

ANALYSIS OF FACTORS AFFECTING COST OF HONEY
PRODUCTION AND MARKETING IN MANITOBA

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ABSTRACT

BY

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ANALYSIS OF FACTORS AFFECTING THE COST OF
HONEY PRODUCTION IN MANITOBA

In 1956 eighteen beekeepers co-operated in providing information for a preliminary cost of honey production study. In 1959 ten beekeepers co-operated to complete the study.

The average capital investment per colony was \$24.88 in 1956 and \$27.41 in 1959.

The cash operating expenses increased from \$9.06 in 1956 to \$9.82 in 1959.

Commercial beekeepers operating more than 800 colonies spent an average of 4.22 hours per colony on their operations.

Based on the 1956 survey the most economical size of unit for a one man operation is 375 to 425 colonies. If a full time assistant is employed the apiary should be 750 to 800 colonies.

The importation of honey into Canada and changes in food marketing have been important factors in reducing the income of beekeepers in the past five years.

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CHAPTER I

INTRODUCTION

Method of Study

The case method of study employed in this thesis has several limitations. One of the more important limitations is, that inferences in a formal, logical, or statistical sense are not usually warranted on the basis of data obtained in a case study. However, the case method of study permits a more detailed study of the data than the usual statistical method. The case method of study when properly handled serves well in the exploratory stages of research and in setting up or establishing hypotheses for further extensive investigations.

Description of Study

This is a case study of 28 Manitoba beekeepers. It is not a "random" or "statistically" representative sample of the beekeepers in the Province. In 1956, 18 beekeepers co-operated in a preliminary study and in 1959, 10 beekeepers co-operated to complete the study. The 18 beekeepers chosen in the 1956 study operated 75 to 937 colonies each, either as a part-time or full-time business. In the 1959 study all the beekeepers were commercial operators managing 650 colonies or more as a full time business. The beekeepers were selected from several areas of the Province and are not necessarily representative of any specific beekeeping area or size of operation.

Purpose of Study

The purpose of the study was to establish information on the following:

- (a) Nature of costs involved in producing honey.
- (b) Capital investment in relation to size of operation.
- (c) Most economical size of operation.
- (d) Amount of labour involved in the operation of a honey bee colony.
- (e) Relationship of costs and returns on size of operation and production.

CHAPTER II

DEVELOPMENT OF HONEY PRODUCTION IN MANITOBA

Prior to 1920 very little honey was produced in Manitoba. After 1920 expansion of the industry took place, and by 1925 Manitoba was producing sufficient honey for its own needs. In 1926 honey was exported from the Province as surplus production for the first time and has continued to be every year since. (Table I) The largest amount of honey ever produced in any one year was in 1939 when 3350 beekeepers operating 56,650 colonies produced 9,539,000 pounds. The long time average production has been about 5,000,000 pounds annually.

The number of beekeepers and colonies reached a high point during the second world war period of approximately 6,000 beekeepers operating 75,000 colonies. From 1939 to 1945 the increased demand for honey to supplement and replace our sugar which was rationed because of the war, coupled with high honey prices, induced many beginners into beekeeping. In the post war years 1945 to 1948 the numbers remained at the high level reached during the war but dropped quite rapidly following this period and continued to decline until 1955.

The discontinuance of sugar rationing in 1947, lack of an export market for Canadian honey, high production, and increased competition from other foods used similarly to honey brought about an acute marketing problem in Canada. For the first time Canada had to sell its entire production within its own boundaries. Honey prices dropped sharply and a record Canadian production in 1948 resulted in a surplus of honey.

The reduction in the number of beekeepers after 1948 was not proportional to the decrease in colonies, as a trend towards

TABLE I
 MANITOBA BEEKEEPING RECORDS—AVERAGE FOR FIVE YEAR PERIODS 1926 - 1955

	Beekkeepers	Colonies	Production per hive - lb	Total Production - lb
1926 - 30	1934	31,606	104.2	3,364,800
1931 - 35	2626	36,980	128.8	4,601,800
1936 - 40	3308	56,746	121.8	6,699,000
1941 - 45	3270	49,562	92	4,549,200
1946 - 50	3322	60,800	96	5,598,400
1951 - 55	1366	39,140	117.2	4,562,000
1956	1200	40,000	134	5,360,000
1957	1200	42,000	123	5,166,000
1958	1030	44,300	117	5,183,000
1959	1080	44,400	135	5,994,000

specialization began to take place. While many small beekeepers were going out of business, some of the larger beekeepers were increasing. This trend towards specialization has continued up to the present in Manitoba. The average number of colonies per beekeeper in Manitoba was 41.1 in 1959 as compared to 20.8 in 1949.

Of the 1080 beekeepers in Manitoba in 1959 approximately 900 were "hobbyists" operating less than 25 colonies. The remaining 180 beekeepers operated most of the colonies in the Province and almost a hundred had 300 colonies or more. Several of the larger operators managed 1,000 to 1,400 colonies each.

CHAPTER III

ANALYSIS OF 1956 SURVEY STRATIFIED ACCORDING TO COLONY NUMBERS

Method

An inventory of each beekeeper's equipment was obtained by a personal visit to the operator's premises. The value placed on all equipment was that of the beekeeper's own personal estimation based upon selling price and condition. Throughout the year each beekeeper kept a record, on forms supplied to them, of all expenses incurred in the operation of his business, as well as the hours of labor involved in carrying out the business.

To analyze the data collected, the eighteen beekeepers participating in the survey were first divided into three groups of six according to the number of colonies of honey bees operated. Group One had 300 colonies or less, Group Two, 300 to 700 colonies and Group Three, more than 700 colonies.

Four beekeepers in the survey operating less than 300 colonies were engaged in farming. The other fourteen were dependant upon beekeeping for their main income.

The eighteen beekeepers operated 8729 colonies, which produced 1,285,600 pounds of honey, or an average per colony of 147.2 pounds.

Capital Investment

The average investment per colony in hive equipment of all beekeepers was \$15.08 (Table III). Hive equipment included supers with comb, empty supers if used in management operations, tops, bottoms, hive stands, feeders, and any other kinds of equipment used for the

TABLE II

AVERAGE INVENTORY VALUE BEGINNING AND END OF YEAR

AVERAGE PER BEEKEEPER

(1956 - colony numbers)

Group	1	2	3	Average - 18 Beekeepers
Hive Equipment	\$ 2,880.22	\$ 5,410.27	\$ 13,649.86	\$ 7,313.45
Wax, Honey and shop equipment	379.24	575.50	1,273.50	742.75
Motor Equipment	1,383.33	1,900.00	3,050.00	2,111.11
Buildings	804.16	2,200.00	2,691.67	1,898.06
Total	\$ 5,446.95	\$ 10,085.77	\$ 20,665.03	\$ 12,065.92

TABLE III

AVERAGE INVENTORY VALUE BEGINNING AND END OF YEAR

AVERAGE PER COLONY

(1956 - colony numbers)

Group	1	2	3	Average - 8729 Colonies
Hive Equipment	\$14.97	\$11.82	\$16.95	\$15.08
Wax, Honey and shop equipment	1.97	1.26	1.58	1.53
Motor Equipment	7.18	4.15	3.79	4.35
Buildings	4.18	4.81	3.34	3.91
Total	\$28.30	\$22.04	\$25.66	\$24.88

operation of the colonies. The beekeepers in Group 2 operated with less hive equipment and therefore the Group average investment was lower. The larger operators in Group 3 had more equipment because less time could be spent in management. This Group had more supers per hive and in some instances more and better equipment for feeding, and general colony manipulations.

The cost value of extracting equipment which included all machinery and devices for handling the honey and wax was greater in the larger operations. Although the investment varied as much as \$300.00 between beekeepers in any one Group (Appendix 1, 2, 3) the Group averages varied proportionally to size of operation.

The investment in buildings varied proportionally to size of operation but was much less in Group 1 than in Groups 2 and 3. The beekeepers in Group 1 did not have large or elaborate premises for their operations.

Beekeepers in Groups 2 and 3, because of the large amount of honey to handle and equipment to store, needed one or more buildings, with one building (honey house) specially constructed to extract honey.

The truck investment was in most instances, the highest investment a beekeeper had, other than the hives. In Group 1, three beekeepers used their truck for other purposes and are therefore not included in the average. Eight of the twelve beekeepers in Groups 2 and 3 transported their own package honey bees from the U.S.A, and because of this maintained a large, relatively new vehicle.

Two beekeepers in Group 3 operated two trucks.

Miscellaneous equipment such as wheel carts, tools, wax rendering machinery and heating equipment varied considerably among beekeepers in each group. One beekeeper in Group 1 had \$495.00 invested in miscellaneous equipment in comparison to another in the same group who invested only \$20.00.

With few exceptions, the average investment per colony of each item varied between Groups in accordance with size of operation. The total average investment per colony was highest in Group 3, and lowest in Group 2, and the average investment per colony of all 18 beekeepers was \$24.88.

Cash Expenses

Purchase of bees and queens, and truck operation were the major items of expense (Tables IV and V). The average cost for Group 3 beekeepers was \$4.00. The larger operators in Group 3 sacrificed colonies in the spring which developed queen troubles, because time was not available for individual colony attention. Beekeepers in Group 2 were able to give more individual attention to the bees, and avoid colony losses and, therefore had the lowest cash outlay per colony. Beekeepers in Groups 2 and 3 were able to purchase package bees and queens at volume discounts, and therefore bought at a lower rate than the beekeepers in Group 1.

All the beekeepers in Group 1 imported package bees and queens by express, and so had the highest cost of transportation. Eight beekeepers in Groups 2 and 3 imported bees and queens by truck. The average cost of transportation per package of bees imported by truck

TABLE IV

AVERAGE EXPENSES PER BEEKEEPER

(1956 - colony numbers)

Item	Group 1	Group 2	Group 3	Average - 18 Beekeepers
Bees and Queens	\$703.62	\$1,607.94	\$3,219.28	\$1,843.61
Bee and Queen Transportation	235.16	304.16	467.54	335.62
Truck	171.20	608.13	691.88	485.41
Equipment repairs and maintenance	24.24	312.11	267.39	151.48
Taxes, insurance, power, telephone	134.08	258.66	429.59	250.25
Fuel, Feed, Drugs	53.36	261.44	364.08	206.07
Honey containers	110.84	550.99	456.22	316.84
Total	\$1,405.97	\$3,851.43	\$5,508.60	\$3,588.28

TABLE V
 AVERAGE EXPENSES PER COLONY
 (1956 - colony numbers)

Item	Group 1	Group 2	Group 3	Average - 8729 Colonies
Bees and Queens	\$3.66	\$3.51	\$4.00	\$3.80
Bee and Queen Transportation	1.22	0.66	0.58	0.69
Truck	0.89	1.33	0.84	1.00
Equipment repairs and maintenance	0.14	0.71	0.33	0.31
Taxes, insurance, power, telephone	0.70	0.56	0.52	0.52
Fuel, Feed, Drugs	0.28	0.57	0.44	0.42
Honey containers	0.61	1.2	0.59	0.65
Total	\$7.31	\$8.41	\$6.84	\$7.39

was 48.6 cents, as compared to \$1.13 by express. The trucking costs included gas, oil, repairs, cargo insurance, and living expenses of drivers. Truck depreciation, insurance and labor costs were not taken into consideration. Assistant drivers frequently received no remuneration for this trip, as they went for the pleasure of the journey.

