MORE CORRECT RATIOS OF THE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION ON POULTRY, TREE-FRUIT, AND DAIRY FARMS OF BRITISH COLUMBIA.

by

Vladimir Nicolas Snesarev.

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C O N T E N T S.

Farming is becoming more and more a business proposition. The ownership of even a large sized farm does not in itself mean economic power to the owner. What does give this power is an income. Therefore it is the income, actual or potential, which determines the value of the farm. The call of a particular valley, the lure of a certain farming locality, does not seem to be so strong or to come so frequently now-a-days as was the case two generations ago. Why? Because there are few farms completely self sustaining at the present time, and because the saying that "The bones of our fathers and grandfathers grew on the produce of this soil" does not hold true any longer. People do not want to stay on their farms simply because they were born there. They are willing to abandon the farm and to move to a new locality, or to alter their farms if such a procedure will increase the efficiency of the labor or the invested capital. Farmers want their farms to pay and they have a perfect right to expect this and to strive to attain it.

Only the people who share the above stated belief might be interested in the study that follows this introduction.

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There can be little doubt that agricultural enterprises are peculiarly subject to improper co-ordination of the economic factors of production and that economic misfits are met with more frequently in agriculture than in industry.

Professor of Economics in the University of Minnesota John D. Black writes:* " A farm business is peculiarly subject to misfits of capacities. It is likely to be either too large or too small for several of the elements of production."

Much has been written and said about the law of diminishing returns in agriculture. Agriculture has been considered to be at a disadvantage as compared to other industries. The farmer has been warned against investing too heavily in equipment and in labour as the increased output could mean decreased efficiency of all the invested capital. This warning may lay undue emphasis on the possibility of an inappropriate apportionment of labour and equipment in respect to the amount of land. The result of the wrong portioning of labour and capital to land is very disappointing but the result of wrong portioning of land to equipment or of labour to equipment is also very disappointing.

The intention of the writer of this article is far from being a desire to criticize the law of diminishing returns. He recognises the soundness of the law when all the modifying assumptions are born in mind. The difficulty arises however when the necessary assumptions are not remembered and when, consequently, the misinterpretation takes place. As a matter of fact the misinterpretation of the law of diminishing returns is rather common. One hears the opinion expressed that while

* " Production Economics " by John D. Black, Ph.D., New Jork, Henry Holt and Company, page567.

the cost of production of an article manufactured in an industrial plant which has adopted an intensive mass production system tends to be lower than the cost of production of the same article manufactured in an industrial plant with smaller output, the cost of production of agricultural commodities follow the law of diminishing returns. This statement is somewhat wrong as the law is not understood properly; the assumptions are not remembered and the law is made applicable to agriculture only, while it is valid for any production activity whatsoever. Moreover the first part of the law is overlooked as if it did not exist.*

The confusion caused by the above stated idea can be great indeed. It may result in a desire on the part of a farmer to have more land than is justified by the amount of capital he can invest in his farm or by the type of farm he intends to establish. The idea that if a farmer has a fixed acreage of land he can increase the size of his business only by increasing the intensity of cultivation of the land, though true, sometimes is also misleading. It might be understood from this that an increase in the size of the farm business without the ability to add new areas of land would always mean decreased efficiency of the capital-labour invested. Such a suggestion might prompt a farmer to "insure" himself as far as the acreage

* As a summary of the law of diminishing returns in agriculture the following quotation from H.C.Taylor is given:
"In agricultural production the returns to succeeding composite units made up of laborers and equipment may be said to follow the law of increasing returns until a point has been reached after which the law of diminishing returns per succeeding unit commences to operate."

of his farm is concerned. He would likely try to be on the "safe" side and to guarantee a "sufficient" amount of land. The tendency to have more land than is justified by the capital and labour investment on farms is plainly seen. The writer does not presume to say that this tendency is the result of the misunderstanding of the law of diminishing returns; there are many other economic and social reasons for this phenomenon. The writer simply wishes to warn the possible farmer from buying too much land, should he be prompted to do so because of the belief that the land will necessarily bring him diminishing returns on every extra unit of capital and labour invested per acre.

This last should happen only,

1/ if the point of investment should be reached after which the law of diminishing returns per succeeding unit commences to operate;

2/ if the managerial effort should remain exactly equal to the effort given to the other combination of the factors of production;

3/ if there were no opportunity of adopting different types or methods of farming;*

4/ if the factors of production could not be combined in various ratios.

Seldom all these "ifs" exist in real life for the actual farmer.

* Land is less specialized than most of the elements of production.

An industrial enterprise is planned according to the volume of business anticipated and desired. None of the elements of production is actually fixed and their ratio is chosen depending on the kind of the enterprise and on the amount of investment decided upon or available. If any element of production is fixed - factory buildings for instance - it becomes unwise to start planning the organisation by assigning the volume of business to be handled. The law of diminishing returns may interfere with the efficiency of production. Even more unwise would it be to start a particular industrial plant having two or all of the factors of production fixed. The efficiency of the enterprise in which the factors of production have not been co-ordinated is very problematical. This is well understood by manufacturers and they closely watch the combination of the factors of production on their factories. Sometimes, due to various causes, the combination ceases to be efficient (changes in prices, the invention of new manufacturing processes, an increase in the amount invested, etc.). When this is recognised a reorganisation usually takes place.

Why should not farmers do the same? Why should a farmer be perplexed by the advice not to invest on his land more labour-capital units than the number which has as its last item the unit producing an output at least equal to an output average for all the previous units invested? This good advice presupposes an unvarying combination of the two factors of production.* Such a presupposition can divert the attention of the

* Even three - i.e. labor, capital, and management.

organizer. An organizer of an industrial enterprise wants to deal with flexible, adaptable factors of production. The farmer is persuaded more or less that certain factors of production in agriculture are inflexible and that his policy is to do the best he can with the handicap of having certain factors beyond his control. Sometimes this is so, especially on the old continent, but by no means is it always so.

A farmer may frequently plan his future enterprise quite differently from a manufacturer. In many cases a farmer first procures land without careful consideration of the resources which will be available for the working of it. This results in an inefficient, sometimes clumsy, combination of the elements of production. It is a usual experience in agriculture to see the efficiency of production hampered by the fact of there being a deficient factor. Therefore the adjustment and co-ordination of the factors of production and the types of capital would appear to be very important.

It is not to be presumed that in all instances redistribution of the investment will be the remedy for unprofitable farming. There are condition which may make redistribution ineffective. It is understood that in many instances farmers are unable to reorganise their enterprises owing to market conditions or, it may be, to their own economic weakness.

It is assumed that the best combination of the factors of production is one which yields the largest net return per dollar of all elements of production invested. This largest net return is not necessarily realized, when the production is carried on with land, labor and equipment co-ordinated in such a way as to obtain the least cost combination. A farmer is not interested in low costs as an end in themselves. Low costs are means to get high profits. If the opportunity to obtain still higher profit presents itself, the farmer, surely, will be willing to accept it. There is a possibility that one combination of the factors of production may give the smallest costs and therefore the greatest profit per unit of the resultant product, but at the same time it will not result in the greatest total profit. This can happen when another combination of the factors of production without yielding the highest profit per unit of product allows such an increase in the number of units produced that the total profit is greater than in the first instance. As an illustration purely imagined figures are given in the table below:

	Price of one unit.	Cost of one unit.	Profit per unit.	Number units	Total profits
Least cost combination	90	80	10	200	2000
Higher total profit combination	90	82	8	270	2160

It is to be assumed that the prices on different products and different elements of production are not subject to perma-

nent changes. Fluctuation in prices may cause fluctuations in yearly returns, which are liable to balance each other. The permanent changes in levels of prices can make previously efficient combination of the factors of production strikingly inefficient. In the last case reorganization is the only remedy.

It is assumed that the size of an agricultural enterprise is determined by the total investment. The acreage or the value of the land is not the criterion of the size when different types of farms are compared; neither is a very good measure even when adjacent farms of the same type are dealt with, as possible surplus areas may be bare tracts of submarginal land without any taxable value, or they may be highly productive and expensive fields lying as a real burden on the enterprise.

It is not presumed that the total quantitative investment is wholly representative of the size of an enterprise; a poorly organised and poorly managed unit may be for all practical purposes a smaller enterprise than the well organized and well managed unit, while at the same time they are equal as far as the total investment is concerned. The second enterprise will show much better results and a larger output due to its activity and will play a more prominent part in the economical life of the district than the first. Efficiency of organization and efficiency of operation are important factors in measuring the size of an enterprise. Efficiency of organization and efficiency of operation depend on quality and the amount of management invested. This quality and this amount really should be included in total investment as one of its compound items. But manage-

ment is such an intagible factor that it is useless to attempt to measure it with any degree of accuracy in terms of dollars; other elements of production are measured in such terms.

It is therefore assumed that the size of an agricultural enterprise is determined by the total farm investment. In total investment all the owned, rented, and borrowed elements of production, as well as labour are included. More precisely, in the total investment is included the value of

1/ the land
2/ the labor
3/ the machinery
4/ the live-stock
5/ the farm buildings
6/ the feed and supplies
7/ the cash invested
8/ the house.

A serious difficulty is immediately confronted: how should the land be valued? In the market price for land the potential real estate profit and the capitalized efficiency of the present operator are often included. No rigid rules as to the way of valuation can be given. Conservative prices for the land plus the taxes paid for it, are entered under the item of land value.

For farms of various types and sizes, and for different districts, the elements of production must be combined in different proportions. The types of farms which require but litt-

le land usually demand a larger investment in labor and equipment than the types of farms which need large acreage. An increase in the size of a farm by an addition to one of the factors of production often demands additions to the other factors of production, but not all of the elements of production should be increased in the same proportion.

Different types of farming with different combinations of crops and livestock demand different amounts of investment. Different districts are best suited for varied combinations of crops and livestock.

Soil, climate, prices and market conditions determine the most remunerative combination of the factors of production. These conditions vary with the districts, therefore it is impossible to compare farms of different types, or of varied sizes, or those situated in different districts.*

* It is possible, though, to compare a representative farm of one group with the representative farm of another in the same district when the groups are determined by the size of the farms. Likely a certain size may prove better suited for a given type of farm operated in a particular district.

In the determination of the statistical data that was used for forming certain conclusions as to the best ratios of the factors of production in agriculture, it proved to be very difficult to choose the districts which would be characterized by the similarity of methods of farming. The fact that the same districts had farms of different sizes did not cause much difficulty; farms could be classified according to their sizes after the data was gathered. With the gathered statistical data properly arranged a poultry farm could be easily separated from a dairy farm. But it would be hardly justifiable to classify farms more thoroughly by picking out the farms which seemed to belong to the same type as far as their methods of carrying on the agricultural production was concerned. The adoption of such a practice would allow too much opportunity for arbitrary decisions. Probably the dicisions would be made according to the tendency of the statistical data to show the inclination to prove similar things or to illustrate similar pronciples.

In dealing with highly industrialized types of farming such as poultry farming, the difficulty was not experienced. Poultry farming is a specialized type of farming which in order to obtain the best results has, more or less, similar ways of handling the enterprise. Tree-fruit farming also has methods of management uniform enough not to present serious difficulties in summarizing the statistical data.

Dairy farming on the other hand, shows great variaton in its methods of organization and management. Various types of management necessitate different organizations. The same districts have farms managed by different methods. What is good for one type of dairy farm may prove to be bad for another type of dairy farm. There is not very much uniformity about dairy farm enterprizes, especially when the farm is large.

Although knowing beforehand that in dealing with dairy farms it is impossible to expect to obtain an orderly and well-defined tendency to react in a certain way on the variations in the organization, one can hope, nevertheless, that certain principles will be found that will apply in a general way to all the dairy farms of a given district.

Material supplied by the Faculty of Agriculture of the University of British Columbia formed the statistical basis for this study. Since 1920 the Farm Survey work has been carried on by the Department of Agriculture of the above-mentioned University. Dairy, fruit and poultry farms of different districts have been included in the Survey. For the purposes of this study the data was used concerning:

1/ 68 dairy farms of the Courtenay, Lower Fraser, and Upper Fraser Valley districts;

2/ 74 tree-fruit farms of the Okanagan district, and

3/ 67 poultry farms of the Lower Fraser Valley district, and the Duncan district on Vancouver Island.

The climate and soil conditions which prevail in the Courtenay district are typical of conditions in the dairying districts on Vancouver Island and on the Gulf Island. Soils vary from a sedimentary deposits of the valleys to a gravelly glacial-drift type of soil of the uplands. The annual precipitation fluctuates around 40 inches. The summer rainfall is light but is ample for good crop production when proper tillage is practiced. A market for the milk produced in this area is provided by the Comox Creamery. This is a farmers Co-operative organization which makes butter and ice-cream, and which handles a certain amount of whole milk.

The climate of the Lower Fraser Valley district is very favorable for dairy farming. This district includes area located near the town of Ladner, incorporating the Delta, Lulu and Sea Islands, and the Mud Bay area. The soil is of a sedimentary origin formed by deposits of the Fraser River. It is rich and highly productive. The topography of the land is flat which necessitates protection from the sea and river overflow. The annual precipitation also fluctuates around 40 inches. But the summer rainfall is light as compared to the winter.

The Upper Fraser Valley district is adjacent to the Lower Fraser Valley district. It extends from Cloverdale to Rosedale. The soil is of silt and clay nature streaked with gravel. The Upland, of which there is considerable amount, is of glacial drift origin and tends toward a gravely loam. Most of the dairy farms are located on the lower land, which is better suited

for dairy farming. The precipitation is about 40 inches. The market for the milk produced both in the Lower and in the Upper Fraser Valley districts is provided mostly by the Fraser Valley Milk Producers Association. This is a farmers co-operative organization, which makes butter, ice-cream, condensed milk, and which supplies with fluid milk the city of Vancouver.

In general the climate, soil, and market conditions are similar for Courtenay, the Lower Fraser and the Upper Fraser Valley districts.* It was found that for the purpose of this study the dairy farms of all the three districts could be considered as enjoying similar economic and climatic conditions.

The climate of the Okanagan District differs from the climate of the Fraser Valley. The seasons of the year are more clearly defined; the summer is warmer and the winter is colder and longer. The soil varies from a heavy clay in the vicinity of Armstrong to a sandy silt and gravely loam at Vernon and Kelowna. The precipitation varies; it is heavier at Armstrong and Lumby than at Vernon and Kelowna. At Vernon and Kelowna an average annual precipitation is about 14 inches. In this part of the Okanagan district irrigation is used to a considerable extent. Both dairy and fruit farms are numerous in the Okanagan district. This paper will deal with tree fruit farms only. The natural and the nearest markets for the Okanagan fruit are Vancouver and the Prairie Provinces.

All the tree-fruit farms which supplied the statistical data are located in the same district and have to adapt them-

* The last district practices somewhat more intensive methods of dairy farming than the other two.

selves to the same market conditions.

Poultry farms as a rule are highly specialized enterprises and their success and the type of their organization does not depend to any great extent on the slight variations in the climatic conditions and the soil fertility. As far as poultry farming is concerned, both the Duncan district on Vancouver Island and the Lower Fraser Valley district may be considered as providing the same opportunity for carrying on the business under consideration. The market condition for poultry products is very much the same in both districts. It might be expected that the efficient type of organization would prove the same for the two districts.

