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DEPARTMENT OF AGRICULTURE

Poultry Farm Survey

A Report on Sixty-five Commercial Poultry
Farms in the Lower Fraser Valley and
Vancouver Island

FOR THE YEAR ENDING DECEMBER 31st, 1921

By

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INTRODUCTION.

IN the Lower Fraser Valley and Vancouver Island districts of British Columbia there is a large number of poultry farms. Nearly all of these farms are highly specialized, over 90% of the revenue from them being derived from the sale of poultry products. Yet the typical poultry farm in British Columbia combines breeding with production of market eggs. For while market eggs are the chief product sold, very few farms can be classed as strictly commercial egg farms on account of the very considerable revenue produced on them from the sale of baby chicks, hatching eggs, and breeding stock.

Since the war there has been a rapid development in poultry farming in certain districts of British Columbia. Many returned soldiers have taken up poultry farming under the Soldier Settlement Board. Moreover, many of the older established poultry-men have materially increased their flocks, and a considerable number of other settlers have gone into poultry farming in a specialized way.

Poultry keeping as a specialized branch of Agriculture has grown to such proportions in this province that it has become an important industry, carrying as it does a large capital investment. On account of these developments greater attention is being given to the business side of this type of farming. The poultry business must be governed by the same principles that govern any other business. Strict attention must be paid to the capital invested in land, buildings, equipment, and livestock, and also to operating expenses, receipts, labor, depreciation, interest and other business items. Some farm operators are able to invest their capital and to manage their flocks so as to make greater profits than others, presumably because they consider carefully all these matters. In order to determine how such factors make for profit or loss in poultry farming, a district survey was undertaken in the fall of 1921, by the Poultry Extension Service of the University of British Columbia.

The districts chosen were the Lower Fraser Valley, extending from Vancouver to Chilliwack, and the Duncan District on Vancouver Island.

The form of the survey follows closely that of the surveys initiated and developed by the office of Farm Management of the United States Department of Agriculture. It is somewhat similar in nature to the survey conducted by the New Jersey Agricultural Experiment Station of New Brunswick, N.J.*

METHOD OF PROCEDURE

The method of securing data in the British Columbia survey was as follows: A field enumerator visited the poultryman on his farm and obtained a confidential statement of receipts and expenses covering the year's business operations. In addition, the field-man took an inventory of land, buildings, stock and equipment on the farm. The final valuations of these items were arrived at after careful consideration of the owner's valuations and the recognized standard valuations of other land in the same district. The experience and judgment of the field-man were fully exercised in every case in arriving at the various estimates recorded. Valuations were, on the whole, conservative. The data of each farm business were recorded in a separate field booklet of convenient size printed for the purpose.

PRESENTATION OF DATA

Fairly complete statements were obtained of the business for the year on sixty-five commercial poultry farms. The farms were indexed, data were carefully tabulated, and for the purpose of comparison the farms were grouped according to capital invested (Tables 2-4), and number of birds per farm (Tables 5-11). Table 1 is a summary of the birds included in the survey; Tables 12-15 are further analyses of material in earlier

* Bulletin 329, New Jersey Agricultural Experiment Station, entitled, "Profits and Factors Influencing Profits on 150 Poultry Farms in New Jersey," by Frank App, Allen G. Waller, and Harry R. Lewis.

tables. Averages in the various groups are dealt with and the data of the tables are now presented for analysis and deduction in this bulletin.

DEFINITIONS

Farm Income—Farm income represents the difference between the operator's gross receipts and expenses. The gross expenses include actual cash expenses, depreciation on all buildings and equipment and, where applicable, a sum representing the value of family labor. In some cases family labor is actually paid and in some cases it is not.

Labor Income.—Labor income may be said to be farm income less interest on investment. It represents the farm operator's return for his labor and managerial ability. When the interest on the investment exceeds the farm income, the difference is referred to as a minus labor income. In reckoning labor income some operators who own their farms fail to take into account interest on investment, unpaid family labor, and money which should be set aside yearly as a sinking fund to offset depreciation on buildings and equipment.

In addition to labor income as shown in this survey, the operator has a house for himself and family, and eggs, meat, vegetables, etc., for household use. In some cases he also has fuel which, added to the above mentioned items, represents a considerable addition to the operator's labor income.

Poultry Diversity Index.—Diversity index is here explained as the percentage of total receipts derived from poultry. A farm operator obtaining all his receipts from poultry would have a diversity index of 100.

POULTRY FARM INCOMES

PREFATORY NOTE.—The average area of the farms under the survey was 13.6 acres. The estimated average value of the land and buildings was \$443.84 per acre, 52% of which was in buildings and 48% in land. The average value of the land itself would, therefore, be \$213.04 per acre. The poultry-man's dwelling represented an average value of \$1500.00, or 25% of the total investment in land and buildings.

FARM TENURE

Poultry farms in British Columbia are almost always operated by owners—in collecting data for this survey the field-man found ownership by operator to be invariably the case. A number of factors may be suggested as being responsible for this.

First, in British Columbia poultry farming has been one of the most popular branches of farming for returned men. Some of the farmers were operating their farms under the Soldier Settlement Board of Canada, for many men who qualified under the Soldier Settlement Board obtained loans from the Board with which to purchase and equip farms.