Truck expenses in Groups 2 and 3 were higher than in Group 1, as the beekeepers in these Groups had considerable distances to travel between their various apiaries. The smaller beekeepers in Group 1 maintained their apiaries closer to home, or on their own land in some instances. The cost per colony in Group 3 was lowest, because it was spread over a larger number of colonies.

Expenses for repairs and maintenance were higher in Group 2, because some of the beekeepers in this Group were expanding their operations, and the cost of beeswax foundation for making up new frames was included. The purchase of foundation was considered a legitimate expense for income tax purposes. (Appendix 26)

The cost of containers was not actually an expense to the beekeepers operations, as the money expended was realized in the sale of the honey. One beekeeper in Group 2 packed most of the honey crop in consumer containers which put the average cost of containers for this Group higher than Group 3. It is customary for all beekeepers to pack a small quantity of honey in consumer containers to supply the local demand but most producers today deliver the bulk of their honey to a packing plant in containers supplied to them.

Fuel, feed and drug costs varied considerably between beekeepers. Fuel costs for heating equipment used in the honey house was a nominal

figure in all instances. Feed and drug costs were substantial for some beekeepers. Beekeepers usually save sufficient honey from one year to the next to provide feed for the bees in the spring. In certain years, or in some areas of the Province supplementary spring sources of honey gathered by the bees from spring blooming plants may not be available. This necessitates the purchase of sugar and the feeding of sugar syrup which can be a costly item.

The use of drugs for the prevention and control of honey bee brood diseases is a customary practice for all beekeepers. If a disease problem exists in the apiary or area, then drugs are used more extensively. A drug for the control of an adult bee disease is sometimes used by a few beekeepers and it is costly in comparison to the drugs used against brood diseases. One beekeeper in Group 2 had an expenditure of \$195.00 on drugs while another beekeeper in Group 3 spent \$130.00. Complete preventative feeding for the brood diseases costs about 20 cents a colony, and 30 cents a colony for the adult disease. If a disease problem exists this cost may be increased 2 or 3 times.

Expenses for taxes, insurance, power, telephone, and apiary registration varied in accordance with size of apiary. Only a share of the cost for power and telephone was made. Insurance included hive equipment buildings and motor equipment. Apiary registration was one dollar per apiary. The larger beekeepers had as many as 20 apiaries.

Labor Records

Each beekeeper kept a record of the number of hours spent in the operation of their bee business. This was recorded for the owner

operator, hired labor, and the family which included the wife and children (Tables VI and VII). The owner operator hours did not include the many hours that were spent in consideration and discussions of his operations outside of the actual manual labor in the business.

Beekeeper operators in Group 2 spent approximately 49 per cent more time in actual labor than those in Group 1 and 26 per cent more than the average of the beekeepers in Group 3. Beekeepers in Group 3, however, had 63 per cent more hired labor than Group 2 and 85 per cent more than Group 1. Family labor was used 34 per cent more by Group 2 than Group 1, and 59 per cent more than Group 3.

The total labor per colony was very similar in Groups 1 and 2 and 36 per cent more than in Group 3.

All beekeepers in Group 3 hired labor, and five used family labor. In Group 2, only two used family labor, and four hired labor. In Group 1 three beekeepers hired labor and three used family labor. All beekeepers in Group 3 had hired help for the entire summer but only two did so in Group 2. Two beekeepers in Group 2 and three in Group 1 hired part-time labor for extracting honey.

Labor Costs

Labor cost figures were assessed at \$1.50 per hour for the beekeeper owner and operator of the business, \$1.00 per hour for the wife, and 75 cents per hour for children (Tables VIII and IX). Hired labor costs were the actual amount expended plus an allowance for board and room. Hired labor on a monthly basis was paid \$100.00 to \$150.00 plus room and board. Hourly labor received \$1.00 to \$1.50 per hour.

TABLE VI
 AVERAGE HOURS OF LABOR PER BEEKEEPER
 (1956 - colony numbers)

Group	1	2	3
Operator	829.3	1612	1,197.7
Hired	267.3	631.7	1,675.2
Family	255.6	382	158
Total	1,352.2	2,625.7	3,030.9

TABLE VII

AVERAGE HOURS OF LABOR PER COLONY
(1956 - colony numbers)

Group	1	2	3
Operator	4.31	3.54	1.98
Hired	.69	1.39	2.05
Family	1.63	1.66	.19
Total	6.64	6.59	4.22

The average cost for hired and family labor in the three Groups was an average of the beekeepers in each Group which used hired and family labor because not all beekeepers found it necessary to do so. The Group 3 beekeepers spent an average of \$1,635.72 on hired labor, or \$2.00 per colony, as compared to only \$603.76 spent by the beekeepers in Group 2, or \$1.26 per colony. The beekeepers in Group 1 had little need for hired labor but the four that did hire part-time labor had an average expenditure of \$176.98 or 18 cents per colony.

Total labor costs per colony were highest in Group 1, being \$3.07 more than Group 3, and 35 cents more than Group 2. In Groups 1 and 2 more labor was done by the operator than in Group 3.

Depreciation and Interest on Investment

Depreciation costs were calculated on the established rates for beekeepers (Table X). In 1949 the Canadian Beekeepers' Council¹ negotiated with the Federal Income Tax Division to establish standard rates to be used (Appendix 26). The five per cent interest on investment charge was a legitimate expense against the business.

¹ The Canadian Beekeepers' Council is a fourteen member organization representing, and working in the interest of Canadian beekeeping. Membership includes a representative of the Beekeepers Association and the Honey Producers Association in the Provinces of British Columbia, Alberta, Saskatchewan, Manitoba, Ontario and Quebec; one representative of the Maritime Beekeepers Association and one of the Canadian Honey Packers Association. Head Office of the organization is the Canadian Horticultural Council, Ottawa, which acts as Secretary Treasury.

TABLE VIII

AVERAGE LABOR COSTS PER BEEKEEPER

(1956 - colony numbers)

Group	1	2	3
Operator	\$ 1,244.01	\$ 2,412.87	\$ 1,796.62
Hired	176.98	603.76	1,635.72
Family	245.75	298.43	139.25
Total	\$ 1,666.74	\$ 3,315.06	\$ 3,571.59

TABLE IX

AVERAGE LABOR COSTS PER COLONY
(1956 - colony numbers)

Group	1	2	3
Operator	\$ 6.46	\$ 5.30	\$ 2.97
Hired	0.18	1.26	2.00
Family	1.57	1.30	0.17
Total	\$ 8.21	\$ 7.86	\$ 5.14

TABLE X

DEPRECIATION AND INTEREST ON INVESTMENT

AVERAGE PER BEEKEEPER

(1956 - colony numbers)

Group	1	2	3
Hive Equipment - 10%	\$ 288.02	\$ 540.97	\$ 1,364.98
Wax, Honey, shop equipment - 10%	37.92	57.55	127.35
Motor Equipment - 20%	276.67	380.00	610.00
Buildings - 5%	40.21	110.00	134.58
Total Depreciation	\$ 642.82	\$ 1,088.57	\$ 2,236.91
Interest on Investment - 5%	\$ 272.35	\$ 505.95	\$ 1,016.58

Revenue

Most beekeepers in Manitoba derive their income from the sale of honey and beeswax. There have been a few instances of Manitoba beekeepers receiving remuneration for pollination services but this is not as common as it is in other parts of Canada. Some beekeepers seek winter employment to supplement their income from beekeeping.

Beeswax was sold in the raw or crude state to processors for use in manufacturing candles and foundation chiefly. Beekeepers sold only a part of the beeswax they produced and the remainder was made up into foundation for repairing their equipment. It is estimated that there are one and a half pounds of beeswax produced for every hundred pounds of honey produced. In this survey the quantity sold by each beekeeper was equal to one pound for every hundred pounds of honey produced. (Tables XI and XII). This assumed that the other half pound was the amount turned into foundation. The 1956 market price for beeswax was 55 cents per pound.

From time to time beekeepers find it necessary to melt up supers full of drawn combs because of damage and pollen clogging. Each super will yield two to three pounds of wax. This slightly increases revenue in some years.

Honey was sold either packaged in consumer containers directly to the food handlers, or as bulk honey to honey packers, or directly to the consumer. Every beekeeper had the opportunity to sell honey directly to the consumer from the extracting house, and usually in the consumer's own containers. The volume sold by a commercial producer in this way may range from a few hundred to several thousand pounds. It is a

TABLE XI

PRODUCTION AND VALUE OF HONEY AND BEESWAX

AVERAGE PER BEEKEEPER

(1956 - colony numbers)

Group	Honey lb	Value of Honey 15¢ per lb	Beeswax lb	Value of Beeswax 55¢ per lb	Total Value Honey and Beeswax
1	32,933	\$4,940.00	494	\$271.70	\$5,211.70
2	65,633	9,845.00	984.5	541.38	10,386.38
3	115,700	17,355.00	1,735.5	954.52	18,309.52

TABLE XII
 PRODUCTION AND VALUE OF HONEY AND BEESWAX
 AVERAGE PER COLONY
 (1956 - colony numbers)

Group	Honey lb	Value of Honey 15¢ per lb	Beeswax lb	Value of Beeswax 55¢ per lb	Total Value Honey and Beeswax
1	171.2	\$25.68	2.56	\$1.41	\$27.10
2	143.5	21.51	2.15	1.18	22.67
3	143.7	21.56	2.15	1.18	22.76

business conducted at extracting time in late summer and fall. Despite the nuisance factor often incurred by people visiting and the filling of the consumer's own containers, the return per pound of honey was higher than sales made otherwise. Approximately one million pounds of honey was sold in this manner. Local sales of white honey were made at sixteen to twenty cents a pound, depending on the beekeeper, and, some charged as much as twenty-five cents a pound. Some beekeepers packed part of their production in consumer containers and sold it to brokers, wholesalers, or directly to the retailers. Reluctance on the part of the trade to purchase beekeeper packed honey, difficulties in meeting grade requirements, and insufficient returns for time and labor involved in packaging honey, resulted in less than a million pounds being sold in this manner. The majority of the commercial beekeepers in Manitoba sold all, or the greater part of their honey production through their co-operatively owned packing plant. A very small volume of bulk honey was sold directly to private packers.

