RR

The Dairy Farming Business in Eastern Ontario

During the Year Ending April 30th, 1918.

A Survey of 340 Dundas County Farms

BY THE

Department of Farm Management

ONTARIO AGRICULTURAL COLLEGE, GUELPH, ONTARIO

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Following the Survey in Oxford County, Western Ontario, in the Spring of 1918, the results of which have been published by this Department in pamphlet form, entitled "The Dairy Farming Business in Western Ontario," similar data were collected from 340 farms in Dundas County, covering the farm business year of May 1, 1917, to April 30, 1918. From these data a study was made of the Dairy Farming business, under conditions prevailing in Eastern Ontario. In the County of Dundas, there are three markets for milk—the cheese factory, the condenser and the city wholesale trade (Montreal)—hence this county was selected as typifying general dairying conditions in the Eastern part of the Province. Records were taken from farms in all four townships of the County, the largest proportion being included in a seven mile strip running from the southwest corner of Matilda to the northwest corner of Winchester.

FINDINGS OF THE SURVEY

On completion of the analysis of the data collected, the following conclusions were reached:—

1. That while the average large farm produces a larger Labor Income than does the average small farm, it is possible, by proper organization, to raise the Labor Income of a farm of 75 acres or more to a reasonably, substantial figure.

2. That the clearing up or draining of waste land on a farm already established, is a profitable investment at as high a cost as $90 per acre.

3. That the quality or producing capacity of the farm live stock is the most important factor in the dairy farming business.

4. That a high crop yield tends to produce a high Labor Income but may easily result in a loss if fed to poor stock.

5. That the grade herd sire will be doomed by all stockmen who study Table No. 6 of this pamphlet.

6. That all-year dairying permits of a better organization of farm business than does summer dairying—with profits increased accordingly.

7. That the most profitable degree of specialization in dairy farming is governed entirely by the selling price of milk:—

(a) If that price be more than $2.00 per cwt. specialization up to 90% of the total income is profitable.

(b) But if the price be less than $2.00 per cwt., side-lines must be utilized to produce at least 30% of the total income.

(c) No matter what the price the dairyman cannot afford to neglect all side-lines.

8. That the average producing capacity of the dairy herd determines whether or not it is advisable to increase the farm expenses for labor and feed. The Labor Income may be kept up by extreme hard work on the part of the operator, but good cows will more than pay for the hiring of extra help, and thereby lessen the amount of work per man to be done on the farm.

9. That the cost of producing milk on 194 Dundas County Farms ranged from $1.00 to $4.00 per cwt., depending on the farm efficiency.

10. That the average cost of production of milk could be reduced by better breeding, more careful feeding and proper utilization of side-lines.

METHOD OF COLLECTING DATA

To collect the information necessary for this investigation, men were sent to the individual farms to get detailed accounts of all farm transactions from May 1, 1917, to April 30, 1918. Special forms were used, which enabled the enumerator to ask questions in a logical manner and thereby assist the farmer's memory in regard to the minor details of his business. The large items he could remember without assistance, even though he kept no books. Record was made of the number of acres under each crop grown, and in pasture, waste, or woodlot, of the yields of the various crops and the amount of each sold during the year, the amount of feed purchased within the year, and the amount of feed on hand at the beginning and end of the year. Next followed an inventory of all live stock on hand, together with purchases, sales and deaths of stock during the year, and receipts from all live stock products (milk, eggs, wool, etc.) Then the current expenses were itemized—taxes, labor, repairs to buildings and machinery, threshing, silo-filling, binder twine, etc. Finally came the valuation of buildings and machinery, with an estimate of the further life of each building and machine, and the valuation of the farm itself, in order to arrive at the total amount of capital invested in the farm business.

LABOR INCOME

From the information gathered in the field, the Labor Income of each farm was calculated. The methods followed is briefly, as follows:—

(1) All farm receipts for the year are totalled—crops sold, live stock and stock products, miscellaneous.

(2) All expenses for the year are totalled—all current expenses and depreciation on buildings and machinery. (In current expenses, a charge is made for labor performed by members of the family who work for no stated wages. The farmer is asked to estimate the amount he would have to pay out if he hired men to do the work which is done by his family. This places the farmer who has no family on the same basis, so far as labor is concerned, as the man with a large family of grown up boys).