Secondly, it is comparatively easy to finance poultry farming as compared with some other branches of agriculture, for, as a rule, less land is required and a lower expenditure is necessary for stock and implements. Moreover, poultry multiply rapidly in numbers and grow quickly into productiveness.

Thirdly, it is largely men with capital who have sought poultry holdings in the coastal regions of British Columbia. These men purchase their farms outright and develop them as specialized poultry farms.

Fourthly, poultry farming requires a large part of the investment to be in buildings suitable for housing poultry. As these buildings are not suitable for other types of farming, and as landlords are not disposed to invest their capital in special buildings on which annual depreciation would be heavy, operators are more or less compelled to buy their own farms.

NUMBER OF BIRDS INCLUDED IN THE SURVEY

Table 1.

| Breed | No. of Laying Birds | | No. of Farms | |
|--------------------------|---------------------|---------------|--------------|---------------|
| | Jan. 1, 1921 | Dec. 31, 1921 | Jan. 1, 1921 | Dec. 31, 1921 |
| White Wyandottes | 65 | 67 | 1 | 1 |
| White Leghorns | 37374 | 49186 | 62 | 62 |
| Barred Rocks | 209 | 478 | 1 | 1 |
| Golden Campines | | 27 | 1 | 1 |
| Total Laying Birds | 37648 | 49758 | | |
| Cockerets | 1095 | 1534 | 43 | 60 |
| Grand Total | 38743 | 51292 | | |

The total number of birds of all breeds included in the sixty-five farms in the survey was 38,743 at the beginning, and 51,292 at the end of the year. The difference represents an increase of 32% in the number of birds during the year. Single Comb White Leghorns constituted 99% of the grand total at the end of the year.

AMOUNT AND DISTRIBUTION OF INVESTMENT ON SIXTY-FIVE POULTRY FARMS

Table No. 2.

| Capital per Farm | Average Total Capital | No. of Farms | Land and Buildings Inc. Dwelling | | Stock | | Machinery | | Feed and Supplies | |
|------------------|-----------------------|--------------|----------------------------------|--------------------|----------|--------------------|-----------|--------------------|-------------------|--------------------|
| | | | Value | Per cent. of Total | Value | Per cent. of Total | Value | Per cent. of Total | Value | Per cent. of Total |
| \$4000 or less | \$2844.80 | 7 | \$2199.43 | 77.3 | \$467.14 | 16.4 | \$175.07 | 6.2 | \$ 3.16 | .1 |
| 4001 to 6000 | 4967.69 | 23 | 3621.58 | 72.9 | 855.43 | 17.2 | 479.50 | 9.7 | 11.18 | .2 |
| 6001 to 8000 | 6660.89 | 9 | 4858.54 | 72.9 | 1172.94 | 17.6 | 629.40 | 9.4 | | |
| 8001 - 10000 | 9322.89 | 8 | 6502.09 | 69.7 | 1662.13 | 17.8 | 1136.04 | 12.2 | 22.63 | .2 |
| 10001 - 12000 | 11038.44 | 6 | 8112.42 | 73.5 | 1806.50 | 16.4 | 1015.83 | 9.2 | 103.70 | .9 |
| 12001 - & over | 16289.48 | 12 | 11884.38 | 73.0 | 2194.21 | 13.5 | 1943.90 | 11.9 | 267.00 | 1.6 |

In Table 2 the farms are grouped according to the total capital invested. The investment per farm, as shown by the total capital, varies widely, owing to locality, size of farm and other factors.

Of the sixty-five farms included in the Table, twenty-three fall into group 2, with an average investment of \$4,967.69. A detailed study of the Table shows that the investment in group 2 is distributed in practically the same ratio as in the other groups. The reasons for the popularity of this group cannot be definitely determined from the data presented, but two considerations may be stated as a probable explanation: first, a farm capitalized at approximately \$5000.00 is within the reach of the man of comparatively moderate means; second, many of the farms in this group are in process of development and are, therefore, in this group only temporarily.

DISTRIBUTION OF INVESTMENT IN LAND AND BUILDINGS

Table No. 3.

| Capital per Farm | No. of Farms | Real estate | | | | | | | |
|------------------|--------------|-------------|--------------------|-----------|--------------------|-------------------|--------------------|-----------------|--------------------|
| | | Land | Per cent. of Total | Dwelling | Per cent. of Total | Poultry Buildings | Per cent. of Total | Other Buildings | Per cent. of Total |
| \$4000 or less | 7 | \$1090.36 | 49.6 | \$ 761.57 | 34.6 | \$ 266.25 | 12.1 | \$ 81.25 | 3.7 |
| 4001 - 6000 | 23 | 1677.26 | 46.3 | 939.83 | 26. | 789.07 | 21.8 | 215.42 | 5.9 |
| 6001 - 8000 | 9 | 2005.33 | 41.3 | 1119.22 | 23. | 1432.32 | 29.5 | 301.67 | 6.2 |
| 8001 - 10000 | 8 | 2428.12 | 37.3 | 1916.56 | 30.4 | 1726.88 | 26.6 | 370.53 | 5.7 |
| 10001 - 12000 | 6 | 4425.01 | 54.5 | 1639.58 | 20.2 | 1412.00 | 17.4 | 635.83 | 7.8 |
| 12001 and over | 12 | 5924.47 | 49.9 | 3055.83 | 25.7 | 2342.00 | 19.7 | 562.08 | 4.7 |

Table 3 is an elaboration of the part in Table 2 dealing with fixed investment. The average investment in land is somewhat variable, but is highest for the last two of the first groups of farms. In the first group the chief improvement is a dwelling. This means that a proportionately large amount is invested in land and dwelling as against the investment in poultry buildings. The variations in the other groups are probably not significant. They are due to a large number of factors, such as size of farm and value of land, nature of business—whether market eggs alone or eggs combined with the sale of baby chicks form the chief source of revenue—and the personal element. This last factor alone would largely determine the relative amounts invested in a dwelling and in other buildings.