Of the 1956 Manitoba honey crop estimated at 5.3 million pounds, 3.3 million pounds were delivered to the Manitoba Co-operative Honey Producers Limited, Winnipeg.¹ The remaining two million pounds were sold by the beekeepers directly to consumers, or through trade channels or as bulk honey to private packers.

In 1956 the Honey Co-operative sold approximately one million pounds of honey in Manitoba and exported the remaining 2.3 million pounds to Eastern Canada and Western Europe.

¹ The Manitoba Co-operative Honey Producers Limited, organized in 1939 to market Manitoba beekeeper's honey is a beekeeper owned processing and packing plant.

The valuation of 15 cents per pound for honey was an estimated net return price to the producer. Taken into consideration was the variation in price for different qualities and colors of honey. Individual beekeeper returns may have varied upward or downward depending on the type of honey produced. Some beekeepers in the survey had a high percentage of dark honey, therefore, had a lower return than 15 cents a pound because the dark honey sold approximately four cents a pound below that of white honey. There were also a few beekeepers who produced all top quality white honey so that their return was above the average price figure used.

CHAPTER IV

ANALYSIS OF 1956 SURVEY STRATIFIED ACCORDING TO COLONY PRODUCTION

Method

Two Groups A and B, with eight beekeepers in each Group were set up according to production per colony. In Group A, each of the beekeepers had an average production per colony between 100 and 150 pounds and the average for the Group was 136.5 pounds. In Group B, each of the beekeepers had an average production between 150 and 200 pounds, and the average for the Group was 176 pounds per colony. Beekeeper A (Group 1) with a production of 288 pounds per colony and Beekeeper J (Group 2) with a production of only 64 pounds per colony were omitted from the analysis. Group B beekeepers had 2903 colonies as compared to 5151 colonies in Group A, or an average of 362.8 colonies per beekeeper in Group B, and 643.8 in Group A.

In Group B, four of the beekeepers previously stratified according to colony numbers, were in Group 1, 3 were in Group 2 and 1 in Group 3. In Group A only 1 was in Group 1, two were in Group 2 and 5 were in Group 3.

The 40 pound lower average production of the beekeepers in Group A might be explained in two ways. First, Table XIII indicates that in Group A the labor hours per colony were 2.24 less than in Group B. This is comparable with the difference in labor hours of 2.41 between Groups 1 and 3 and a production of 27.5 pounds of honey per colony. This would indicate that more time spent on management would give increased production. Although this is not substantiated when comparing Groups 2 and 3 because production was similar despite 2.37 hours difference in

TABLE XIII

LABOR HOURS, COLONIES, PRODUCTION, AND CAPITAL INVESTMENT

(1956 - colony numbers and colony production)

Group	1	2	3	A	B
Labor Hours Average per colony	6.63	6.59	4.22	4.12	6.36
Colonies average per beekeeper	192.3	457	805	643.8	362.8
Production - lb Average per colony	171.2	143.4	143.7	136.5	176
Capital Investment Average per colony	\$ 28.30	\$ 22.04	\$ 25.66	\$ 24.66	\$ 26.56

labor it was previously established that in Group 2 more labor was necessary because of less equipment. This was evident by Group 3 having a capital investment of \$3.62 more than Group 2.

The second reason for the lower production of beekeepers in Group A was due to the fact they operated over a greater territory with more colonies per apiary and in most instances did not have the same potential production per colony as the beekeepers with fewer colonies and smaller apiaries.

Capital Investment

The average capital investment per beekeeper in Group A was \$6241.05 more than Group B but \$1.68 less per colony (Table XV). The total investment per colony for both Groups was however comparable to the average of \$24.88 for all eighteen beekeepers.

Expenses

In Groups A and B depreciation and interest on investment were comparable. (Appendix 18 and 19)

Labor charges for family and operator were \$2.16 per colony higher in Group B than Group A because of the greater number of hours labor done by the operator in Group B. (Table XIV)

The cash expenses including hired labor were \$2.64 higher in Group B than Group A. (Table XVI) Sixty cents of this increase was for hired labor. All expenses with the exception of bees and queens, and repairs and maintenance, were higher in Group B. (Appendix 20 and 21) Container costs for the beekeepers in Group B, who packed their own honey were ninety cents per colony higher, and as explained previously, this was not a true cost because the money was returned with the sale of the honey.

TABLE XIV
 LABOR HOURS AND LABOR VALUES FOR GROUPS
 AVERAGE PER COLONY
 (1956 - colony numbers and colony production)

Group	LABOR HOURS				LABOR VALUES			
	Operator	Family	Hired	Total	Operator	Family	Hired	Total
A	2.23	0.27	1.62	4.12	\$3.35	\$0.45	\$1.50	\$5.30
B	3.53	0.36	2.47	6.36	5.30	0.66	2.10	8.06
1	4.31	1.63	0.69	6.63	6.46	1.57	0.18	8.21
2	3.54	1.66	1.39	6.59	5.30	1.30	1.26	7.86
3	1.98	0.19	2.05	4.22	2.97	0.17	2.00	5.14

TABLE XV
 COMPARISON TABLE OF CAPITAL INVESTMENT AND EXPENSES FOR GROUPS
 AVERAGE PER BEEKEEPER
 (1956 - colony numbers and colony production)

Group	Capital Investment	Depreciation	Interest on Investment	Expenses	LABOR VALUES		
					Operator	Family	Hired
A	\$ 15,879.93	\$ 1,643.80	\$ 793.99	\$ 4,401.23	\$ 2,187.43	\$ 281.00	\$ 1,062.26
B	9,638.88	1,055.92	481.94	3,224.86	1,935.43	361.00	869.71
1	5,446.95	642.82	272.35	1,405.97	1,244.01	245.75	176.98
2	10,085.77	964.40	505.95	3,851.43	2,412.87	298.43	603.76
3	20,665.03	2,220.85	1,016.58	5,508.60	1,796.62	139.25	1,635.72

Most of the beekeepers in Group A imported their package bees by truck and therefore had a forty four cent per colony lower expenditure. The beekeepers in Group B spent more money on feed and drugs. Their truck, taxes, insurance, power, telephone and registration expenses were higher because they are basic expenses almost regardless of size of operation and there were less colonies in this Group over which to distribute the expenses.

TABLE XVI
COMPARISON OF CASH EXPENSES FOR GROUPS
AVERAGE PER COLONY
(1956 - colony number and colony production)

Group	1	2	3	A	B	Average of Groups
Cash Expenses	\$7.49	\$9.67	\$8.84	\$8.34	\$10.98	\$9.06

Income

Table XVII summarizes the average incomes for the beekeepers in Groups A and B showing the calculation of cash income, net income for operator and investment, operators labor income, and return to capital. Table XVIII illustrates the same income figures for Groups 1, 2, and 3. Table XIX compares the incomes for the five Groups on a colony basis.

The average income figures were highest for beekeepers of Groups A and 3 who had the largest average number of colonies and received a similar average production per colony. Group B incomes were slightly

TABLE XVII

SUMMARY OF AVERAGE INCOME PER BEEKEEPER
(1956 - colony production)

Group	A	B
Estimated Revenue	\$13,847.67	\$10,110.16
Total Cash Expenses	5,463.49	4,094.57
Cash Income	\$8,384.18	\$6,015.59
Depreciation	\$1,643.30	\$1,055.92
Family Labor	281.00	361.00
Total	\$1,924.30	\$1,416.92
Net Income for Operator and Investment	\$6,459.88	\$4,598.67
Interest on Investment	\$793.99	\$481.94
Operators Labor Income	\$5,665.89	\$4,116.72
Operators Wage Allowance	\$2,187.43	\$1,935.43
Return to Capital %	\$3,478.46 (21.9%)	\$2,181.30 (22.6%)

TABLE XVIII

SUMMARY OF AVERAGE INCOME PER BEEKEEPER

(1956 - colony numbers)

Group	1	2	3
Estimated Revenue	\$5,211.70	\$10,386.38	\$18,309.52
Total Cash Expenses	1,609.48	4,507.21	7,531.70
Cash Income	\$3,602.22	\$5,879.17	\$10,777.82
Depreciation	\$642.82	\$1,088.57	\$2,236.91
Family Labor	245.75	298.43	139.25
Total	\$888.57	\$1,387.00	\$2,376.16
Net Income for Operator and Investment	\$2,713.65	\$4,492.17	\$8,401.66
Interest on Investment	\$272.35	\$505.95	\$1,016.58
Operators Labor Income	\$2,441.30	\$3,986.22	\$7,385.08
Operators Wage Allowance	\$1,244.01	\$2,412.87	\$1,796.62
Return to Capital %	\$1,197.29 (21.9%)	\$1,573.35 (15.6%)	\$5,588.46 (27%)

TABLE XIX

SUMMARY OF AVERAGE INCOME PER COLONY
(1956 - colony numbers and colony production)

Group	1	2	3	A	B
Cash Income	\$18.75	\$12.86	\$13.39	\$12.88	\$16.58
Net Income for Operator and Investment	14.11	9.80	10.43	10.03	12.67
Operators Labor Income	12.69	8.75	9.17	8.80	11.31
Return to Capital	6.22	3.44	6.94	5.40	6.01
%	(21.9%)	(15.6%)	(27%)	(21.9%)	(22.6%)

higher than Group 2 despite an average of 96 fewer colonies per beekeeper but the production per colony was 29 pounds higher.

Comparing the operators labor income between Groups it is evident that Group 3 is \$1719.19 higher than Group A and \$3268.36 more than in Group B. The return to capital is highest in Group 3 and lowest in Group 2.

When the incomes for the various Groups are compared on a colony basis the higher incomes are in Groups 1 and B which had the highest average production per colony.

Income and Number of Colonies

The cash income, net income for operator and investment, and operators labor income were higher per colony in Groups 1 and B which had an average of 192.3 and 362.8 colonies per beekeeper. Group 3 having an average of 805 colonies per beekeeper had higher incomes than Groups 2 and A which had an average of 457 and 643 colonies respectively. The income figures are an indication therefore of a most economical size of operation.

An analysis of the three summary of average income Tables and Table XIII indicates that if a beekeeper in the 1956 study operated 750 to 800 colonies a cash income of approximately \$10,000.00 would have been received. This size of operation in the study required the services of one full time assistant and in some instances additional assistance for extracting honey. Similarly if a beekeeper in the 1956 study operated 375 to 425 colonies a cash income of approximately \$5500.00 would have been received. This size of operation in the study was carried out by the beekeeper with some assistance at extracting time in certain instances.

In practice it is possible for one person to carry out the management operation of 375 to 425 colonies. Whether or not it is possible for one person to extract the honey from this size of operation is dependant upon the individual, weather conditions and type of equipment and facilities available for extracting. Similarly two men should be capable of managing 750 to 800 colonies and doing the extracting if conditions and facilities are favourable.

