

Canada's First Farm Survey

What It Revealed Regarding the Various Factors that Affect the Farmer's Income

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In the early part of October, 1917, the announcement was made that a farm management survey was about to be started in Caledon Township, Peel County, Ontario, by the Farm Department of the Ontario Agricultural College. Although such a step had been under consideration for several years, it was not until last spring that an appropriation was made to permit of the carrying out of the work. Actual field operations were commenced on October 8.

During October and November, records of one year's business transactions were taken for each of 113 farms in Caledon Township. The records were itemized and included a statement of the subdivision of the farm into woods, waste, pasture land, and acres under different crops, yields per acre of all crops, sales of cash crops, feed and seed bought, livestock on hand at both the beginning and end of the year, together with purchases and sales of stock during the year, and receipts from stock products, current expenses, an inventory of buildings and machinery, with an estimate of the value and future life of each building and machine. In the current expenses was included a charge for all labor, save that of one man, who was called the operator. Any unpaid family labor was charged at what it would have cost if hired. No account was taken of what was supplied by the farm directly to the table.

From the figures so obtained, the "labor income" for each farm was calculated. From the net receipts of the farm (after deducting all current expenses and depreciation on buildings and machinery), interest at five per cent. on the total capital was taken. The remainder was termed the "labor income" of the operator—or the amount of money which he received for his labor and supervision. As the labor income is what the farmer is working for, the purpose of the survey is to determine what influence each factor in the farm business exerts upon it. The basis of study is the comparison of the methods of the men having high labor incomes with the methods of those having low incomes.

Complete Records of 82 Farms

Not all of the 113 records, however, were found to be available for study. Owing to scarcity of labor, and the general rush of fall work, many men were unable to thresh their crops until very late in the season. For this and some minor reasons in individual cases, only 82 records could be used in the final tabulations. With such a small number of farms, only a very limited number of factors could be studied. All comparisons are made for the average farm; that is to say, the individual farms are grouped according to the particular factor under consideration, and averages taken for each group. Now when the number of farms is sufficiently large—say 400 or more—the law of averages will eliminate all factors, save the one being studied. But with a small number in each group, the average may be affected by some other influence. For instance, if the factors of "livestock efficiency" were being studied, the farms would be divided into several groups according to receipts obtained per livestock unit. Now with a large number of farms in each group, the average "number of acres per farm" would be approximately the same in each group—the proportions of large, medium-sized, and small farms in the group having lowest returns would be the same as those in the other groups. This would get rid of the factor of "size of farm." Likewise, all other factors would be eliminated by this law of averages, save the factor of "returns from livestock," according to which the farms were grouped. Then, any difference in the average "labor income" could be attributed directly to the influence of livestock returns.

All other factors may be studied in like manner, and in certain cases the influences of two factors may be studied together. But, it may be seen quite easily that where the total number of farms is small, the law of averages cannot play such an important part in the analysis. Hence, the reason for such limited results from the Caledon Township survey. In each subsequent survey, the aim of the department is to make 400 farms the minimum.

As far as possible, an analysis was made of the facts brought out by 82 complete records taken in Caledon Township, and some very interesting

The results of this, the first work of its kind attempted in Canada, are of value to Western farmers in that they confirm the findings of similar surveys conducted in various parts of the United States and under widely varying conditions, and may be assumed therefore, to apply in a measure to farms in the West. The farm survey has done more than anything else to assist in determining the factors which contribute to the success of the most prosperous farmers.

results were obtained—results which may be applied to any "mixed farming" area in Ontario. There is practically no specialization in the surveyed area. Three "cash crops" are grown fairly extensively—wheat, alsike clover seed, and potatoes. Only two of the surveyed farms could be classed distinctly as "dairy" farms, though most of the farmers sell cream during the summer months. Beef cattle and hogs are the main sources of income, while sheep are beginning to occupy quite an important place in the farm business. The percentage of rough pasture land is fairly high, though certain farms are probably 98 per cent. tillable. In order to compare farms on which the percentage of waste land, or untillable pasture land was comparatively high, with those which were practically all tillable, a basis of "adjusted tillable area" had to be adopted. It is considered that about four acres of rough pasture or six acres of pastured woods are equal to one acre of tillable land. Hence, to the "tillable area" of each farm was added one-quarter of the number of acres of non-tillable pasture, and one-sixth of the number of acres of woods pastured. The total was called the "adjusted tillable area" and the grouping according to size was made on this basis.