RELATION OF TOTAL INVESTMENT TO PROFITS

Table No. 4.

| Capital per Farm | No. of Farms | Average total investment | Birds per Farm | Total Investment Per Bird | Farm Income | Interest on Investment | Labor at 7% | Income Total % return on Investment |
|------------------|--------------|--------------------------|----------------|---------------------------|-------------|------------------------|-------------|-------------------------------------|
| \$4000 or less | 7 | \$2844.80 | 211 | \$ 13.48 | \$367.84 | \$199.14 | \$168.70 | 13. |
| 4001 - 6000 | 23 | 4967.69 | 386 | 12.87 | 1019.53 | 347.78 | 671.75 | 20.5 |
| 6001 - 8000 | 9 | 6660.89 | 515 | 12.93 | 929.96 | 466.26 | 463.70 | 14. |
| 8001 - 10000 | 8 | 9322.89 | 762 | 12.23 | 1138.42 | 652.60 | 485.82 | 12. |
| 10001 - 12000 | 6 | 11038.44 | 828 | 13.33 | 1390.74 | 772.69 | 618.05 | 12.5 |
| 12000 and over | 12 | 16289.48 | 956 | 17.04 | 1339.94 | 1140.36 | 199.68 | 8. |

In Table 4, the farms are grouped according to total capital per farm. A study of the Table shows that there was only a variation of from \$12.23 to \$13.48 total investment per bird in the first five groups. However, in the twelve farms in the sixth group, capitalized at over \$12,000, there was an appreciable increase. This increase may explain the comparatively low labor income for this group. By referring back to Table 2, it will be seen that this group had the smallest proportion of investment in stock—that is in the working capital, to which an operator must look for income.

The average return on investment for all the groups amounted to 13%. (Table 4, Columns 3 and 8). If the charge of 7% interest on investment is deducted, 6% on the investment is left as a direct return to the operator for his labor and managerial ability. Group 2, with an average investment of \$4,967.69, returned the highest labor income to the operator. The best individual farm, however, was found in another group. In this case, with an estimated investment of \$11,071.05, the farm returned a labor income of \$2,119.12 to the operator.

It will be seen that the profits as shown by the return on investment (Table 4, Col. 9) vary according to the percentage of capital invested in stock (Table 2, Col. 7) with the exception of group 1, which is an exceptional group.

RELATION OF NUMBER OF FOWLS PER FLOCK TO LABOR INCOME

Table No. 5.

| No. of Fowls per Flock | No. of Farms | Average No. of Fowls per Flock January, 1921 | Average No. of Hens per Flock January, 1921 | Cockerels per Flock | No. of Hens Per Cockerel | Labor Income | Labor Income Per Hen | No. of Farms With Minus Labor Income |
|------------------------|--------------|--|---|---------------------|--------------------------|--------------|----------------------|--------------------------------------|
| 200 or less | 7 | 127 | 127 | .9 | 127 | \$422.30 | 3.33 | 0 |
| 201 - 400 | 19 | 314 | 313 | 3. | 104 | 130.73 | .42 | 6 |
| 401 - 600 | 18 | 506 | 497 | 3. | 55 | 477.29 | .96 | 3 |
| 601 - 800 | 9 | 700 | 673 | 28. | 24 | 861.56 | 1.28 | 1 |
| 800 and over | 12 | 1267 | 1216 | 51. | 24 | 750.86 | .62 | 3 |

The magnitude of the farm business may be measured in various ways. In poultry farms concerned with egg production only, magnitude may be most conveniently measured by the number of birds in the flock at the beginning of the year. In Table 5 the grouping of the farms is made on this basis. Group 1 shows the highest labor income per hen. The very high relative income per hen in this group requires some explanation. The operators in this group were just starting into the business and had a different set of factors to contend with. In many cases part of their income was derived from labor performed outside the farm. The small flocks were mostly new flocks containing a higher percentage of pullets than the old. On account of smaller numbers and greater percentage of pullets the flocks in this first group gave greater production per bird. There was also a lower depreciation in these new flocks, while at the same time any inventory increase for the year was greater.

The operators in group 4 with a flock average of 700 birds and a labor income of \$1.28 per laying bird, obtained the highest profit per hen and highest total profit.