CHAPTER V
ANALYSIS OF 1959 SURVEY

Method

In 1957 a partial analysis of the material collected from the 1956 survey indicated that more details on hours of labor to manage a beekeeping operation were needed and that more cost of production figures would be of assistance in supporting the information already collected. It was especially evident that beekeepers needed assistance in recording and analysing their financial affairs. A beekeepers record book was therefore prepared in 1958 with the assistance of Dr. L. B. Kristjanson, Economist, Manitoba Department of Agriculture, Winnipeg and based on information collected in the 1956 survey. These record books were made available to the beekeepers and some 200 were distributed in Manitoba mostly to commercial producers. Twenty commercial beekeepers in Manitoba were asked to complete the books in 1959 and to make their records available for this study. Nine of the books completed were selected for this study. Record books were also sent to beekeepers in Saskatchewan, Alberta and British Columbia. Labor records kept by one Saskatchewan beekeeper who operated 1277 colonies in 1959 were used in the tabulations (Table XX). The nine beekeepers for which complete tabulations were given on income (Table XXIV), expenses (Table XXIII) and capital investment (Table XXII) operated 6259 colonies which produced 994,039 pounds of honey or an average of 158.8 pounds per colony.

Labor

Only four beekeepers kept detailed and sufficiently accurate

figures for comparison purposes. (Table XX) Beekeeper 1 had a full time assistant from May to October and family assistance of 173 hours over the same period. Beekeeper 2 had two full time assistants from May to October and four part time helpers at extracting time who worked a total of 947 hours. Beekeeper 3 was a partnership operation and the two owners hired five part time helpers who worked 1796 hours and they also used 387 hours family labor. Beekeeper 4 was a family operation. The father and eldest son worked 1918 hours and the wife and 3 other sons worked 3135 hours.

Beekeepers 3 and 4 were increasing their size of apiary and spent extra hours assembling new equipment. Beekeeper 3 had 1400 extra hours and Beekeeper 4 had 2000 extra hours so that the time spent on normal apiary operations was comparable to Beekeepers 1 and 2 in relation to size of apiary.

The average of 4.22 hours of labor per colony was exactly the same as it was for Group 3 stratified according to colony numbers in the 1956 survey. In this instance, however, the average number of colonies operated by a beekeeper was 974 compared to 805 in Group 3.

Table XXI gives a classification of the hours of labor for the four beekeeper operations on the basis of shop, management, and extracting, during the beekeeping months May to October. Shop work included repairing and assembling new bee equipment, putting in foundation, and all work other than that directly concerned with hive manipulations or honey handling. Management consisted of all duties connected with the manipulation of the colonies, such as, introduction of package bees, supering, swarm control and taking off honey. Extracting consisted of

TABLE XX

1959 MONTHLY HOUR LABOR RECORDS

Beekeeper	* 1 650	* 2 1277	* 3 1200	* 4 770	* Total 3897	Average per Beekeeper	Average per Colony
January	35	-	-	559	594	297	.42
February	40	-	-	452	492	246	.32
March	60	-	180	474	714	238	.27
April	125	-	511	456	1092	364	.41
May	204	289	433	479	1405	351.2	.36
June	222	579	584	400	1785	446.2	.45
July	293	829	783	886	2791	697.7	.72
August	523	793	883	744	2943	735.7	.75
September	644	696	969	553	2862	715.5	.73
October	628	282	712	50	1672	418	.45
November	94	-	-	-	94	94	.14
December	28	-	-	-	28	28	.04
Total	2896	3468	5055	5053	16,472	4118	4.22

* Number of Colonies

TABLE XXI

HOURS LABOR FOR SHOP, MANAGEMENT, EXTRACTING

MAY TO OCTOBER

Kind of Work	Shop				Management				Extracting			
	1	2	3	4	1	2	3	4	1	2	3	4
Beekeeper	* 650	* 1277	* 1200	* 770					** 110,000	** 219,000	** 190,000	** 128,000
May	160	-	-	341	44	289	443	138	-	-	-	-
June	-	210	167	212	222	558	417	188	-	-	-	-
July	-	156	581	116	293	540	202	426	-	133	-	344
August	-	63	-	-	190	325	435	422	333	405	448	322
September	-	-	-	-	314	335	470	402	330	361	449	151
October	-	70	-	-	314	53	297	-	314	159	415	50
Total	160	499	748	669	1377	2100	2264	1576	971	1058	1362	867
Average per Beekeeper	-	-	519	-	-	-	1829.25	-	-	-	1064.50	-
Average per Colony	-	-	0.53	-	-	-	1.88	-	-	-	1.09	-

* Number of Colonies

** Pounds of Honey Extracted

the time spent in removing the honey from the wax combs and packing it in containers.

Beekeepers 2 and 4 who started extracting in July and finished in early October carried out their operation more quickly on a per colony basis than did Beekeepers 1 and 3. Beekeepers 2, 3 and 4 operated with two work crews, one extracting, and the other bringing supers of honey from the apiaries. Beekeepers 1 and 4 spent more time with colony management on a per colony basis than Beekeepers 2 and 3 who had more colonies. It was also true in the 1956 survey that the more colonies operated the less time there was spent on management.

Capital Investment

The 1959 survey indicated an increase in capital investment by beekeepers in buildings and motor equipment. (Table XXII) A comparison with Group 3 in the 1956 survey (Table III) shows an increase per colony of \$1.05 in motor equipment and \$2.86 in buildings.

The commercial beekeepers illustrated in the 1959 survey maintained at least one reasonably new truck and the purchase price of trucks had increased since 1956. The increase in capital investment for buildings was a general trend with all Manitoba commercial beekeepers. The beekeepers were either increasing the size of their buildings, improving them, or building new ones to handle the expansion of their business and give better facilities for extracting and packing honey.

Expense

From 1956 to 1959 most expenses for beekeepers increased. A comparison with Group 3 expenses (Table IV) in the 1956 survey and Table XXIII in the 1959 survey, indicates that the expenses per colony

TABLE XXII

1959 - CAPITAL INVESTMENT

Beekeeper and Colonies	Land and Buildings	Motor Equipment	Hive Equipment	Honey and wax Equipment	Shop and Office Equipment	Total Investment
A - 695	\$ 4,800.00	\$ 3,975.00	\$ 10,760.00	\$ 945.00	\$ 175.00	\$ 20,655.00
B - 770	8,000.00	4,500.00	10,072.50	1,878.00	250.00	24,700.50
C - 1200	4,800.00	2,000.00	21,445.65	1,408.00	250.00	29,903.65
D - 720	3,750.00	1,000.00	9,520.00	1,218.00	150.00	15,638.00
E - 650	2,625.00	7,250.00	10,200.00	1,597.00	446.00	22,118.00
F - 480	4,500.00	2,205.00	6,638.35	545.95	150.00	14,039.30
G - 588	2,950.00	3,000.00	6,450.00	480.00	50.00	12,930.00
H - 460	4,400.00	1,150.00	5,980.76	650.00	150.00	12,330.76
I - 696	3,000.00	5,250.00	9,815.00	1,065.00	150.00	19,280.00
Total 6254	\$ 38,825.00	\$ 30,330.00	\$ 90,882.36	\$ 9,786.95	\$ 1,771.00	\$ 171,595.21
Average per Beekeeper	\$ 4,313.89	\$ 3,370.00	\$ 10,098.03	\$ 1,087.44	\$ 196.77	\$ 19,066.13
Average per Colony	\$ 6.20	\$ 4.84	\$ 14.52	\$ 1.56	\$ 0.28	\$ 27.41

TABLE XXIII
1959 EXPENSES

Beekeeper and Colonies	Bees and Queens	Repairs and Maintenance	Telephone Insurance Taxes	Fuel Feed Drugs	Honey Containers	Truck Cars Tractor	Labor	Total Cash Expenses
A - 695	\$ 3,177.24	\$ 777.55	\$ 305.43	\$ 225.73	\$ 389.29	\$ 1,124.43	\$ 1,598.06	\$ 7,597.73
B - 770	3,502.27	795.16	111.20	364.00	1,022.65	1,190.00	-	6,985.28
C - 1200	6,342.02	492.24	475.00	882.95	200.40	589.20	2,010.75	10,992.56
D - 720	3,420.00	235.89	208.00	676.75	1,132.00	1,200.00	1,936.70	8,809.34
E - 650	3,015.58	268.72	456.15	22.40	41.72	794.84	1,370.00	5,969.41
F - 480	2,665.06	412.55	446.33	161.99	1,097.06	1,301.48	1,669.00	7,753.47
G - 588	2,561.10	108.00	124.35	72.80	-	360.50	499.00	3,725.75
H - 460	2,278.76	308.53	292.95	89.67	306.98	386.33	700.00	4,363.22
I - 696	2,905.33	490.25	227.75	108.55	429.50	1,133.95	-	5,295.33
Total 6259	\$ 29,867.36	\$ 3,888.89	\$ 2,647.16	\$ 2,604.84	\$ 4,619.60 ¹	\$ 8,080.73	\$ 9,783.51 ²	\$ 61,492.09
Average per Beekeeper	\$ 3,318.59	\$ 432.09	\$ 294.13	\$ 289.43	\$ 577.45 ¹	\$ 897.86	\$ 1,397.64 ²	\$ 6,832.45
Average per Colony	\$ 4.77	\$ 0.61	\$ 0.42	\$ 0.41	\$ 0.81 ³	\$ 1.29	\$ 2.04 ⁴	\$ 9.82

1 8 Beekeepers
3 5671 Colonies
2 7 Beekeepers
4 4793 Colonies

increased from \$9.44 to \$9.82. This increase was largely due to increased charges for package bees and truck operation.

In the 1959 survey the number of colonies indicated per beekeeper were the colonies being operated at mid-summer and not necessarily the same number as was started with in the spring. In the 1956 survey the number used was spring count in most instances. This will account for some of the differences in expenses between 1956 and 1959. Seven of the beekeepers in the 1959 survey imported their bees by truck.

Income

From 1956 to 1959, beekeeper income was reduced by as much as 20 per cent. In the 1959 study the average operator's labor income (Table XXIV) was \$7.49 whereas in 1956 study the labor income for Group 3 Beekeepers (Table XIX) was \$9.19. The average production per colony was 15 pounds higher in 1959 than for the beekeepers of Group 3 in 1956.

