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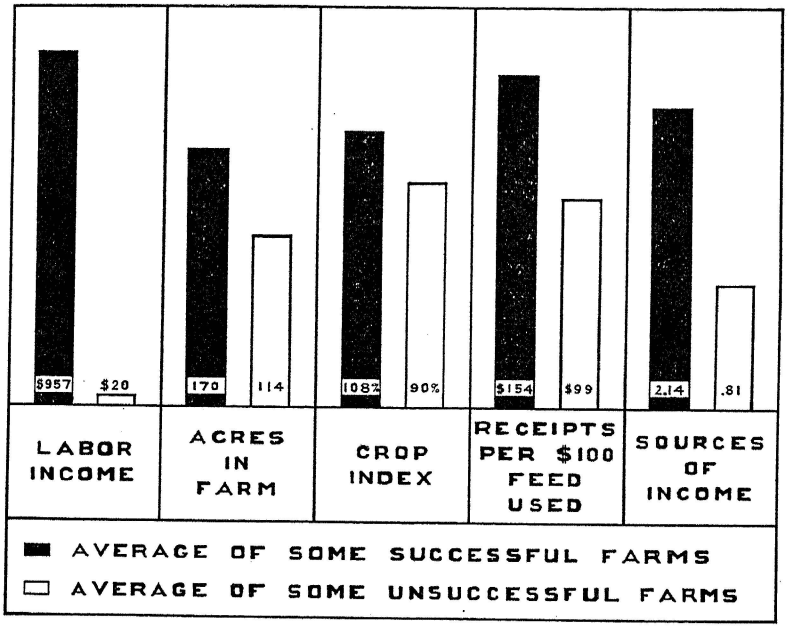

Successful Farm Organization

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UNIVERSITY OF MISSOURI

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[1] In the service of the U. S. Department of Agriculture.

Successful Farm Organization[1]

O. R. Johnson

INTRODUCTION

Why is one farmer more prosperous than another? Why does one farmer make a labor income of $2,000 a year while another man in the same region on a similar farm makes no labor income at all? What are the real sources of profit on the average farm? Interesting answers to these questions have been secured by the Agricultural Experiment Station as the result of a careful investigation of 673 farms in western Johnson County, Missouri. The labor incomes on these farms have been determined and the farms classified according to the labor income received. The various factors which influence the labor income have been carefully studied.

The records obtained include the two inventories and all receipts and expenses for the year on each farm together with some information regarding crops, acreages, yields, certain practices, and social and economic conditions. Every farm in the section is included with the exception of two or three that would not make reports. The records used were for the year 1912, which according to the crop reports was about an average or a little above the average year for this particular region. The average yield of corn was 35.4 bushels, wheat 17.8 bushels, oats 28 bushels, and hay one ton per acre. The average price of various farm crops was for corn, 45 cents; wheat, 85 cents; oats, 35 cents; and hay, $12.

DEFINITION OF TERMS

An **animal unit** is a horse, cow, five mature hogs, or seven mature sheep; two young animals are regarded as equal to one mature animal

[1]This bulletin is the third and last of the series based on data secured in a survey of four townships in the western part of Johnson County. The first published report was Bulletin 121 of this Station entitled Land Tenure, the second, Bulletin 140, entitled Size of Farm Business.

In making the field survey upon which this report is based the writer was assisted by W. H. Howell, J. A. Roth, D. C. Wood, J. H. Hursh, and R. M. Green, advanced students in the College of Agriculture. W. E. Foard, an instructor in the Farm Management Department also assisted in this work and in the preparation of the first two reports on this study. Many farmers and business men of the region through their cooperation with the field party aided very materially in the work.

of the same kind, on the basis of feed and the manure produced. This unit is only approximate at best.

TABLE 1.—NUMBER OF PRODUCTIVE WORK UNITS NEEDED TO PRODUCE ONE ACRE OF VARIOUS CROPS AND TO CARE FOR VARIOUS CLASSES OF LIVE STOCK

Kind of Work	Man units	Horse units
Producing an acre of		
Corn, husked from stalk or shock	2.50	4.00
Corn, shredded or siloed	3.50	4.00
Wheat, oats, or rye	1.50	2.50
Timothy and clover or mixed hay	.70	.90
Cowpeas	2.00	2.50
Rye pastured	.72	1.55
Oat hay	.81	1.91
Cowpeas pastured	.73	1.56
Clover hay pastured	.08	.20
Care for a year of		
Stallion or jack	15.00	1.00
Brood mare or jenet	5.00	.20
Dairy cow	11.00	2.00
Ten cattle, colts, horses or mules running loose	20.00[1]	1.00
Ten ewes	5.00[1]	.30
Ten brood sows and pigs until weaning time	30.00[1]	5.00
Ten hogs (not brood sows)	5.00[1]	1.00

[1]Warren, G. F. Farm Management. 590 pp. (N. B. 351.) figs. 1-117. New York, 1914.

TABLE 2.—PROPORTION OF ANIMAL UNITS ALLOWED FOR THE VARIOUS CLASSES OF LIVE STOCK

Class of stock	Animal units
Cows	1.00
Heifer (1 to 2 years)	.50
Calves (under 1 year)	.25
Bulls	1.00
Steers (feeding)	1.00
Horses	1.00
Colts	.50
Stallions and jacks	1.00
Mules	1.00
Sheep	.14
Hogs	.20
Pigs	.10
Poultry	.01
Lambs	.07

A **productive work unit** is a 10-hour day of productive labor, done by either a man or a horse. It includes work on live stock, on farm crops, or on the improvement of land; but not on work stock, on the repairs of fences, buildings, and machinery; or on anything else included in the maintenance of the farm.

A **crop index** of 97 means that the yield per acre of all crops on this farm or group of farms is 97 per cent as great as the average yield of the groups of the region.

Labor income is the farmer's net return after paying from his gross income all general running expenses, including also interest at 5 per cent, depreciation, and wages for hired men and members of his family, but excluding household expenses.

Crop acre means an acre of a particular crop. A given acre of land may be counted twice if it produces two crops during the same year.

Feed used is all feed produced on the farm, not sold or held in storage and all feed bought or carried over from the previous year.

INCOME AND SIZE OF FARM

The ultimate goal of the farmer usually is, and should be, making the largest possible labor income and making this income as nearly a permanent thing as possible. In order to find the reasons for some farmers making larger incomes than others, the farms have been grouped by income and the various departments of their business studied from this point of view.