The detailed information as to the methods of securing data by the British Columbia Farm Survey can be found in

"Dairy Farming of British Columbia", Bulletin No.103
by H.R.Hare

"Tree-fruit Farming in British Columbia", Bulletin No.105
by F.M.Clement, and

"A Survey of Poultry Farms in British Columbia", Bulletin No.102
by W.J.Riley, E.A.Lloyd, V.S.Asmudson.

Shortly the method was as follow: A field-man visited individual farms and obtained a confidential statement of receipts and expenses incurred during the year. Besides this, the field-man took an inventory of land, buildings, stock, and equipment of the farm. As a rule, conservative valuations were made. Information was secured and recorded each year for a number of years, and the data concerning each farm was recorded on a form specially printed for the purpose. The accumulated data were then classified and tabulated on separate office sheets.

Thus the systematized data became available for purposes of research. So far the inductive method was followed. As the next step, in an attempt to arrive at certain conclusions which could become of some value both to the farmer and to the economist, the deductive method became justified.

The purpose of this study was, as already mentioned, the desire to come to certain conclusions as to the more correct ratios of the distribution of the different factors of production

in agriculture.* It is agreed that the degree of success with which the particular organisation of an agricultural enterprise meets is measured by the net return per dollar of the total investment. The most succesful organisation will therefore provide the largest net return per dollar of the total investment. In order to arrive at the net return per dollar invested, total expenses are subtracted from total receipts and the result obtained divided by the number of dollars representing the total capitalization of the farm enterprise.

Unfortunately this method of comparison involves the division of the farms into too many different size-groups. The fine gradation in size would become a necessity as one cannot consider 4% rate of return per dollar invested in an enterprise with the total capitalization of $3,000 as denoting the same degree of success when compared with the 4% rate of return per dollar invested in an enterprise with the total capitalization of $15,000. In order to have the right to proclaim the same degree of success, the smaller enterprise has to show higher rate of return per dollar invested.

Accordingly another method of determining the degree of the profitableness of the enterprise by the measurement of the amount of the operator's labor income was adopted. The operator labor income represents the farm net revenue, less 7% interest on the investment in land, buildings, machinery, livestock and

* Not all of the agricultural districts of British Columbia were considered. Only three types of farming were dealt with. If the conclusions arrived at will prove of some interest, the same method of investigation may be applied to other districts and for other types of farm enterprises.

feed and supplies.* The operator's labor income represents the farm operator's return for his work and for his managerial ability. When the interest on investment exceeds the farm net revenue, the difference becomes a minus operator's labor income.

The same operator's labor income indicates the same degree of success even when the sizes of the farms compared differ significantly. For the smaller enterprise the same labor income would mean greater rate of returns per dollar invested.

Only the practical impossibility of dividing the farms into many size groups prompted the adoption of the method of measuring the profitableness of the enterprise by its operator's labor income. The number of the farms under the consideration was not large enough to make a fine classification by sizes possible. The total capitalization of the different farms placed in the same size group varied too much.

As the first step each one of the 209 farms had to be considered individually. The total capitalization, operator's labor income, and the percentage of the total capitalization invested in land, in labor, and in equipment had to be arrived at. In order to find out the percentages, the absolute figures representing the investment in the different factors of production had to be first considered. The figure resulting from the subtraction of the sum of values of land plus labor from the value of the total capitalization, was considered as the absolute

* Farm Net Revenue is the difference between gross receipts and gross expenses.

value of the investment in equipment. As an illustration of the method used, an example of the calculation is given:

Poultry farm No.313 has a total capitalization of $8,379.70 Its land value plus taxes on land amount to $1,843.00. Its labor expenditure amounts to $725.00. The sum of investment in land plus labor equals $2,568.00 (1,843.00 + 725.00 = 2,568.00). The last figure when subtracted from the figure representing the total capitalization gives the amount invested in the equipment: 8,379.70 - 2,568.00 5,811.70. *

The percentages of the total capitalization invested in the different factors of production can be easily worked out now:

Total capitalization.....	8,379.70.....	100%
Investment in land	1,843.00.....	22.0%
" " labor.....	725.00.....	8.7%
" " equipment..	5,811.70.....	69.3%

* The weakness of this study lies in the fact that too many different items are covered by the same factor of production -namely, the equipment. In equipment are included the investments in buildings, in machinery, in livestock, in feed and supplies, and in cash used for current expenses, excluding the expenses in labor. Different farms have different shares of their investment in equipment represented by livestock, or by machinery, or by buildings. This fact does not make the comparison of the differences of the investment in equipment accurate. The same percentage of the investment in equipment may mean different things. However, it may be considered that the adopted method was the only one practicably possible when the distribution of the total capitalization is dealt with. Later on, as the continuation of this study an attempt may be made to find out the best ratios of the distribution of the total investment in equipment among the different items of equipment.

Operator's labor income for the same farm is $2,010.63.

The same procedure was followed for each of the 209 farms. It was necessary to know the amount of the total capitalization of the farm in order to be able to classify farms according to their sizes; it was necessary to know the amount of the operator's labor income in order to be able to compare the degree of the profitableness of the separate farms; and it was necessary to know the percentages of the total investment represented by the different factors of production.

When all of the 209 farms had their respective figures that were needed, the poultry farms were separated from the dairy farms and from the tree-fruit farms. From now on each of the three type groups were considered individually. Each of the type groups was again divided into several size groups.

Dairy Farms were divided into three size groups:

Group "I"- including the farms with the total capitalization between $5,000 and $18,000;

Group "II"-including the farms with the total capitalization between $18,000 and $35,000;

Group "III"-including farms with the total capitalization between $35,000 and $110.000.

Tree-fruit Farms were divided into four size groups:

Group "I" - including the farms with the total capitalization between $3,000 and $7,000;

Group "II" - including the farms with the total capitalization between $7,000 and $15,000;

Group "III" - including the farms with the total capitalization between $15,000 and $25,000;

Group "IV" - including the farms with the total capitalization between $25,000 and $120,000.

Poultry Farms were divided into four size groups.

Group "I" - including the farms with the total capitalization between $4,000 and $5,550;

Group "II" - including the farms with the total capitalization between $5,550 and $9,000;

Group "III"- including the farms with the total capitalization between $9,000 and $16,000;

Group "IV" - including the farms with the total capitalization between $16,000 and $25,000.

The farms of the different size-groups were never again grouped together; each of the size-groups was dealt with separately. Much care was exercised when limits of the size groups were determined. These limits were determined more or less arbitrarily, judging by the tendency of the farms to vary in the amounts of their total capitalizations but little. The first division according to size proved to be incorrect and other size limits had to be adopted. As the guiding principle for determining the size limits was taken the tendency of the farm enterprises to be the most remunerative when the same portions of their total capitalization were invested in the same factors of production.

POULTRY FARMING OF B. C.

From the foregoing it is seen that the farms have been classified according to districts, types , and sizes. Each farm supplies the information concerning the amount of its operator's labor income and concerning the percentages of its total capitalization invested in land, labor, and equipment. It remains to ascertain how the enterprises react on the differences in the above percentages.

Poultry farms offering the least difficulty will be first considered. Of the total of 67 farms it will be seen that five farms fall into the first group, 30 into the second, 21 fall into the third, and 11 fall into the fourth size-group.

The first size-group is represented by farms which as jet are in the process of development. These are recently begun farms which had not time enough to develop fully and to accumulate needed capital. Much of their total investment is represented by labor, an insufficient amount is represented by equipment, probably too little is invested in livestock.

With this first size-group of Poultry farms this study will begin its investigation.

The first step of this investigation requires finding out the different percentages of the total capitalization represeted by labor, land, and equipment on the farms with the largest operator's labor income, on the farms with the small operator's

labor income, and on the farms with the minus operator's labor income. The farms which have the operator's labor income above +$600.00 will be termed "Above-marginal Farms" ; the farms which have an operator's labor income of from "0" up to +$600.00 will be referred to as "marginal Farms"; and the farms which have a minus operator's labor income will be termed "Submarginal Farms"*

The result of the investigation is as follows:

AVERAGE PERCENTAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION. GROUP "I".

	Land	Labor	Equipment
Above-marginal farms	-	-	-
Marginal farms	19.8%	13.1%	67.1%
Sub-marginal farms	36.8%	12.1%	51.1%

There are no Above-marginal farms in the first group; none of the enterprises realize more than +$600.00 operator's labor income. The more successful farms have much smaller shares of their total capitalization invested in land. They have larger shares invested in equipment.

In order to be able to determine what percentages of the total capitalization should be invested in land, and what percentages should be invested in labor, and what percentages should be invested in equipment, the farms of the size group will be classified according to the percentages of the investment in the different elements of production. The farms are divided into

* This does not mean that they actually are Marginal or Submarginal. It should be remembered that 7% rate of interest on investment was deducted from the farm's net revenue. Probably 7% rate is too high a rate.

sub-groups according to the percentage of the investment in land. A ten percent interval is adopted, so that in the first sub-group are included the farms which have from 10% to 20% of their total capitalization invested in land; in the second sub-group are included the farms which have from 20% to 30% of their total capitalization invested in land, and so on.

The farms are then divided into sub-groups according to the percentage of their total capitalization represented by labor. A two percent interval is adopted.

The farms are further divided into sub-groups according to the percentage of their total capitalization invested in equipment. A ten percent interval is here adopted.

Each sub-group becomes a separate item which has to be dealt with separately. For each sub-group three characteristics are found in order -

1/ To ascertain the relative importance of the different sub-groups the percentages of the number of farms of each sub-group to the total number of the farms in the size group are worked out; the total number of the farms of the size group is taken as 100%,- the percentages of the respective to each sub-group number of farms is worked out accordingly.

2/ To ascertain the relative number of failures in each of the sub-groups, the percentages of the number of the sub-marginal farms in the sub-group to the total number of the farms in the same sub-group are worked out.

3/ To ascertain the degree of profitableness of a certain share of the total capitalization being invested in different factors

of production , the average operator's labor income is worked out for each of the sub-groups.

Here is the result of the procedure:

POULTRY SURVEY -1924.
GROUP "I".

Percentage of the investment	Percentage of farms in the sub-group to the total No. of farms in the size-group.	Percentage of submarginal farms to the total No. of farms in the same sub-group.	Average operator's labor income for each sub-group.
in land			
10% to 20%	20%	0%	+492.54
20% to 30%	60%	33.3%	+258.68
30% to 40%	20%	100%	- 60.60
in labor			
9% to 11%	20%	100%	- 60.60
11% to 13%	40%	0%	+424.34
13% to 15%	40%	50%	+210.00
in equipment			
40% to 50%	20%	100%	- 60.60
50% to 60%	40%	50%	+210.00
60% to 70%	20%	0%	+356.13
70% to 80%	20%	0%	+492.54

The bulk of the farms of the first size group have from 20% to 30% of their total capitalization invested in land. The farms with less land appear as being better off; the farms with more land would seem worse off. The tendency to have more land than is justified by the available equipment can be readily seen. The farms which have the least amount of land have the largest operator's labor income and they also have fewer failures.

The bulk of the farms have from 50% to 60% of their total capitalization invested in equipment; one half of such farms

are sub-marginal. The tendency to be short of equipment is plainly seen. The farms which have the largest share of their total capitalization represented by equipment are better off, as they have larger operator's labor income and they also have a smaller number of sub-marginal farms.

It would appear that the farms of the first size group should endeavour to increase their investment in equipment. It has already been mentioned that this group is represented by the recently started farms. Sooner or later all these farms will move into the second group.

The majority of the poultry farms are located in the second size group, namely in the group which includes the farms with the total capitalization of from $5,550.00 to $9,000.00. For the analysis of this group the same method was practiced as the method described when dealing with the first size group. As a matter of fact, the same method of analysis is carried on through out all the study.

For the second size group the result of the investigation is as follows:

AVERAGE PERCENTAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION. GROUP "II".

	Land.	Labor.	Equipment.
Above-marginal farms	20.2%	8.9%	70.9%
Marginal farms	28.3%	11.9%	59.8%
Sub-marginal farms	24.2%	7.2%	68.6%

In the second size group only one sub-marginal farm is found. Consequently, the "averages" for the sub-marginal farms of the second size group cannot be considered as being strictly representative. It would be better to disregard them entirely.

The more remunerative poultry farms of the second size group have a much smaller share of their total capitalization invested in land. They have a greater share of their total capitalization invested in equipment. The differences of the amounts of the investments in labor do not seem to affect the achievements of the enterprises.

More detailed information can be obtained from the table which follows:

POULTRY SURVEY-1924.
GROUP "II".

Percentage of investment	Percentage of the farms in the sub-group to the total No. of farms in the size-group.	Percentage of submarginal farms in the sub-group to the total number of farms in the same sub-group.	Average operator's labor income for each sub-group.
Less than 10%	10%	0%	+1716.51
10% to 20%	46.7%	0%	+1171.93
20% to 30%	26.7%	12.5%	+1509.19
30% to 40%	10%	0%	+ 754.57
40% to 50%	6.6%	0%	+ 834.01
in labor			
7% to 9%	63.3%	5.3%	+1338.55
9% - 11%	20.0%	0%	+1525.29
11% - 13%	10.0%	0%	+ 589.89
15% - 17%	3.3%	0%	+1191.60
17% - 19%	3.4%	0%	+ 16.28
in equipment			
40% - 50%	10.0%	0%	+ 612.81
50% - 60%	10.0%	0%	+ 929.02
60% - 70%	23.3%	14.3%	+1002.92
70% - 80%	46.7%	0%	+1482.10
80% - 90%	10.0%	0%	+1722.13

Continuing the analysis of the investments in labor the fact may be noted that, probably, the poultry farmers of the second size group should give somewhat more attention to their flocks. From amoung all the farmers 63.3% of them have invested in labor from 7% to 9% of the total capitalization of their enterpises. The next group of the farmers who have a somewhat larger share of their total capitalization invested in labor, namely, from 9% to 11%, realize a greater operator's labor income.

The more correct ratios of the investment in the different factors of production for the poultry farms of the second size group seem to be around 10% in land, 10% in labor, and 80% in equipment.

For the third size group the result of the investigation is as follows:

AVERAGE PERCENTAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION. GROUP "III".

	Land.	Labor.	Equipment.
Above-marginal farms	21.0%	7.5%	71.5%
Marginal farms	37.5%	6.3%	56.2%
Sub-marginal farms	16.2%	8.5%	75.3%

In this group there are only two submarginal farms,* consequently averages for sub-marginal farms are not reliable.

Comparing the Above-marginal farms with the Sub-marginal the fact can be seen again that the more profitable farms have less land and more equipment than have the less profitable farms.

* See Table N 1 at the end. Page 34.

The Above-marginal farms have a little larger share of their total capitalization invested in labor.

POULTRY SURVEY - 1924.
GROUP "III".