RELATION OF SIZE OF FLOCK TO BUILDING INVESTMENT

Table No. 6.

| No. of Fowls per Flock | No. of Farms | Farm Value | | | Percentage of Totals Fixed Investment used In Buildings | Value of Poultry Building per Bird |
|------------------------|--------------|------------|-------------------|-----------------|---|------------------------------------|
| | | Dwelling | Poultry Buildings | Other Buildings | | |
| 200 or less | 7 | \$990.14 | \$471.25 | \$159.11 | 56.5 | \$3.71 |
| 201 - 400 | 19 | 1169.39 | 714.63 | 323.74 | 46.6 | 2.26 |
| 401 - 600 | 18 | 1448.36 | 1102.58 | 374.93 | 50.3 | 2.18 |
| 601 - 800 | 9 | 1668.06 | 1830.32 | 309.92 | 58.6 | 2.61 |
| 801 and over | 12 | 2325.63 | 2466.50 | 421.25 | 55.7 | 1.95 |

In Table 6 the farms are grouped on the basis of the number of birds per farm, and it is shown that the investment in poultry buildings per bird varied from \$3.71 in group 1 to \$1.95 in group 5. It is clearly evident that it costs less to house the birds in the larger flocks than in the smaller ones. While the average cost of poultry housing was comparatively low in the larger group, there were some cases of individual operators who invested comparatively more money in poultry buildings to suit their individual tastes. The advisability of exercising such economy in building investment as is consistent with the efficient management in the various other operations on the farm, is emphasized in consideration of depreciation and interest. The average depreciation on poultry buildings is estimated at 5%, and the interest on the money invested at 7%, and these two items make a total overhead charge of 12%. In group 1 this amounted to \$0.45 per bird and in group 5 to \$0.23.

RELATION OF SIZE OF FLOCK TO PROPORTION OF INVESTMENT IN POULTRY

Table No. 7.

| Fowls per Flock | No. of Farms | Investment | | | | |
|--------------------|--------------|---------------------------|-----------------------|---------|-----------------|---------|
| | | Total Investment Per Farm | Investment in Poultry | Percent | Other Livestock | Percent |
| 200 or less | 7 | \$3498.90 | \$252.29 | 7.2 | \$67.14 | 1.9 |
| 201 - 400 | 19 | 6049.73 | 608.74 | 10.1 | 225.00 | 3.7 |
| 601 - 800 | 9 | 9326.79 | 1274.78 | 13.7 | 264.44 | 2.8 |
| 401 - 600 | 18 | 7645.90 | 955.92 | 12.5 | 193.89 | 2.5 |
| 801 and over | 12 | 13947.62 | 2285.75 | 16.4 | 324.58 | 2.3 |

In Table 7 it is shown that the operators in group 5, with more than 800 birds, have the largest proportion of their investment in poultry. All other things being equal, we should expect that the owners in this group would have a distinct advantage in possible volume of business over those of the smaller groups. As a matter of fact the returns from their business were comparatively small. It has been shown in Table 5, on the other hand, that the operators in group 4, carrying between 600 and 800 birds made the highest labor income. Such factors as large acreage, heavy labor bills, low production, and less efficient management in the group may have contributed to the low returns observed in group 5 above. It was shown in Table 5, however, that taking all known factors into consideration, the two groups carrying an average of 700 birds or over are outstanding in the amount of labor income obtained.

RELATION OF SIZE OF FLOCK TO EQUIPMENT

Table No. 8.

| Fowls per Flock | No. of Farms | Total investment in Equipment | |
|--------------------|--------------|-------------------------------|----------------------------------|
| | | Value of Equipment Per Farm | Value of Equipment Per 100 Birds |
| 200 or less | 7 | \$307.60 | \$242.20 |
| 201 - 400 | 19 | 445.10 | 140.85 |
| 401 - 600 | 18 | 773.43 | 152.85 |
| 601 - 800 | 9 | 1239.83 | 177.12 |
| 801 and over | 12 | 1724.01 | 136.07 |

Table 8 shows that the investment in equipment per 100 birds was least in group 5, with its average flock of over 800 birds. That adequate equipment is essential to successful operation is shown by group 4, which, with the second highest investment per 100 birds, had the highest labor income, (Table 5.) Needless and uneconomical purchases should be avoided, however. Further, the operator should satisfy himself that the work to be done is such as to justify expenditure for additional equipment. The average depreciation on equipment was estimated at 10%, which, added to a charge of 7% interest on investment, made an annual overhead expense ranging from \$0.41 per bird in group 1 to \$0.23 in group 5.

RELATION OF SIZE OF FLOCK TO RECEIPTS

Table 9.

| Fowls per Flock | No. of Farms | Gross Receipts | Egg Receipts | Egg Receipts Per Hen | Poultry Receipts | | Crop Receipts | Diversity Index |
|--------------------|--------------|----------------|--------------|----------------------|----------------------------------|-----------------------|---------------|-----------------|
| | | | | | Increase of Sales over Purchases | Increase in Inventory | | |
| 200 or less | 5 | \$1289.56 | \$961.67 | \$5.31 | -\$168.81 | \$469.20 | \$ 27.40 | 91 |
| 201 - 400 | 18 | 1942.23 | 1500.95 | 4.75 | 101.24 | 268.83 | 71.21 | 91 |
| 401 - 600 | 16 | 3158.58 | 2428.32 | 4.91 | 348.72 | 269.86 | 111.68 | 90 |
| 601 - 800 | 8 | 4607.42 | 3089.76 | 4.61 | 1056.33 | 428.50 | 32.83 | 95 |
| 801 and over | 9 | 7711.03 | 5223.59 | 4.16 | 2288.27 | 162.28 | 36.89 | 98 |

Table 9 shows in detail the various sources of farm receipts. "Egg Receipts" are shown separately and should not be confused with "Poultry Receipts;" the latter refer to receipts from the sale of birds, and increase in inventory, the former to receipts from sale of eggs. Increase in inventory is treated exactly in the same way as a cash receipt. Receipts from live stock other than poultry are not shown separately in this Table, but as the diversity index averages from 91 to 98, these receipts could not be more than from 9% to 2% of the total. Part of this percentage was made up of receipts from crop and miscellaneous items. Receipts from livestock, which largely made up the balance, were therefore a negligible quantity.