Table 3 shows the number of farms in each group, also the percentage of total farms in that group with the average labor income for each group. About forty per cent of the farms in the region studied made

TABLE 3.—DISTRIBUTION OF FARMS BY LABOR INCOMES

Labor income	Number	Total	Average labor income
		Per cent	
—$ 500 or less[1]	24	3.5	—$ 989[1]
— 500– 0	104	15.5	— 166
0– 200	134	19.9	105
201– 400	118	17.5	294
401– 600	94	14.0	489
601–1000	101	15.0	774
1001–2000	82	12.2	1369
Over–2000	16	2.4	2747
Total	673	100.0	

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

less than $200 labor income. Approximately seventy per cent of them made less than $600 labor income, or less than $2 a day for their time.

Labor income as these farms are classified does not give the farm credit for furnishing the proprietor with such farm products as butter and eggs used in the home, or for furnishing the operator with a house to live in, so that the statement should be made that in addition to having a house to live in and certain products which the farm furnishes, the farmer made a certain income for his time which is called labor income.

Only 2.4 per cent of the farms in the region made a labor income of more than $2000. The average labor income for the entire region is $422, or approximately $1.35 a day. This is apparently a small wage, but when we consider that the farmer received products worth $163 from the farm in addition to a house to live in, his income does not compare unfavorably with that of many men working on a salary in a city. In other words, a city man must have his home furnished him, and all the milk, butter, eggs, and poultry that he can use in his home before his income is comparable, on the basis of money alone, with that of the former.

Table 4 gives the amount of land operated by the average farmer of each group receiving the various labor incomes and also the total

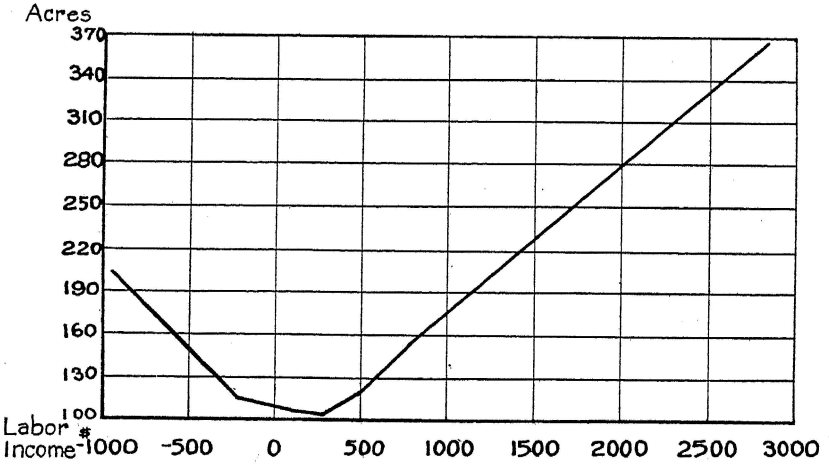

FIG. 1.—AREA OPERATED WITH VARYING INCOMES

The larger farm does not insure a good labor income. Two groups of farms of nearly equal size made labor incomes of minus $989 and $1369 respectively. A large income is not usually made on a small farm. (See Table 4)

amount of capital invested. This illustrates one or two points which have often been mentioned in connection with making a labor income;—

TABLE 4.—THE AMOUNT OF CAPITAL USED BY MEN RECEIVING DIFFERENT LABOR INCOMES

Labor Income	Farms	Average size	Total capital	Average labor income
		Acres		
—$ 500 or less[1]	24	204	$22,208	$— 989
— 500— 0	104	114	9,880	— 166
0— 200	134	107	8,542	105
201— 400	118	105	8,134	294
401— 600	94	118	8,844	489
601–1000	101	155	12,577	774
1001–2000	82	209	17,262	1,369
Over–2000	16	360	32,846	2,747

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

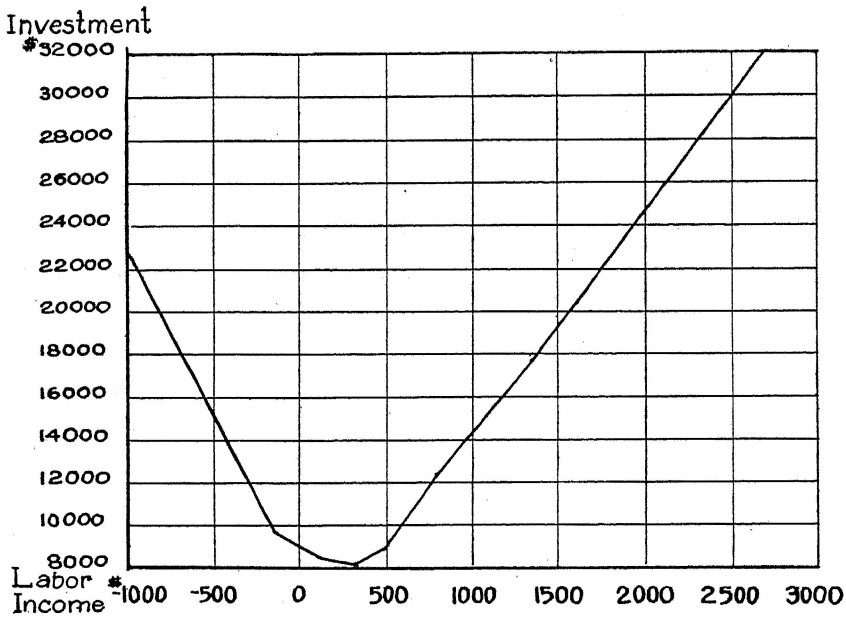

FIG. 2.—CAPITAL WITH VARYING INCOMES

Considerable capital is necessary for either a big success or a big failure. The least successful farms had $22,208 capital and the most successful $32,846. (See Table 4)

namely that it takes a big business to make a big success or a big failure. The influence of the large farm in the group making the lowest labor income will be shown in several subsequent tables, but it must be remembered that a man with a small business cannot hope to make a big failure and he apparently cannot hope to make a big success. The group making the lowest labor income has practically the same sized farm as the group making the next highest labor income. The reason for this group falling in the low class will be evident when a few more figures are studied. Attention is directed to the fact that the groups making labor incomes from 0 to $400 are among the smaller farms. It is evidently pretty hard for a man to make less than —$500 labor income on from 80 to 120 acres of land. It should perhaps be explained that a labor income of —$500 means that the operator lacked $500 of paying interest on his investment and all other expenses, and having anything left for his own wages. If his interest was $600, and his farm income $100, his labor income would be —$500.