Percentage of investment	Percentage of farms in the sub-group to the total No. of farms in the size group.	Percentage of sub-marginal farms in sub-group to total No. of farms in the same sub-group.	Average operator's labor income for each sub-group.
in land.			
10% - 20%	38.1%	12.5%	+1547.63
20% - 30%	47.6%	10.0%	+1416.98
30% - 40%	4.8%	0%	+ 445.07
40% - 50%	9.5%	0%	+ 295.34
in labor			
3% - 5%	9.5%	0%	+ 382.15
5% - 7%	38.1%	0%	+1602.09
7% - 9%	33.3%	28.6%	+1152.75
9% - 11%	14.3%	0%	+1562.12
11% - 13%	4.8%	0%	+1250.05
in equipment			
40% - 50%	4.8%	0%	+ 304.71
50% - 60%	9.5%	0%	+ 365.52
60% - 70%	38.1%	0%	+1555.82
70% - 80%	47.6%	20%	+1410.42

The largest number of the poultry farms of the third size group have from 20% to 30% of their total capitalization invested in land. The farms which have from 10% to 20% of their total capitalization represented by land have larger operator's labor income. The desirable thing for the third size group would be the increase of the number of the farms in its first sub-group. The more correct ratios of the investment in the different factors of production for the poultry farms of the third size group seem to be around 15% in land, 10% in labor, and 75%

in equipment.

For the fourth group of the poultry farms the result of the investigation is as follows:

AVERAGE PERCENTAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION. GROUP "IV".

	Land.	Labor.	Equipment.
Above-marginal farms	17.3%	7.6%	75.1%
Marginal farms	33.0%	6.0%	61.0%
Sub-marginal farms	48.0%	7.9%	44.1%

Just as it was in the case of the previously considered groups, it can be seen that the most profitable farms have the smallest share of their total capitalization invested in their land, as compared with the less profitable farms, which have a much larger share of their total capitalization invested in land. The largest share of the total capitalization of the most profitable farms is represented by equipment. The less profitable the farm is , the less equipment it has. More detailed information is provided by the table which follows:

POULTRY SURVEY -1924.
GROUP "IV".

Percent of investment in land	Percentage of farms in the sub-group to total No. of farms in the size group.	Percentage of sub-marginal farms in sub-group to total No. of farms in the same sub-group.	Average operator's labor income for each sub-group.
Less than 10%	18.1%	0%	+2867.43
10% - 20%	36.5%	0%	+2094.10
20% - 30%	9.1%	0%	+ 992.23
30% - 40%	18.1%	0%	+ 561.68
40% - 50%	9.1%	100%	- 396.96
50% - 60%	9.1%	100%	- 63.96

in labor.

3% - 5%	9.1%	0%	+ 955.34
5% - 7%	27.2%	0%	+ 606.20
7% - 9%	54.6%	33.3%	+1854.29
9% -11%	-	-	-
11% -13%	9.1%	0%	+1866.26

in equipment

30% - 40%	9.1%	100%	- 63.96
40% - 50%	9.1%	100%	- 396.96
50% - 60%	9.1%	0%	+ 955.34
60% - 70%	18.2%	0%	+ 580.13
70% - 80%	27.3%	0%	+2050.09
80% - 90%	27.2%	0%	+2653.67

The bulk of the farms of the fourth size group have from 10% to 20% of their total capitalization invested in land. The farms which have less land have larger operator's labor income; the farms which have more land have smaller operator's labor income. With the increase of the share of the total capitalization invested in equipment, the operator's labor income increases. The farms which have less than half of their total capitalization represented by equipment have minus operator's labor income. The bulk of the farms have from 5% to 9% of their total capitalization invested in labor. This percentage does not seem to be large enough.

The more correct ratios of the investment in the three factors of production for the poultry farms of the fourth size group seem to be 10% in land, 10% in labor, and 80% in equipment.

Looking over all the four groups of the poultry farms, it would appear that there is no tendency for the larger farms to require a larger portion of their total capitalization to be represented by land. There is no tendency for the larger farms to require a smaller portion of their total capitalization to be represented by equipment. What is good for the farm of one size , seems to be beneficial for the farm of another size. The more correct ratios of the investment in the different factors of production are the same for the farms of all the sizes.

These more correct ratios are - 10% in land, 10% in labor, and 80% in equipment.

The bulk of the farms appear to have more land than seems to be the most remunerative amount, and the bulk of the farms have less equipment than is justified by the business. Furthermore, the bulk of the farmers appear to provide their enterprises with somewhat an insufficient amount of labor.

All this amounts to the statement that the poultry business of British Columbia has not reached the limit of intensity which would forbid further application of labor and equipment to the same areas of land. In other words, Poultry of British Columbia has not reached the point of decreasing returns as jet.

Among the number of the farms of the group which includes the enterprises with the largest total capitalization, 18.2% are sub-marginal farms; among the farms of the next size group

which includes the enterprises with somewhat smaller total capitalization, the percentage of the sub-marginal farms is 9.5%; this percentage for the still smaller size group is only 3.3%. It may be concluded that among larger farms there is a greater number of failures than among smaller farms. But this does not of necessity mean the conclusion that the smaller the farm is the more chances to succeed it has. There is the limit to the mentioned tendency: the farms of the first size group, namely the farms with the total capitalization under $5,550.00 have 40% of their total number as submarginal farms. It seems that in order to attain an economical success the poultry enterprise of British Columbia should be capitalized for at least $5,550.00.

TABLE "I".

P O U L T R Y S U R V E Y.
1 9 2 4.

	Capitalization.	Number of farms.	Number of sub-marginal farms.	% of sub-marginal farms.
Group "I"	$ 4,000 - 5,550	5	2	40%
Group "II"	$ 5,550 - 9,000	30	1	3.3%
Group "III"	$ 9,000 -16,000	21	2	9.5%
Group "IV"	$16,000 -26,000	11	2	18.2%

AVERAGE PERCENTAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION. 1924.

	Land.	Labor.	Equipment.
G R O U P "I".			
Above-marginal farms	-	-	-
Marginal farms	19.8%	13.1%	67.1%
Sub-marginal farms	36.8%	12.1%	51.1%
G R O U P "II".			
Above-marginal farms	20.2%	8.9%	70.9%
Marginal farms	28.3%	11.9%	59.8%
Sub-marginal farms	24.2%	7.2%	68.6%
G R O U P "III".			
Above-marginal farms	21.0%	7.5%	71.5%
Marginal farms	37.5%	6.3%	56.2%
Sub-marginal farms	16.2%	8.5%	75.3%
G R O U P "IV".			
Above-marginal farms	17.3%	7.6%	75.1%
Marginal farms	33.0%	6.0%	61.0%
Sub-marginal farms	48.0%	7.9%	44.1%

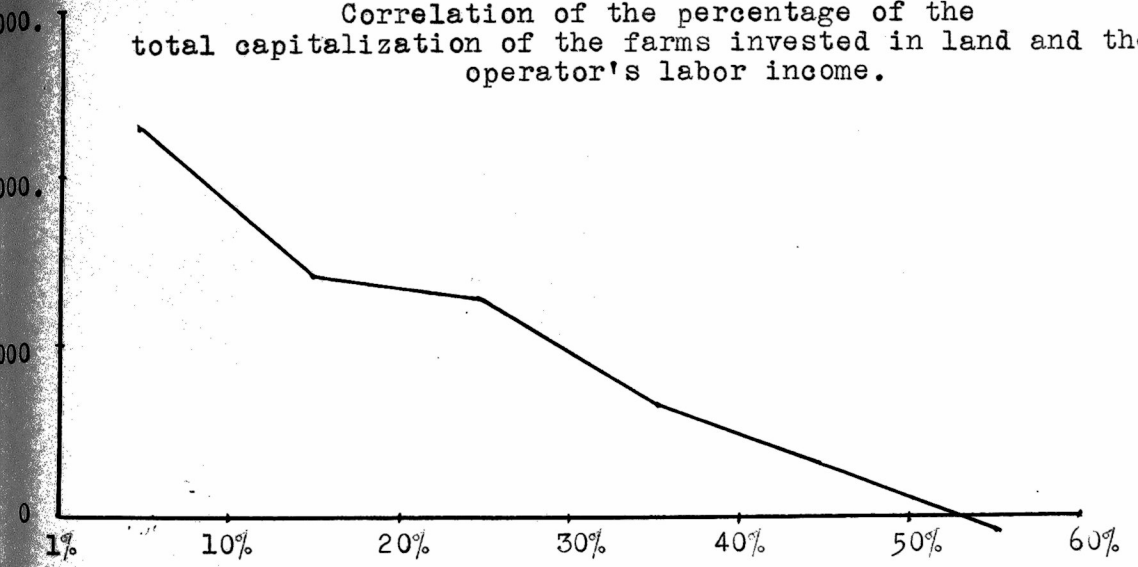
CORRELATION OF THE PERCENTAGE OF THE TOTAL CAPITALIZATION OF THE FARMS INVESTED IN LAND AND THE OPERATOR'S LABOUR INCOME.

P O U L T R Y S U R V E Y.
1 9 2 4.

Percent of the total capitalization of the farm invested	Number of farms in the sub-group.	Average operator's labour income.
in land		
1% - 10%	5	+2,284.38
10% - 20%	26	+1,400.99
20% - 30%	22	+1,273.26
30% - 40%	7	+ 646.56
40% - 50%	6	+ 300.19
50% - 60%	1	- 63.96
in equipment		
30% - 40%	1	- 63.96
40% - 50%	6	+ 280.93
50% - 60%	8	+ 611.67
60% - 70%	18	+1,165.75
70% - 80%	28	+1,482.02
80% - 90%	6	+2,188.23

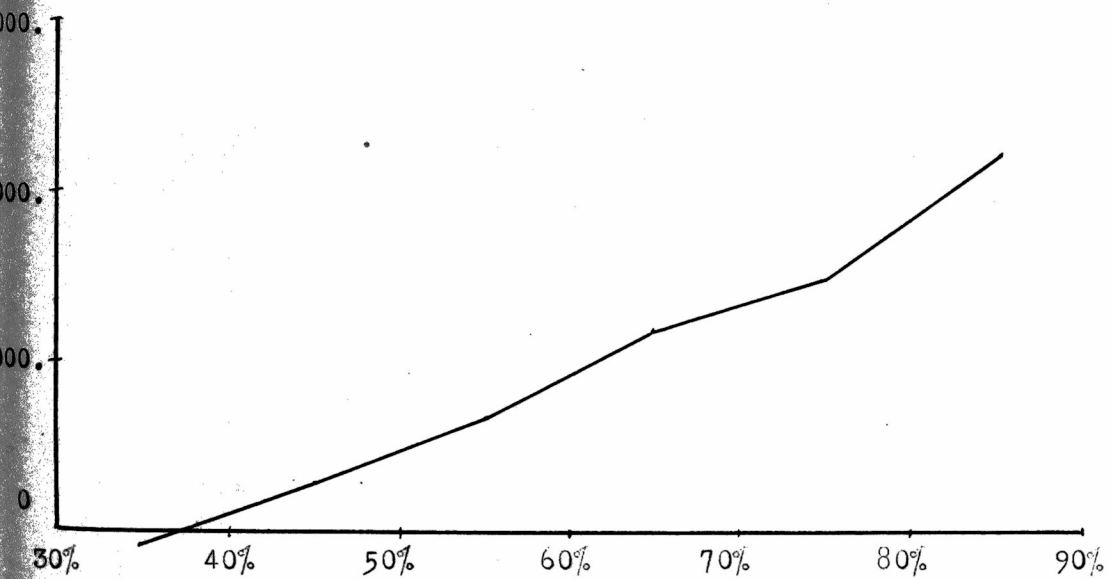
P O U L T R Y S U R V E Y.
1 9 2 4.

Correlation of the percentage of the total capitalization of the farms invested in land and the operator's labor income.



Investment in land.

Correlation of the percentage of the total capitalization of the farms invested in equipment and the operator's labor income.



Investment in equipment.

TREE-FRUIT FARMING.

There are 74 farms divided into four size groups. The first group consists of farms with the total capitalization of from $3,000 to $7,000; the second group includes farms with the capitalization of from $7,000 to $15,000; the third group has farms with the capitalization of from $15,000 to $25,000; and the fourth group consists of farms with the capitalization of from $25,000 to $120,000.

In the year 1928 which is the year under consideration 16 farms belonged to the first group, 38 farms belonged to the second group, 14 farms belonged to the third group, and six farms belonged to the fourth group.

TREE-FRUIT SURVEY, 1928.

	Capitalization.	No.of farms.	No.of sub-marg.farms.	% of sub-marg.farms.
Group "I"	$ 3,000 to $ 7,000	16	2	12.5%
Group "II"	$ 7,000 to $15,000	38	11	28.9%
Group "III"	$15,000 to $25,000	14	5	35.7%
Group "IV"	$25,000 to $120,000	6	3	50.0%

AVERAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION.GROUP"I"

	Land.	Labor.	Equipment.
Above marginal farms	72.8%	14.8%	12.4%
Marginal farms	67.1%	21.9%	11.0%
Sub-marginal farms	69.1%	17.1%	13.8%

As compared to the marginal and sub-marginal farms, the above-marginal farms have a larger share of their total investment represented by land; they invest a smaller share of their total capitalization in labor; little or no variation of the investment in the equipment is seen.

Unfortunately the value of the trees is included in the land value. This fact is apt to distort the picture of the distribution of the three factors of production. The orchard is really the equipment of a tree-fruit farm, inspite of the fact that it cannot be sold separate from the land. More trees per acre and in the case of the trees of better quality a larger expenditure of capital is made per acre. This means the intensification of farming in the same sense as when on a poultry farm the number of the birds per acre and the quality of the flock are increased and improved. For the five years of the survey (1921 - 1925) bearing orchard land was valued at from $700.00 to $1,000.00 per acre. In the same district (Okanagan) the average land value per tillable acre was $159.10. *

It is true that the land of the orchard necessitates more expenditure for its improvement than the area of land under grain crops or under pasture. Orchards need irrigation in the most of the fruit growing districts of the West. Certainly the orchards of the Okanagan district need the improvements, not including the trees themselves.

What is the value of the trees? When and to what extent the increase of the investment in land is due to the increased num-

* Based on 1925 crop-survey year.

ber of acres of land on the farm, and when and to what extent is it due to the increased number of the bearing trees?

Unfortunately figures that are available do not allow conclusions to be reached in this connection. The writer will do his best with the figures that are at his disposal.

TREE-FRUIT SURVEY-1928.
GROUP "I".