(3) From the total receipts is deducted the amount of the total expenses, which shows the farmer's net revenue for the year—the income both from his labor and from the interest on his capital invested.

(4) Interest at 5 per cent. on capital invested is deducted from the amount of net revenue. The balance is the amount he earned by his labor and managing ability—and is termed **Labor Income.**

In calculating the total receipts and current expenses, due allowance is made for any increase or decrease in value of live stock or for any difference in the amount of feed on hand at the beginning and end of the year.

The Labor Incomes of the farmers in Dundas County varied from less than nothing to more than $3,000. The causes of this variation are set forth in the following pages.

EXPLANATION OF OTHER TERMS

Animal Unit—A mature cow kept on the farm for 12 months is termed **one animal unit or live stock unit.** Other animals are fractional units based on the relative amount of feed consumed. Hence a farm having 20 animal units, has sufficient live stock to consume the same amount of feed as 20 mature cows.

Live Stock Index—The receipts per animal unit on each farm is calculated, and the average of all farms taken. This average is called 100. A farm having a Live Stock Index of 110 is 10 per cent. above the average, while one having a Live Stock Index of 90 is 10 per cent. below the average.

Crop Index—The yield of crops over the whole area is averaged and the average is called 100. A Crop Index of 110 denotes crops 10 per cent. above the average, while one of 90 shows crops 10 per cent. below the average in yield.

Tillable Area—The rough pasture land and pastured woods add to the feed produced on the farm, and hence must be taken into consideration. It is considered that 4 acres of rough land or 8 acres of woods pastured will produce the same amount of pasture as 1 acre of tillable land. Hence to the actual tillable acres of each farm was added one-quarter of the number of acres of rough pasture and one-eighth of the number of acres of pastured woods. This new figure was taken as the Tillable Area of the farm, and used as the basis in grouping the farms according to size.

INFLUENCE OF SIZE OF FARM ON LABOR INCOME

TABLE NO. 1.

Size	21 to 45 Acres	46 to 60 Acres	61 to 75 Acres	76 to 90 Acres	91 to 110 Acres	111 to 135 Acres	136 to 160 Acres	Over 160
No. of Farms	27	49	36	54	61	34	8	9
Avge. Size	47	62	83	99	114	159	185	236
Avge. Tillable Area	39	51	69	83	99	122	145	200
Avge. Crop Acres	29	37	52	60	68	87	97	140
Avge. Total Capital	$ 6923	$ 9039	$11789	$13356	$15872	$17254	$22050	$24678
Avge. Capital in Real Estate	$ 4655	$ 6094	$ 8208	$ 9154	$10752	$12076	$15750	$13389
Avge. % Cap. in Real Estate	67	67	70	67	68	70	71	74
Avge. Capital in Buildings	$ 2611	$ 2937	$ 3579	$ 3893	$ 4553	$ 4563	$ 5156	$ 5722
Avge. % Cap. in Buildings	38	32	30	29	29	26	23	23
Avge. Cap. in Machinery	$ 643	$ 760	$ 922	$ 1070	$ 1289	$ 1340	$ 1526	$ 1320
Avge. % Cap. in Machinery	9	8	8	8	8	8	7	5
Avge. Cap. in Live Stock	$ 1512	$ 2008	$ 2431	$ 2896	$ 3518	$ 3556	$ 4240	$ 4506
Avge. % Cap. in Live Stock	22	22	21	22	22	21	20	18
Avge. Capital in Feed	$ 108	$ 190	$ 226	$ 230	$ 312	$ 282	$ 333	$ 464
Avge. Crop Acres per man	22.3	25	32	31	33	38	34	48
Avge. Crop Acres per horse	12.4	13	15	14	15	18	18	23
Avge. Live Stock Index	94	100	102	101	107	97	98	104
Avge. Crop Index	93	98	94	99	98	94	112	85
Avge. Crops Sold	$ 62	$ 131	$ 192	$ 172	$ 180	$ 150	$ 255	$ 371
Avge. Value Milk per Cow	$ 84	$ 93	$ 100	$ 94	$ 106	$ 96	$ 86	$ 101
Avge. Feed Bought	$ 211	$ 392	$ 410	$ 302	$ 497	$ 477	$ 585	$ 437
Avge. Depreciation on Buildings and Machinery	$ 161	$ 196	$ 236	$ 251	$ 304	$ 313	$ 400	$ 417
Avge. Labor	$ 127	$ 183	$ 290	$ 394	$ 455	$ 593	$ 852	$ 930
Avge. Total Current Exp.	$ 554	$ 881	$ 1036	$ 1076	$ 1405	$ 1533	$ 1981	$ 2113
Avge. Labor Income	$ 399	$ 555	$ 853	$ 983	$ 1080	$ 1061	$ 1460	$ 1738
Avge. Labor Income on Best Farms	6 Farms $ 838	10 Farms $ 1227	10 Farms $ 1583	10 Farms $ 1729	10 Farms $ 2161	9 Farms $ 2007	4 Farms $ 2079	3 Farms $ 2705