The reduction in beekeeper income was due to increased costs of operating and capital expenditures and a lower return for honey and beeswax. The evaluation of 45 cents per pound for beeswax in 1959 was 10 cents lower than 1956. The evaluation of 13 cents a pound for honey was an estimate, which in comparison to the 1956 estimate of 15 cents a pound was probably too high. The 1959 Manitoba crop had not been sold and an accurate price could not be given. The method of calculating the 1959 revenue figures differed from the method used in 1956, in that the actual revenue figures were used for all honey which was sold by the beekeeper during the year. All other honey either on hand or delivered to the Honey Co-operative was evaluated at 13 cents per pound. (Table XXV) In 1956 the total production was evaluated at

TABLE XXIV

1959 SUMMARY OF INCOME

	A	B	C	D	E	F	G	H	I	Average per Beekeeper Colony
Beekeeper Colonies	695	770	1220	720	650	480	588	460	696	
Estimated	\$ 14042.01	\$ 17184.50	\$ 23000.00	\$ 19408.31	\$ 14796.00	\$ 12759.34	\$ 11456.73	\$ 10780.69	\$ 16203.90	\$ 15514.44
Total Cash Expenses	7597.73	6985.28	10992.56	8809.34	5969.41	7753.47	3725.75	4363.22	5295.33	6832.45
Cash Income	\$ 6444.36	\$ 10199.22	\$ 12007.44	\$ 10598.97	\$ 8825.59	\$ 5005.87	\$ 7730.98	\$ 6417.47	\$ 10908.57	\$ 8682.05
Depreciation	\$ 2220.50	\$ 2515.05	\$ 3137.27	\$ 1436.30	\$ 2803.05	\$ 1387.02	\$ 1595.50	\$ 1125.57	\$ 2300.50	\$ 2057.86
Family Labor \$1.00 per hour	-	3135.00	387.00	-	173.00	460.00	-	-	-	1013.75
Total	\$ 2220.50	\$ 5650.05	\$ 3524.27	\$ 1436.30	\$ 2976.05	\$ 1847.02	\$ 1595.50	\$ 1125.57	\$ 2300.50	\$ 2919.53
Net Income for Operator and Investment	\$ 4223.86	\$ 4544.17	\$ 8483.17	\$ 9162.67	\$ 5849.54	\$ 3158.85	\$ 6135.48	\$ 5291.90	\$ 8608.07	\$ 6162.52
Interest on Investment	\$ 1032.75	\$ 1235.02	\$ 1495.18	\$ 781.90	\$ 1105.90	\$ 701.96	\$ 646.50	\$ 621.53	\$ 964.00	\$ 953.56
Operators Labor Income	\$ 3191.11	\$ 3314.15	\$ 6987.99	\$ 8380.77	\$ 4743.64	\$ 2456.89	\$ 5488.98	\$ 4670.37	\$ 7644.07	\$ 5208.66

TABLE XXV

1959 -- PRODUCTION AND VALUE OF HONEY AND WAX

Beekeeper and Colonies	Honey lb	Honey Value 13¢ per lb	Wax lb	Wax Value 45¢ per lb	Total Value Honey and Wax
A - 695	97,787	\$ 13,799.46	539	\$ 242.55	\$ 14,042.01
B - 770	128,000	16,640.00	1,210	544.50	17,184.50
C - 1200	170,000	22,100.00	2,000	900.00	23,000.00
D - 720	122,912	18,743.66	1,477	664.65	19,408.31
E - 650	110,000	14,300.00	1,100	495.00	14,795.00
F - 480	88,849	12,345.34	960	414.00	12,759.34
G - 588	80,081	11,085.13	800	360.00	11,456.73
H - 460	76,410	10,403.19	750	337.50	10,740.69
I - 696	120,000	15,600.00	1,342	603.90	16,203.90
Total 6259	944,039	\$ 135,016.78	10,178	\$ 4,562.10	\$ 139,578.88
Average per Beekeeper	110,448.8	\$ 15,001.86	1,130.9	\$ 506.90	\$ 15,508.77
Average per Colony	158.8	\$ 21.57	1.6	\$ 0.73	\$ 22.30

15 cents per pound. Since the price received for the sale of honey locally was often considerably above the volume bulk price the revenue figures in 1959 were therefore somewhat higher per pound in comparison to the 1956 figures.

Income from Freight

Most commercial beekeepers transported their honey to the packing plant in Winnipeg and received payment for this at the standard trucking freight rate. For example this rate was 44 cents a hundred weight from Portage la Prairie and \$1.15 from Benito, one of the most distant points. The average cost to the Honey Co-operative for freight on 1958 honey was 0.58 cents per pound. With an average production of 110,448 pounds for the nine beekeepers in this study an additional income of \$641.39 might have been shown based on the Honey Co-operative freight payment for 1958. This income was not recorded in the income figures in Table XXIV. Beekeeper A, for example, reported an income from freight in 1959 of \$935.72.

The expenses for gas and oil in transporting the honey to the packing plant were included under truck expenses. Other expenses such as meals and lodging are not included.

CHAPTER VI

FACTORS AFFECTING THE DECLINE OF HONEY PRICES IN MANITOBA

In 1954, Canadas' honey production was less than 20 million pounds. (Table XXVI) Production was particularly low in Ontario and Quebec which were the big Canadian markets for honey. Canadian honey prices were high at this time in comparison to world market prices. The United States had surplus production and much lower prices than Canada with the result that a small volume of consumer packaged United States honey entered the Canadian market and a large volume of bulk honey was imported by Canadian honey packers to supplement the Canadian production. Once Canadian honey packers had established themselves on the market with United States honey, and Canadian production was back to average by 1957, a surplus of Canadian honey started to develop. Packers of Canadian honey such as the Manitoba Co-operative Honey Producers Limited selling on the Eastern Canada market were forced to meet the lower priced imported United States honey in order to make sales and maintain market outlets. Combined with the competition of United States honey, Ontario in 1957 had a large crop of white honey which had a depressing affect on sales of Manitoba white honey in Eastern Canada.

Another contribution factor in the price decline of honey was the change in food marketing. The report of the Royal Commission on Price Spreads of Food Products, September 1959 states "the growing integration and concentration in food wholesaling and retailing has exerted a downward pressure on prices". The Report inferred that food supermarkets and large chain store food marketing agencies competed in providing

TABLE XXVI

HONEY PRODUCTION AND MARKETING RECORDS 1949 - 1959

Year	Canadian Honey Production lb	Honey Imports from U.S.A. lb	Manitoba Honey Production lb	Honey Intake Honey - Co-op lb
1949	31,481,000	71,400	5,586,000	1,678,078
1950	28,351,000	27,493	5,891,000	1,578,360
1951	40,909,000	141,052	5,400,000	1,679,189
1952	31,470,000	84,438	3,600,000	1,191,761
1953	26,384,000	354,434	4,830,000	1,975,287
1954	19,885,000	4,311,453	4,080,000	1,832,362
1955	25,031,000	5,265,526	5,365,000	3,153,301
1956	26,310,000	3,268,037	5,360,000	3,580,152
1957	32,051,000	4,429,453	5,166,000	3,655,538
1958	27,509,600	4,805,259	5,183,000	3,310,614
1959	33,233,000	* 3,237,966	5,994,000	** 4,200,000

* To September 30

** Unofficial Total

conveniences for the consumers. Also various promotional activities in packaging, advertising, give aways, and contests all tended to be costs borne by the producer.

By 1959 most of the commercial Beekeepers in Manitoba were marketing all of their honey, except for local sales, through their Co-operatives. The change in food marketing, low world honey prices, imports of United States honey and accumulated Canadian honey stocks, affected marketing by the Co-operative and had a direct effect on the beekeepers' income.

CHAPTER VII

FACTORS AFFECTING THE INCREASE IN VOLUME OF HONEY HANDLED BY THE
MANITOBA CO-OPERATIVE HONEY PRODUCERS LIMITED

The specialization in beekeeping which started in 1949 and continued until 1958 resulted in a greater percentage of Manitoba Honey being marketed through organized trade channels. The commercial beekeepers, because of high labor costs, high container costs, less time for packing in consumer containers, inability to meet grade and quality requirements of consumer packs, and the complexity of selling, chose to produce honey and leave the marketing to the Co-operative. Food stores hesitated to handle private beekeepers packaged honey because of poor packaging and lack of uniformity and continuity of supply. The chain stores found it possible to give a sufficient variety in kinds of honey to the consumer by the importation of honey from other Provinces and to buy from packers a quality brand product. The chain stores also changed their buying procedure and no longer maintained large inventories. The beekeeper was unable to dispose of his entire crop in the fall as was possible prior to the change in food marketing when brokers, wholesalers and retailers were prepared to buy stocks of honey from beekeepers.

The beekeepers of Manitoba were able to realize a greater return for their honey sold through the Co-operative because the Co-operative was able to sell a considerable volume of honey in the higher priced Eastern Canadian market. Good management and service was responsible for encouraging beekeepers to market through their Co-operative, and in obtaining a satisfactory financial return for their honey.

The Co-operative started to increase its percentage intake of the Manitoba honey crop in 1952 and in 1955 there was a substantial increase in volume handled. (Table XXVI) In order to handle the increased volume and to keep abreast of the increased competition in marketing the Co-operative built a modern packing plant in 1957 readily capable of handling 5 million pounds of honey annually.

CHAPTER VIII
COMPARATIVE COSTS OF HONEY PRODUCTION IN
MANITOBA, SASKATCHEWAN AND ONTARIO

A questionnaire survey was conducted in Saskatchewan and Ontario in 1959 by the Provincial Apiarist in the respective Provinces to obtain some figures on the cost of honey production. In Ontario six beekeepers with an average of 1,112 colonies and a honey production of 66 pounds per colony had a cost of production of 12.6 cents per pound of honey. In Saskatchewan eight beekeepers with an average of 705 colonies and a production of 164 pounds per colony had a cost of production of 8.6 cents per pound of honey. (Appendix 25) These two surveys were conducted on the 1958 crop.

The cost of producing a pound of honey in Manitoba based on the 1959 survey, and calculated on a similar basis to Saskatchewan, was 8.4 cents. The cash operating cost per colony in Saskatchewan was \$10.36 as compared to \$9.82 in Manitoba.

CHAPTER IX

SUMMARY AND CONCLUSIONS

Summary

The average capital investment for beekeepers in the study operating 400 or more colonies was approximately \$26.00 per colony. This was made up of approximately \$15.00 in hive equipment, \$5.00 in buildings, \$4.00 in motor equipment and \$2.00 in wax, honey, office and shop equipment. The capital investment for beekeepers operating less than 400 colonies was approximately \$2.00 per colony more.

Cash expenses for the commercial beekeepers in the study averaged about \$9.00 a colony. This consisted of approximately \$4.50 a colony for bees and queens, \$2.00 for labor, \$1.25 for truck expenses and \$1.25 for the remaining expenses, such as, feed, drugs, power, telephone, taxes and insurance. Small beekeepers had increased costs for bees and queens because the small volume purchase price was higher and express importation charges were more than by truck.

The average number of hours of labor spent by a commercial beekeeper in the operation of a colony was approximately 4.5. The small beekeeper spent up to 7 hours per colony and the large commercial beekeeper as little as 4 hours. The small beekeeper who put in more hours per colony frequently obtained higher colony yields.