Percent of the investment in land.	Percent of farms in the sub-group to the total No. of farms in the size group.	Percent of sub-marginal farms to the total No. of farms in the same sub-group.	Average operator labor income.for each sub-group.
50% - 60%	12.5%	50%	- 309.39
60% - 70%	31.3%	0%	+ 816.40
70% - 80%	50.0%	0%	+ 743.34
80% - 90%	6.2%	100%	- 461.78
in labor			
10% - 12%	12.5%	0%	+1264.79
12% - 14%	12.5%	0%	+ 869.58
14% - 16%	12.5%	0%	+ 868.47
16% - 18%	31.3%	40%	+ 125.31
18% - 20%	-	-	-
20% - 22%	18.7%	0%	+ 598.62
22% - 24%	-	-	-
24% - 26%	12.5%	0%	+ 264.96
in equipment			
1% - 10%	43.75%	14.3%	+ 469.62
10% - 20%	31.25%	0%	+ 758.27
20% - 30%	25.0 %	25.0%	+ 467.34

This table gives us more detailed information about the reaction of the enterprises on the variations of the distribution of the three factors of production. Both the farms which have from 60% to 70% and the farms which have from 70% to 80% of their total capitalization invested in land are Above-marginal farms, i.e. either sub-group realizes more than +$600.00 opera-

tor's labor income. The "60% - 70%" sub-group has a greater average operator's labor income (+816.40) as compared with the operator's labor income of the "70% - 80%" sub-group (+743.34). And jet there are more farms in the sub-group which includes the enterprises with the 70% to 80% of their total capitalization represented by land. There are 31.3% of the farms of the first size group in the sub-group which includes the enterprises with the 60% to 70% of their total capitalization represented by land; there are 50% of the farms of the first size group in the sub-group which includes the enterprises with the 70% to 80% of their total capitalization represented by land.

It appears that the tree-fruit farms of the first size group would do better if they invested a somewhat smaller share of their total capitalization in land.

Studying the figures which deal with the investment in labor, it can be plainly seen that most of the farms were overburdened in that respect; part of the share of the capital invested in labor could be utilized to a greater advantage if invested in equipment. However it must not be forgotten that probably the operator of the farm supplied most of the labor himself and had no chance to apply his work in other directions.

In considering the investment in equipment there is no difficulty to see that more equipment would prove advantageous for many of the farmers. 43.75% of the farms have less than 10% of their total capitalization invested in equipment. The farms which have from 10% to 20% of their total capitalization invested in equipment realize a greater operator's labor in-

come than do the farms which have less than ten percent invested in equipment.

For the first size group of the tree-fruit farms of the Okanagan district the more correct ratios of the distribution of the different factors of production seem to be 69% in land, 11% in labor, and 20% in equipment.

The general tendency of the farms is to have somewhat more land, more labor, and less equipment. If the value of the trees was also placed under the item of equipment, the stated tendency would appear even more pronounced. According to the tree-fruit survey, in spite of the fact that about 85% of the total receipts of the tree-fruit farms come from the sales of fruit, 40.4% of the area of the farms has nothing to do with the fruit growing.

THE AVERAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION .
G R O U P "II"- 1928.

	Land.	Labor.	Equipment.
Above-marginal farms	72.3%	12.0%	15.7%
Marginal farms	70.2%	11.5%	18.3%
Sub-marginal farms	65.7%	16.9%	17.4%

As compared with the sub-marginal farms, the marginal and the above-marginal farms have more land, less labor, and the same amount of equipment.

It is again necessary to emphasize the fact that the value of the trees is included in the land value, while from this study the conclusion is made that the value of the trees should be

included in equipment. It is necessary also to point out, that under no circumstances should the average figures of the table above be taken as representative of the actual percentages of the total capitalizations of the Marginal, Sub-marginal, and Above-marginal farms invested in their factors of production. The tendency to have a smaller or a greater share of the total investment represented by a certain factor of production alone can be shown by the above averages.

The more correct or the less correct percentages of the investments in the different factors of production may be seen from the following table:

T R E E - F R U I T S U R V E Y.
G R O U P "II".

Percentage of investment	Percent of farms in the sub-group to the total No. of farms in the size-group.	Percent of sub-marginal farms to the total No. of farms in the same sub-group.	Average operator's labor income for each sub-group.
in land			
40% - 50%	2.6%	0%	+ 445.51
50% - 60%	5.3%	100%	- 954.26
60% - 70%	39.5%	33.3%	+ 839.47
70% - 80%	47.3%	22.2%	+ 584.83
80% - 90%	5.3%	0%	+1273.59
in labor			
4% - 6%	2.6%	0%	+1080.45
6% - 8%	5.3%	50%	- 361.12
8% - 10%	34.2%	30.8%	+ 650.34
10% - 12%	13.2%	20%	+ 800.71
12% - 14%	10.7%	0%	+1370.28
14% - 16%	15.8%	0%	+1129.33
16% - 18%	2.6%	0%	+ 445.51
18% - 20%	5.3%	50%	+ 838.30
24% - 26%	2.6%	100%	- 648.95
26% - 28%	5.2%	100%	- 731.28
33.2%	2.5%	100%	-1241.84

in equipment			
1% - 10%	21.0%	50%	+ 174.31
10% - 20%	50.0%	15.8%	+ 753.24
20% - 30%	23.7%	33.3%	+ 968.70
30% - 40%	5.3%	50%	- 110.58

Most of the tree-fruit farms have from 60% to 80% of their total capitalization invested in land. The farms which have from 70% to 80% realize smaller operator's labor income than the farms which have from 60% to 70%, and jet it will be seen that the number of the farms in the "70% - 80%" sub-group is larger than the number of the farms in the "60% - 70%" group. The operator's labor income of the farms which have from 80% to 90% of their total capitalization invested in land is the largest of all the sub-groups, but the number of the farms in this sub-group is too small (5.3%) to make the figure reliable.

In the second group of the tree-fruit farms 71.0% of the total number of the farms have less than 20% of their total investment represented by equipment, and jet the most successful farms have from 20% to 30% of their total capitalization invested in equipment.

As a whole, the second size group appears to have too much investment in land. The farmers of this group might do better if they allowed a greater portion of their total investment to go into equipment, and a smaller portion of it to go into land.

The most correct ratios of the distribution of the different factors of production for the second size group of the tree fruit farms appears to be: 65% in land, 13% in labor, and 22% in equipment.

THE AVERAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION.

G R O U P "III".

	Land.	Labor.	Equipment.
Above-marginal farms	73.6%	10.4%	16.0%
Marginal farms	-	-	-
Sub-marginal farms	72.7%	13.3%	14.4%

The above-marginal farms have more land than have the sub-marginal farms; the above-marginal farms have less labor, and they have more equipment than the sub-marginal farms.

T R E E - F R U I T S U R V E Y, 1928.

G R O U P "III".

Percentage of the investment in land.	Percent of farms in the sub-group to the total No. of farms in the size group.	Percent of sub-marginal farms to the total No. of farms in the same sub-group.	Average operator's labor income for each sub-group.
60% - 70%	28.6%	50%	+ 382.05
70% - 80%	57.1%	25%	+ 560.87
80% - 90%	14.3%	50%	+1221.02
in labor			
4% - 6%	21.4%	33.3%	+1100.79
6% - 8%	14.3%	100%	- 492.26
8% - 10%	28.7%	0%	+1289.60
14% - 16%	21.4%	0%	+1973.91
20% - 22%	7.1%	100%	-2882.02
26% - 28%	7.1%	100%	-2058.81
in equipment			
1% - 10%	28.6%	75.0%	- 654.64
10% - 20%	57.1%	12.5%	+1277.05
20% - 30%	14.3%	50.0%	+ 429.80

It will be seen that, although the largest operator's labor income is realized by the farms which have from 80% to 90% of

their total capitalization invested in land , half of the number of these farms are sub-marginal. This sub-group appears to have an organozation that seems to be on the whole too risky.

The group which includes the farms with from 70% to 80% of their total capitalization represented by land may be considered as being in the most satisfactory position. The correctness of this conclusion is confirmed by a consideration of the varied investments in equipment, and in labor.

It seems that the farms should have at least 12% of their total investment represented by labor, and at least 15% represented by equipment. 12 + 15 makes 27, and only 73% is left for the share of the total capitalization which could be invested in land.

The fact must be always borne in mind that, under this system of survey records, the larger percentage of investment in land may mean a greater share of the total area of the farm's land under the farm's orchard, or it may mean a better orchard with a larger number of trees per acre, or it may mean a big track of land which has nothing to do with the orchard.

THE AVERAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION .

G R O U P "IV" - 1928.

	Land.	Labor.	Equipment.
Above-marginal farms	-	-	-
Marginal farms	69.4%	12.1%	18.5%
Sub-marginal farms	56.9%	13.3%	29.8%

As in the case of the three previous groups, the sub-marginal farms have less land and more labor than have the marginal farms. None of the farms of the fourth size group realized more than +$600.00 operator's labor income. As will be seen from the table that follows, some of the sub-marginal farms owe their minus operator's labor income to the excessive investment in the equipment, probably in the unproductive equipment, such as too expensive or obsolete buildings, etc.

T R E E - F R U I T S U R V E Y, 1928.

G R O U P "IV".

Percentage of the investment in land.	Percent of farms in the sub-group to the total No. of farms in the size group.	Percent of sub-marginal farms to the total No. of farms in the same sub-group.	Average operator's labor income for each sub-group.
30% - 40%	16.7%	100%	-6454.30
40% - 50%	16.7%	100%	-4648.54
50% - 60%	16.6%	0%	+ 239.04
60% - 70%	-	-	-
70% - 80%	33.3%	0%	+ 293.83
80% - 90%	16.7%	100%	-1538.50
in labor			
8% - 10%	16.7%	100%	-1538.50
10% - 12%	33.3%	0%	+ 132.47
12% - 14%	16.7%	100%	-4648.54
14% - 16%	16.7%	0%	+ 561.77
18% - 20%	16.6%	100%	-6454.30
in equipment			
1% - 10%	16.7%	100%	-1538.50
10% - 20%	33.3%	0%	+ 293.83
20% - 30%	-	-	-
30% - 40%	33.4%	50%	-2304.75
40% - 50%	16.6%	100%	-6454.30

Although few farms enter into the fourth size group, this group gives the same answer to the question as to what consti-

tutes the most satisfactory ratios of the distribution of the different factors of production. The largest operator's labor income is realized by the farms which have from 70% to 80% of their total capitalization invested in land; which have from 14% to 16% of their total capitalization invested in labor, and which have from 10% to 20% of their total capitalization invested in equipment. The best ratios, then, may be stated as being 70% in land, 15% in labor, and 15% in equipment.

Tree-fruit farms are highly specialized enterprises. Consequently it is expected that different size groups do not vary much as far as the best methods of their organization are concerned. At the same time however the larger farms should show certain operating and material expenses forming a smaller portion of their total capitalization. Besides this, certain machinery and certain buildings cannot be as fully utilized on a smaller farm as they can be utilized on a larger farm; the machinery can be used each season for a longer period of time on a larger farm than on a smaller farm, and so on. The best ratios of the distribution of the different factors of production on the tree-fruit farms of the different sizes are as follows:

	Land.	Labor.	Equipment.
For Group "I"	69%	11%	20%
For Group "II"	65%	13%	22%
For Group "III"	73%	12%	15%
For Group "IV"	70%	15%	15%

These figures confirm either of the expectations:

1/ the best ratios of the distribution of the different factors of production do not differ much with the variations of the sizes of the tree-fruit farms;

2/ the larger farms need a smaller share of their total capitalization to be invested in equipment, excluding the trees.

Thus larger farms seem to have a distinct advantage over the smaller farms in that their overhead charge of operating , material, and fixed expenses can be made smaller than the overhead charge on a smaller farm. At the same time however the larger farms as compared with the smaller farms have a relatively greater number of the sub-marginal farms.

T R E E - F R U I T S U R V E Y - 1928.

PERCENT OF SUBMARGINAL FARMS IN DIFFERENT SIZE GROUPS.

Group "I"	12.5%
Group "II"	28.9%
Group "III"	35.7%
Group "IV"	50.0%

The fact that among larger farms there is a greater number of failures than among smaller farms is not inherent to the size of the enterprise. The proper combination of the three factors of production on a large farm is liable to be more efficient than the proper combination of the three factors of production on a smaller farm. Unfortunately, or fortunately perhaps, there is a well defined tendency for the larger farms to be more liable to have an improper combination of the three fac-

tors of production. The smaller farms seem to be more able to organize their factors of production in a more remunerative way; the range of the ratios of the distribution of their factors of production is nearer to the standard ratio. The range of the ratios of the distribution of the factors of production of the larger farms is more scattered, has greater deviations, and varies very much from the standard.

In coming back to the tables dealt with previously, it will be seen that the percentage of the farms which have more than 80% of their total capitalization invested in land is

For Group "I" 6.2%

For Group "II" 5.3%

For Group "III" 14.3%

For Group "IV" 16.7%

The percentage of the farms which have less than 60% of their total capitalization invested in land is

For Group "I" 12.5%

For Group "II" 7.9%

For Group "IV" 34.4%

The percentage of the farms which have more than 30% of their total investment represented by equipment is

For Group "I" 0%

For Group "11" 5.3%

For Group "III" 0%

For Group "IV" 50%

The range of the percentages of the total capitalization invested in land is as follows:

For Group "I"	56.9% up to 80.3%	(23.4)
For Group "II"	48.4% up to 83.1%	(34.7)
For Group "III"	64.1% up to 85.4%	(21.3)
For Group "IV"	38.2% up to 83.1%	(44.9)

The range of the percentages invested in equipment is as follows:

For Group "I"	2.8% up to 24.7%	(21.9)
For Group "II"	7.2% up to 35.6%	(28.4)
For Group "III"	6.6% up to 29.7%	(23.1)
For Group "IV"	7.9% up to 43.6%	(35.7)

As compared to smaller farms, a relatively greater number of the larger farms do not seem to be capable of distributing their factors of production to the best advantage. It is a usual experience in agriculture that the efficiency of production is hampered by the deficient factor. In the case of large sized farms , adequate management seems to be the deficient factor. The investment in land, in labor, and in equipment seems to increase more rapidly than the investment in management.

The same inability to distribute their factors of production in the most efficient way is pronounced stronger on the poultry farms of a larger size as compared to the poultry farms of a smaller size. Poultry as well as tree-fruit farming is a highly specialized business. Its standard type of organization should be applicable with benefit to practically every farm. It has

been found that the standard distribution of the three factors of production for poultry farms of British Columbia is: 10% in land, 10% in labor, and 80% in equipment. The nearer to this standard distribution of the factors of production the actual distribution of the factors of production approaches, the better it seems to be for any poultry farm. The smaller the size of a poultry farm, the smaller are the deviations from the standards.

The spread of the percentages of the total capitalization invested in land is this:

P O U L T R Y F A R M S U R V E Y, 1924.

For Group "I"	from 10% to 40%	(30%)
For Group "II"	from 10% to 50%	(40%)
For Group "III"	from 10% to 50%	(40%)
For Group "IV"	from 10% to 60%	(50%)

The spread of the percentages of the total capitalization invested in equipment is:

For Group "I"	from 40% to 80%	(40%)
For Group "II"	from 40% to 90%	(50%)
For Group "III"	from 40% to 80%	(40%)
For Group "IV"	from 30% to 90%	(60%)

The inadequacy of the increase of the management in proportion to the increase of the investments in other three factors of production is well defined. The fact that in the case of the poultry farms the smallest size group provides the relatively largest number of sub-marginal farms does not contradict this

conclusion. The deficient factor of the poultry farms of the first size group is the equipment. This is plainly seen and, therefore, the management cannot possibly be blamed for the relatively large number of sub-marginal farms during the first few years of the farm existence. Probably the management could be held responsible for the inability to move the farm from the first size group into the second. Jet, surely, a certain time ought to be allowed for such a task.