The first group obtained the largest receipts per hen from the sale of eggs. The operators of group 1 sold all their egg output and purchased young stock to increase their flocks; the operators of the other groups used part of their egg output for incubation and sold baby chicks. The results of such procedure are seen by examining the columns "Poultry Receipts," where it appears that group 1 purchased more stock than they sold to the value of \$168.71. Groups 4 and 5 with somewhat smaller egg sales per bird, show comparatively heavy sales of stock. These sales consisted of breeding cockerels and baby chicks—the major portion of the receipts coming from the chicks.

RELATION OF SIZE OF FLOCK TO EXPENSES

Table No. 10.

| Fowls per Flock | No. of Farms | Total Expenses | | Depreciation | | Feed Cost | | | Receipts Above Expense per Bird |
|--------------------|--------------|----------------|----------|--------------|----------|-----------|----------|---------------------|---------------------------------|
| | | Per Flock | Per Bird | Per Flock | Per Bird | Per Flock | Per Bird | Per Dozen Eggs Sold | |
| 200 or less | 5 | \$940.19 | \$8.63 | \$88.95 | \$.82 | \$673.05 | \$6.17 | \$0.24 | \$4.86 |
| 201 - 400 | 18 | 1749.40 | 5.54 | 130.68 | .41 | 1032.61 | 3.27 | 0.28 | 1.80 |
| 401 - 600 | 16 | 2512.19 | 5.08 | 198.56 | .40 | 1585.46 | 3.20 | 0.26 | 2.13 |
| 601 - 800 | 7 | 3804.58 | 5.60 | 289.64 | .43 | 2205.10 | 3.25 | 0.30 | 2.00 |
| 801 and over | 9 | 6395.53 | 5.09 | 393.06 | .31 | 3835.57 | 3.05 | 0.30 | 1.27 |

Table 10 shows that the expense per bird remained fairly uniform regardless of the size of the flock, except for group 1, in which, as is explained above, the operators were beginners, and conditions were, therefore, not representative or average. The cost of feed per dozen eggs sold, gradually grew higher as the number of birds per flock increased, owing partly to the fact previously mentioned, that the larger operators used part of their egg output for incubation. These eggs, of course, were not included in "eggs sold."

Depreciation per bird gradually decreased as the size of flock increased. The survey does not show to what extent the size of the flock would have to be increased before a minimum of depreciation per bird would be reached.

RELATION OF SIZE OF FLOCK TO LABOR EXPENSES

Table No. 11.

| Fowls per Flock | No. of Farms | Labor Cost per Farm Besides Operators | Months Worked By Operators | Total Man Labor Months | Months Man Labor per 100 Birds | Total Value Man Labor | Cost per 100 Birds | No. of Horses Per Farm |
|--------------------|--------------|---------------------------------------|----------------------------|------------------------|--------------------------------|-----------------------|--------------------|------------------------|
| 200 or less | 7 | \$ | 12 | 12 | 9.4 | \$960.00 | \$755.91 | .14 |
| 201 - 400 | 19 | 209.12 | 12 | 14.6 | 4.6 | 1169.12 | 369.97 | .9 |
| 401 - 600 | 18 | 274.23 | 12 | 15.4 | 3.04 | 1234.23 | 243.92 | .7 |
| 601 - 800 | 9 | 494.14 | 12 | 18.2 | 2.6 | 1454.14 | 207.73 | .9 |
| 801 and over | 12 | 970.49 | 12 | 24.1 | 1.9 | 1930.49 | 152.37 | 1.2 |

Table 11 shows that although the total value of labor was in direct proportion to the size of the flock, the number of months of man-labor per 100 birds decreased as the size of the flock increased. The extent to which a flock can be increased and show a decrease in amount of man-labor per 100 birds is not shown by this investigation.

The total number of horses on the sixty-five farms in the survey was fifty-five. Several of the larger farms kept a team, but many operators found it cheaper to hire occasional horse-labor than to maintain a horse. The operators with flocks of 700 birds or over usually considered it more economical to own a horse than to hire horse-labor.

RELATION OF POULTRY RECEIPTS PER BIRD TO EXPENSES

Table No. 12.

| Poultry Receipts Per Hen | No. of Farms | Birds per Farm | Current Expenses | | Feed Cost | | | Total Labor | | | Total Operating Expenses Per 100 Birds | Total Poultry Receipts Per 100 Birds | Labor Income Per Farm |
|-----------------------------|-----------------|-------------------|---------------------|----------|-----------|----------|---------------|------------------------------|------------------------------|-----------------------|--|--|--------------------------|
| | | | Per Farm | Per Bird | Per Farm | Per Bird | Per Doz. Eggs | Months of Labor Per Flock | Months of Labor 100 Birds | Cost per 100 Birds | | | |
| \$3.00 - \$5.00 | 10 | 739 | \$2747.51 | \$3.72 | \$1914.44 | \$2.59 | \$0.28 | 19.7 | 2.7 | \$213.03 | \$501.69 | \$414.10 | \$-240.20 |
| 5.01 - 7.00 | 28 | 567 | 2430.71 | 4.29 | 1771.27 | 3.12 | 0.27 | 16.1 | 2.8 | 226.80 | 598.01 | 597.86 | 442.73 |
| 7.01 - 9.00 | 15 | 568 | 2874.45 | 5.06 | 2068.74 | 3.64 | 0.30 | 16.4 | 2.9 | 231.48 | 675.08 | 789.33 | 923.64 |

