling this phase of their marketing program. The automobile on the farm in most instances is used for transporting many of the smaller articles to and from the market.

Expenses and Net Decreases

One of the interesting developments in this study was the fact that the expenses plus net decreases on the more profitable farms were but little more than on the less profitable farms of the same size groups. On the other hand, there was a difference of $500 to $1,500 in receipts plus net increases in favor of the more profitable groups. Thus, it would appear as though the overhead expenses on the farms of similar size in this area remain, on the average, fairly constant.

The advisability of increasing the volume of business or readjusting the emphasis on the various enterprises to obtain greater sales and a better efficiency of labor and capital is evident. On the well-managed farm, the resulting added expense due to the increased business is small compared to the increased receipts resulting therefrom.

How Some Farms Were Organized and Managed

In order to illustrate more clearly how some of the factors affecting the financial returns of the farm business work in practice, the records from six farms in this area are now presented. These farms are fairly typical of three size groups, the 80 acre, the 140 acre and the 200 acre groups. The farms selected are not in all cases the ones which made the highest and the

Table 6.—The relation of expenses and net decreases to the total receipts plus net increases on the higher and lower profit farms in Eaton County.

Groups		Acres operated (average)	Total receipts plus net increases	Total expenses plus net decreases	Farm income	Rate earned on investment, per cent	Operator's labor and management, wages
(A)	4 high	55	$1,771	$760	$1,011	4.4	$680
	4 low	51	1,231	639	592	-2.5	338
(B)	9 high	83	2,523	983	1,540	10.7	1,155
	9 low	77	1,371	809	562	2.0	159
(C)	10 high	122	2,842	1,066	1,776	9.8	1,235
	10 low	121	1,652	1,213	439	-2.8	-66
(D)	8 high	156	3,633	1,596	2,037	8.4	1,250
	8 low	161	2,329	1,525	804	0.7	233
(E	8 all	202	3,310	1,901	1,409	4.5	728
(F)	5 high	339	5,886	3,176	2,710	7.8	1,442
	5 low	272	4,155	2,659	1,496	3.2	271

lowest returns for the groups represented, although they are from the high and the low profit classes. An attempt was made, in so far as possible, to select two farms that were comparable from each group. Many of the lower profit farms were in that group through no particular fault of the operator. For example, one of the farmers in that group was sick for three months of the year studied; several others were just completing their first years' operation for this particular farm and did not have things organized as they eventually will have; and other owners were too old to farm as aggressively as would a younger man.

The 80 Acre Group

The higher profit farm selected from this group was an 80 acre farm with 64 acres in crops. The lower profit farm contained 100 acres of which 74 were in crops.

The organization and general business record of these two smaller farms is shown in Table 7. The records of farm No. 1, with the higher returns are on the left and the records concerning farm No. 2, with the lower returns are in the column to the right in the table. It may be noted that the total receipts from farm No. 1 were $4,049 for the year as compared with a total of $1,796 for farm No. 2. The operator of farm No. 1 received about $1,759 for his labor, and management, whereas the operator of the other farm received only $114, a difference of $1,645.

In comparing the size of business conducted on these farms, one would note that the farm with the higher return had a smaller investment in machinery, 1 less power unit, 4 more cows, and 80 more hens. The returns per cow, on both of these farms were high, but the farm with the lower returns only had 3 cows. The returns from the poultry on the first farm was $322 in contrast with practically no income from poultry on the farm with the lower returns.

The cropping systems and yields per acre on the two farms are also worthy of study. The general program and crop rotation of farm No. 1 are good and the yields for all crops are much higher than on farm No. 2. Farm No. 2

Table 7.—A summary table which shows the size and organization of the farm business as well as the crop yields and production of livestock on two smaller farms, one of 80 acres and one of 100 acres, which show a marked difference in financial returns.