Most of the beekeepers in the study marketed their honey through their own Co-operative. Their income was affected by world honey

prices, importation of honey into Canada and the specialized marketing system.

Conclusions

1. The major factors affecting the cost of honey production in the study were, package bee prices, truck expenses, labor costs, increased capital expenditure costs, specialization in food marketing, and honey bee management.
2. On the basis of the data collected in the study any increase in the cost of package bees and queens or transportation had a direct effect on the cost of honey production. Commercial beekeepers were attempting to reduce transportation costs by importing package bees and queens by truck. In the 1956 survey the average transportation cost by rail was \$1.13 as compared to 48.6 cents by truck.
3. According to the study, if a commercial beekeeper operates one or more new trucks, then the trucks should be used to import package bees and queens and to haul honey to the packing plant to absorb some of the cost of depreciation. Otherwise the beekeeper should operate with older less expensive motor equipment.
4. The 1956 study showed that hired labor was a major expense to the commercial beekeeper. A commercial beekeeper operating 375 to 425 colonies would receive a cash income of approximately \$5,500.00. This involved the hiring of some labor for extracting in certain instances. Similarly a beekeeper in the 1956 survey operating 750 to 800 colonies would receive a cash income of approximately \$10,000.00. This size of operation required hiring the services of a full time assistant for the beekeeping season and some additional assistance at

extracting time in certain instances.

5. The commercial beekeepers in the 1959 survey, especially those increasing their size of operation, were building new or larger buildings and obtaining new and modern equipment. The increased costs of building materials, machinery and equipment made overhead expenses higher than they were for beekeepers in the 1956 survey.
6. The study showed that the beekeepers were attempting to keep abreast of the change in food marketing by selling their honey through their new Co-operative honey processing and packing plant. The Report of the Royal Commission on Price Spreads suggested this as a solution in the marketing of agricultural products to lower the price spread on food products from producer to consumer and to give a higher return to the primary producer for their goods.
7. The study indicated that the beekeepers must produce and market top quality honey with specialized packs and packaging in order to compete for and maintain their honey markets.
8. The data collected on labor and honey production showed that more management reduced costs of operation, particularly the loss of queens and colonies in the spring, and increased honey production.

GLOSSARY OF TERMS USED IN BEEKEEPING

1. Hive - an enclosure in which honey bees make their home.
2. Super - a box without cover or bottom to hold a set of frames containing the wax comb.
3. Top - cover or roof for a hive.
4. Bottom - base of hive on which supers are piled.
5. Feeder - receptacle of some kind for holding a sugar syrup solution fed to the honey bees.
6. Colony - a hive containing live honey bees.
7. Brood Diseases - American Foulbrood and European Foulbrood.
8. Adult Disease - Nosema.
9. Drugs - sodium sulfathiazole, terramycin, streptomycin and fumagillin are used in the prevention and control of honey bee diseases.
10. Honey - a sweet viscid fluid collected from the nectaries of flowers and elaborated for food.
11. Package Bees - wire screened cages containing live honey bees. A cage is used to transport a sufficient number of worker honey bees and a queen to establish a colony.
12. Foundation - base, midrib or foundation of honeycomb. Thin sheets of wax embossed with impressions of worker cells.
13. Beeswax - a glandular excretion of worker honey bees used in construction of the comb for brood rearing and the storage of honey and pollen.

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APPENDIX I

INVENTORY AVERAGE - BEGINNING AND END OF YEAR

(1956 - colony numbers)

GROUP I

Beekeeper and number of colonies	Hive Equipment	Wax, Honey shop Equipment	Motor Equipment	Buildings	TOTAL	Value of new equipment purchased during year - included in inventory average
A - 125	\$ 1972.50	\$ 276.00	\$ 500.00	\$ 400.00	\$ 3148.50	
B - 250	2597.50	811.27	2000.00	1500.00	6908.77	\$242.55
C - 235	5588.22	308.18	2300.00	1700.00	9896.40	99.47
D - 169	1887.50	85.00	1400.00	350.00	3712.50	
E - 75	2400.00	380.00	900.00	375.00	4055.00	
F - 300	2845.60	415.00	1200.00	500.00	4960.00	196.20
Total 1154	\$ 17,281.32	\$ 2,275.45	\$ 8,300.00	\$ 4,825.00	\$ 32,681.77	
Average per Beekeeper	\$ 2880.22	\$ 379.24	\$ 1383.33	\$ 804.16	\$ 5446.96	
Average per Colony	\$ 14.97	\$ 1.97	\$ 7.18	\$ 4.18	\$ 28.32	

APPENDIX 2

INVENTORY AVERAGE - BEGINNING AND END OF YEAR

(1956 - colony numbers)

GROUP II

Beekeeper and number of colonies	Hive Equipment	Wax, Honey shop Equipment	Motor Equipment	Buildings	TOTAL	Value of new equipment purchased during year - included in inventory average
G - 350	\$4536.25	\$630.00	\$700.00	\$1400.00	\$7266.25	
H - 460	5358.75	490.00	2000.00	3000.00	10848.75	
I - 350	3578.63	440.00	2600.00	850.00	7468.63	\$107.27
J - 550	5262.50	575.00	1600.00	2450.00	9887.50	
K - 575	8278.00	1060.00	1800.00	4500.00	15638.00	
L - 460	5447.50	258.03	2700.00	1000.00	9405.53	56.06
Total 2745	\$32,461.63	\$3,453.03	\$11,400.00	\$13,200.00	\$60,514.66	
Average per Beekeeper	\$5410.27	\$575.50	\$1900.00	\$2200.00	\$10,085.77	
Average per Colony	\$11.82	\$1.26	\$4.15	\$4.81	\$22.04	

APPENDIX 3

INVENTORY AVERAGE - BEGINNING AND END OF YEAR

(1956 - colony numbers)

GROUP III

Beekeeper and number of colonies	Hive Equipment	Wax, Honey shop Equipment	Motor Equipment	Buildings	TOTAL	Value of new equipment purchased during year - included in inventory average
M - 750	\$10847.80	\$1682.00	\$5700.00	\$2500.00	\$20729.80	
N - 883	19246.68	1110.00	2000.00	3350.00	25706.68	\$533.37
O - 750	9990.00	1005.00	1600.00	2500.00	15095.00	
P - 937	13544.55	1160.00	4300.00	2800.00	21854.55	
Q - 700	12348.11	1254.00	2800.00	2000.00	18402.11	106.23
R - 810	15872.00	1530.00	1900.00	3000.00	22202.00	
Total 4830	\$81,872.14	\$7,641.00	\$18,300.00	\$16,150.00	\$123,990.14	
Average per Beekeeper	\$13649.86	\$1273.50	\$3050.00	\$2691.67	\$20665.02	
Average per Colony	\$16.95	\$1.58	\$3.79	\$3.34	\$25.67	

APPENDIX 4

EXPENSES

(1956 - colony numbers)

GROUP I

Beekeeper and number of Colonies	Bees and Queens	Transport Bees Queens	Truck	Equipment Repairs and Maintenance	Taxes Insur- ance Power Telephone Registration	Fuel, Feed Drugs	Honey Containers	TOTAL
A - 125	\$418.25	\$142.50	\$91.85	\$13.50	\$74.90	\$16.10	\$25.00	\$782.10
B - 250	836.95	390.16	*311.80	41.50	128.60	31.65	-	1740.66
C - 235	1016.30	284.40	*104.50	36.39	229.74	120.85	173.03	1965.21
D - 169	545.00	203.24	98.35	-	126.66	67.49	26.75	1067.49
E - 75	293.75	79.50	88.05	5.60	141.00	64.10	228.00	900.00
F - 300	1111.50	311.16	*332.70	-	103.60	19.99	101.45	1980.40
Total 1154	\$4,221.75	\$1,410.96	\$1,027.25	\$96.99 1	\$804.50	\$320.18	\$554.23 2	\$8,435.86
Average per Beekeeper	\$703.62	\$235.16	\$171.20	\$24.24 1	\$134.08	\$53.36	\$110.84 2	\$1405.97
Average per Colony	\$3.66	\$1.22	\$0.89	\$0.14 3	\$0.70	\$0.28	\$0.61 4	\$7.31

* 10¢ per mile

1 4 Beekeeper 2 5 Beekeeper 3 685 Colonies 4 904 Colonies

APPENDIX 5

EXPENSES

(1956 - colony numbers)

GROUP II

Beekeeper and number of Colonies	Bees and Queens	Transport Bees Queens	Truck	Equipment Repairs and Maintenance	Taxes, Insur- ance Power Telephone	Fuel, Feed Drugs	Honey Containers	TOTAL
G - 350	\$ 1290.50	\$ 349.50	\$ 247.19	\$ 139.95	\$ 131.50	\$ 82.90	\$ 992.56	\$ 3233.66
H - 460	1729.28	* 460.00	862.47	399.70	419.32	150.64	1753.71	5964.04
I - 350	1363.35	** 200.00	586.87	64.80	223.29	385.34	28.05	2851.70
J - 550	1650.00	* 90.06	418.16	-	110.56	80.35	214.28	2788.41
		** 225.00						
K - 575	1884.75	** 303.87	802.03	675.24	309.85	82.81	256.65	4315.20
L - 460	1730.13	** 196.53	543.24	280.88	357.47	786.63	60.69	3955.57
Total 2745	\$ 9,647.66	\$ 1,824.96	\$ 3,648.79	\$ 1,560.57	\$ 1,551.99	\$ 1,568.67	\$ 3,305.94	\$ 23,108.58
Average per Beekeeper	\$ 1607.94	\$ 304.16	\$ 608.13	\$ 312.11	\$ 258.66	\$ 261.44	\$ 550.99	\$ 3851.43
Average per Colony	\$ 3.51	\$ 0.66	\$ 1.33	\$ 0.71	\$ 0.56	\$ 0.57	\$ 1.2	\$ 8.41

* Express ** Truck 1 5 Beekeepers 2 2195 Colonies

APPENDIX 6

EXPENSES

(1956 - colony numbers)

GROUP III

Beekeeper and number of Colonies	Bees and Queens	Transport Bees Queens	Truck	Equipment Repairs and Maintenance	Taxes, Insur- ance, Power and Telephone Registration	Fuel, Feed Drugs	Honey Containers	TOTAL
M - 750	\$ 2380.00	** \$ 420.00	\$ 721.55	\$ 52.61	\$ 217.70	\$ 63.11	\$ 88.50	\$ 3943.47
N - 883	3397.20	* 754.75	560.00	359.01	644.00	1040.68	407.60	7163.24
O - 750	2838.18	** 316.35	397.00	245.00	322.50	85.90	749.91	4954.84
P - 937	5926.00	** 399.76	727.39	"	465.92	480.00	-	7999.07
Q - 700	2275.00	** 336.00	902.61	"	"	"	579.00	4092.61
R - 810	2499.30	* 247.60	752.75	412.54	497.86	150.75	"	4891.60
		** 330.80						
Total 4830	\$ 19,315.68	\$ 2,805.26	\$ 4,061.30	\$ 1,069.16	\$ 2,147.98	\$ 1,820.44	\$ 1,825.01	\$ 33,044.83
Average per Beekeeper	\$ 3219.28	\$ 467.54	\$ 691.88	\$ 267.29	\$ 429.59	\$ 364.08	\$ 456.22	\$ 5508.60
Average per Colony	\$ 4.00	\$ 0.58	\$ 0.84	\$ 0.33	\$ 0.52	\$ 0.44	\$ 0.59	\$ 6.84