Table 12 was compiled on the basis of total poultry receipts per bird as against total operating expenses per bird. In group 1 the operators showed average receipts of \$4.14 per bird as against average operating expenses of \$5.01. After writing off percentage depreciation on buildings and equipment and interest on investment at 7%, the average minus labor income per farm was \$240.20. In group 2 the average receipts were \$5.98, with plus labor income of \$442.73, while in group 3 the average receipts per bird were \$7.89, with plus labor income of \$923.64. It is only in the third group that the total operating expenses do not equal the total poultry receipts per 100 birds. It would seem, therefore, that for the year 1921 a minimum revenue of between \$5.00 and \$7.00 per bird was necessary to cover total operating expenses.

There is no doubt that average egg production is one of the most important factors affecting receipts. Production is, therefore, one of the controlling factors in determining labor income. The question as to how far production can be increased without incurring expenses that would more than equal increased receipts cannot be settled from the results obtained in this Table.

RELATION OF PROPORTION OF PULLETS PER FLOCK TO PROFITS ON SIXTY-FOUR FARMS

Table No. 13.

| Per cent Pullets Per Flock | No. of Farms | Birds per Farm | Pullets per Farm | Percent of Pullets | Yearlings Per Farm | Cockerels Per Farm | Labor Incomes | No. of Minus Labor Income | Labor Incomes Per Bird |
|-------------------------------|-----------------|-------------------|---------------------|-----------------------|-----------------------|-----------------------|---------------|------------------------------|---------------------------|
| 60% or less | 21 | 771 | 393 | 51 | 346 | 33 | \$493.32 | 6 | \$0.64 |
| 61% to 80% | 22 | 640 | 436 | 69 | 187 | 17 | *532.20 | 6 | 0.83 |
| 81% to 100% | 21 | 344 | 334 | 97 | 9 | 1 | *401.03 | 4 | 1.17 |

Table 13 was prepared to show how labor income varied with the varying proportion of pullets in the flocks. In group 3 the labor income per bird was \$1.17. This was the largest income earned in any of the groups and was made from flocks that averaged 97% pullets. The flocks in this group reached an average of only 344 birds. This figure was considerably below the average number for the whole survey, which approximated 600. The flocks in group 2, averaging 69% pullets, appear to be the best balanced from the standpoint of labor income. According to the data from one year's operations it would be safe to say that the best balanced flock is that which carries between 61% and 80% pullets. Further information will be necessary before a more precise estimate than this can be made.

RELATION OF PROPORTION OF PULLETS PER FLOCK TO TOTAL INVESTMENT

Table No. 14.

| Percent of Pullets per Flock | No. of Farms | No. of Birds Per Farm | Capital Per Farm | Value of Land And Buildings | Value of Equipment Per Farm |
|---------------------------------|-----------------|--------------------------|---------------------|--------------------------------|-----------------------------------|
| 60% or less | 21 | 771 | \$10,688.60 | \$7817.89 | \$1189.92 |
| 61% - 80% | 22 | 640 | 8,663.93 | 6130.82 | 1020.91 |
| 81% - 100% | 21 | 344 | 5,293.64 | 4026.98 | 424.29 |

In the previous Table, No. 13, there was brought out the relation of the proportion of pullets per flock to labor income. In Table 14 there is shown the relation of this proportion to total investment. In this Table it will be seen that the proportion of pullets per flock varies inversely as the total capital invested. This ratio holds similarly with regard to the value of land and buildings and also with regard to the value of equipment per farm. This would be expected, even in group 3, where the farmers had smaller flocks and were just getting under way in the poultry business. As their flocks grow the proportion of pullets will decrease and at the same time the total invested capital will increase.

RELATION OF AREA OF FARM TO PROFITS

Table No. 15.

| Acres of Farms | No. of Farms | Area per Farm Acres | Area per 100 Birds, Acres | Crop Acres Per Farm | Capital Per Farm | Fixed Investment | | | Labor Income Per Farm | No. of Farms Showing Minus Labor Income | Diversity Index |
|----------------------|--------------|------------------------|------------------------------|------------------------|---------------------|------------------|----------|------------------|--------------------------|---|--------------------|
| | | | | | | Per Farm | Per Acre | Per 100 Birds | | | |
| 5 acres or less | 12 | 4.4 | .7 | 1.4 | \$5829.64 | \$3809.79 | \$865.86 | \$643.55 | \$745.11 | 2 | 96 |
| 5.1 - 10 | 23 | 8.7 | 1.7 | 2.5 | 6072.63 | 4466.18 | 513.35 | 879.17 | 569.81 | 3 | 93 |
| 10.1 - 15 | 11 | 12.4 | 1.6 | 6.2 | 9726.44 | 6698.89 | 540.23 | 866.61 | 650.07 | 2 | 89 |
| 15.1 and over | 18 | 27.4 | 4.8 | 8.3 | 11756.31 | 8971.83 | 327.44 | 1582.33 | 67.17 | 8 | 89 |