	No. 1	No. 2
	A small farm with high returns	A small farm with low returns
Total receipts plus net increases	$4,049	$1,796
Total expenses plus net decreases	1,699	1,105
Farm income	2,350	691
Labor and management wage	1,759	114
Rate earned on investment, per cent	13.8	−0.3
Size:		
Capital invested	$11,823	$11,536
Acres in farm operated	80	100
Number of men	1.3	1
Acres in crops	64	74
Investment in machinery	$917	$1,262
Number of power units	3	4
Number of cows	7	3
Number of sows	0	2
Number of hens	100	20
Production of livestock:		
Cattle receipts total per cow	$293	$241
Dairy products per cow	179	181
Cattle increase per cow	114	60
Gross returns from hogs per sow	0	74
Gross returns from poultry per hen	3.22	Home use only
Acres and kinds of crops:		
Wheat	12	28
Beans	12	9
Corn	12	8
Oats	13	10
Alfalfa	3	8
Clover	12	10
Yields of crops:		
Wheat	31	21
Beans	18	8
Oats	63	48
Alfalfa (in tons per acre)	4	1.5
Clover hay	2.5	1.3
Source of income:		
Per cent from sale of crops	28	44
Per cent from livestock	68	49
Per cent that operating expenses are of gross farm income	34	62

depends upon crops for a higher proportion of its total income and apparently the cropping plan is less definite and the crop yields are low in contrast to farm No. 1. On farm No. 1, about 28 per cent of the total farm receipts come from crops and 68 per cent from livestock, whereas on farm No. 2, crop sales furnish 44 per cent and livestock 49 per cent.

The 140 Acre Group

The total number of acres in each of these two farms which represent the medium-sized group are nearly equal. There are 135 acres in No. 3, the farm with the higher returns, and 140 acres in No. 4, the farm with the lower returns. The acres in crops were 70 to 108 respectively.

Table 8 shows the organization and returns from these two farms. Farm

No. 3 had a total income of $4,540, as compared with gross receipts amounting to $2,419 from farm No. 4. The expenses for these two farms, however, are nearly equal. With No. 3 the expenses were 39 per cent, and on No. 4 they were 65 per cent of the gross farm income. As a result, the operator of the higher profit farm received $1,835 for his years' work and management, while the operator on the other farm received only $201.

The higher profit farm had one more power unit, 6 more cows, 18 more ewes, 3 less brood sows, and a little less hired help than the lower profit farm. The total returns per cow on farm No. 3 were $150, and on farm No. 4 they were $116. This is significant, especially when it is considered that No. 4 had 6 less cows than No. 3.

Table 8.—A summary table which shows the size and organization of the farm business as well as the crop yields and production of livestock on two farms of medium size, one of 135 acres and one of 140 acres, which show a marked difference in financial returns.

	No. 3	No. 4
	A medium size farm with higher returns	A medium size farm with lower returns
Total receipts plus net increases	$4,540	$2,419
Total expenses plus net decreases	1,755	1,572
Farm income	2,785	847
Labor and management wage	1,835	201
Rate earned on investment, per cent	10.8	1.0
Size:		
Capital invested	$18,994	$12,916
Acres in farm operated	135	140
Number of men	1.5	1.8
Acres in crops	70	108
Investment in machinery	$1,001	$899
Number of power units	5	4
Number of cows	10	4
Number of ewes	56	38
Number of sows	1	4
Number of hens	100	100
Production of livestock:		
Cattle receipts total per cow	$150	$116
Dairy products per cow	127	78
Cattle increase per cow	23	38
Gross returns from sheep per ewe	11	9
Close returns from hogs per sow	156	141
Gross returns from poultry per hen	2.10	2.20
Acres and kind of crops:		
Wheat	16	28
Beans	7	3
Corn	13	17
Oats	12	10
Sugar beets	9	.....
Alfalfa	.....	9
Mixed hay	12	9
Yields of crops:		
Wheat	32	26
Beans	16	9
Oats	82	40
Sugar beets	13	.....
Alfalfa (in tons per acre)	.....	1.5
Mixed hay	2	1.5
Source of income:		
Per cent from sale of crops	42	30
Per cent from livestock	55	69
Per cent that operating expenses are of gross farm income	39	65

The cropping system is somewhat more uniform on the higher profit farm. The yields are considerably higher for all crops. About the same amount of commercial fertilizer was used on both farms.

Man labor was about 80 per cent more efficient on farm No. 3. This was due mainly to hiring less help, keeping more livestock, and growing more intensive crops.

The 200 Acre Group

The two larger farms selected to represent the differences found in the earnings from farms are 200 and 189 acres in size with 125 and 136 acres in crops respectively.