These tables also indicate that it is difficult to make a labor income of over $600 on less than 160 acres. This means that a man should have approximately 160 acres under the conditions which prevail in the section studied, if he hopes to make $2 a day for his time. It is also of interest to note that some men were able to make nearly $9 per day for their time, and that these men required pretty large farms to do this. A subsequent table shows the proportion of men on different sized farms that make the different labor incomes.

LABOR INCOME AND CAPITAL INVESTMENT

The investment of capital by men making different incomes is not always the same. Table 5 gives two or three points in this connection. First, the men making the lowest incomes are men who have the highest investment in land and buildings. A later table will show whether this land is of higher yielding quality or not. The value of land and buildings seems to be a factor with men making different labor incomes. This investment falls gradually from $92 with the lowest income group to $61 for the group making four to six hundred dollars labor income. From this point it rises to $71 on those farms whose operators are making the largest labor incomes. No great difference is found in the investment per acre in live stock and equipment on the different farms. If investment per acre bears any relationship to the income which the operator makes, then this table would indicate that more than $100 per acre investment is hardly justified in this particular region.

More information along this line is given in Table 6. It shows the percentage distribution of capital in the various kinds of farm property. The farmers making the lowest income have approximately 85 per cent of their capital investment in real estate. From this point the decrease in percentage is very uniform as the labor income increases until the man receiving the highest labor income has 78.2 per cent of his investment in real estate. Real estate here includes land and improvements.

Approximately the same proportion of the total capital is invested in machinery on all farms. The same can be said of the capital in

TABLE 5.—THE INVESTMENT OF THE CAPITAL USED BY MEN RECEIVING DIFFERENT LABOR INCOMES

Labor income	Farms	Average size	Value per acre of		
			Land	Live stock and equipment	Total Investment
		Acres			
—$ 500 or less[1]	24	204	$92	$17	$109
— 500— 0	104	114	73	14	87
0— 200	134	107	66	13	79
201— 400	118	105	62	16	78
401— 600	94	118	61	14	75
601—1000	101	155	66	15	81
1001—2000	82	209	66	17	83
Over 2,000	16	360	71	20	91

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

TABLE 6—DISTRIBUTION OF INVESTMENT

Labor income	Real estate	Machinery	Live stock	Supplies	Cash	Total
	Per cent	Per cent	Per cent	Per cent	Per cent	
—$ 500 or less[1]	84.9	1.4	10.4	1.9	1.4	100
— 500— 0	84.6	1.9	11.1	1.6	.8	100
0— 200	83.0	2.1	12.4	1.6	.9	100
201— 400	81.0	2.1	14.5	1.6	.8	100
401— 600	80.8	2.1	14.2	2.1	.8	100
601—1000	81.1	2.2	13.8	2.0	.9	100
1001—2000	80.4	2.3	14.0	2.3	1.0	100
Over—2000	78.2	1.9	16.4	2.2	1.3	100

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

cash. The farmers making the largest incomes have a larger proportion of their capital invested in live stock. This variation is found to run from 10.4 per cent on the least successful to 16.4 per cent on the more successful farms. The investment in feed and other supplies does not vary to any great extent. Thus the main difference in investment is found in real estate, and in live stock. The excess capital which the poorer farmers have invested in real estate is used for live stock by the more successful farmers.

Labor income and use of labor.—One question which is naturally asked in trying to determine why one group of farmers are more successful than another is,—do the more successful farmers do more work than those who are not so fortunate? Table 7 will answer this question from the standpoint of crops grown. On the farms making

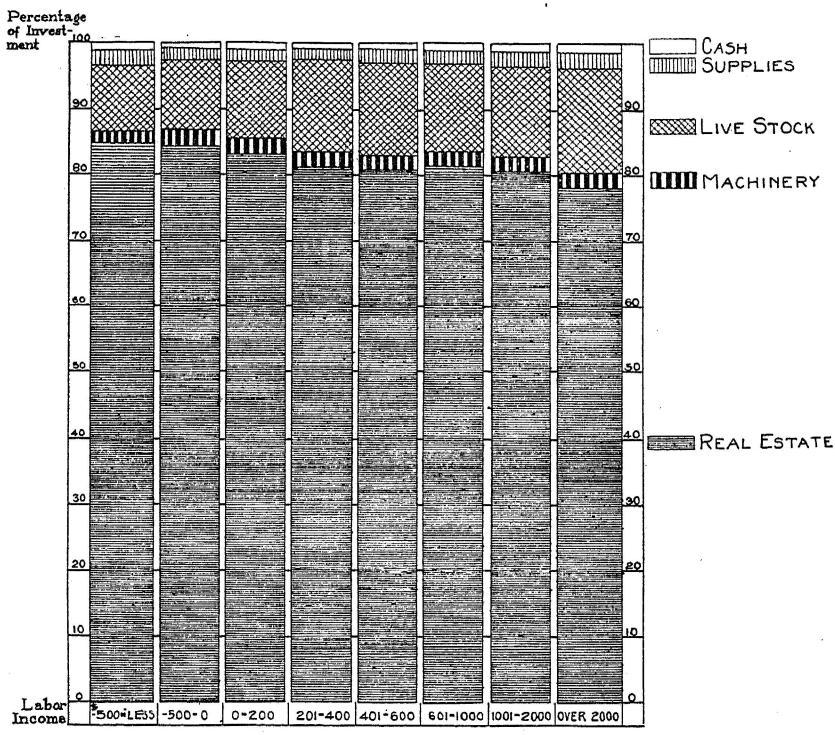

FIG. 3.—CAPITAL DISTRIBUTION WITH VARYING INCOMES

Less fixed and more operating capital seems essential in making a good labor income. The least successful farms had nearly 85 per cent of the capital in real estate and 10 per cent in live stock, while the best farms had 78 per cent in real estate and 16.4 per cent in live stock. (See Table 6)

TABLE 7.—NUMBER OF MEN AND HORSES PER FARM AND OF ACRES OF CROPS PER MAN AND PER HORSE ON FARMS MAKING DIFFERENT LABOR INCOMES.