INFLUENCE OF SIZE OF FARM ON LABOR INCOME

A study of Table 1 shows at a glance that the amount of the Labor Income increases with an increase in size of farm. This is not a new discovery, but not until now has it been determined just how much influence the size of farm exerts. In order to study this table with less confusion, a smaller table has been prepared (Table 1A.), which contains only the chief comparative points embodied in Table 1.

TABLE NO. 1A.

Size (Tillable Area)	21 to 45	46 to 60	61 to 75	76 to 90	91 to 110	111 to 135	136 to 160	Over 160
Total Capital..	$ 6923	$ 9039	$11789	$13356	$15872	$17254	$22050	$24698
% Capital in Buildings ..	38	32	30	29	29	26	23	23
% Capital in Machinery ..	9	8.4	8	8	8	8	7	5.3
% Capital in Live Stock ..	22	22	21	22	22	21	20	18
Crop Acres per man	22	25	32	31	33	38	34	48
Crop Acres per horse	12	13	15	14	15	18	18	23
Crop Index ...	93	98	94	99	98	94	112	85
L. S. Index ...	94	100	102	101	107	97	98	104
Milk Sales per Cow	$ 84	$ 93	$ 100	$ 94	$ 106	$ 96	$ 86	$ 101
Labor	$ 127	$ 183	$ 290	$ 394	$ 455	$ 593	$ 852	$ 930
Labor Income.	$ 399	$ 555	$ 853	$ 983	$ 1080	$ 1061	$ 1460	$ 1738
	6 Farms	10 Farms	10 Farms	10 Farms	10 Farms	9 Farms	4 Farms	4 Farms
Labor Income (Best Farms)	$ 838	$ 1227	$ 1583	$ 1729	$ 2161	$ 2007	$ 2079	$ 2705

The main reason for the small Labor Income from the small farm is, of course, due to the fact that a small acreage can produce only a small total revenue. Coupled with this is the fact, as shown in the above table, that 47% of the capital invested in the smaller farm is non-productive (buildings and machinery) whereas only 28.3% of the capital invested in the largest group of farms is non-productive. Interest, taxes, insurance, etc., must be paid on this higher proportion of non-productive capital, out of the already small total revenue, which can leave only a very small Labor Income from the small farm. The larger farm has also the advantage of more economical use of man and horse labor, as is shown in the table. There is no great variation in Crop Index or Live Stock Index, no group of farms being above the average in both crops and stock.

At one point the size of farm does not appear to exert much influence on the Labor Income. The 111-135 acre group has a slightly smaller average Labor Income than has the 91-110 acre group. But on looking back at the large table (No. 1) an axplanation of this may be found. In actual size the larger farm has 45 acres more than the

smaller, but the actual amount of capital invested in live stock is practically the same in each case. Now the farm which is 45 acres larger would have, without doubt, the greater number of animals. Hence the conclusion must be reached that these animals were of poorer quality. This conclusion is borne out by the fact that the live stock index for the larger group is 10% less than for the smaller. Also despite an increase in crop area of 19 acres, the larger farms purchased almost as much feed per farm and sold less cash crops. To work this extra 19 acres and to care for the greater number of head of stock, an extra expenditure of $138 for labor was required. The stock was of such poor quality that it did not pay for this extra feed and labor—hence the labor income was not raised.