****

Summarising the information regarding the tree-fruit farms of the Okanagan District, it may be said that as a whole the farms should increase the share of their total capitalization invested in equipment, and they should decrease the share of their total capitalization invested in land. As in the case of the poultry farm, the tree-fruit farm of the Okanagan District has not as jet reached the point of decreasing returns. For the tree-fruit farm operators there still remains the opportunity to intensify the utilization of their land areas. In common language the meaning of this last paragraph amounts to the following recomendation: more boxes of apples should be grown per acre, and the quality of the bulk of the apple grown should be improved.

The above conclusions were arrived at after analysis of the data obtained from the 74 farms under the survey of 1928. Though the above described tendencies of the farms to have more

land than they should and to have less equipment than is the most profitable for them to have seemed to be well defined, the figures did not all follow the general direction of the data. In order to check on the correctness of the conclusions arrived at, the analysis was repeated, working with data obtained from the same farms but gathered during the year 1927. The results obtained from the analysis of the data of 1927 are identical to the results obtained from the data of 1928. In fact in some respects the latter (1927) more clearly illustrates the same thing that had been illustrated by the data of 1928. For instance, the deviations from the standard ratios of the distribution of the different factors of production on the farms of different sizes are as follows:

THE RANGE OF THE PERCENTAGES OF THE TOTAL CAPITALIZATION INVESTED IN LAND:

	According to 1927.	According to 1928.
Group "I"	from 50% to 80% (30%)	from 50% to 90% (40%)
Group "II"	from 50% to 80% (30%)	from 40% to 90% (50%)
Group "III"	from 50% to 90% (40%)	from 60% to 90% (30%)
Group "IV"	from 40% to 90% (50%)	from 30% to 90% (60%)

THE RANGE OF THE PERCENTAGES OF THE TOTAL CAPITALIZATION INVESTED IN EQUIPMENT:

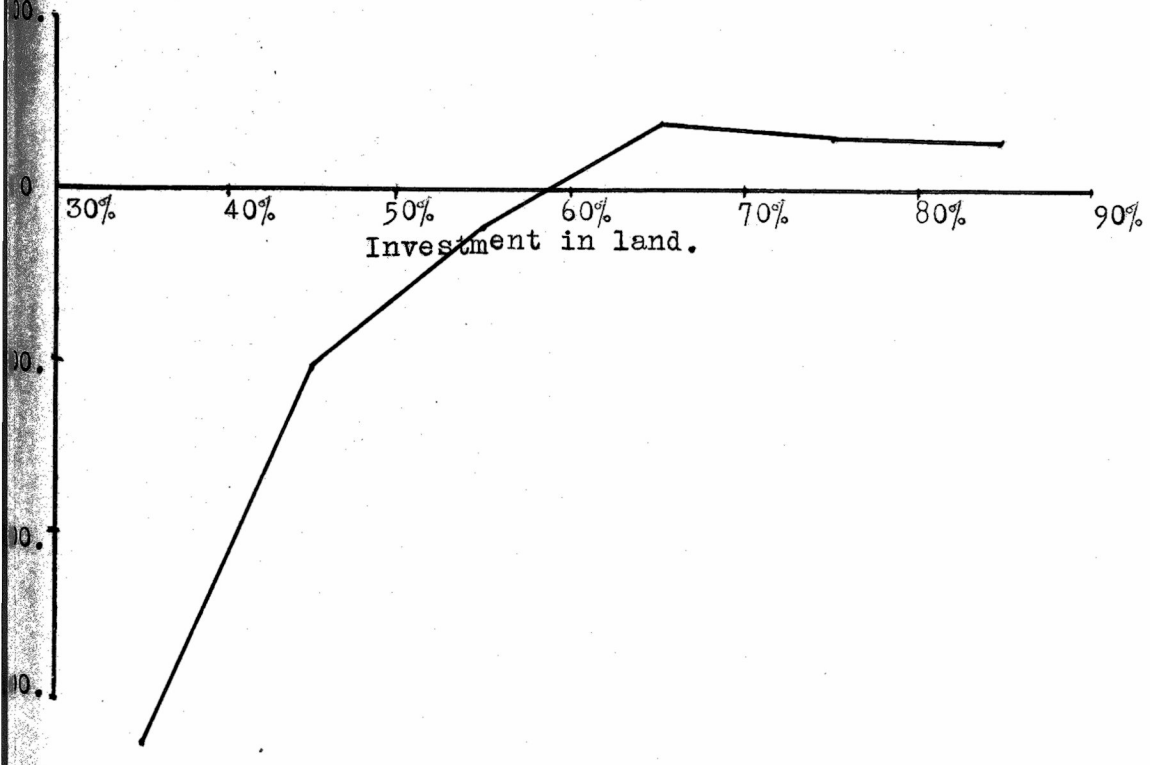
Group "I"	from 1% to 30% (30%)	from 1% to 30% (30%)
Group "II"	from 1% to 40% (40%)	from 1% to 40% (40%)
Group "III"	from 1% to 40% (40%)	from 1% to 30% (30%)
Group "IV"	from 1% to 50% (50%)	from 1% to 50% (50%)

Therefore, as the data gathered in 1927 prove the same thing and bring us to the same conclusions as the data gathered in 1928, it may be considered that the results of the investigation and analysis of the figures obtained during the survey of 1928 are correct and valid as long, as there is no radical and permanent change in the prices of the commodities produced or in the prices of the different factors of production.

Tables dealing with the data of 1927 are at the end page 84.to 96.

Tree Fruit Survey, 1928.
Correlation of the percentage of the total capitalization of farms invested in land and the operator's l.income.

Percentage of the total capitalization invested in land.	Average operator's labour income.	Number of farms.
30% - 40%	-6,454.30	1
40% - 50%	-2,101.52	2
50% - 60%	- 457.65	5
60% - 70%	+ 758.42	24
70% - 80%	+ 598.56	36
80% - 90%	+ 597.79	5



B.C. D A I R Y F A R M I N G.

Now let us consider the Dairy farms. For the year 1926 there are 68 farms divided into three size groups. The first size group includes the farms with the total capitalization of from $4,000 to $18,000; the second size group includes the farms with the total capitalization of between $18,000 to $35,000; and the third size group includes the farms with the total capitalization of between $35,000 to $110,000.

There are 33 farms in the first group, 21 farms in the second group and there are 14 farms in the third group.

DAIRY FARMING, 1926.

Capitalization.	No. of farms.	No. of sub-marginal farms.	% of sub-marginal farms.
Group "I"	33	3	9.1%
Group "II"	21	5	23.8%
Group "III"	14	6	42.9%

THE AVERAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION.

G R O U P "I".

	Land.	Labor.	Equipment.
Above-marginal farms	46.7%	8.5%	44.8%
Marginal farms	50.1%	7.3%	42.6%
Sub-marginal farms	47.3%	8.8%	43.9%

As compared with the marginal and sub-marginal farms, the above-marginal farms have a smaller share of their total invest-

ment represented by land; they have a greater share of their total investment represented by equipment; they have the same share of their total capitalization represented by labor.

The average percentages of the distribution of the three factors of production corresponding to the above-marginal, marginal, and sub-marginal farms show only the tendency of the three kinds of farms to have relatively more or less invested in a certain factor of production. The average percentages corresponding to the above-marginal farms cannot be considered as the best to follow. They are better to follow than the percentages of the other two kinds of farms, but by no means should they be looked upon as an ideal standard.

The more detailed table below reveals more accurately the correct percentages of the distribution of the three factors of production for the farms included in the first size group. This table sets forth the information which makes it possible to determine the standard percentage distribution of the three factors of production for the dairy farms of the first group. When adopted, the standard distribution will probably prove beneficial for the dairymen who adopt it.

D A I R Y S U R V E Y - 1926.

G R O U P "I".

Percent of the investment in land.	Percent of farms in the sub-group to the total No. of farms in the size group.	Percent of sub-marginal farms to the total No. of farms in the same sub-group.	Average operator's labor income for each sub-group.
20% - 30%	6.1%	0%	+ 610.02
30% - 40%	12.2%	0%	+1039.43
40% - 50%	45.5%	13.3%	+ 589.15
50% - 60%	21.2%	14.3%	+ 592.26
60% - 70%	15.0%	0%	+ 771.73

in labor.			
3% - 5%	12.1%	0%	+1037.61
5% - 7%	30.3%	0%	+ 716.40
7% - 9%	30.3%	10%	+ 584.32
9% - 11%	18.2%	33.3%	+ 363.86
11% - 13%	0%	0%	
13% - 15%	3.0%	0%	+ 406.88
15% - 17%	6.1%	0%	+1235.93
in equipment.			
20% - 30%	9.1%	0%	+ 894.13
30% - 40%	18.2%	16.7%	+ 538.68
40% - 50%	48.5%	12.5%	+ 592.15
50% - 60%	18.2%	0%	+ 935.07
60% - 70%	6.0%	0%	+ 610.02

For the first size group the more accurate percentage of the total capitalization invested in land seems to be around 35%. The "30% - 40%" sub-group realizes the largest average operator' labor income. The significant fact is that 81.7% of the total number of the farms of the first size group have a much larger share of their total capitalization invested inland. The tendency to have more land than is justified by the total resources of the enterprise is quite evident.

In the first group 75.8% of the farms have less than 50% of their total capitalization represented by equipment. Yet, farms which invest from 50% to 60% in the equipment are able to get a larger operator's labor income than the farms which invest in their equipment less than 50% of the total capitalization.

The tendency to be short in equipment is as plainly seen as the tendency to have an excess of land. The greatly needed equipment capital is invested in the unnecessary acreage which becomes burdensome for the enterprise.

The two extreme sub-groups are not large enough to make the averages reliable.

Up to a certain point the farms which have a smaller share of their total capitalization represented by labor seem to be at an advantage when compared to the farms which have a larger share of their total capitalization invested in labor. The operator's labor income increases with the decrease of the investment in labor. But then, when the farms have more than 9% of their total capitalization invested in labor, the tendency reverses: the farms which have their labor investment equal to 14% realize a larger operator's labor income than the farms which have their investment in labor equal to 12%; the farms with 16% are better off than the farms with 14%.

When considering the investments in labor, one should be very careful indeed. Labor and equipment sometimes mean really the same thing. The pay to a hired man who hauls potatoes to the station is considered a labor expense, but the pay to a truck owner who hauls the potatoes using his truck is considered an equipment expense; a hired man on a binder is a labor expense, a man hired with a binder is an equipment expense; the horse-shoeing is sometimes a labor expense, but sometimes it is an equipment expense - all depends on the person who does the shoeing.

Probably the safest way to find out which percentage of the total capitalization when invested in labor may be considered the standard percentage, is by finding out the standard percentages of the investments in land and of the investments in equipment. 100% minus the sum of the standard percentages of investments in land and in equipment may be considered the standard

percentage of investment in labor. The more accurate ratios of the distribution of the different factors of production for the dairy farms of the first size group are: 35% in land, 55% in equipment, and 10% in labor. The averages for the above-marginal farms of the same first group are:46.7% in land, 44.8% in equipment, and 8.5% in labor.

THE AVERAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION .
D A I R Y S U R V E Y,1926.
G R O U P "II".

	Land.	Labor.	Equipment.
Above-average farms	53.2%	5.7%	41.1%
Marginal farms	56.0%	5.8%	38.2%
Sub-marginal farms	66.0%	6.0%	28.0%

As in the case of the first group, the above-marginal farms of the second group have a smaller share of their total capitalization invested in land; they have a larger share of their total capitalization invested in equipment; and they have almost the same share of their total capitalization invested in labor. As compared to the above-marginal farms and to the marginal farms, the sub-marginal farms have the most of the land and the least of the equipment.

The reaction of the variations in the distributions of the three factors of production on the profitabliness of the farm can be observed from the table that follows:

D A I R Y S U R V E Y -1926.

G R O U P "II".

Percent of investment	Percent of farms in the sub-group to the total No. of farms in the size group.	Percent of sub-marginal farms to the total No. of farms in the same sub-group.	Average operator' labor income for each sub-group.
in land.			
30% - 40%	9.5%	0%	+520.89
40% - 50%	9.5%	0%	+561.84
50% - 60%	42.9%	11.1%	+732.56
60% - 70%	19.1%	50	-193.16
70% - 80%	19.0%	50%	-267.31
in labor.			
3% - 5%	33.3%	28.6%	+544.05
5% - 7%	47.6%	20.0%	+299.09
7% - 9%	9.6%	0%	+290.00
9% -11%	9.5%	50.0%	-231.31
in equipment.			
20% - 30%	23.8%	60%	-436.20
30% - 40%	42.9%	22.2%	+551.70
40% - 50%	23.8%	0%	+617.91
50% - 60%	9.5%	0%	+520.89

The largest operator's labor incomeis realized by the sub-group which includes farms with the investments in land of from 50% to 60% of their total capitalization. After having studied the figures carefully one comes to the conclusion that the percentage of investment in land for this second group of dairy farms is nearer to 50% rather than to 60%. When subdivided in two parts, the "50% to 60%" sub-group gives the following results:

Percent of investment in land:	Operator's labor income:
50% - 55%	+949.24
55% - 60%	+559.22

In order to see that the more correct percentage is nearer to 50% than to 60%, it was not necessary to subdivide the sub-group. The table shows quite clearly that the farms with the investment in land smaller than 50% are much better off than the farms with the investment in land greater than 60%. As a matter of fact the farms which have more than 60% of their total capitalization represented by land could not pay 7% rate of interest on their capital investment - they yield on the average a minus operator's labor income.

The more accurate percentage of the total capitalization to be invested in land is approximately 50%. About one half of the farms have more land than this standard percentage.

The largest operator's labor income is realized by the sub-group which includes the farms with the investment in equipment of from 40% to 50%. In the second size group 66.7% of the farms have less than 40% of their total capitalization invested in equipment. Inspite of the fact that according to the figures it seems to be wiser to have too much of equipment rather than to have too little of it, there are more farms which have an insuficient amount of equipment than there are farms which have an excess of it.

The largest operator's labor income was realized by the sub-group which incorporates the farms with the smallest share of their total capitalization invested in labor. This fact may be taken as proof that labor saving devices when adopted on the dairy farms of British Columbia increase the economic efficiency of the enterprise and, therefore, well justify their

application.

The more correct ratios of the distribution of the different factors of production for the dairy farms of the second size group are: 50% in land, 45% in equipment, and 5% in labor.

THE AVERAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION.
D A I R Y S U R V E Y - 1 9 2 6.
G R O U P "III".