Labor income	Men	Horses	Crop acres per	
			Man	Horse
—$ 500 or less[1]	2.08	5.9	58.2	20.5
— 500– 0	1.36	4.3	40.5	12.8
0– 200	1.31	4.7	45.4	12.6
201– 400	1.26	4.9	46.4	11.9
401– 600	1.28	5.0	52.1	13.4
601–1000	1.53	5.4	60.1	17.0
1001–2000	1.73	6.8	73.4	18.6
Over–2000	2.44	11.3	75.6	16.3

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

the smaller incomes the average workman handles between forty and fifty acres of crops while on the more successful farms the average workman handles from sixty to seventy-five acres of crops. The work horse handles only a little more crop acres on the better farms than he does on the poorer farms.

Attention is again called to the fact that the least successful farms are fairly large farms. The fact that the farmers on the least successful farms handle 58 acres of crops per man and 28 acres per horse is unquestionably due to the fact that they have fairly large farms. It will be noted that as soon as this first group of large farms is passed, the efficiency of man and horse in handling crops gradually but very definitely increases, in spite of the fact that the size of farm decreases slightly for two or three groups.

TABLE 8.—PRODUCTIVE WORK DAYS PER MAN AND PER HORSE

Labor income	Productive work days per	
	Man	Horse
—$ 500 or less[1]	145.0	48.1
— 500– 0	116.0	37.5
0– 200	134.0	39.4
201– 400	134.6	36.6
401– 600	144.5	40.4
601–1000	169.5	49.8
1001–2000	173.4	54.5
Over–2000	205.0	43.7

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

Additional information on this point is given in Table 8. The workman on the farms returning the lower labor incomes does from 116 to 140 days of productive labor; while on the farms returning the larger incomes he does from 170 to 200 days of productive labor. With the work horse from 36 to 40 days of productive work are provided on the less successful farms and from 45 to 55 days on the more successful farms.

Labor income and live stock.—The amount and kind of live stock should bear some relation to the results of a year's operations. Table 9 shows how nearly this is the case. There is not a great deal of difference in the number of animal units kept per acre, but there is considerable difference in the kind of stock kept. In Table 9 as in Tables 7 and 8 the influence of size of farm in the first group is distinctly shown, the larger farm keeping considerably more live stock, but a comparison of the farms making the lowest income, or the biggest loss, with the $1000-$2000-labor-income farms will bring together farms of almost exactly the same size and show that the better managed farm keeps a little more live stock,—fewer work horses, but more cattle, and

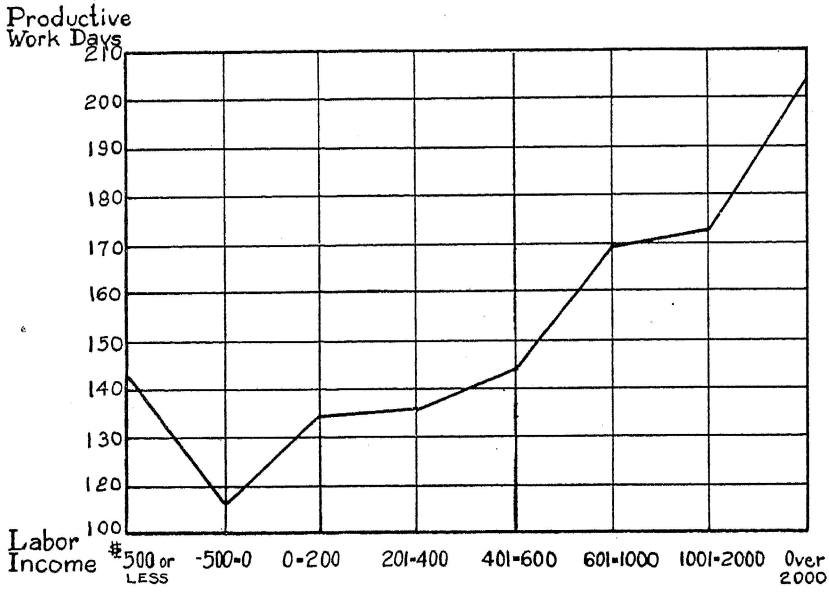

FIG. 4.—PRODUCTIVE LABOR WITH VARYING INCOMES

Making a fairly large labor income requires a good supply of productive labor. The farms making the largest labor incomes furnished nearly 200 productive work days for each workman. (See Table 8)

TABLE 9.—THE AMOUNT AND KIND OF LIVE STOCK

Labor income	Acres per animal unit	Animal units in			Total animal units
		Horses	Cattle	Hogs	
—$ 500 or less[1]	7.7	9.00	9.90	4.90	26.5
— 500— 0	8.1	4.37	5.45	1.65	14.0
0— 200	7.9	4.70	4.96	2.01	13.6
201— 400	6.9	4.95	5.30	2.20	15.2
401— 600	7.4	5.40	5.30	2.60	16.0
601—1000	7.7	5.60	8.33	3.35	20.2
1001—2000	7.1	8.00	12.00	5.56	29.6
Over—2000	5.9	20.50	25.00	10.50	61.1

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

more hogs. The same point is illustrated in the case of the group with labor incomes of —$500 to 0 and the group making $400-$600; for here again the more successful farm is a little heavier stocked; keeps about the same work stock, the same number of cattle, but considerably more hogs. The 0-$200 labor income group and the $201-$400 group include farms of about the same size and will illustrate the same point, so that it can be seen that the better farmers are keeping a little more live stock and especially more hogs.

Attention is now directed to the efficiency with which the various classes of live stock are handled. Table 10 gives the receipts from each animal unit in cattle on the various groups of farms. With the exception of one group the returns from each animal unit in cattle increases regularly with the farms making the larger incomes. The least successful operators received a little less than $18 from each cattle unit. The most successful group of operators received from two to

TABLE 10.—NET RECEIPTS PER ANIMAL UNIT IN CATTLE

Labor income	Cattle units	Net receipts per unit
—$ 500 or less[1]	9.90	$17.70
— 500— 0	5.45	23.00
0— 200	4.96	25.80
201— 400	5.30	26.00
401— 600	5.30	31.50
601—1000	8.33	28.80
1001—2000	12.00	37.65
Over—2000	25.00	47.00

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

TABLE 11.—NET RECEIPTS PER ANIMAL UNIT IN HOGS

Labor income	Hog units	Net receipts per unit
—$ 500 or less[1]	4.90	$54.30
— 500– 0	1.65	68.00
0– 200	2.01	94.60
201– 400	2.20	87.00
401– 600	2.60	94.30
601–1000	3.35	138.00
1001–2000	5.56	124.00
Over–2000	10.50	130.00

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

nearly three times this amount. This indicates very strongly that the men making the better incomes are handling their cattle in a more efficient way.