But the size of Labor Income does not depend solely upon the size of the farm. It will be noted that the ten best farms of from 46-60 acres tillable land made a 20% higher Labor Income than the average farm of 111-135 acres. Likewise the ten best 76-90 acre farms (average 100 acre farms with waste land and woods deducted from acreage) made practically the same Labor Income as did the nine largest farms in the district. Thus it is shown that on farms of 75 acres or more it is possible, by proper organization of the farm business, to raise the Labor Income to a reasonably substantial figure. Some of the factors of successful organization are shown below.

CLEARING UP OF WASTE LAND

The clearing up of waste land, draining of swamp, etc., if it can be done at a reasonable price per acre proves an excellent investment; see Table No. 2.

TABLE NO. 2.

CLEARING UP OF WASTE LAND ON 73 HUNDRED-ACRE FARMS

Tillable Acres	No. of farms	Aver'ge Tillable Acres	Area	Selling Value of farm	Capital in Live Stock	Labor	Feed Bought	Total Current Expenses	Labor Income
Under 86	36	73	56	$ 8811	$2840	$377	$302	$1055	$ 893
86-100	37	94	67	$10716	$3535	$464	$456	$1359	$1067

All the hundred acre farms in the survey (73 in number) were used for this tabulation. They were divided according to the actual number of acres at present fit for cultivation. The first 36 had an average of 73 acres of tillable land, the balance being woods or swamp. The remaining 37 were almost entirely cleared up, having an average of 94 acres tillable. Notice the increase in selling value—$1,905. The clearing up of 21 acres brought this increase in value. And it enabled the average farmer of this group to increase his business in crops and stock, so that besides the 5% interest on this extra capital, he had an increase of $174 in Labor Income. Therefore at as high a rate as $90 per acre (1905 divided by 21) the clearing up of waste land may be considered a profitable investment.

Note—$90 per acre besides the original cost would be too high a figure for the clearing of a whole farm with no buildings, but would be profitable in increasing the size of a farm already established.

GOOD LIVE STOCK AND LABOR INCOME

TABLE NO. 3.

Quality of Live Stock	No. of Farms	Labor Income	Crop Index	Feed Bought Per Farm	Labor Per Farm
Under 66% of Average ..	12	$ 343	95	$138	$273
66-80%	42	$ 497	98	$190	$360
81-95%	85	$ 750	97	$371	$390
96-110%	60	$ 990	103	$403	$388
111-130%	50	$1182	96	$581	$416
Over 130% of Average.. ..	29	$1496	93	$559	$491

That the quality of the live stock kept is a very great factor in raising or lowering the Labor Income is clearly shown in Table No. 3. Farms of all sizes are included in each group, which eliminates any effect of size of farm on the labor income. And the crop index—or percentage crop yield—is practically 100, the average of the whole area, in each group. All other factors will be disposed of the same way. The variation in the amounts of Labor Income is due entirely, therefore, to the difference in quality of live stock. The highly productive dairy cow requires more concentrated feeds and more labor, as is shown in the last two columns of the table, but the Labor Income column shows just how well she pays for it.

INFLUENCE OF CROP YIELDS ON LABOR INCOME

TABLE NO. 4.

Yield of Crops	No. of Farms	Labor Income	Live Stock Index	Feed Bought Per Farm	Labor Per Farm
Under 66% of Average	33	$732	97	$348	$320
66-80%	39	$940	103	$511	$426
81-95%	64	$850	101	$336	$360
96-110	59	$985	102	$440	$375
111-130%	57	$904	101	$402	$422
Over 130% of Average	26	$976	96	$357	$435

Although the farms were grouped according to crop yields for this tabulation, the final result seems to have the effect of substantiating

the conclusions drawn from Table No. 3, more than anything else. The slight increases or decreases in the Live Stock Index column offset the much greater variations of crop index. But on comparing the group under 66% in crop yields with the group over 130%, these groups having practically the same live stock index, it is seen that the increased crop yield has increased the Labor Income by some $244. Likewise if the 81-95% group be compared with the 111-135% group (both having the same live stock index) it may be seen that the increased crop yield has had its effect in increasing the Labor Income.