* Express 3 3193 Colonies
 ** Truck 4 4130 Colonies
 1 4 Beekeepers
 2 5 Beekeepers
 3 5 3083 Colonies

APPENDIX 7

LABOR HOURS AND COSTS

(1956 - colony numbers)

GROUP I

Beekeeper	Operator Hours	Value \$1.50 per hour	Hired Hours	Value	Family Hours	Value	
						Child 75¢	Wife \$1.00
A - 125	420	\$630.00	237	\$118.50	-	-	-
B - 250	976	1464.00	-	155.00	-	-	-
C - 235	1057	1585.50	337	337.00	-	-	-
D - 169	655	982.50	-	-	345	-	\$345.00
E - 75	1088	1632.00	-	-	-	-	-
F - 300	780	1170.00	234	97.45	303	-	303.00
	-	-	-	-	119	-	89.25
Total	4,976	\$7,464.00	808	\$707.95	767	1	\$737.25
Average per Beekeeper	829.3	\$1244.01	267.3	\$176.98	255.6	1	\$245.75
Average per Colony	4.31	\$6.46	0.69	\$0.18	1.63	5	\$1.57

1 3 Beekeepers 2 4 Beekeepers

APPENDIX 8

LABOR HOURS AND COSTS

(1956 - colony numbers)

GROUP II

Beekeeper	Operated Hours	Value \$1.50 per hour	Hired Hours	Value	Family Hours	Value Child 75¢ Wife \$1.00
G - 350	1450	\$ 2175.00	792	\$ 580.05	-	-
H - 460	1714	2571.00	1400	1313.75	45	\$ 45.00
I - 350	-	-	-	-	525	393.75
J - 550	1343	1994.50	295	295.00	-	-
K - 575	-	-	-	800.00	-	-
L - 460	1941	2911.00	40	30.00	146	146.00
					812	609.00
Total 2745	6,448	\$ 9,651.50	2,527	\$ 3,018.80	1,528	1,193.15
Average per Beekeeper	1612	\$ 2412.87	631.7	\$ 603.76	382	\$ 298.43
Average per Colony	3.54	\$ 5.30	1.39	\$ 1.26	1.66	\$ 1.30
1	4	2	5	3	3	3
	Beekeeper		Beekeeper		Beekeeper	
4	1820	5	2395	6	1475	Colonies
	Colonies		Colonies		Colonies	

APPENDIX 9

LABOR HOURS AND COSTS

(1956 - colony numbers)

GROUP III

Beekeeper	Operated Hours	Value \$1.50 per hour	Hired Hours	Value	Family Hours	Value Child 75¢ Wife \$1.00
M - 750 1	569	\$853.50	968	\$750.00	-	-
	1502	2253.00	-	-	-	-
N - 883 1	1099	1648.50	1640	1615.00	252	252.00
	868	1302.00	1100	1120.00	-	-
O - 750	1200	1800.00	-	-	-	-
P - 937	1600	2400.00	3402	3227.00	80	80.00
		-	-	-	40	30.00
Q - 700	1552	2328.00	516	741.60	200	150.00
R - 810	1192	1788.00	750	825.00	60	45.00
Total 4830	9,582	\$14,373.00	837.6 2	\$8,178.60 2	632 3	\$557.00 3
Average per Beekeeper	1197.7	\$1796.62	1675.2 2	\$1635.72 2	158 3	139.25 3
Average per Colony	1.98	\$2.97	2.05 4	\$2.00 4	0.19 5	0.17 5

1 Partnership 2 5 Beekeeper 3 4 Beekeeper
 4 4080 Colonies 5 3830 Colonies

APPENDIX 10

DEPRECIATION AND INTEREST ON INVESTMENT

(1956 - colony numbers)

GROUP I

Beekeeper and number of Colonies	Hive Equipment 10%	Wax, Honey Shop Equipment 10%	Motor Equipment 10%	Buildings 5%	Total Depreciation	Interest on Investment 5%
A - 125	\$ 197.25	\$ 27.60	\$ 100.00	\$ 20.00	\$ 344.85	\$ 157.42
B - 250	259.75	81.13	400.00	75.00	815.88	345.44
C - 235	558.82	30.82	460.00	85.00	1134.64	494.82
D - 169	187.75	8.50	280.00	17.50	493.75	185.62
E - 75	240.00	38.00	180.00	18.75	476.75	202.75
F - 300	284.56	41.50	240.00	25.00	591.06	248.03
Total 1154	\$ 1,728.13	\$ 227.55	\$ 1,660.00	\$ 241.25	\$ 3,856.93	\$ 1,634.08
Average per Beekeeper	\$ 288.02	\$ 37.92	\$ 276.67	\$ 40.21	\$ 642.82	\$ 272.35

APPENDIX 11

DEPRECIATION AND INTEREST ON INVESTMENT

(1956 - colony numbers)

GROUP II

Beekeeper and number of Colonies	Hive Equipment 10%	Wax, Honey Shop Equipment 10%	Motor Equipment 10%	Buildings 5%	Total Depreciation	Interest on Investment 5%
G - 350	\$453.32	\$63.00	\$140.00	\$70.00	\$726.62	\$363.31
H - 460	535.87	49.00	400.00	150.00	1134.87	542.43
I - 350	357.86	44.00	520.00	42.50	964.36	373.43
J - 550	526.25	57.50	320.00	122.50	1026.25	494.37
K - 575	827.80	106.00	360.00	225.00	1518.80	781.90
L - 460	544.75	25.80	540.00	50.00	1160.55	470.27
Total 2745	\$ 3,245.85	\$ 345.30	\$ 2,280.00	\$ 660.00	\$ 6,531.45	\$ 3,035.71
Average per Beekeeper	\$ 540.97	\$ 57.55	\$ 380.00	\$ 110.00	\$ 1088.57	\$ 505.95

APPENDIX 12

DEPRECIATION AND INTEREST ON INVESTMENT

(1956 - colony numbers)

GROUP III

Beekeeper and number of Colonies	Hive Equipment 10%	Wax, Honey Shop Equipment 10%	Motor Equipment 10%	Buildings 5%	Total Depreciation	Interest on Investment 5%
M - 750	\$ 1084.78	\$ 168.20	\$ 1140.00	\$ 125.00	\$ 2517.98	\$ 1036.44
N - 883	1924.67	110.00	400.00	167.50	2603.17	1285.33
O - 750	999.00	100.50	320.00	125.00	1544.50	754.75
P - 937	1359.45	116.00	860.00	140.00	2475.45	1092.72
Q - 700	1234.81	125.40	560.00	100.00	2020.21	920.10
R - 810	1587.20	143.00	380.00	150.00	2260.20	1110.10
Total 4830	\$ 8,189.91	\$ 764.10	\$ 3,660.00	\$ 897.50	\$ 13,421.51	\$ 6,199.49
Average per Beekeeper	\$ 1364.98	\$ 127.35	\$ 610.00	\$ 134.58	\$ 2236.91	\$ 1016.58

APPENDIX 13

PRODUCTION AND VALUE OF BEESWAX AND HONEY

(1956 - colony numbers)

GROUP I

Beekeeper	Honey lbs.	Value 15¢ per lb.	Beeswax lbs.	Value 55¢ per lb.	Total Value
A - 125	36,000	\$ 5400.00	540	\$ 297.00	\$ 5697.00
B - 250	38,000	5700.00	570	313.50	6013.50
C - 235	42,600	6390.00	639	351.45	6741.45
D - 169	24,000	3600.00	360	198.00	3796.00
E - 75	12,000	1800.00	180	99.00	1899.00
F - 300	45,000	6750.00	675	371.25	7121.25
Total 1154	197,600	\$ 29,640.00	2,964	\$ 1,630.20	\$ 31,270.20
Average per Beekeeper	32,933	\$ 4940.00	494	\$ 271.70	\$ 5211.70
Average per Colony	171.23	\$ 25.68	2.56	\$ 1.41	\$ 27.10

APPENDIX 14

PRODUCTION AND VALUE OF BEESWAX AND HONEY

(1956 - colony numbers)

GROUP II

Beekeeper	Honey lbs.	Value 15¢ per lb.	Beeswax lbs.	Value 55¢ per lb.	Total Value
G - 350	72,000	\$10,800.00	1080	\$ 594.00	\$11,394.00
H - 460	80,000	12,000.00	1200	660.00	12,660.00
I - 350	61,500	9,225.00	922.5	507.10	9,732.10
J - 550	35,300	5,295.00	529.5	290.95	5,585.95
K - 575	85,000	12,750.00	1275	701.25	13,451.25
L - 460	60,000	9,000.00	900	495.00	9,495.00
Total 2745	393,800	\$59,070.00	5907	\$3,248.30	\$62,318.30
Average per Beekeeper	656.33	\$9,845.00	984.5	\$541.38	\$10,386.38
Average per Colony	143.5	\$21.51	2.15	\$1.18	\$22.67

APPENDIX 15

PRODUCTION AND VALUE OF BEESWAX AND HONEY

(1956 - colony numbers)

GROUP III

Beekeeper	Honey lbs.	Value 15¢ per lb.	Beeswax lbs.	Value 55¢ per lb.	Total Value
M - 750	100,000	\$ 15,000.00	1500	\$ 825.00	\$ 15,825.00
N - 883	160,000	24,000.00	2400	1320.00	25,320.00
O - 750	91,000	13,650.00	1365	750.75	14,400.75
P - 937	140,000	21,000.00	2100	1155.00	22,155.00
Q - 700	98,200	14,730.00	1473	810.15	15,540.15
R - 810	105,000	15,750.00	1575	866.25	16,616.25
Total 4830	694,200	\$ 104,130.00	10,413	\$ 5727.15	\$ 109,857.15
Average per Beekeeper	115,700	\$ 17,355.00	1735.5	\$ 954.52	\$ 18,309.52
Average per Colony	143.73	\$ 21.56	2.15	\$ 1.18	\$ 22.76

APPENDIX 16

LABOR HOURS

(1956 - colony production)