In Table 9 will be found the records of the organization and busi-

Table 9.—A summary table which shows the size and organization of the farm business as well as the crop yields and production of livestock on two larger farms, one of 200 acres and one of 189 acres, which show a marked difference in financial returns.

	No. 5	No. 6
	A larger farm with higher returns	A larger farm with lower returns
Total receipts plus net increases	$6,569	$2,393
Total expenses plus net decreases	2,901	1,437
Farm income	3,668	956
Labor and management wage	2,423	405
Rate earned on investment, per cent	11.8	2.2
Size:		
Capital invested	$24,899	$11,012
Acres in farm operated	200	189
Number of men	2.25	2.0
Acres in crops	125	136
Investment in machinery	$1,600	$700
Number of power units	6.5	8.0
Number of cows	10	6
Number of ewes	48	28
Number of sows	6	2
Number of hens	30	70
Production of livestock:		
Cattle receipts total per cow	$178	$100
Dairy products per cow	137	100
Cattle increase per cow	40	0
Gross returns from sheep per ewe	32	13
Gross returns from hogs per sow	140	47
Gross returns from poultry per hen	2.87	.86
Acres and kinds of crops:		
Wheat	30	23
Beans	7	48
Corn	35	17
Oats	21	30
Alfalfa	28	.....
Mixed hay	.....	18
Yields of crops:		
Wheat	35	27
Beans	12	8
Oats	61	25
Alfalfa (in tons per acre)	2.5	.....
Mixed hay	.....	1
Source of income:		
Per cent from sale of crops	25	50
Per cent from livestock	73	47
Per cent that operating expenses are of gross farm income	55	68

ness on these farms for a year. The farmer with the higher returns, No. 5, had a total income amounting to about $6,500, whereas the farmer with the lower returns, No. 6, did a business of about $2,400 gross income. The difference is $3,100. The operator of farm No. 5 received about $2,400 for his labor and management for the year and the operator of farm No. 6 received $400. This is a difference of about $2,000 in the labor and management wage earned by the respective operators.

On farm No. 5 the amount of capital invested was over twice as much as on No. 6. There was twice as much machinery but a smaller number of power units. The higher profit farm had 4 more cows, 20 more ewes, 4 more brood sows, and a little more help. The returns per cow on No. 5 was $178, as compared with $100 on farm No. 6. The returns per ewe and per sow were also higher.

Farm No. 6 was more of a crop proposition than was No. 5. The former had more beans and oats. No. 6 evidently had a better balanced cropping program which was fairly well adapted to his labor supply and to the livestock which he attempts to maintatin from year to year. Crop yields on the higher profit farm, No. 5, are much higher than on No. 6, especially in the case of wheat and oats.

On farm No. 5, about 25 per cent of the total farm receipts came from the sale of crops and 73 per cent from livestock, while on No. 6 about 50 per cent was derived from crops and 47 per cent from livestock.

SUPPLEMENT

Explanation of Terms

The Farm—The individual farm and the equipment associated with it are the basis for studies in making this farm analysis. If additional land was rented, it was considered as part of the farm in measuring the size of the business but was not classed as part of the investment. Land rented out was considered as part of the landlord's investment. Where the entire farm was rented, records were tabulated on the basis of a single farm unit and corresponding investment and no attempt was made to work out the tenant's or landlord's share.

Farm Investment—The farm investment includes all land owned, buildings except the operator's dwelling house, livestock, machinery, feeds, and supplies.

Buildings—Buildings were charged at the flat rate of 2.5 per cent on estimated value.

Tractor, Auto, and Truck—Depreciation on tractors was figured on the basis of average life of 6.5 years or 15 per cent annually. Automobiles and trucks on basis of six years or about 17 per cent annually.

Other Farm Machinery—All other machinery was depreciated at the rate of 10 per cent on the original investment.

Farm Income—The net farm income is the difference between the farm receipts and expenses, taking into consideration changes in inventory and allowing pay for farm work performed by members of the family other than

the operator as an expense. It represents what a farm has made as interest on the capital invested and as pay for the operator's labor and management.

Rate Earned on Investment—Rate earned on investment was determined by deducting $720 (an arbitrary figure allowed for operator's wage) from the net farm income and dividing the resulting figure by the total investment.