COMPARATIVE EFFECTS OF GOOD CROPS AND GOOD LIVE STOCK ON AMOUNT OF LABOR INCOME

TABLE NO. 5.

Farms With	Poor Live Stock	Medium Live Stock	Good Live Stock
Poor Crops	Labor Income—$615 Live Stock Index—79	Labor Income—$799. Live Stock Index—98	Labor Income—$1300 Live Stock Index—136
Medium Crops	Labor Income—$551 Live Stock Index—79	Labor Income—$967 Live Stock Index—101	Labor Income—$1326 Live Stock Index—130
Good Crops	Labor Income—$586 Live Stock Index—77	Labor Income—$1016 Live Stock Index—100	Labor Income—$1284 Live Stock Index—130

It may be seen at a glance that the deduction made from Table No. 4 was correct—that the quality of live stock exerts a much greater influence on the Labor Income than does the yield of crops. This does not mean that the crop growing end of the business should be neglected, but it shows that an excellent crop yield may prove a financial loss if fed to cows having a low milk yield or to other stock which are naturally unthrifty.

THE PURE-BRED HERD SIRE

TABLE NO. 6.

	No. of Farms	Milk Sold per Cow	Feed per Cow	Profit Over Feed
Grade Sire	148	$ 86	$64	$22
Pure-Bred Sire, under 5 years	47	$102	$66	$36
Pure-Bred Sire, 5-10 years	44	$107	$65	$42
Pure-Bred Sire, over 10 years	39	$111	$68	$43

So self-evident are the facts shown by this table that comment is scarcely necessary. The most surprising feature brought out is the

large percentage of dairy farmers who still use grade sires to head their herds. If these men will study this table carefully for about ten minutes, the grade sire will have lost all his friends. Just a word to point out that on practically the same amount of feed per cow the graded-up dairy herd returned just twice as much profit as did the herds having no pure-bred blood. Where the receipts from milk amount to more than half of the total farm receipts, this factor is rather important.

POSSIBILITIES OF ALL-YEAR DAIRYING

TABLE NO. 7.

	No. of Farms	Labor Hired	Feed Bought	Labor Income
Farms selling nearly all of year's milk from April 1st to Sept. 1st	216	$381	$364	$ 886
Farms selling over 40% of year's milk from October 1st to April 1st	35	$451	$647	$1148

Only a very small number of farmers in Dundas County sell milk throughout the entire year—or at least who sell more than a very limited quantity during the winter months. The chief reason is probably, that winter markets are harder to reach. Many cheese factories are closed during the entire winter season. But where a market can be reached, the production of milk during the winter season is a profitable business. The cost of production is undoubtedly higher but the increased winter price more than makes up for that. Besides which the extra feeding keeps the cows in good condition throughout the whole year. Table No. 7 shows that 35 farms which increased their average labor by $70 and average feed bill by $283 to produce winter milk did so at a final average profit of $262.

SPECIALIZED DAIRYING—DOES IT PAY?

In endeavoring to find out the extent to which specialization in milk production was profitable during the year of this survey, it was deemed advisable to divide the farms into two groups according to the price received for milk sold. The first group contained all farms which received an average of **less** than $2.00 per hundred-weight—cheese factory patrons chiefly. The second group consisted of all farms which received an average of **more** than $2.00 per hundred-weight—largely condenser patrons and those who shipped direct to the Montreal market. Each group was sub-divided according to the percentage of farm revenue received from the dairy herd.

TABLE NO. 8.