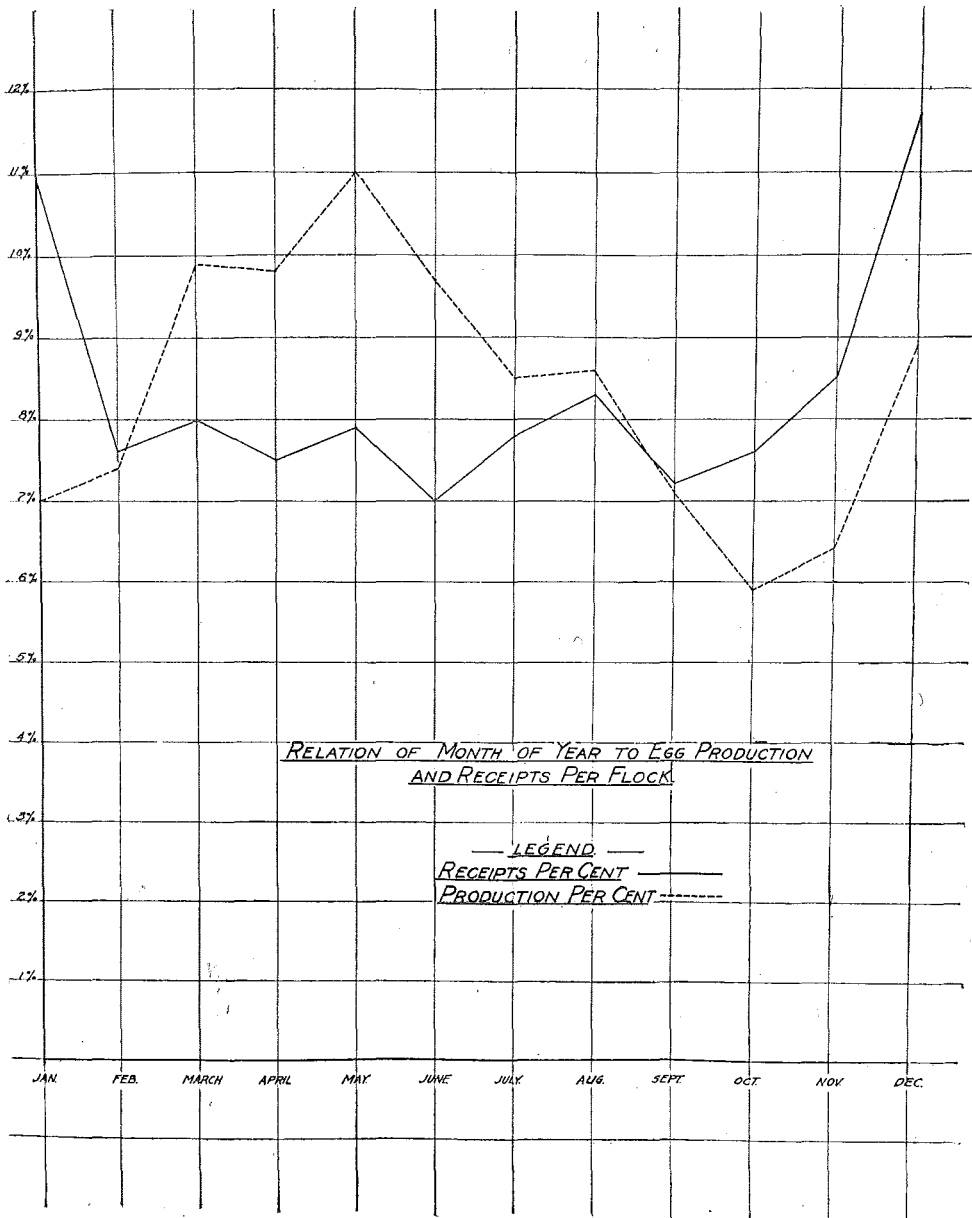
Table 15 was prepared to show the effect of farm area on labor income. So far as this investigation shows, the poultrymen on five-acre farms obtain labor incomes as high as those of farmers on larger holdings, or even higher. In the first group, made up of flocks carried on five-acres or less, there were 0.7 acres per 100 birds, or 143 birds per acre. There was little to choose in the matter of labor income in the first three groups where the holdings ranged from five to fifteen acres. There was a marked difference, however, in labor income in group 4, which, with an average area of 27.4 acres yielded \$67.17—little more than expenses. There were individual farms in the last group, however, that produced good labor incomes, but they used their surplus land for other purposes than poultry. The highest labor income in group 4 (not shown in Table) was \$1,783.60, with a poultry diversity index of 85. The lowest labor income was—\$1,548.29, with a diversity index of 60. On the large farms of group 4 the farming was not much more diversified than in the other groups.

In the eighteen farms in group 4, each hundred birds was charged with the capital and all expenses in connection with 4.8 acres, or in other words, twenty-one birds were charged with the upkeep of each acre of land. As regards these large farms one or more of three inferences may be made: (1) they did not carry sufficient poultry, (2) they were too large for this type of farming, (3) the other branches of agriculture did not prove to be profitable on these farms. The survey tends to show that the farms that produced the best labor incomes in the localities in which the survey was conducted averaged less than fifteen acres. A high labor income cannot be expected, therefore, on a farm with a fixed investment as high as \$1,582.33 per 100 birds.