Operator's Labor and Management Wage—Operator's labor and management wage was determined by deducting an interest charge of 5 per cent on capital invested from the net farm income. This represents what the farmer receives for his labor and management after deducting a normal inventment charge. This is an arbitrary method and the results only serve as a basis of comparison of income from various farms.

Man Equivalent per Farm—This figure was obtained by including the total number of months of labor employed, the months of unpaid family labor, and 12 months for the operator. This total was divided by 12 to put it on the basis of one year. Thus if a man was hired for six months, this six months plus 12 for the operator would give 18. This divided by 12 would give a man equivalent of 1.5.

Productive Work Days per Man—This figure was obtained on the basis that it requires on the average two ten-hour days of productive work per acre of grain, four per acre of beans, one per acre of hay, 15 days per dairy cow, one-half day per sheep, and three ten-hour days of productive work per brood sow. These figures were obtained from labor records on a large number of farms where cost account records have been kept and represent on the average the amount of productive work a man should do in 10 hours.

Power Units—One horse was considered as a power unit. A light truck was considered as replacing one-half horse, a 10-20 tractor as replacing two, and a 15-30 tractor as replacing three horses. These were all added together on this basis to obtain the number of power units on the farm. The power equipment would undoubtedly do more work if there was work to be done than would the number of horses replaced. Records of a large number of farms, however, show that the power equipment which is listed replaces on the average the number of horses which are listed above.

Complete Analysis For the 101 to 140 Acre Farms

The farms in this study ranged in size from 37 to 580 acres. The 580 acre farm included two farms under one management, one of 400 acres was used entirely for pasture. The most common size of farm was found in the group of farms ranging in size from 101 to 140 acres.

A detailed report, identical to Tables 10a and 10b, was prepared for each group, and one copy returned to each of the co-operating farmers. That copy contained the figures for the individual farmer written in the column headed "your farm." Thus each operator not only had an analysis of his own business, but had it in such a form as would be comparable with the average, as well as with the most profitable and the least profitable farms in his group. He could also compare his business with the business of groups of farms of different size in the same community.

In order to keep this report from being too large and detailed, the complete report of only one group will be included. Since the 101-140 acre group includes the largest number of farms it was selected as being most

typical of the area. Tables 10a and 10b, are presented to show the general method of analysis used in this study.

The first table, 10a, is designed to show the financial side of the business which includes the investments, receipts plus net increases, expenses plus net decreases, and farm income. It also shows the distribution of the capital between land and buildings, machinery and equipment, feed and supplies, and in total livestock as well as the various classes therein.

Under receipts and net increases is shown the proportion of income from the sale of crops and from the receipts from livestock. The livestock receipts are divided to show the source from each class of livestock.

The second table, 10b, still carries the four columns to show the average for the 35 farms as well as the average of the 10 most profitable and the 10 least profitable farms. This table is designed to show the various factors which affect the financial returns from the farm business. These factors are, size of business, crop yields, amount and production of livestock, man labor efficiency, and power efficiency.

Table 10a—Farm business analyses on farms ranging from 101 to 140 acres in Benton and Oneida Townships, Eaton County for year ending March 1, 1928.

	Your farm	Average of 35 farms	Average of 10 most profitable farms	Average of 10 least profitable farms
Capital investments—Total	$	$11,065	$10,830	$10,107
Land and buildings less dwelling		8,594	8,161	7,944
Machinery and equipment		894	835	858
Feed and supplies		178	182	141
Livestock—Total		1,399	1,652	1,164
Horses and mules		303	302	269
Cattle		702	950	554
Sheep		257	261	240
Hogs		65	42	51
Poultry		72	97	50
Receipts and net increases—Total	$	$2,386	$2,842	$1,652
Crop sales		895	911	651
Per cent of total income		38	32	39
Livestock receipts and net increases or decreases		1,276	1,817	896
Per cent of total income		53	64	54
Horses		1		14
Cattle		782	1,138	582
Sheep		193	242	117
Hogs		145	150	134
Poultry		155	287	91
Increase in feeds and supplies		48	40	49
Other sources		167	74	56
Expenses and net decreases—Total	$	$1,246	$1,066	$1,213
Hired Labor		222	146	266
Machinery depreciation		199	179	188
Buildings, except dwelling		70	73	57
Taxes and insurance		205	202	180
Decrease in feeds and supplies				
Other current expenses		550	466	522
Receipts less expenses—(farm income)	$	$1,140	$1,776	$439
Per cent that farm operating expenses are of gross income		52	38	73

Table 10b.—Important factors affecting the returns from the farm business which serve for a study of your business.