A—Cheese Factory Patrons

Percentage Receipts from Dairy Herd	No. of Farms	Labor Income	Labor Per Farm	Receipts per cow —Milk	Feed Bought	Crops Sold Per Farm
Below 51%	18	$1067	$465	$70	$464	$366
51-60%	40	$ 931	$396	$80	$446	$202
61-70%	62	$ 904	$347	$81	$284	$148
71-80%	46	$ 741	$338	$93	$317	$123
81-90%	15	$ 560	$356	$93	$356	$ 62

B—Condenser Patrons and Milk Shippers

Percentage Receipts from Dairy Herd	No. of Farms	Labor Income	Labor Per Farm	Receipts per cow —Milk	Feed Bought	Crops Sold Per Farm
Below 71%	16	$ 949	$460	$ 96	$500	$291
71-80%	29	$ 841	$376	$105	$580	$155
81-90%	21	$1238	$421	$139	$418	$151
91-100%	18	$1175	$579	$159	$478	$ 65

The first casual glance at these tables shows the tendency to specialize produced by the market catered to. Table No. 8-B shows only 16 farms out of 84 receiving less than 71% of their farm revenue from the dairy herd, while Table No. 8-A shows 120 farms out of 181 utilizing sources other than the dairy herd for 30% or more of their gross revenue.

Those men who specialized to a greater degree than 70%, and sold to cheese factories, did so at a very material loss. The selling of some cash crops and the feeding of other live stock, particularly hogs, was more profitable than high specialization in milk production.

On the other hand those who sold to condensers and the Montreal market found it profitable to specialize up to 90%, as is indicated by Table No. 8-B. But those who neglected all other sources of income, suffered by so doing. Even where cows are of high quality and the price for milk is good, the dairyman cannot afford to neglect all side lines. As in any other manufacturing business, the side lines or by-products, if judiciously handled, help to reduce the cost of the main article of the business—with a corresponding increase in profits.

ECONOMY IN FARM EXPENSES

TABLE NO. 9.

Current Expenses	Farm Organization	No. of Farms	Live Stock Index	Labor Per Farm	Feed Bought Per Farm	Capital in Live Stock	L. S. U. * Per Farm	Crop Acres per Man	Labor Income
Low	Good	30	98	$111	$111	$2004	19.1	42	$1166
	Poor	27	76	$139	$117	$1916	15.7	33	$ 416
Low Medium	Good	31	105	$313	$258	$2616	22.6	32	$1392
	Poor	36	83	$361	$236	$2520	21.8	31	$ 434
Average	Good	22	113	$344	$318	$2889	23.9	28	$1446
	Poor	27	93	$459	$322	$2871	24.7	31	$ 524
High Medium	Good	17	117	$456	$533	$3209	27.5	29	$1501
	Poor	18	93	$477	$563	$3322	25.9	29	$ 461
High	Good	25	133	$517	$878	$3467	27.1	26	$1546
	Poor	28	104	$481	$798	$3285	24.0	25	$ 280

*L. S. U.—Live Stock Units or Animal units.

ECONOMY IN FARM EXPENSES

From a study of Table No. 9, it may be said that the farm organization determines whether or not strict economy in farm expenses is profitable. The "good" farms (that is the well organized farms) show a steady advance in Labor Income, with an advance in expenditure for labor and feed. (Labor and feed are the chief items of expense on the dairy farm). These farms are organized to profitably utilize the labor throughout the entire year and the live stock on these farms is of such quality that the increase in feed and care meets with a profitable response. On the other hand, the "poor" farms show greatest profits where the expenses are the average of the district. Either raising or lowering the expenditure for labor and feed results in lowering the Labor Income. It will be observed that in all cases except that of high expenses, the live stock returns were below the average. In this one case so much feed and care were required to raise the stock returns that the result was even worse than in the first group where the stock was neglected to the extent that the returns were only 76% of the average. Poor cows will respond to a certain degree to good feeding and care—but their powers are limited. The dairyman must therefore, regulate his expenses according to the producing capacity of his cows.

Another feature of the farm business brought out by this table is that the Labor Income can be kept up by extreme hard work on the part of the operator. The operators of the "good" farms of the Low expense group kept up their Labor Income by working 42 crop acres each. Their labor charge of only $111 indicates that they employed labor only during the harvest. With practically no help also, these men cared for an average of 19.1 units of live stock, which they maintained in such a manner that they yielded only 2% below average. But the next lower group, by employing more labor and buying slightly more concentrated feeds for their cows increased their average Labor Income by $226, while each man worked only 32 crop acres. As was stated previously the extent to which this increase in farm expenses can be carried profitably, is determined by the quality of the dairy herd—as a comparison of the "good" and "poor" farms in various groups clearly shows. It is understood that in many instances, during 1917, the farmer had to do all his own work because farm labor could not be procured, but these figures disprove the theory, advanced by some, that the only road to success in farming is in keeping expenses down to a minimum.