	Land.	Labor.	Equipment.
Above-marginal farms	65.2%	5.2%	29.6%
Marginal farms	56.1%	7.0%	36.9%
Sub-marginal farms	62.5%	5.1%	32.4%

Not like the above-marginal farms of the two preceding groups, the above-marginal farms of the third size group have a greater share of their total capitalization invested in land than have the marginal and the sub-marginal farms. There are two possible explanations of this fact. Here are the explanations:

1/ For dairy farms of large size a high degree of specialization can be profitable when an extensive method of farming is practiced;

2/ In order to be profitable the highly intensive dairy farms of a large size find it is necessary to have a well developed side line. This means that the large and highly intensive dairy farms should not be too specialized. Their dairy diversity index should not be, let us say, above 60%. Such farms should have a secondary project or projects yielding a considerable

part of their total receipts. Such secondary projects, cash crops or side lines may be selected from a long list and comprise crops such as potatoes, peas, cereals, hay, or they can be other branches of agricultural activities as the raising of pure bred cattle, horses, pigs and numerous of others.

The side lines preferably should be those which will utilize by-products of the dairy business and supply the dairy cattle with the necessary feed.

From what has been said it is already understood that there are several types of dairy farms, differently organized to suit the various methods of carrying on the business. The operators of large sized farms are particularly prone to vary in the methods of the management of their farms and in the ways of their organization. They frequently alter their methods when the changes in the market conditions take place. Consequently the standard distribution of the factors of production for the dairy farms of the third size group should be held as such only for the years similar to the year 1926. This is the year which provided the statistical data upon which this treatise is based.

D A I R Y S U R V E Y - 1926.
G R O U P "III".

Percent of investment in land.	Percent of farms in the sub-group to the total No. of farms in the size group.	Percent of sub-marginal farms to the total No. of farms in the same sub-group.	Average operator's labor income for each sub-group.
50% - 60%	21.4%	33.3%	+ 57.64
60% - 70%	57.1%	50.0%	-201.48
70% - 80%	21.5%	33.3%	+445.63

in labor			
3% - 5%	42.9%	33.3%	+728.50
5% - 7%	50.0%	57.1%	-760.15
7% - 9%	7.1%	0%	+847.98
in equipment			
20% - 30%	35.7%	20%	+990.74
30% - 40%	57.1%	50%	-519.31
40% - 50%	7.2%	100%	-901.24

According to the above table 75% is the more correct share of the total capitalization to be invested in land by the dairy farm operators of the third group. The farms of the third size group which have a smaller share of their total capitalization represented by land realized a much smaller operator's labor income. But "75%" is a somewhat exaggerated percentage. The exaggeration is due to the largeness of the size of the adopted class intervals. None of the farms included in the survey had more than 72.9% invested in land. The "70% - 80%" sub-group really is the "70% - 72.9%" sub-group. This last sub-group realized +445.63 dollars as the operator's labor income. The "65% - 70%" sub-group (the upper half of the "60% - 70%") realized +949.62 dollars as operator's labor income. Therefore the more correct share of the total capitalization invested in land is not 75%, but is close to 68%.*

According to the table the more correct share of the total capitalization to be invested in equipment for the third group is from 20% to 30%. As in the case of the investment in land, the figure is somewhat misleading due to the wide class inter-

* The figures of 1927 indicate that 65% is the more correct.

val adopted. The "20% - 30%" sub-group when further subdivided gives the following results:

Percent of investment in equipment	Operator's labor income.
20% - 25%	+ 445.63
25% - 30%	+1808.39

The more correct percentage of the total capitalization to be invested in equipment is around 28%.

The variations of the investments in labor are included between the 3% and 9%. The upper limit seems to be as good as is the lower limit. In determining the standard percentage of the investment in labor it is wise to practice the previously used method:

The more correct ratios of the distribution of the three factors of production for the dairy farms of the third size group are: 68% in land, 28% in equipment, and
100% - (68% + 28%) = 4% in labor.

Dairy farms are not adapted to extremely high degree of specialization. One should not expect to find that the most accurate organization is similar for all dairy farms. Dairy farming differs very much in its methods of organization and management. That organization which is good for one type of a dairy farm may be bad for another type.

For the different size groups of dairy farms the more correct ratios of the distribution of the three factors of production appear to be as follows:

	Land.	Labor.	Equipment.
Group "I"	35%	10%	55%
Group "II"	50%	5%	45%
Group "III"	68%	4%	28%

For the above-marginal farms of the different size groups the average ratios of the distribution of the three factors of production are:

	Land.	Labor.	Equipment.
Group "I"	46.7%	8.5%	44.8%
Group "II"	53.2%	5.7%	41.1%
Group "III"	65.2%	5.2%	29.6%

The larger is the farm - the larger the portion of its total capitalization which should be and is represented by land; the larger is the farm - the smaller the portion of its total capitalization which should be and is represented by labor; the larger is the farm - the smaller the portion of its total capitalization which should be and is represented by equipment.

These conclusions involve very serious consequences.

The operator's labor income is the farm net revenue minus 7% interest on investment in land, buildings, machinery, livestock, and feed and supplies. The farms which realize "plus" operator's labor income yield 7% rate of interest on their invest-

ment in land, they yield 7% rate of interest on practically all their investment in equipment,* and they yield the wages for their hired and family labor.

The farms which have the same operator's labor income may be considered as providing the same rate of returns on the total investment of the enterprise;** or, the efficiency of the application of the labor and of the equipment to land may be considered equal, when the enterprise yields the same operator' labor income.

THE AVERAGE OPERATOR'S LABOR INCOME OF THE DIFFERENT SIZE GROUPS.
D A I R Y S U R V E Y -1926.

Group "I"	+679.38
Group "II"	+329.36
Group "III"	- 7.29

With the increase of the size of the farms the average operator's labor income for the group decreases. It has been shown, however, that with the increase of the size of the farm the largest total profit combination of its factors of production demands a smaller proportion of the farm's total capitalization to be represented by equipment and labor.

The conclusion is this: to a given agricultural area more

* They do not yield interest on their investments in labor and in cash for current expenses.

** This is not strictly correct, but the mistake is in favor of the smaller farms. The same operator's labor income on a smaller farms means a greater rate of returns per every dollar invested in the enterprise.

labor and more equipment can be efficiently applied, when the agricultural enterprises are relatively small in size. Consequently, the districts which have an idle surplus of labor, and the districts which are anxious to apply eficiently the accumulated excess of equipment (if such an excess exists) should try to make their agricultural enterprises relatively small in size.

From the point of view of an individual who is about to establish a new agricultural enterprise, it seems to be wise not to undertake an organization of a large sized farm. There is more chance for success on a relatively small farm than there is on a relatively large farm.

D A I R Y F A R M I N G - 1926 .

	% of sub-marginal farms.	Average for the group operator's labor income.
Group "I"	9.1%	+679.38
Group "II"	23.8%	+329.36
Group "III"	42.9%	- 7.29

When dealing with highly specialized types of farming, namely with poultry and with tree-fruit farming, the fact that the larger farms have a larger percentage of sub-marginal farms was explained as an inability of the operators of the large farms to increase their investments in management in a needed proportion with the increases of investments in land, in equipment, and in labor. The decreased adequacy of the management

with the increase of the size of farm was illustrated by showing that the range of the ratios of the distribution of the different factors of production on larger farms is more scattered, and has greater deviations from the standard ratios than on the smaller farms. Such an illustration is valid only when dealing with the types of farming which have uniform methods of management and of organization independent of the size of the enterprise. The more correct ratios of the distribution of the three factors of production are the same for the poultry or tree-fruit farm of any size. The more correct ratios of the distribution of the three factors of production are not the same for dairy farms of different sizes; more correct method of organization for a smaller dairy farm is different from the more correct method of organization of a larger dairy farm. Various methods of organization do not provide the same opportunity for deviation from the corresponding to each method standard type of organization;- on a ranch type of dairy farm the share of the total capitalization invested in land cannot vary from 20% to 70%; on a small dairy farm this is a possible variation.

The fact that among the larger dairy farms there is a greater percentage of sub-marginal farms should be explained in the same way as in the case of poultry and in the case of tree-fruit farms: it is due to the increased deficiency of management. But the illustration which was satisfactory when dealing with two previous types of farming cannot be used when dealing with the dairy farms.

THE AVERAGE OPERATOR'S LABOR INCOME FOR THE THREE BEST FARMS OF THE DIFFERENT SIZE GROUPS .

DAIRY SURVEY - 1926.

	Average operator's labor income for the three best farms.
Group "I"	+1986.02
Group "II"	+1575.45
Group "III"	+1914.08

The farms of the third size group can be managed in such a fashion as to yield an income equaling that of the farms of both of the other groups which on the average proved more successful. There are however more sub-marginal farms in the third size group than there are in the second or in the first size group. The resourses of the farms of the third size group when compared to the resourses of the farms of the second or of the first size groups are greater as far as the amount of the investment in land, in equipment, and in labor are concerned. The farms belong to the third group because their capital resourses are greater than are the capital resourses of the farms of the first or of the second size group. The amount of the management invested in farms of any of the size groups is alone unknown. The efficiency of production is hampered by the deficiency of one or the other factor. As compared to the farms of a smaller size, larger farms do not suffer because of the deficient amount of land, or of labor, or of equipment. It is the inefficiency of the co-ordination of the three above stated factors which creates the inefficiency of the production on the

large sized agricultural enterprises. The inadequate management is responsible for the inefficien co-ordination.

Therefore, refering back to the individual farmer who is about to establish a new agricultural enterprise, the general recomendation that there is more chance for success on a smaller farm presumes that the managerial ability of the new operator is not above the average managerial ability of the farmers of the district. If the managerial ability of the new operator be above the average, by all means let him establish a large farm. There is no inherent weaknesses in the dairy farms of British Columbia even when they approach the largest size that has been yet established.

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As the conclusion of this study and, at the same time, as its summary the following three statements seem to be appropriate:

1/ The tendency to have more land than is justified by the capital invested on farms is plainly seen. Farmers of British Columbia should not be afraid to invest more capital per unit of land they posses; this is not likely to bring them diminishing returns on every extra unit of capital invested.

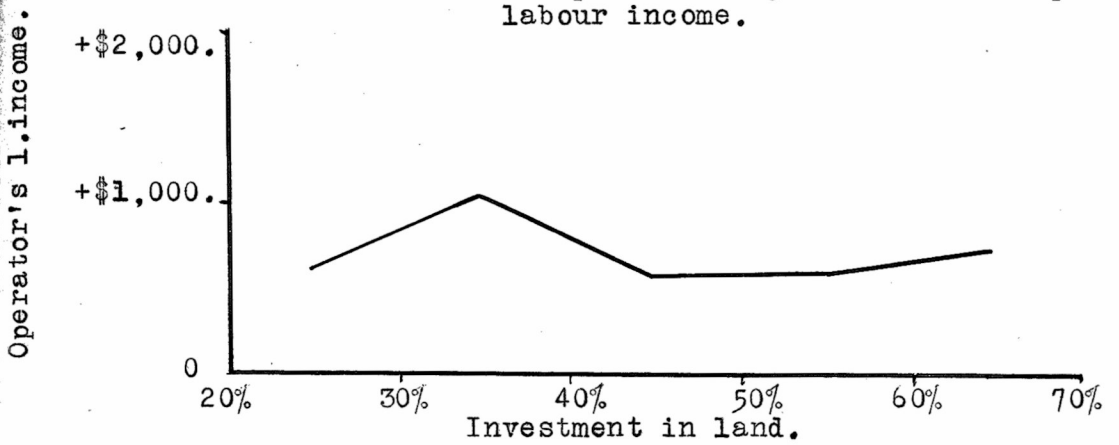
2/ Among their number, the larger farms have a greater percentage of sub-marginal enterprises than have the smaller farms. Farmers do not seem to be able to increase their investments in management correspondingly to the increased investments in land, in labor, and in equipment.

3/ If the Province desires to invest in its agriculture efficiently as much of labor and of equipment as it is possible, it should adopt the policy of favouring smaller agricultural units of production.

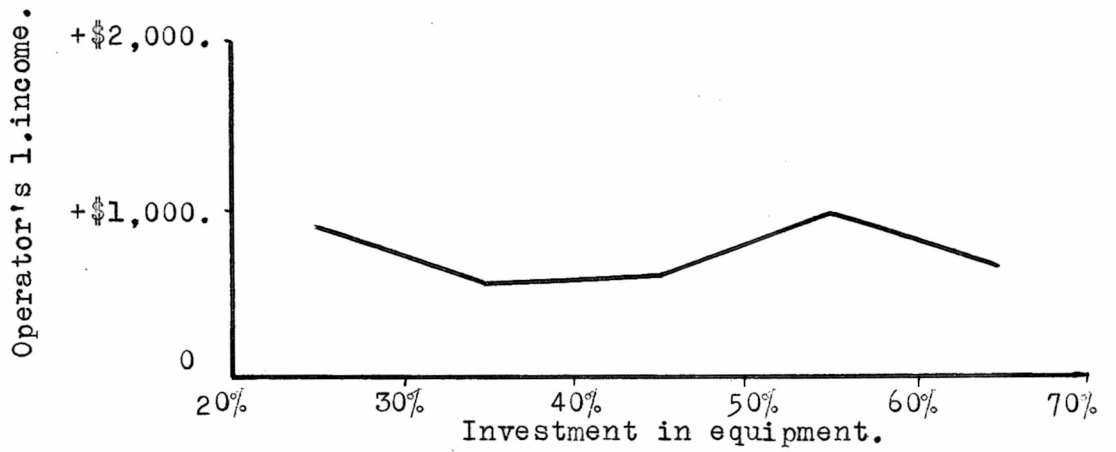
D A I R Y S U R V E Y, 1926.

G R O U P "1".

Correlation of the percentage of the total investment of the farms represented by land and the operator's labour income.



Correlation of the percentage of the total capitalization of the farms invested in equipment and the operator's labour income.

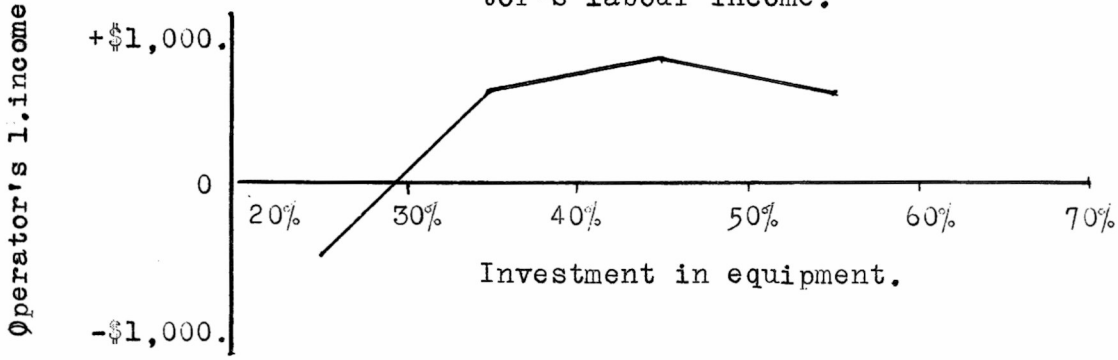


D A I R Y S U R V E Y, 1926.

G R O U P "II".

Correlation of the percentage of the total capitalization of the farms invested in land and the operator's labour income.