	Your farm	Average of 35 farms	Average of 10 most profitable farms	Average of 10 least profitable farms
Rate earned on investment (per cent)		3.8	9.8	-2.8
Operator's labor and management wage	$	$587	$1,235	$-66
Size of business:				
Capital invested		$11,065	$10,830	$10,107
Acres in farm, operated		125	122	121
Acres in crops		80	73	75
Number of cows		6	7	5
Man equivalent		1.4	1.2	1.5
Number of power units		4	4	4
Crop data:				
Yield per acre:				
Wheat—bushels		28	32	24
Beans—bushels		8	10	6
Barley—bushels		31	30	.....
Oats—bushels		40	43	38
Hay—tons		1.7	1.6	1.3
Acres in crops—(most common):				
Corn		14	15	10–17
Wheat		10	0–12	8–18
Beans		11	0–10	5–25
Barley		0–6	0–7	0–12
Oats		15	8–20	10–15
Alfalfa		6	0–6	.....
Clover		5	0–15	3–12
Mixed Hay		10	0–13	9–15
Per cent of farm in crops		64	60	62
Per cent of farm in pasture not woods		28	21	25
Livestock Data:				
Dairy products sold per cow		101	118	86
Cattle increase per cow		37	40	25
Gross income from hogs per sow		133	150	173
Gross income from sheep per ewe		10	12	6
Gross income from poultry per hen		2.37	3.22	1.89
Average number of cows		5.7	7.2	4.7
Number of sows, most common		1	0–2	0–2
Number of ewes, most common		0–35	0–40	0–30
Average number of hens		65	90	48
Labor and power:				
Number of farms with tractors		13	2	4
Number of farms with trucks		9	1	2
Man equivalent per farm		1.4	1.2	1.5
Productive work days per man		282	328	228
Crops acres per man		58	60	50

A Summary of the Analysis of the 114 Farms

These tables, 11a and 11b, show the figures representing the average of the business on all the 114 farms surveyed, as well as the averages for the six groups, A, B, C, D, E, and F.

Group D, 141 to 180 acres, is the first group to exceed the average of all farms in most of the factors presented, although most of the farms, 70 per cent, are below the 141 acre group.

The average capital investment of the 114 farms, not including dwelling, was $11,535 on which a return of 4 per cent was made after an allowance of $720, or $60 a month, for the operator's labor and management wage had been deducted from the farm income. The average operator's labor and management wage was $615 after an allowance of 5 per cent had been made for the capital investment. An estimated value was placed on unpaid family labor, such as summer work of the son who attended school in the winter, and of the operator's father who did some work during the busy season. This labor was included as a farm expense in the tables presented in this report.

The average number of acres operated was 131 of which 76 were in crops. On the average of the 114 farms, there were six cows, four power units, and the equivalent of 1.4 men per farm. Thirty-six per cent of the receipts and net increases were from crops and 57 from livestock.

Table 11a.—Farm business analyses on 114 farms in Benton and Oneida Townships, Eaton County. Data show the average of all farms and of the respective groups which are arranged according to size.