The Cost of Production of Milk.

The method employed in calculating the cost of milk production differed somewhat from the method used in making all other tabulations. For this purpose the farmer was allowed $500 wages for the year, which amount was added to the farm's current expenses. Also, an extra 2% interest on investment was allowed—making 7% altogether. As many lines of secure investment during the year 1917 offered as high as or higher than 7%, this rate was considered fair in calculating cost of production. Only farms receiving more than 50% of their revenue from the dairy herd, were used for this purpose. Farms receiving less than that percentage were not considered to be "dairy" farms. On the "dairy" farms, milk production was considered to be the business in hand. All other sources of income were taken to be "side lines," which would have the effect of lowering or raising the cost of milk according to whether they, in themselves, were profitable or otherwise.

A concrete example will explain better than description, the exact method used:—

FARM NO. 148.

Size—98 acres.
Number of cows—20.
Total Capital—$15,022.
Milk Sold—114,876 lbs.

Expenses	
Labor Hired	$ 600
Feed Bought	395
Repairs	96
Taxes	141
Other Farm Expenses	239
Depreciation on Buildings and Machinery	288
Decrease in Feed on hand	11
Interest on Capital—7%	1,051
Labor of operator	500
Total Expenses	$3,321
Revenue	471
Cost of Producing Milk	$2,850

Revenue Other Than Milk Receipts	
Crops Sold	$ 136
Increase and Sales of Cattle, Sheep, Hogs and Poultry	275
Eggs Sold	50
Maple Syrup Sold	10
Total Revenue from Side-lines	$ 471

114876 lbs. milk cost $2,850 00
100 lbs. milk cost ..... $ 2.48

Variation in Cost of Producing Milk

Cost per Cwt.	No. Farms	No. Cows per Farm	Ave. Cost per Cwt.
Below $1.50	32	17	$1.27
$1.50 to $2.00	42	18	1.76
$2.00 to $2.50	52	16	2.26
$2.50 to $3.00	37	16	2.68
Over $3.00	31	15	3.72

Naturally there was a considerable variation in the cost of production on the different farms, depending upon the organization and management of the farm business. In studying the causes of this variation, it was deemed advisable, as in studying the effect of specialization on the Labor Income, to separate the farms which supplied the other markets from those which supplied milk to the Cheese factory market. There were 122 farms in the former group, and 72 in the latter. The 122 farms in Group A sold milk for an average of $1.85 per cwt., while those in Group B sold for an average of $2.44 per cwt.

HIGH MILK YIELD PER COW REDUCES COST OF PRODUCTION

TABLE NO. 10.

A—Cheese Factory Patrons

Yield per Cow	No. of Farms	Cost per Cwt.	Feed per Animal Unit	Labor Income	Percent of Receipts from Dairy Herd
Under 4001 lbs. . .	30	$2.53	63	$ 542	65
4001-5000 lbs.	55	$2.18	61	$ 741	67
5001-6000 lbs.	19	$1.92	61	$1012	73
6001-7000 lbs.	15	$1.74	78	$1401	67
Over 7000 lbs.	3	$1.75	71	$ 994	79

B—Condenser Patrons and Milk Shippers

Yield per Cow	No. of Farms	Cost per Cwt.	Feed per Animal Unit	Labor Income	Percent of Receipts from Dairy Herd
Under 4001 lbs. . .	15	$2.59	58	$ 868	71
4001-5000 lbs.	22	$2.58	65	$ 868	79
5001-6000 lbs.	16	$2.34	79	$1094	85
6001-7000 lbs.	11	$2.37	79	$1103	88
Over 7000 lbs.	8	$2.01	74	$1718	91

The first section of this table shows that at an average selling price of $1.85, cows of lower producing capacity than 6,000 pounds per year, did not produce milk at a profit. "B" section shows that at an average selling price of $2.44, cows of over 5,000 pounds capacity produced a profit.