RELATION OF MONTH OF YEAR TO EGG PRODUCTION AND EGG RECEIPTS

(Figure 1)

Figure 1 illustrates graphically the monthly fluctuations in production and receipts. A study of the figure shows that for the year 1921 poultrymen obtained their highest receipts during the months of January and December and their lowest receipts during April and September. The largest volume of eggs was produced and sold during April, May and June, and the lowest during January, October and November.



COST OF PRODUCTION OF EGGS

For the purpose of determining the cost of producing eggs, only those farms were used which could be classified as commercial egg farms. Full and complete details of total receipts and expenses were necessary. The cost of production on each farm was calculated by including cost of feed, hired labor, fuel and oil, taxes, insurance, depreciation on buildings and machinery, interest on investment at 7% and operator's wages calculated at \$80 per month, or \$960 per year. From the total of these costs was deducted all revenue from sources other than egg sales. The remainder was taken to represent the total cost of production on the farm per year. The following example of one of the best farms illustrates the method followed:—

Farm No. X

| | |
|--------------------------------------|---------------|
| Total Investment | \$5061.25 |
| No. of Birds Beginning of Year | 550 |
| Eggs Sold | 7083.25 dozen |
| Eggs Sold per Bird | 155 |
| Average Price per Dozen | \$0.418 |

Farm Expenses

| | |
|--|--|
| Current Expenses | \$2745.19 |
| Depreciation | 125.61 |
| Operator's Wages | 960.00 |
| Interest on Investment at 7% | 354.29 |
| | \$4185.09 |
| Gross Receipts | \$4432.95 |
| *Receipts from Sale of Eggs | 2962.65 |
| | \$1470.30 |
| Receipts from Sources other than Eggs | \$1470.30 |
| Net Cost of Eggs..... | \$4185.09 Minus \$1470.30 Equals \$2714.79 |
| 7083.25 dozen Eggs Cost | \$2714.79 |
| 1 dozen Eggs Cost | 0.38 |
| Cost without allowing Operator's Wages | 0.25 |

Using the above method the cost of egg production was calculated on twenty-nine of the sixty-five farms included in the survey. A brief summary of results follows:—

| | |
|--|---------|
| Total number of Laying Birds | 16,726 |
| Total Dozens of Eggs Sold | 201,640 |
| Total Dozens of Eggs per Bird | 12 |
| Average Selling Price per Dozen | \$0.394 |
| Average Cost of Production per Dozen | 0.458 |
| Average cost not allowing Operator's Wages | 0.32 |

Allowing operator's wages, the various farms showed a wide variation in total cost of production, ranging from \$0.350 to \$0.75 per dozen.

*Value of eggs and poultry used in house not known.

SUMMARY.

(1) The data presented are based on a survey covering the financial operations of sixty-five poultry farms in British Columbia for the year ending December 31st, 1921. Final conclusions cannot be drawn from the data for one year's operations.

(2) All farms included in the survey were owned by the operators.

(3) The total number of birds on all the farms increased 32% during the year.

(4) The average area of the farms in the survey was 13.6 acres. The estimated average value of land and buildings was \$443.84 per acre, 52% of which was in buildings and 48% in land. The poultryman's dwelling represents an average value of \$1500, or 25% of the total investment in land and buildings.

(5) (a) The investment in the different farms according to capital ranges from \$2844.80 to \$16289.48. The average return on investment amounted to 13%.

(b) All of the groups of farms yielded on the average a plus labor income. Farms of the group carrying an average investment of \$4967.69 returned the highest interest on investment and also the highest labor income, viz., \$671.75. This net labor income corresponds to the farm income of \$1019.53 or 20.5% return on investment.

(c) The highest farm income was derived from those farms with an average total investment of \$11038.44. After deducting interest, an average labor income of \$617.05 was obtained.

(6) The highest net return per bird was obtained on the farms in the group carrying an average of approximately 700 birds.

(7) Total receipts per bird (Table 9, Col. 5) and expenses per bird (Table 10, Col. 4) show no great difference as the size of flock varies. The investment in poultry buildings varied, however, from \$3.71 per bird for the smaller flocks to \$1.95 for the larger flocks.

(8) The largest farms were most economical in the use of man-labor. On the large farms it cost \$152.37 in man-labor for 100 birds. The cost of man-labor per 100 birds increased as the size of the flock decreased until it cost \$755.91 in man-labor per 100 birds in the case of flocks of 200 birds or less.

(9) The highest labor incomes were obtained from flocks which consisted of from 61% to 80% pullets, while the highest labor income per bird was made from the flocks that carried a still higher percentage of pullets.

(10) The average receipts per bird is the most important factor in obtaining profits. (See page 20).

(11) The majority of the poultry farms and the best paying ones were from five to fifteen acres in size. As farms increased beyond fifteen acres the labor income rapidly decreased.

(12) Receipts from the sales of eggs for the year 1921 were highest during January and December and least during April, June and September. Production was highest during April, May and June and lowest during January, October and November.

(13) The average selling price per dozen eggs on twenty-nine farms was \$0.394, and the average estimated cost of production, including interest on investment at 7% and operator's wages at \$80 per month, was \$0.456. Without allowing operator's wages the cost of production was \$0.32 per dozen.