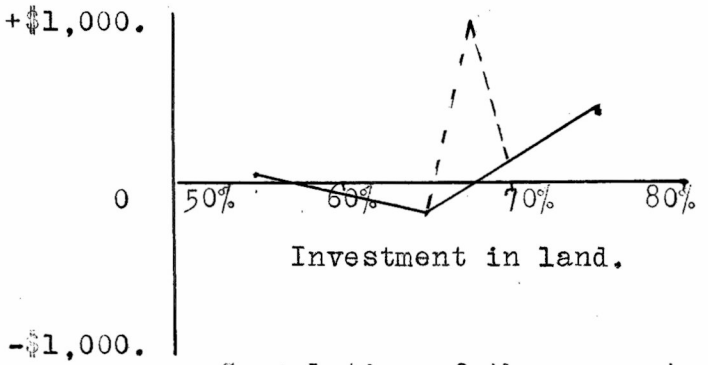
Correlation of the percentage of the total capitalization of the farms invested in equipment and the operator's labour income.



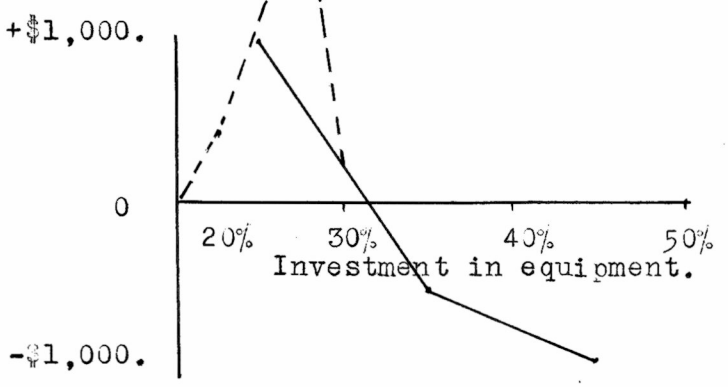
D A I R Y S U R V E Y , 1926.

G R O U P "III".

Correlation of the percentage of the total capitalization of the farms invested in land and the operator's labour income.



Correlation of the percentage of the total capitalization of the farms invested in equipment and the operator's labour income.



Tables similar to those worked out on the basis of the records of the year 1926 have been worked out for the dairy farms of British Columbia using the figures for each of the years 1927, 1928, and 1929. The number of the farms under the survey varied from year to year slightly.

D A I R Y S U R V E Y, B. C.

	1926			1927			1928			1929		
	No. of farms.	No. subm. farms	% of subm. farms	No. farms	No. subm.	% subm.	No. farms	No. subm.	% subm.	No. farms.	No. subm farms.	% of subm. farms.
Group "I"	33	3	9.1%	33	5	15.1	40	2	5.0	33	3	9.1%
Group "II"	21	5	23.8%	23	7	30.4	24	10	41.7	21	4	19.1%
Group"III"	14	6	42.9%	19	9	47.3	19	9	47.4	16	2	12.5%

According to the tables the best ratios of the distribution of the three factors of production vary slightly from year to year, but the variations are not too great to negate the conclusions arrived at after having analyzed the figures of the 1926. Slight variations should exist because of fluctuations in prices on the farm commodities sold as well as on the commodities bought. If the prices on different products and on different elements of production are subject to permanent changes, the best ratios of the distribution of the different factors

of production as determined by 1926 will cease to be correct. But as long as the prices fluctuate without any marked tendency to shift in the same direction, the yearly variations in the best ratios of the factors of production will tend to balance.

As an illustration of the last statement one may use the data provided by the records of the year 1929. In British Columbia during the year 1929 the prices of field crops rose very markedly:

Average price per bushel of wheat in 1929 was $1.39 as compared to the five year average price (1924-1928) which was $1.33;

Average price of oats in 1929 was $0.72 per bushel as compared to the five year average of $0.64;

Average price per cwt. of potatoes in 1929 was $2.60 as compared to five years average of $1.53.

As the result of such a rise of prices of the field crops in 1929 the farms, which had a large quantity of crops for sale, gained, while the farms which had to buy them became the loosers. The best ratios of the distribution of the different factors of production during the year 1929 were not identical with the best ratios of the factors of production during the year 1926. For the farms of the first and the second size groups during the 1929 it was more profitable to have a larger share of their total capitalization represented by land, as the field crops grown on that land yielded a handsome return. For the farms of the third size group it became more profitable to have a smaller percentage of their total capitalization to be invested in land,

as this meant more field crops which yielded a large profit. The large farms which have too much land belong to the range type. They have not equipment enough to cultivate their lands and they are not engaged in the growing of the field crops to a great extend. The large farms which have relatively less land, have sufficient equipment with which to work their fields and, consequently, they benefited from the sale of the potatoes and of the oats they grew.

The best ratios of the different factors of production shifted with the shift of the prices. The price of the field crops dropped during the year 1930, returning to and even below the 1926 price level. The figures of the farm survey of 1930 are not available as yet, but it is not difficult to predict the shift of the best ratios of the factors of production in the opposite to the 1929 year's direction.

It is impossible to compare farms of different types, or of varied sizes, or situated in different districts, or those working under different market conditions. This statement is particularly true when dealing with the farms which have several lines of production with the possibility of stressing one line during one year and stressing another line during another year. Each year provides somewhat different market conditions. As long as prices fluctuate about the 1926 prices, the more correct ratios of the combination of the three factors of production may be considered similar to those of 1926.

The figures worked out from the statistical data obtained during the years 1927, 1928, and 1929 provide the opportunity to observe the changes in the distribution of the three factors of production which took place on British Columbia Dairy farms.

After having carefully studied the tables which deal with the first group of the dairy farms (Tables 16, 17, and 18) the significant tendency is noticed: the farms adjust themselves to the most efficient co-ordination of the factors of production. The number of farms which had too excessive amount of land decreases; the number of farms which had been low in equipment capital decreases as well. In 1926 21.2% of the farms belonging to the first size group had from 50% to 60% invested in land; 15% of the farms had from 60% to 70% invested in land. In the preceding chapter it was found that about 55% of the total capitalization is the optimum percentage of total capital to be represented by land. It is seen from the table 16 that in 1927 only 9.1% of the farms belonging to the first size group had from 50% to 60% invested in land, and that 9.1% had from 60% to 70% invested in land. At the same time the number of farms which had from 40% to 50% invested in land increases: in 1926 there were 45.5% in that sub-group, in 1927 there were 51.5%. The number of farms which have from 30% to 40% investment in land increases as well: in 1926 there were 12.2% , but in 1927 there were 24.2%. The farmers had increased their share of investment in the land.

This process goes on during the following year 1928. From

the 9.1% of the farms of the sub-group with "50% - 60%" of their total capitalization invested in land only 7.5% are left. The sub-group of the farms which had from 40% to 50% decreased because some of its farms moved into the next more rationally organized sub-group of the farms which have from 30% to 40% of their total capitalization invested in land. In 1927 the "40% to 50%" sub-group had 51.5% of the farms of the first size group, in 1928 it had only 42.5%. On the contrary, the number of the farms in the "30% - 40%" sub-group increased from 24.2% in 1927 to 35% in 1928. The rationalization of the farming business is quite noticeable.

The figures dealing with the equipment of the first size group of dairy farms (Table 18) show a similar tendency to rationalize. From the sub-group of farms which have from 30% to 40% invested in equipment some of the farms were moved into the "40% - 50%" sub-group. In 1926 there were 18.2% of the farms of the first size group in the "30% - 40%" sub-group; in 1927 there there were left only 3.0%. In 1926 there were 48.5% of the farms of the first size group in the "40% - 50%" sub-group, in 1927 there were 54.5%. In the "50% - 60%" sub-group in 1926 there were 18.2%, in 1927 this figure became 24.3%, and in 1928 this percentage became 30.0%. In 1928 there were less farms in the "40% - 50%" sub-group because some of them moved in the next more efficient "50% - 60%" sub-group, and so on.

The figures illustrate again the same tendency of the rationalization of the agricultural community.

The second group of dairy farms (Tables 19, 20, and 21) has the same tendency to rationalize the organization of the farms in the group. The optimum ratios of the distribution of the three factors of production for the dairy farms of the second size group were: 50% in land, 45% in equipment, and 5% in labor. The sub-group of the farms which have from 50% to 60% of their total capitalization invested in land increased from 42.9% in 1926 to 52.4% in 1929. The sub-group of the farms which had from 40% to 50% of their total capitalization invested in equipment grew as the years passed: in 1926 the percentage was 23.8%, in 1927 it was 30.4%, in 1929 it was 42.9% (Table 21). Both the "20% - 30%" and the "30% - 40%" sub-groups lost their relative importance in 1929 as compared with the year 1926. The "20% - 30%" sub-group in 1929 had 19.1% of the farms of the second size group, while it had 23.8% in 1926. The "30% - 40%" sub-group in 1929 had 23.8% of the farms of the second group, while it had 42.9% in 1926. The relative number of the poorly organized farms diminishes, and the relative number of the well organized farms increases.

The optimum ratios of the distribution of the three factors of production for the dairy farms of the third size group are: 68% in land, 28% in equipment, and 4% in labor. The well defined tendency of the first and of the second size groups of the dairy farms to rationalize their organization is not so well indicated by the tables dealing with the third size group of the dairy farms (Tables 22, 23, and 24). The best "60% - 70%"

of investment in land sub-group had 57.1% of the total number of the farms of the third size group in 1926, it had only 47.4% in 1927, and 52.7% in 1928. It is true that in 1929 the percentage rose up to 62.5%.* The "70% - 80%" decreased from 21.5% in 1926 to 6.3% in 1929. The "40% - 50%" sub-group increased .

The management of farms of the third size group does not appear to be correct as far as the re-adjustment of their investments is concerned. Instead of decreasing the number of the farms with the excessive amount of equipment, their number was increased. The number of farms which have more than 40% of their total capitalization invested in equipment increased from year to year: it was 7.2% in 1926, 10.5% in 1927, 21.1% in 1928, and 25.0% in 1929. The operators of the farms of the third size group try to intensify their production, while it seems that their policy should be just the opposite - they should not intensify their production to a greater degree than having 32% of their total capitalization invested in equipment and labor.

All said illustrates again the fact that the farms of the larger size suffer more from the lack of an adequate management than do the smaller farms. While operators of smaller farms readjust the organization of their enterprises approaching that type which seems to be the best for them to adopt, the larger farms are adjusted more slowly or adopt an incorrect method of re-adjustment.

*The figures of 1929 do not follow the direction of the figures of the years before it; this may be explained by the rather drastic change in the prices which made the increased production of field crops in British Columbia very profitable for the season in question.

TREE FRUIT SURVEY TABLE 2.

Capitalization	Number of farms		No.of submarginal farms		% of submiarginal farms	
	1927	1928	1927	1928	1927	1928
Group 1. $3,000 to $7,000	15	16	2	2	13.3%	12.5%
" 2. 7,000 " 15,000	41	38	7	11	17.1%	28.9%
" 3. 15,000 " 25,000	15	14	2	5	13.3%	35.7%
" 4. 25,000 "120.000	4	6	0	3	0%	50%

AVERAGE PERCENTAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION TABLE 3.

Group 1.	Land		Labor		Equipment	
	1927	1928	1927	1928	1927	1928
Above Marginal Farms	72.4	72.8	14.7	14.8	12.9	12.4
Marginal Farms	70.6	67.1	17.6	21.9	11.8	11.0
Submarginal Farms	69.6	69.1	8.7	17.1	21.7	13.8
Group 2.						
Above Marginal Farms	74.2	72.3	10.0	12.0	15.8	15.7
Marginal Farms	71.6	70.2	10.3	11.5	18.1	18.3
Submarginal Farms	73.9	65.7	12.5	16.9	13.6	17.4
Group 3.						
Above Marginal Farms	75.4	73.6	8.8	10.4	15.8	16.0
Marginal Farms	65.4	-	13.0	-	21.6	-
Submarginal Farms	61.9	72.7	9.5	13.3	28.6	14.0
Group 4.						
Above Marginal Farms	-	-	-	-	-	-
Marginal Farms	-	69.4	-	12.1	-	18.5
Submarginal Farms	-	56.9	-	13.3	-	29.8

TABLE 4.

TREE FRUIT SURVEY

Group 1.

PERCENTAGE OF INVESTMENT IN LAND

	50% to 60%			60% to 70%			70% to 80%			80% to 90%		
Year	Operators income	Percentage farms to their total number.	Percentage of sub-marginal Farms.	Operators income	Percentage farms to their total number.	Percentage of sub-marginal Farms.	Operators income	Percentage farms to their total number.	Percentage of sub-marginal Farms.	Operators income	Percentage farms to their total number.	Percentage of sub-marginal Farms.
1927	+521.37	6.7	0%	+1158.61	33.3	20.0	+847.46	60.0	11.1			
1928	-309.39	12.5	50	+816.40	31.3	0	+743.34	50.0	0	-461.78	6.2	100

TREE FRUIT SURVEY

Group 1

PERCENTAGE OF INVESTMENT IN LABOR

Year	6% to 8%			8% to 10%			10% to 12%			12% to 14%		
	Operators income	Percentage farms to their total number.	Percentage of sub-marginal Farms	Operators income	Percentage farms to their total number.	Percentage of sub-marginal Farms.	Operators income	Percentage farms to their total number.	Percentage of sub-marginal Farms.	Operators income	Percentage farms to their total number.	Percentage of sub marginal Farms.
1927	-768.92	6.7	100.0	+424.73	13.3	50.0	+1458.48	20.0	0	+564.50	20.0	0
	10% to 12%			12% to 14%			14% to 16%			16% to 18%		
1928	+1264.79	12.5	0	+869.58	12.5	0	+868.47	12.5	0	+125.31	31.3	40

TREE FRUIT SURVEY

Group 1

PERCENTAGE OF INVESTMENT IN LABOR

	16% to18%			18% to 20%			20% to 22%			24% to 26%		
Year	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.
1927	+1075.22	13.3	0	+521.37	6.7	0	+2506.62	13.3	0	+106.99	6.7	0
	18% to 20%			20% to 22%			22% to 24%			24% to 26%		
1928	-	-	-	+598.62	18.7	0	-	-	-	+264.96	12.5	0

TABLE 6.

TREE FRUIT SURVEY

Group 1

PERCENTAGE OF INVESTMENT IN EQUIPMENT

	1% to 10%			10% to 20%			20% to 30%					
Year	Operators income	Percentage farms to their total number	Percentage of sub-marginal Farms.	Operators income	Percentage farms to their total number	Percentage of sub marginal Farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.
1927	+1156.24	33.3	0	+1045.30	46.7	14.3	+261.10	20.0	33.3			
1928	+469.62	43.75	14.3	+758.27	31.25	0	+467.34	25.0	25			

TREE FRUIT SURVEY

Group 2

PERCENTAGE OF INVESTMENT IN LAND

	40% to 50%			50% to 60%			60% to 70%			70% to 80%			80% to 90%		
Year	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms
1927				1268.10	2.4	0	1531.49	29.3	16.7	1014.41	68.3	17.9			
1928	445.51	2.6	0	954.26	5.3	100	839.47	39.5	3303	584.83	47.3	22.2	1273.59	5.3	0

TABLE 8.