An interesting sidelight brought out by this table is that the cost

per hundredweight in Group "B" is higher than with cows of the same capacity in Group "A." The higher price received for milk causes the farmers of Group "B" to push their cows to the limit of producing capacity. Many of them feed too much, in a frantic endeavor to get high milk yields from poor cows, with the result that the cost per hundredweight of milk is increased. A poorly-bred cow cannot produce a very large amount of milk, no matter how much feed she consumes. Hence the dairyman who has increased the average milk yield of his herd by good breeding, may sell his milk at a substantial profit, while the man who depends upon feeding alone, has to sell at a loss—though both may receive the same actual price per hundred pounds.

SIDE-LINES HELP TO REDUCE THE COST OF PRODUCTION

TABLE NO. 11.

A—Cheese Factory Patrons

Percentage Revenue from Dairy Cattle	No. of Farms	Lbs. per Cow	Cost per Cwt.	Receipts per Cow—Milk	Selling Price	Labor Income
51-60	24	4603	$1.86	$84	$1.82	$994
61-70	51	4404	$2.13	$82	$1.86	$868
71-80	33	5113	$2.30	$94	$1.84	$732
81-90	14	5057	$2.40	$95	$1.88	$588
Average	122		$2.20		$1.85	$823

B—Condenser Patrons and Milk Shippers

Percentage Revenue from Dairy Cattle	No. of Farms	Lbs. per Cow	Cost per Cwt.	Receipts per Cow—Milk	Selling Price	Labor Income
Below 71. . . .	10	3937	$2.40	$ 93	$2.36	$ 927
71-80	25	4465	$2.62	$108	$2.42	$ 814
81-90	19	5358	$2.32	$132	$2.46	$1248
91-100.	18	6387	$2.35	$159	$2.49	$1166
Average	72		$2.44		$2.44	$1030

Comment is scarcely necessary on Table No. 11A. The results of this tabulation are in direct accord with the results shown in Table

No. 8A. Where the business consisted of 51-60% dairying, and the remainder "side-lines" (such as cash crops, hogs, colts, sheep, poultry, etc.) milk was produced at approximately the selling price. The cost increased directly the amount of specialization increased—with a lowering of Labor Income.

Table No. 11B shows that where the price is sufficiently high, specialization up to 90% is profitable. But if side-lines be excluded entirely from the farm business as in the last group, the Labor Income suffers. There are side-lines on every farm which the dairyman cannot afford to overlook, even though he receive the highest market price for milk. This also bears out the conclusion drawn from Table No. 8B.

The average results of the two sections of Table No. 11, force the conclusions, that:—

1. The farms which sold milk to cheese factories required good cows and a judicious use of side-lines to receive a profit on their operations.

2. The farms which sold milk at condensers could make profits by specializing in milk production if they had good cows.

It will be borne in mind that the cost of production was calculated on a basis of 7% interest on investment and $500 wages for the operator. Thus it was possible for the farmer to sell milk at a slightly lower figure than the cost of production, without entirely wiping out his Labor Income. But, in order to place the selling of milk upon an absolutely paying basis the **average** dairyman of Dundas County must do at least this: he must reduce the cost of production by introducing more highly productive stock into his herd, feeding according to the producing capacity of his cows, and making use of side-lines.

Division of Other Expenses beside feed

Item	Farm + Crop + Sideline Maintenance		Dairy Cow Maintenance		
Interest on Capital	11200 @ 7% =	784.00	2156 @ 7%	151.00	.188
Dep on Machy + Bldg		211		40.00	.050
Labor hired		197		197.00	.246
Rep to barns etc		10		25.00	.031
Taxes		88		56	.070
Milk hauling				43	.054
Insurance Bldg		4		10.00	.012
Seeds plants etc		55		—	
Rep to Machy		42		3.00	.004
Feed grinding		6.		38.00	.048
Veterinary				12.00	.015
Operators Labor		220		280.00	.350
Threshing		31			
		1648		855	
Fed Bd	1648				
	855				
	516				
	3009