The same information in regard to hogs is given in Table 11. The first group of farms received only $54.30 for each animal unit in hogs while there is a very definite increase from this point up to the more successful groups. The farmers receiving more than $600 labor income made from $124 to $138 net receipts from each animal unit in hogs, so the farmers receiving the large incomes are more than twice as efficient in the handling of hogs as those receiving the smaller incomes.

LABOR INCOME AND DIVERSITY

Table 12 gives the number of sources of income in each group of farms and the degree of diversity in each group. By diversity here is meant the number of sources of income. In the first figures presented in this table is given the percentage of farms in the particular group receiving as much as $200 from a single source. It should here be mentioned that the $200 figure is purely arbitrary. In these groups of farms the group of 201-400 labor income averaged 105 acres per farm. It was assumed that on a farm of 105 acres or more if a particular source of income did not yield $200 or more it could hardly be classified as an important source of income. Two hundred dollars was selected after a careful study of the farms of the region. It is true that there are many very small sources of income which bring from $20 to $100 but on practically every farm in the community such lines of work are carried on merely as side issues, and not considered important parts of the business. The $200 limit was selected to eliminate these side issues and get at the main part of the business. There is little doubt that

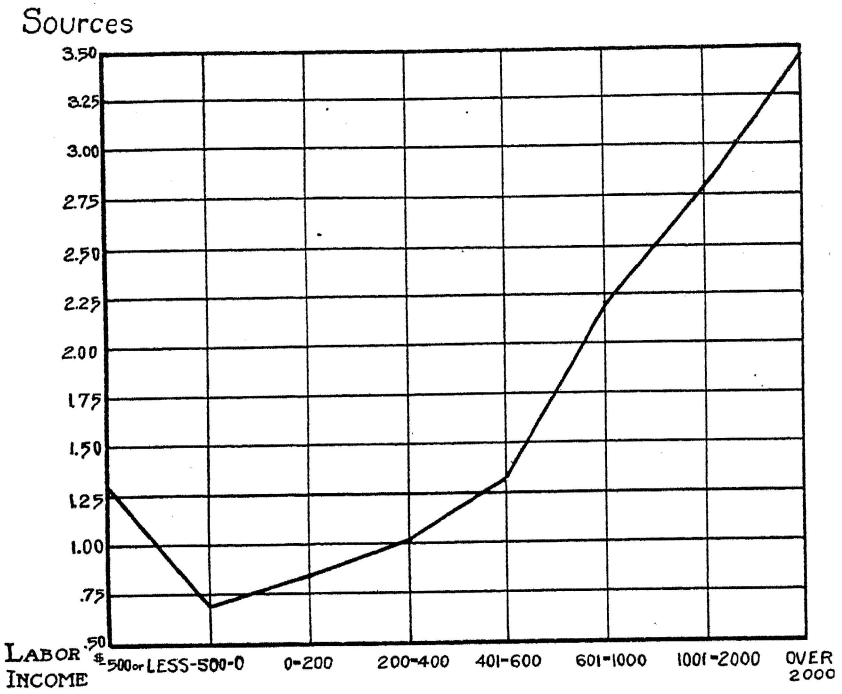

FIG. 5.—DIVERSITY WITH VARYING INCOMES

Making a good labor income also requires several sources of income. Some of the most successful farms had from four to seven sources, while the less successful seldom had more than two. (See Table 12)

TABLE 12.—DIVERSITY OF BUSINESS

Labor income	Farms getting as much as $200 from any one source	Sources per farm	Farms having 3 or more sources
	Per cent		Per cent
—$ 500 or less[1]	71.0	1.29	12.5
— 500— 0	41.4	.67	7.6
0— 200	48.5	.81	5.2
201— 400	67.8	1.04	7.6
401— 600	80.0	1.31	9.6
601—1000	97.0	2.19	36.6
1001—2000	98.8	2.78	59.7
Over—2000	100.0	3.44	68.8

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

within wide limits the larger farms are more diversified so far as important lines of work go. This point is illustrated in the first group of Table 12 in which 71 per cent of the farms making less than —$500 labor income sold as much as $200 from at least one source. From this point we go to the 114 acre farms where less than half of the farms sold as much as $200 from any one source. From this point the percentage of farms getting as much income from one enterprise gradually increases. In the group averaging 105 acres nearly 70 per cent of the farms sold $200 worth of some one product. Among the largest farms each had one source that yielded as much as $200. Table 12 also gives the average number of important sources per farm. Here is definitely shown the fact that the more successful farms have more sources of income. The first four groups will not average one source to the farm, while the last four groups will average more than two sources per farm. The last two groups indicate that three sources per farm is not an

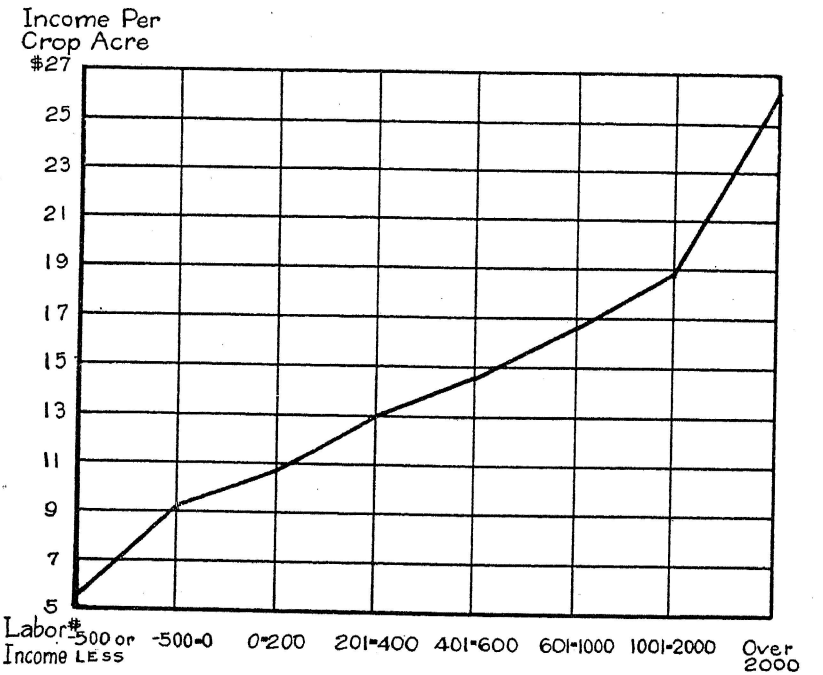

FIG. 6.—RECEIPTS PER CROP ACRE WITH VARYING INCOMES

A man must sell farm products in order to get an income. The less successful farmers sold from five to ten dollars worth of stock and crops per crop acre, while the more successful farmer sold from eighteen to twenty-six dollars worth. (See Table 13)