TREE FRUIT SURVEY

Group 2

PERCENTAGE OF INVESTMENT IN LABOR

	4% to 6%			6% to 8%			8% to 10%			10% to 12%			12% to 14%		
Year	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms
1927	2515.35	7.3	0	602.99	19.5	25.0	989.20	34.14	14.3	1474.35	17.1	0	1758.92	4.9	0
1928	1080.45	2.6	0	361.12	5.3	50.0	650.34	34.2	30.8	800.71	13.2	20.0	1370.28	10.7	0

TREE FRUIT SURVEY

Group 2

PERCENTAGE OF INVESTMENT IN LABOR

	14% to 16%			16% to 18%			18% to 20%			20% to 22%			22% to 24%		
Year	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.
1927	1325.47	7.3	33.3	273.99	4.9	50.0							1733.96	4.9	50.0
										24% to 25%			26% to 28%		
1928	1129.33	15.8	0	445.51	2.6	0	838.30	5.3	50.0	648.95	2.6	100.0	731.28	5.2	100.0
	33.2%														
1928	1241.84	2.5	100.0												

TREE FRUIT SURVEY

Group 2

PERCENTAGE OF INVESTMENT IN EQUIPMENT

	1% to 10%			10% to 20%			20% to 30%			30% to 40%		
Year	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number.	Percentage of sub-marginal Farms.
1927	1207.51	19.5	37.5	1102.08	53.7	9.1	1287.55	24.4	20.0	1268.10	2.4	0
1928	174.31	21.0	50.0	753.24	50.0	15.8	968.70	23.7	33.3	110.58	5.3	50.0

TABLE 10.

TREE FRUIT SURVEY

Group 3

PERCENTAGE OF INVESTMENT IN LAND

	50% to 60%			60% to 70%			70% to 80%			80% to 90%		
Year	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.
1927	-108.28	20.0	33.3	+1664.32	26.7	25.0	+2530.33	26.7	0	+1240.92	26.6	0
1928				+382.05	28.6	50%	+560.87	57.1	25%	+1221.02	14.3	50%

TREE FRUIT SURVEY

Group 3

PERCENTAGE OF INVESTMENT IN LABOR

	4% to 6%		6% to 8%			8% to 10%		10% to 12%			12% to 14%		
Year	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms
1927	+1761.37	26.7	0	+2391.38	20.0	0	+667.13	13.3	50.0	+183.13	13.3	50.0	+133.10	6.7	0
1928	+1100.79	21.4	33.3	-492.26	14.3	100	+1289.60	28.7	0		-			-	

TREE FRUIT SURVEY

Group 3

PERCENTAGE OF INVESTMENT IN LABOR

	14% to 16%			16% to 18%			18% to 20%			20% to 22%			26% to 28%		
Year	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.
1927	+2109.32	6.7	0	+3213.68	6.7	0	-	-		+41.16	6.6	0			
1928	+1973.91	21.4	0	-	-	-	-	-		-2882.02	7.1	100	-2058.81	7.1	100

TREE FRUIT SURVEY

Group 3

PERCENTAGE OF INVESTMENT IN EQUIPMENT

	1% to 10%			10% to 20%			20% to 30%			30% to 40%		
Year	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.
1927	+876.33	20.0	0	+2539.86	46.7	0	+377.13	26.7	25.0	-499.11	6.6	100.0
1928	-654.64	28.6	75%	+1277.05	14.3	50	+429.80	14.3	50			

TREE FRUIT SURVEY

Group 4

PERCENTAGE OF INVESTMENT IN LAND

	30% to 40%			40% to 50%			50% to 60%			60% to 70%		
Year	Operators income	Percentage farms to their total number	Percantage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.
1928	-6454.30	16.7	100	-4648.54	16.7	100	+239.04	16.6	0		-	

	70% to 80%			80% to 90%		
1928	+293.83	33.3	0	-1538.50	16.7	100

TREE FRUIT SURVEY

Group 4

PERCENTAGE OF INVESTMENT IN LABOR

	8% to 10%			10% to 12%			12% to 14%			14% to 16%		
Year	Operators income	Percentage farms to their total number	percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income.	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income.	Percentage farms to their total number	Percentage of sub-marginal farms.
1928	-1538.50	16.7	100	+132.47	33.3	0	-4648.54	16.7	100	+561.77	16.7	0

	18% to 20%		
1928	-6454.30	16.6	100

TREE FRUIT SURVEY

Group 4

PERCENTAGE OF INVESTMENT IN EQUIPMENT

	1% to 10%			10% to 20%			30% to 40%			40% to 50%		
Year	Operators in come	Percentage farms to their total number	Percentage of sub-marginal farms	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number	Percentage of sub-marginal farms.
1928	-1538.50	16.7	100	+293.83	33.3	0	-2204.75	33.4	50	-6454.30	16.6	100

DAIRY SURVEY

Group 1

TABLE 17.

PERCENT OF INVESTMENT IN LABOUR

	3% to 5%			5% to 7%			7% to 9%			9% to 11%		
Year	Operators income.	Percentage farms to their total number	Percentage of submarginal farms.	Operators income.	Percentage farms to their total number.	Percentage of submarginal farms.	Operators income	Percentage farms to their total number.	Percentage of submarginal farms.	Operators income	Percentage farms to their total number.	Percentage of submarginal farms.
1926	+ 1037.61	12.1	0%	+ 716.40	30.3	0%	+ 584.32	30.3	10%	+ 363.86	18.2	33.3%
1927	+ 632.29	9.1	0%	+ 645.47	18.2	9%	+ 436.97	30.3	30%	+ 1178.99	24.2	9%
1928	+ 360.99	10%	0%	+ 627.44	30%	16.7%	+ 1014.42	25%	0%	+ 895.43	22.5%	0%
1929	+ 464.09	9.1	0%	+ 1046.79	24.2	0%	+ 1019.80	27.3	22.2	+ 486.78	3.0	0%

DAIRY SURVEY

Group 1

PERCENTAGE OF INVESTMENT IN LABOR

	11% to 13%			13% to 15%			15% to 17%		
Year	Operator income	Percentage farms to their total number.	Percentage of submarginal farms.	Operators income.	Percentage farms to their total number.	Percentage of submarginal farms.	Operators income.	Percentage farms to their total number.	Percentage of submarginal farms
1926			0%	+ 406.88	3%	0%	+1235.93	6.1%	0%
1927	+ 943.46	6.1	0%	+1218.50	9.1	0%	- 116.33	3.0	100%
1928	+ 967.24	7.5%	0%	+1308.42	2.5%	0%	+448.35	2.5%	0%
1929	+ 486.78	3.0	0%	+1154.57	3.	0%	+1505.59	6.1	0%

DAIRY SURVEY

TABLE 20.

Group 2

PERCENT OF INVESTMENT IN LABOUR

	3 to 5%			5% to 7%			7% to 9%			9% to 11%		
Year	Operators income	Percentage farms to their total number	Percentage of farms. sub-marginal	Operators income	Percentage farms to their total number.	Percentage of farms sub-marginal	Operators income	Percentage farms to their total Number.	Percentage of sub-marginal farms.	Operators income	percentage farms to their total number.	Percentage of sub-marginal farms.
1926	+544.05	33.3%	28.6%	+299.09	47.6%	20%	+290.00	9.6%	0%	-231.31	9.5%	50%
1927	+624.16	52.2%	25%	+379.92	34.8%	25%	-633.19	8.7%	50%	-189.74	4.3%	100%
1928	+218.25	50%	41.6%	+293.13	29.2%	28.6%	-669.76	16.6%	75%	+1974.08	4.2%	0%
1929	+735.55	33.4	14.3	+905.11	47.6	20.0	+469.39	9.5	0%	+278.84	9.5	50.0

TABLE 19. DAIRY SURVEY - GROUP "II".

Year.	30% - 40%			40% - 50%			50% - 60%			60% - 70%			70% - 80%		
	Percent of farms in the sub-group to the total NO. of farms.	Percent of sub-marg. farms to the total NO. of farms in the same sub-group.	Operator's labor income.	Percent of farms in the sub-group to the total NO. of farms.	Percent of sub-marg. farms to the total No. of farms in the same sub-group.	Operator's labor income.	Percent of farms in the sub-group to the total No. of farms.	Percent of sub-marg. farms to the total No. of farms in the same sub-group.	Operator's labor income.	Percent of farms in the sub-group to the total No. of farms.	Percent of sub-marg. farms to the total No. of farms in the same sub-group.	Operator's labor income.	Percent of farms in the sub-group to the total No. of farms.	Percent of sub-marg. farms to the total No. of farms in the same sub-group.	Operator's labor income.
	PERCENT OF INVESTMENT IN LAND.														
1926	9.5	0	+521	9.5	0	+562	42.9	11.1	+733	19.1	50.0	-193	19.0	50.0	- 267
1927	8.7	50	- 10	13.0	33.3	+725	39.2	11.1	+367	13.0	66.6	+365	26.1	33.3	+ 420
1928	8.3	50	+966	8.3	50.0	+129	50.0	41.6	+ 27	12.5	33.3	+721	20.1	40.0	- 142
1929	4.8	0	+465	14.3	66.7	- 33	52.4	18.2	+804	9.5	0	+605	19.0	0	+1319

TABLE 21. PERCENT OF INVESTMENT IN EQUIPMENT.

	10% - 20%			20% - 30%			30% - 40%			40% - 50%			50% - 60%		
1926				23.8	60.0	-436	42.9	22.2	+552	23.8	0	+618	9.5	0	+ 521
1927				34.8	50.0	+283	26.1	16.7	+539	30.4	14.3	+513	8.7	50.0	- 10
1928				29.2	28.6	+225	29.2	57.1	- 66	29.1	42.9	-121	12.5	33.3	+1233
1929	4.7	0	+2168	19.1	0	+957	23.8	0	+481	42.9	33.3	+826	9.5	50.0	+ 209

DAIRY SURVEY

TABLE 23.

Group 3

PERCENT OF INVESTMENT IN LABOR

Year	4% to 3%			3% to 5%			5% to 7%			707% to 9%		
	Operators income	Percentage farms to their total number.	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number.	Percentage of sub-marginal farms.	Operators income	Percentage farms to their total number.	Percentage of sub-marginal farms.	Operators income	Pereentage farms to their total number.	Percentage of sub-marginal farms.
1926				+728.50	42.9%	33.3%	-760.75	50%	57.1%	+847.98	7.1%	0%
1927	-904.19	10.5%	50%	-82.02	26.3%	40%	+18.81	57.9%	54.5%	+922.99	5.3%	0%
1928	+1873.19	10.5%	0%	+172.86	36.9%	60%	-599.60	42.1%	62.5%	+1060.67	10.5%	50%
1929	+2246.70	6.3	0%	+1214.85	37.5	16.7	+1409.07	50.0	12.5	+1328.45	6.2	0%

TABLE 22. DAIRY SURVEY - GROUP "III".

	40% - 50%			50% - 60%			60% - 70%			70% - 80%			80% - 90%		
	Percent of farms in the sub-group to the total No. of farms.	Percent of sub-margin. farms to the total No. of farms in the same sub-group.	Operator's labor income.	Percent of farms in the sub-group to the total No. of farms.	Percent of sub-margin. farms to the total NO. of farms in the same sub-group.	Operator's labor income.	Percent of farms in the sub-group to the total No. of farms.	Percent of sub-margin farms to the total No. of farms in the same sub-group.	Operator's labor income.	Percent of farms in the sub-group to the total No. of farms.	Percent of sub-margn. farms to the total No. of farms in the same sub-group.	Operator's labor income.	Percent of farms in the sub-group to the total No. of farms.	Percent of sub-margin farms to the total No. of farms in the same sub-group.	Operator's labor income.
					PERCENT OF INVESTMENT IN LAND.										
1926				21.4	33.3	+ 58	57.1	50.0	- 201	21.5	33.3	+ 446			
1927	5.3	0	+ 37	26.3	60.0	- 135	47.4	33.3	+ 365	21.0	75.0	- 934			
1928	15.8	66.6	- 70	21.0	25.0	+ 453	52.7	50.0	+ 439	10.5	50.0	- 335			
1929	12.5	0	+1682	18.7	0	+1453	62.5	10.0	+1788	6.3	100.0	-3469			

TABLE 24. PERCENT OF INVESTMENT IN EQUIPMENT.

	20% - 30%			30% - 40%			40% - 50%			50% - 60%			60% - 70%		
1926	35.7	20.0	+991	57.1	50.0	- 519	7.2	100.0	- 901						
1927	47.4	55.5	-153	42.1	37.5	+ 157	10.5	50.0	- 805						
1928	36.8	42.9	+399	42.1	37.5	+ 604	21.1	75.0	- 591						
1929	31.3	20.0	+886	43.7	14.3	+1540	18.7	0	+1631	6.3	0	+2035			

DAIRY SURVEY

AVERAGE PERCENTAGE DISTRIBUTION OF THE THREE FACTORS OF PRODUCTION. TABLE 25.

GROUP 1.

LAND

Year	Above marginal	Marginal	Sub-marginal
1926	46.7	50.1	47.3
1927	45.0	40.4	50.3
1928	41.6	47.2	43.9
1929	43.1	46.8	39.3

LABOR

1926	8.5	7.3	8.8
1927	8.7	8.4	10.0
1928	8.6	8.3	5.3
1929	8.8	6.9	9.1

EQUIPMENT

1926	44.8	42.6	43.9
1927	46.3	51.2	39.7
1928	49.8	44.5	50.8
1929	48.1	46.3	51.6

GROUP 2

LAND

1926	55.2	56.0	56.0
1927	57.9	57.2	59.2
1928	54.1	61.1	57.3
1929	58.5	57.5	47.2

LABOR

1926	5.7	5.8	6.0
1927	5.1	5.4	6.3
1928	6.1	5.2	5.9
1929	5.6	5.5	6.2

EQUIPMENT

1926	41.1	38.2	28.0
1927	37.0	37.4	34.5
1928	39.8	33.7	36.8
1929	35.9	37.0	46.6

Group 3.

LAND			
1926	65.2	56.1	62.5
1927	64.2	59.8	64.9
1928	63.3	62.4	60.0
1929	58.6	66.3	67.9
LABOR			
1926	5.2	7.0	5.1
1927	5.7	4.5	5.1
1928	4.7	4.4	5.6
1929	5.3	4.9	4.5
EQUIPMENT			
1926	29.6	36.9	32.4
1927	30.1	35.7	30.0
1928	32.0	33.2	34.4
1929	36.1	28.8	27.6

TABLE 26. D A I R Y F A R M I N G S U R V E Y.

	Capitalization	Number of farms				Number of sub-marginal farms.				% of sub-marginal farms.			
		1926	1927	1928	1929	1926	1927	1928	1929	1926	1927	1928	1929
Group "I"	Less than $18,000	33	33	40	33	3	5	2	3	9.1	15.1	5.0	9.1
Group "II"	18,000 to 35,000	21	23	24	21	5	7	10	4	23.8	30.4	41.7	19.1
Group "III"	35,000 to 110,000	14	19	19	16	6	9	9	2	42.9	47.3	47.4	12.5