Table 1 shows one very striking result—that the amount of labor income increases directly with the acreage of the farm, or, otherwise, increases directly with the size of the farm business. All the farms were engaged in practically the same type of farming. As will be seen, the average labor income for the group of farms under 85 acres

explanation for this fact. In the first place, although the capital invested in buildings and machinery varies more or less directly with the total farm capital, it is somewhat higher on the small farms—37.7 per cent. as compared with 32.7 per cent. And this higher percentage, deducted from an already small total capital, leaves a much too small amount of productive capital to permit of even a moderately high labor income. In the second place, the man and horse labor is more costly on the small farm than on the large. On the small farms one man performed the labor on only 46.9 acres, and one horse on 18.5 acres, whereas on the large farms one man performed the labor on 63.4 acres and one horse on 22.5 acres. Nor were the small farms farmed more intensively. In fact, the average crop yields per acre on the small farms were 11.8 per cent. lower than on the large farms. The highest crop yield averages were on the two intermediate groups, these being about equal, and being 20 per cent. higher than on the small farms.

An Individual Farm

In sending reports to the individual farmers, from whom records were taken, the actual figures for the farm are inserted. The figures are inserted in the column in which the farm was placed, and so each farmer may compare the figures of his own farm with the average figures for that group, at the same time as he compares the averages for the different groups. By inserting the actual figures for one of these farms, this may be demonstrated more clearly. (See "your farm" in table 1.)

This farm was under 85 acres in extent, and hence belongs to the first group. In size it is slightly larger than the average, but the capital investment is somewhat lower. In machinery, this farm is but very meagrely equipped, which is undoubtedly the cause, to some extent at least, of the crop yields being only 40 per cent. of the average for the district. The quality of the livestock is also very low, each unit yielding a gross receipt of only \$40.30, or a profit over feed consumed of only \$4.20. The net result is the pitifully small income of \$221 for the operator's twelve months of hard labor. The figures show clearly that what the operator of this farm must have, before he can make even a moderately high labor income, is sufficient capital at a reasonably low rate of interest, that he may be able to equip his farm with proper machinery and better livestock. Similarly may conclusions be drawn by each man from the actual figures for his farm, shown on the report sent to him, and, he may at the same time compare his own figures with the averages for the other groups.

Table 2 (page 19) shows relative influences of crop and livestock production on labor income. Owing to the difference in average size of farm in the various groups, the "labor income per acre" has also been calculated. It will be seen on comparing both groups with livestock below the average, that an increase in efficiency of crop production means an increase in labor income of \$469—or an increase of \$3.00 per acre. Likewise in the groups with livestock above the average, an increase in crop production increases the labor income by \$483—or \$3.40 per acre. But on comparing the two groups with crops below the average, it will be seen that an increase in returns from livestock adds \$539 to the labor income—at the rate of \$4.65 per acre. And comparing the two groups with crops above the average, we find that an increase in stock returns means an addition of \$553 to the labor income—or \$5.05 per acre. Otherwise, if we make a comparison of the group with both crops and stock below the average

with the group underneath and the group to the right, we see that with stock the same and crops increased, the rise in labor income is \$469, or \$3.00 per acre, whereas with crops the same and stock returns increased, the rise in labor income is \$539, or \$4.65 per acre. Thus, the conclusion is necessarily reached that in the area surveyed, the greatest opportunity for raising the labor income lies in increasing the quality of the livestock.

Table 3 adds further proof to the well-known law that after a certain degree of production has been reached, a higher degree cannot be attained without

Table 1.—Influence of Size of Farm on Labor Income

Acres	Under 85	86-100	101-150	151-241
No. farms	25	16	22	19
Size—Average	72.3	93.2	129.6	175.3
Your farm	78			
Capital—Average	6944	8942	12635	16111
Your farm	4730			
Capital in Buildings—Average	2192	2678	3093	4472
Your farm	1400			
Capital in Machinery—Average	422	510	598	789
Your farm	232			
Productive Capital—Average	4330	5754	8344	10850
Your farm	3098			
Percentage of Capital in Buildings and Machinery—Average	37.7	35.7	34.0	32.7
Your farm	34.5			
Crop Acres per Horse—Average	18.8	21.1	20.6	22.5
Your farm	18			
Crop Acres per Man—Average	46.9	58.0	60.5	63.4
Your farm	54			
Labor Income—Average	\$507	\$891	\$1091	\$1581
Your farm	\$221			
Average of all farms				
Receipts per Livestock Unit		\$74.70		\$40.30
Feed per Livestock Unit		56.80		36.10
Profit per Livestock Unit (over cost of feed)		17.90		4.20
Crop yields		100%		40.00

NOTE.—A Livestock Unit is one mature cow or horse, or proportionate number of smaller animals, maintained for one year—2 head young cattle, 7 sheep, 100 hens, hogs according to weight. (Sometimes abbreviated to L.S.U.)

in extent was \$507, whereas that for the group over 150 acres in extent was \$1581, those of the other two groups ranging proportionately between.

Why Small Farms Are Unprofitable

The low average of the "small farms" group indicates that on these farms the farm business is too small to pay the necessary overhead expenses, common to all sizes of farms, and leave enough profit to pay the operator more than laborer's wages. In fact, in a year when prices of farm products are normal, these men very probably work for nothing.

Looking more closely into the matter, we see the

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