TABLE 13.—NET INCOME PER CROP ACRE FROM CROPS FED AND SOLD

Labor income	Net income per crop acre	Number of crop acres
—$ 500 or less[1]	$ 5.67	121
— 500– 0	9.10	55
0– 200	10.70	59
201– 400	13.00	58
401– 600	14.50	67
601–1000	16.45	92
1001–2000	18.70	127
Over–2000	26.20	184

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

unusual number with the better class of farm operators. The percentage of farms having three sources or more is also shown in this table. Here again is shown the importance of several sources of income, as nearly all the farms making big incomes have as many as three sources. Several farms in these last two groups had as many as five or six sources.

A word might here be said in regard to the general problem of diversity. In all general farming regions, most farms have a fair degree of diversity. It is possible to diversify to too great an extent, but it is generally considered that at least three and not more than five sources that can be depended upon should be incorporated in the better farming systems.

The net income from the entire farm for each crop acre will be more easily understood than some of those already considered. This factor has been calculated by deducting the value of all feeds purchased from the income from sale of crops and live stock. Then the remainder was divided by the number of acres of crops grown and the result gives the income realized from each acre of feed produced or crop grown to sell. An income of $5.67 an acre will not pay for the labor required to produce crops so the farmers in the —$500 group are by no means getting pay for their work, without considering rent on their land. The farmer in the —$500-0 group is getting rent on the land and from five to seven cents per hour for his crop work. If he could have his entire farm in crops he would probably make a small labor income. Having only half of it in crops the result is he is not making rent on his entire farm. The farmer in the third group has more of his land in crops and is making higher wages. He is about able to pay rent on his land and make ten cents an hour for his work. The men in the higher

income groups are making from a hired man's wages on up to nearly nine dollars a day for their time in addition to paying all running expenses of the farm.

LABOR INCOME AND QUALITY OF BUSINESS

Another factor which has been mentioned briefly before as having much to do with whether a man makes a good income or not is the crop yield obtained. Table 14 shows this by a comparison of the average yield of all crops in the region with the average yields of the farms in the various groups studied. Thus in the —$500 groups of farms it is found that 100 acres of the crops these farms grew would only yield as much of these crops as 86.8 acres if the yields were equal to the average for the region. To state the comparison in another way, these crops were only 86.8 per cent as good as the average crops of the region. Thus it is found that the yield of crops is very low on the less successfully managed farms while it is very much above the aver-

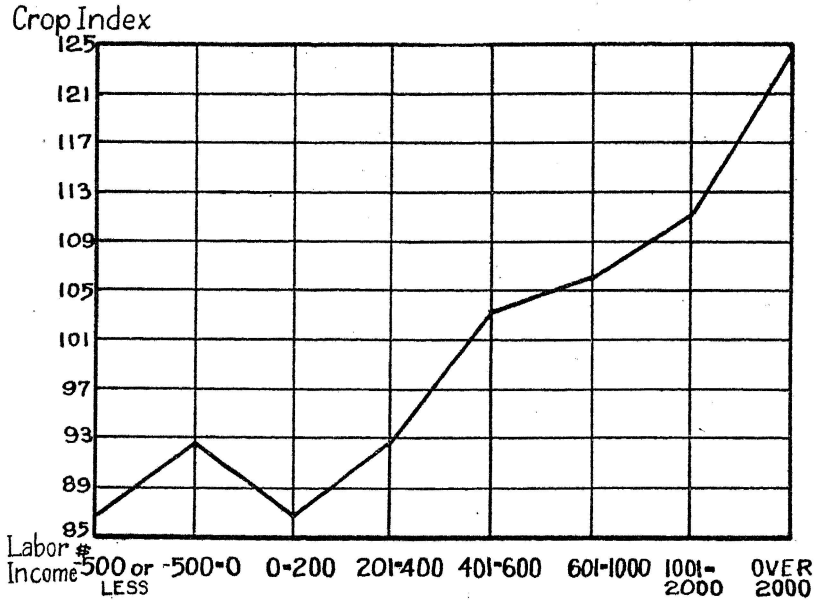

FIG. 7.—YIELDS WITH VARYING INCOMES

With one exception yields increased uniformly as the labor income of the farmer received increased, the less successful farmers having a crop index of from 87 to 92 per cent, while the more successful had an index of from 110 to 125 per cent. (See Table 14)

TABLE 14.—QUALITY OF CROPS AND LABOR INCOMES

Labor income	Crop index[1]	Size of farm
	Per cent	Acres
—$ 500 or less[2]	86.8	208.0
— 500— 0	92.5	114.0
0— 200	87.2	107.5
201— 400	92.7	104.7
401— 600	103.5	117.8
601—1000	106.2	155.0
1001—2000	111.4	209.2
Over—2000	124.8	360.2

[1]A crop index of 97 simply means that the yield per acre of all crops on this farm or group of farms is 97 per cent as great as the average yield of the groups of the region.

[2]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

age of the region on the most successful farms. This must have considerable influence on the income received. Thus definite information is obtained in regard to the quality of crops produced.

Similar information is presented in Table 15 in regard to the efficiency with which all live stock on the farm is handled. The value of all feed produced or purchased and not sold for each animal unit kept is first given in Table 15, which shows that men in the —$500 group of farms used feed worth $57.60 for each animal unit kept on the farm. In making this calculation the feed used by work stock has been subtracted from the total feed used on the farm, so that the figure does not include the feed fed to work stock. To complete this comparison receipts from work stock must also be subtracted and this has been done in the remaining figures of this table. Not much difference is

TABLE 15.—RETURNS PER $100 WORTH OF FEED USED[1]

Labor income	Feed per animal unit	Receipts per $100 feed cost[1]
—$ 500 or less[2]	$57.60	$ 52.
— 500— 0	47.60	80
0— 200	46.40	115
201— 400	46.10	118
401— 600	46.00	128
601—1000	49.10	141
1001—2000	42.10	158
Over—2000	41.00	193

[1]Includes all live stock on the farm except work stock.