Group No. of farms in group Range of Size of farms, acres	Average of 114 farms	A 13 37–60	B 32 61–100	C 35 101–140	D 16 141–180	E 8 181–220	F 10 221 and over
Capital investment—Total	$11,535	$6,089	$7,964	$11,065	$13,736	$15,295	$24,938
Land and buildings less dwelling	8,807	4,415	5,904	8,594	10,625	11,486	19,346
Machinery and equipment	937	660	735	894	882	1,129	1,926
Feed and supplies	201	133	164	178	230	219	401
Livestock—Total	1,590	881	1,161	1,399	1,999	2,461	3,265
Horses and mules	325	200	224	303	410	547	586
Cattle	828	475	691	702	970	1,228	1,660
Sheep	292	110	142	257	469	467	713
Hogs	74	36	29	65	85	146	229
Poultry	71	60	75	72	65	73	77
Receipts and net increases—Total	$2,508	$1,558	$1,805	$2,386	$2,981	$3,310	$4,989
Crop sales	915	616	611	895	1,070	1,240	1,868
Per cent of total income	36	38	34	38	36	37	37
Livestock receipts and net increases or decreases	1,437	806	1,102	1,276	1,718	1,998	3,022
Per cent of total income	57	50	61	53	58	60	61
Horses	9	−5	4	1	−4	70	55
Cattle	881	569	732	782	1,059	1,149	1,606
Sheep	212	62	112	193	260	335	619
Hogs	188	60	74	145	293	315	615
Poultry	147	120	180	155	110	129	127
Increase in feeds and supplies	57	27	59	48	124	1	64
Other sources	99	109	33	167	69	71	35
Expenses and net decreases—Total	$1,322	$763	$868	$1,246	$1,560	$1,901	$2,886
Hired labor	269	102	95	222	375	577	798
Machinery depreciation	203	148	155	199	217	270	364
Buildings, except dwelling	74	44	51	70	83	84	185
Taxes and insurance	226	121	171	205	232	289	553
Decrease in feeds and supplies							
Other current expenses	550	348	396	550	653	681	986
Receipts less expenses—(farm income)	$1,186	$795	$937	$1,140	$1,421	$1,409	$2,103
Per cent that farm operating expenses are of gross income	53	49	48	52	52	58	58

Table 11b.—Important factors affecting the returns of the farm business on 114 farms. Table shows the average of all farms as compared with the average of the various groups.

Group No. of farms in group Range of size of farms, acres	Average of 114 farms	A 13 37–60	B 32 61–100	C 35 101–140	D 16 141–180	E 8 181–220	F 10 221 and over
Rate on investment (per cent)	4.0	1.2	2.7	3.8	5.1	4.5	5.5
Operator's labor and management wage	$609	$491	$539	$587	$734	$644	$856
Size of business:							
Capital invested	$11,535	$6,089	$7,964	$11,065	$13,736	$15,296	$24,938
Acres in farm operated	131	49	84	125	159	202	306
Acres in crops	76	34	51	80	88	111	148
Number of cows	6	4	5	6	7	9	12
Man equivalent	1.4	1.1	1.1	1.4	1.6	1.9	2.25
Number of power units	4	3	3	4	5	6	6
Crop data:							
Yield per acre:							
Wheat—bushels	28	26	29	28	30	32	27
Beans—bushels	9	12	10	8	9	11	9
Barley—bushels	32			31			
Oats—bushels	41	46	42	40	41	39	43
Hay—tons	1.6	1.5	1.6	1.7	1.6	1.5	1.5
Acres in crops—(most common):							
Corn	13	8	9	14	16	19	24
Wheat	12	5	9	10	13	23	30
Beans	13	6	9	11	18	22	25
Barley	1½			0–6			
Oats	13	5	8	15	16	18	43
Alfalfa	5	1	3	6	5	0–20	11
Clover	4	1	5	5	1	0–7	4
Mixed hay	11	5	8	10	13	8–18	21
Per cent of farm in crops	58	69	61	64	55	55	49
Per cent of farm in pasture not woods	24	16	19	28	28	25	34
Livestock data:							
Dairy products sold per cow	106	115	111	101	113	98	101
Cattle increase per cow	35	17	41	37	37	28	37
Gross income per sow	140	130	113	133	138	138	168
Gross income per sheep	10	0	10	10	8	20	12
Gross income per hen	2.17	1.95	2.51	2.37	1.73	2.03	1.66
Average number of cows	6	4	5	5.7	7	9	12
Average number of sows	1–2	0–1	0–1	1	2	2	4
Average number of ewes	20	0–20	0–20	0–35	34	0–40	53
Average number of hens	67	62	72	65	63	63	77
Labor and Power:							
Per cent of farms with tractors	34	8	16	37	50	57	80
Per cent of farms with trucks	23	8	19	26	25	28	40
Man equivalent per farm	1.4	1	1.1	1.4	1.6	1.9	2.35
Productive work days per man	269	197	226	282	299	267	314
Crop acres per man	53	49	44	58	56	57	66

On the smaller farms one man handled 49 acres of crops, on the larger farms he handled 66 acres or 34 per cent more. In the A group one man accomplished 197 days of productive work while in the F group he accomplished 314 days or 60 per cent more than the individual on the smaller farms. The tables also show that yields per acre of crops and per unit of livestock were maintained satisfactorily on the larger units.