[2]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

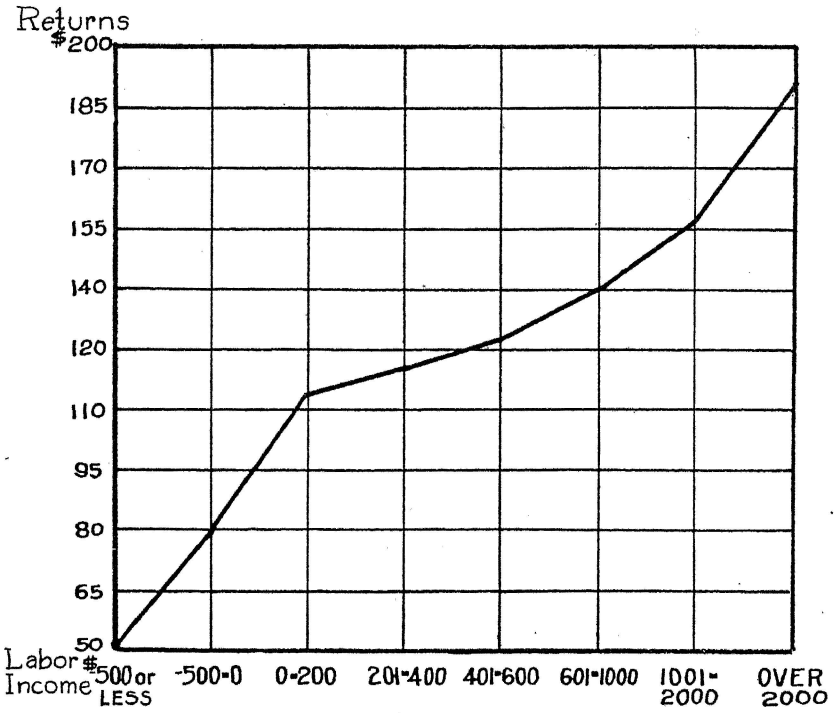

FIG. 8.—LIVE STOCK RETURNS WITH VARYING INCOMES

One weakness of the less successful farmer in undoubtedly the poor organization of his live stock feeding operations. He lacked from $20 to $48 of selling a hundred dollars worth of live stock for each hundred dollars worth of feed used. The best farmers sold nearly two hundred worth of live stock for each hundred dollars worth of feed used. (See Table 15)

seen in the amount of feed used for each animal unit kept on the farm. Slightly less is used on the more successfully managed farms. However, the income from each $100 worth of feed is decidedly different on the different groups of farms. The first group of farms,—those making a labor income of —$500 or less,—realized only $52 from live stock for each $100 worth of feed used on the farm. In other words $48 worth of feed was grown or purchased from which no income has been realized. The next group, —$500 to 0,—received $80 for each $100 worth of feed used. From this point on somewhat more than the farm value of the feed has been realized in sale of live stock. The receipts for each $100 worth of feed used gradually increased up to the most successful farm, on which nearly $200 was received for each $100 worth of feed used. This shows that there

must be considerable difference in the way feed is utilized on farms of the various groups.

There can be but two factors responsible for this variation. One of these is the ability of the stock kept to utilize the feed by putting the gains where they will bring the highest price. The other factor is the ability of the feeder. It has already been shown that there is not more than about $10 difference in the rate of feeding for each animal unit. This will not make up for the great difference in receipts from each $100 worth of feed used. On the farms feeding at a loss, there are two possible reasons for this condition. The feeder may be a poor manager, wasting a great deal of feed, or trying to use feeds unsuited to his class of stock; also the stock fed may be low in their ability to utilize the feed in a way which will give the highest priced product in the end. Either or both of these conditions must be responsible for the poor showing made.

Cost-accounting figures on the labor required to feed the various classes of live stock indicate that ordinary farm methods require from $15 to $30 worth of labor to feed $100 worth of feed, but that it costs about $50 for the labor used in feeding feed worth $100 to dairy cows, so if a farmer is receiving $15 to $30 above the price of the feed he is making good wages on his feeding operations, except in the case of dairy cows, which must return him $150 for every $100 worth of feed used if he is to make wages. This rate of income from feeding will pay the operator from 15 to 20 cents an hour in wages for his work. These figures certainly indicate that there must be some definite relation between the efficiency of feeding operations and the yield of various crops to the income which the operator receives for his time.

TABLE 16.—EDUCATION OF OPERATOR

Labor income	More than rural school education
	Per cent
—$ 500 or less[1]	20.8
— 500- 0	10.6
0- 200	13.4
201- 400	12.7
401- 600	13.8
601-1000	15.8
1001-2000	25.6
Over-2000	43.7

[1]A minus sign (—) before the labor income figure means a loss and not a gain of the amount indicated.

Another factor which should have some influence on the success of a farm operator is the education which he has had. Table 16 gives the percentage of farmers in the various groups who have received more than a rural school education. From 10 to 15 per cent of the less successful farmers have received more than a rural school education, and from 20 to 40 per cent of the more successful ones have had more than a rural school education. Other studies at this station indicate the importance of education.[1]

Table 17 shows the number of men on farms of a certain size that received different incomes. For instance, on the farms of less than 80 acres 23 per cent made a labor income of 0 or less; 51 per cent made a labor income of between 0 and $400; 24 per cent made between $400 and $1000; and only 2 per cent made more than $1000. Evidently a man's chances on 80 acres for making $1000 are small judging from what these farmers did. A man could reasonably expect about $1 per

TABLE 17.—THE PROPORTION OF MEN ON FARMS OF CERTAIN SIZE GROUPS RECEIVING VARIOUS LABOR INCOMES.

Size of farm	Labor income received				
	$0 or less	$0–400	$401–1000	Over $1000	Total
Acres	Per cent	Per cent	Per cent	Per cent	Per cent
80 or less	23	51	24	2	100
81–200	18	36	33	13	100
Over 200	17	16	25	42	100

day for his time on a farm of this size. On the farms of from 81 to 200 acres 18 per cent made nothing or lost money, 36 per cent made $400 or less but lost nothing, 33 per cent made from $400 to $1000, and 13 per cent made over $1000. On farms of more than 200 acres a very much larger percentage made the larger incomes,—42 per cent made more than $1000, with 25 per cent making from $400 to $1000. Evidently a man's chances for making $1000 labor income are much better on farms of over 200 acres judging by what the men in this community did.

Another point of view is given in Table 18 which states the percentage of men receiving various labor incomes found on the different sized groups of farms. Of those getting 0 or less in labor income, 37 per cent were in the 80-acre-or-less group; 47 on the 80-200-acre farms, and only 16 per cent on farms of more than 200 acres in size. Of those getting from 0 to $400 or about $1 per day, 27 per cent were

on the 80-acre farms, 58 per cent on the 80-to-200-acre farms, and 15 per cent on the farms of more than 200 acres. Of those men getting more than $1000 labor income only four men out of 100 were able to do this on 80 acres of land; 45 men out of 100 did this on farms of 80 to 200 acres, and 51 per cent on farms of over 200 acres were able to do this. These tables show first what a man might expect to do on farms of a certain size,—second, if he desired a certain sized income, the size of farm on which he is most likely to get this income, assuming that he is comparable with the farmers in the region studied.

TABLE 18.—THE PROPORTION OF MEN RECEIVING CERTAIN INCOMES ON VARIOUS SIZED FARMS

Labor income	Per cent. of farms in each size group receiving certain labor incomes			
	80 A. or less	81–200 A.	201 A. and over	Total
	Per cent	Per cent	Per cent	Per cent
0 or less	37	47	16	100
0–$ 400	43	49	8	100
401– 1000	27	58	15	100
1001– over	4	45	51	100

From the foregoing tables the essentials of a profitable farm business have been summarized in an effort to give in a brief way the factors which have seemed to be the most important on the farms where good incomes were made compared with farms where less satisfactory incomes were made. The first factor noticed was that a good income required a good-sized business, which should include three things, (1) a sufficient number of acres for the greatest efficiency in the use of men and tools, (2) the proper amount and distribution of capital, and (3) a system of farming which makes the greatest possible percentage of its labor productive.

The first point means that the business should be large enough so that horses, tools, and men will be supplied with a full-sized job, but not so large that it is necessary to duplicate in machinery or work stock by adding some that are not kept busy. The second point means that the capital invested in land and improvements should be based on the quality of the land and on the efficiency of buildings and improvements. The farmer who has more capital invested in buildings and improvements than the efficiency of those buildings and improvements will justify is reducing his income by exactly the interest on this excess value plus the additional upkeep expense and sinking fund. Also the

man who pays a higher price for land than the productivity of that land or its convenience to market will warrant finds it difficult to stay in the labor income group to which his farm properly belongs. Few men in this region who went more than 10 per cent above average values for land in their immediate neighborhood have been able to pay the excess interest charge. This same study has indicated that distance to market influences the price of land at the rate of about $4.50 per acre for each mile in distance to market up to six miles. Beyond this point the change in land value with distance to market is only a dollar per acre for each mile, so that a variation of more than 10 per cent from this scale would probably not justify itself in increased return.

The second important consideration is the quality of the business. Quality depends upon having (1) land that will produce as large crops as possible, and (2) live stock that will give as good returns as possible for the feeding and labor given to it.

The third general factor seems to be a reasonable degree of diversity. In other words, the farmer who puts his eggs all in one basket or tries to fill a bushel basket with wren's eggs is running two risks—one of having his eggs all broken, or the other of never getting his basket filled.

SUMMARY

In the study of the records obtained from the western Johnson County survey region in 1912, from the standpoint of labor income received, some definite facts have been determined. About 40 per cent of the farmers of the region made less than $200 labor income. About 70 per cent made less than $600, or less than $2 a day for their time. The average labor income was about $1.35 per day.

It is difficult to make a big income or a big loss on a small-sized farm. The least successful farmers had more than 200 acres of land and the most successful farmers also had farms larger than 200 acres.

The men making the lowest labor income had a much higher investment per acre than the men making the highest incomes. Land value per acre on the least successful farms was $92 and on some of the most successful farms from $66 to $71. The average land value of the region was about $67.

The less successful farmer had 7 per cent more capital invested in real estate than did the more successful farmer. This difference in capital was invested in live stock in the case of the better class of farmers.

On the more successful farms the workmen handled from 60 to 100 per cent more crop acres than did the workmen on the less successful farms. Also the system provided nearly twice as many days of productive labor on the better farms.

The better farmers kept more live stock than did the less successful farmers. A larger proportion of this stock was in productive stock and less of it in work stock on the better farms.

The less efficient farmers received from $17 to $25 per animal unit from their cattle while the better farmers received from $37 to $47 from the same unit. With hogs the poorer farmers received $54 per animal unit while the better farmers received $130 per unit.

The more successful farms were more widely diversified,—having three important sources of income compared with an average of less than one important source on the farms of lower labor incomes. Sixty-eight per cent of the best farms had more than three important sources of income.

The farms with higher labor incomes made from three to five times as much net income per acre from crops and stock as did the less successful farms.

Crop yields on the farms with the highest incomes were a half more than on the farms with the lowest incomes,—the index on the best farms being 124.8 and on the poorest farms, 86.8.

The farmers realizing the better incomes used one-fifth less feed for each animal unit of live stock kept, but realized four times as much in return for each $100 worth of feed used.

One man in seven on the farms with lower incomes has had more than a rural school education. One in three on the more successful farms has had more than a rural school education.

THE ESSENTIALS OF A PROFITABLE FARM BUSINESS

I. A good-sized business

a. A sufficient number of acres for maximum efficiency. This will mean not less than 120 acres and not more than 500 acres for average conditions, preferably between 200 and 400 acres.

b. The proper amount and distribution of capital. An investment representing about the average for the region concerned both in amount and in distribution is usually safest. In the region studied $70 to $90 investment per acre with about 80 per cent in real estate, 14 per cent in live stock, and the remainder in machinery, supplies and cash, is about the condition under which farmers did the best.

c. A system which furnishes a maximum of productive labor. Not less than 160 productive work days per man or 50 productive work days per horse.

II. A high-quality business

a. Good crop yields. Crop yields should be equal to or better than the average of the community. Crop yields ten to twenty per cent above the average of the community are usually justified and make profits easy.

b. Good returns from feeding operations. Live stock should return at least $140 for every hundred dollars worth of feed used to insure good wages for a man's time. Some of the best feeders are able to get as much as $200 for each hundred dollars worth of feed used.

III. Reasonable diversity

a. At least three important sources of income. Where special conditions do not justify specialized farming, a farmer should have at least three important sources of income and probably not more than six sources.