GROUP A

Beekeeper	Operating Hours	Hired Hours	Family Hours	Total Hours
D - 169	655	-	345	1000
K - 575	-	-	-	-
L - 460	1941	40	146	2127
M - 750	2071	-	-	2071
O - 750	1200	-	-	1200
P - 937	1600	3402	80	5082
Q - 700	1552	516	200	2268
R - 810	1192	750	60	2002

Total 5151 10,211¹ 4,708² 831³ 15,750¹

Average per Beekeeper 1458.71¹ 1177² 186.20³ 2250¹

Average per Colony 2.23⁴ 1.62⁵ 0.27⁶ 3.44⁴

1 7 Beekeeper 2 4 Beekeeper 3 5 Beekeeper
 4 4576 Colonies 5 2907 Colonies 6 3076 Colonies

APPENDIX 17

LABOR HOURS

(1956 - colony production)

GROUP B

Beekeeper	Operating Hours	Hired Hours	Family Hours	Total Hours
B - 250	976	-	-	976
C - 235	1057	337	-	1394
E - 75	1088	-	-	1088
F - 300	780	234	303	1317
G - 350	1450	792	-	2242
H - 460	1714	1400	45	3159
I - 350	-	-	-	-
N - 883	1967	2740	252	4959
Total 2903	9032 ¹	5503 ²	600 ³	15,135 ¹
Average per Beekeeper	1270.28 ¹	548 ²	200 ³	2,162.14 ¹
Average per Colony	3.53 ⁴	2.47 ⁵	0.36 ⁶	5.92 ⁴

¹ 7 Beekeepers
⁴ 2553 Colonies
² 5 Beekeepers
⁵ 2228 Colonies
³ 3 Beekeepers
⁶ 1643 Colonies

APPENDIX 18

SUMMARY TABLE OF CAPITAL INVESTMENT AND EXPENSES

(1956 - colony production)

GROUP A

Beekeeper	Capital Investment		Interest on Investment		Expenses	Labor Values	
	Investment	Depreciation	Investment	Expenses		Operator	Family
D - 169	\$ 3,712.50	\$ 493.75	\$ 185.62	\$ 1,067.44	\$ 982.50	\$ 345.00	-
K - 575	15,638.00	773.78	781.90	4,315.20	-	-	\$ 800.00
L - 460	9,405.53	1,160.55	470.27	3,955.57	2,911.00	755.00	30.00
M - 750	20,729.80	2,417.98	1,036.49	3,943.47	3,106.50	-	750.00
O - 750	15,095.00	1,544.50	754.75	4,954.84	1,800.00	-	-
P - 937	21,854.55	2,475.45	1,092.72	7,999.07	2,400.00	110.00	3,227.00
Q - 700	18,402.11	2,020.21	920.10	4,092.61	2,328.00	150.00	741.60
R - 810	22,202.00	2,260.20	1,110.10	4,891.60	1,788.00	45.00	825.00
Total 5151	\$ 127,039.49	\$ 13,146.42	\$ 6,351.95	\$ 35,219.85	\$ 15,316.00 ¹	\$ 1,405.00 ²	\$ 6,373.60 ³
Average per Beekeeper	\$ 15,879.93	\$ 1,643.30	\$ 793.99	\$ 4,401.23	\$ 2,187.43 ¹	\$ 281.00 ²	\$ 1,062.26 ³
Average per Colony	\$ 24.66	\$ 2.55	\$ 1.23	\$ 6.84	\$ 3.35	\$ 0.45	\$ 1.50

1	7	Beekeepers	2	5	Beekeepers	3	6	Beekeepers
4	4576	Colonies	5	3076	Colonies	6	4232	Colonies

APPENDIX 19

SUMMARY TABLE OF CAPITAL INVESTMENT AND EXPENSES

(1956 - colony production)

GROUP B

Beekeeper	Capital Investment			Interest on Investment			Expenses			Labor Values		
	Investment	Depreciation	Expenses	Investment	Expenses	Operator	Family	Hired				
B - 250	\$ 6,908.77	\$ 815.88	\$ 345.44	\$ 1,740.66		\$ 1,464.00	-	\$ 155.00				
C - 235	9,896.40	1,134.64	494.82	1,965.21		1,585.50	-	337.00				
E - 75	4,055.00	476.75	202.75	900.00		1,632.00	-	-				
F - 300	4,960.60	591.06	248.03	1,980.40		1,170.00	\$ 392.25	97.45				
G - 350	7,266.25	726.62	363.31	2,233.66		2,175.00	-	580.05				
H - 460	10,848.75	1,134.87	542.43	5,964.04		2,571.00	438.75	1,313.75				
I - 350	7,468.63	964.36	373.43	2,851.70		-	-	-				
N - 883	25,706.68	2,603.17	1,285.33	7,163.24		2,950.50	252.00	2,735.00				
Total 2903	\$ 77,111.08	\$ 8,447.35	\$ 3,855.54	\$ 25,798.91		\$ 13,548.00	\$ 1,083.00	\$ 5,218.25				
Average per Beekeeper	\$ 9,638.88	\$ 1,055.92	\$ 481.94	\$ 3,224.86		\$ 1,935.43	\$ 361.00	\$ 869.71				
Average per Colony	\$ 26.56	\$ 2.91	\$ 1.33	\$ 8.88		\$ 5.30	\$ 0.66	\$ 2.10				
	1 7 Beekeepers	2 3 Beekeepers	3 6 Beekeepers									
	4 2553 Colonies	5 1643 Colonies	6 2478 Colonies									

APPENDIX 20

EXPENSES

(1956 - colony production)

GROUP A

Beekeeper	Bees and Queens		Transport Bees and Queens		Truck		Equipment Repairs and Maintenance		Taxes, Insurance, Power, and Telephone		Fuel, Feed, Drugs		Honey Containers		Total
	Queens		Queens												
D - 169	\$ 545.00		\$ 203.24		\$ 98.35				\$ 126.66			\$ 67.49		\$ 26.75	\$ 1067.49
K - 575	1884.75		303.87		802.03		\$ 675.24		309.85			82.81		256.65	4315.20
L - 460	1730.13		196.53		543.24		280.88		357.47			786.63		60.69	3955.57
M - 750	2380.00		420.00		721.55		52.61		217.70			63.11		88.50	3943.47
O - 750	2838.18		316.35		397.00		245.00		322.50			85.90		749.91	4954.84
P - 937	5926.00		399.76		727.39		-		465.92			480.00		-	7999.07
Q - 700	2275.00		336.00		902.61		-		-			-		579.00	4092.61
R - 810	2499.30		578.40		752.75		412.54		497.86			150.75		-	4891.60
Total 5151	\$ 20,078.36		\$ 2,754.15		\$ 4,944.92		\$ 1,666.27	1	\$ 2,297.96	2	\$ 1,716.60	2	\$ 1,761.50	3	\$ 35,219.85
Average per Beekeeper	\$ 2509.79		\$ 344.27		\$ 618.11		\$ 333.25	1	\$ 328.28	2	\$ 245.23	2	\$ 293.58	2	\$ 4402.48
Average per Colony	\$ 3.82		\$ 0.53		\$ 0.96		\$ 0.71		\$ 0.51		\$ 0.38		\$ 0.51		\$ 6.84

1 5 Beekeepers
4 3345 Colonies

2 7 Beekeepers
5 4451 Colonies

3 6 Beekeepers
6 3404 Colonies

APPENDIX 21

EXPENSES

(1956 - colony production)

GROUP B

Beekeeper	Bees and Queens		Transport Bees and Queens		Truck		Maintenance Registration		Equipment and Telephone, Repairs		Taxes, Insurance, Fuel, Feed, Honey Containers		Total
		Queens		Queens				Registration					
B - 250	\$ 836.95	\$ 390.16	\$ 311.80	\$ 41.50	\$ 128.60	\$ 31.65							\$ 1740.66
C - 235	1016.30	284.40	104.50	36.39	229.74	120.85						173.03	1965.21
E - 75	293.75	79.50	88.05	5.60	141.00	64.10						228.00	900.00
F - 300	1111.50	311.16	332.70	-	103.60	19.99						101.45	1980.40
G - 350	1290.50	349.50	247.10	139.95	131.50	82.90						922.56	3234.01
H - 460	1729.28	460.00	1051.39	399.70	419.32	150.64						1753.71	5964.04
I - 350	1363.35	200.00	586.87	64.80	223.29	385.34						28.05	2851.70
N - 883	3397.20	754.75	560.00	359.01	644.00	1040.68						407.60	7163.24
Total 2903	\$ 11,038.83	\$ 2,829.47	\$ 3,282.41	\$ 1,046.95	\$ 2,021.05	\$ 1,896.15						\$ 3,684.40	\$ 25,799.26
Average per Beekeeper	\$ 1379.85	\$ 353.66	\$ 410.30	\$ 149.56	\$ 252.63	\$ 237.02						\$ 526.34	\$ 3224.91
Average per Colony	\$ 3.79	\$ 0.97	\$ 1.13	\$ 0.40 ²	\$ 0.68	\$ 0.68						\$ 1.41	\$ 8.81

1 7 Beekeepers 2 2603 Colonies 3 2653 Colonies

APPENDIX 22

PRODUCTION AND VALUE OF HONEY AND BEESWAX

(1956 - colony production)

GROUP A

Beekeeper	Honey lbs.	Value of Honey 15¢ per lb.	Beeswax lbs.	Value of Beeswax 55¢ per lb.	Total Value Honey and Beeswax
D - 169	24,000	\$3,600.00	360	\$198.00	\$3,798.00
K - 575	85,000	12,750.00	1,275	701.25	13,451.25
L - 460	60,000	9,000.00	900	495.00	9,495.00
M - 750	100,000	15,000.00	1,500	825.00	15,825.00
O - 750	91,000	13,650.00	1,365	750.75	14,400.75
P - 937	140,000	21,000.00	2,100	1,155.00	22,155.00
Q - 700	98,200	14,730.00	1,473	310.15	15,040.15
R - 810	105,000	15,750.00	1,575	866.25	16,616.25
Total 5151	703,200	\$105,480.00	10,548	\$5,301.40	\$110,781.40
Average per Beekeeper	87,900	\$13,185.00	1,316.5	\$662.67	\$13,847.67
Average per Colony	136.51	\$20.47	2.04	\$1.03	\$21.50

APPENDIX 23

PRODUCTION AND VALUE OF HONEY AND BEESWAX

(1956 - colony production)

GROUP B

Beekeeper	Honey lbs.	Value of Honey 15¢ per lb.	Beeswax lbs.	Value of Beeswax 55¢ per lb.	Total Value Honey and Beeswax
B - 250	38,000	\$5,700.00	570	\$313.50	\$6,013.50
C - 235	42,600	6,390.00	639	351.45	6,741.45
E - 75	12,000	1,800.00	180	99.00	1,899.00
F - 300	45,000	6,750.00	675	371.25	7,121.25
G - 350	72,000	10,800.00	1,080	594.00	11,394.00
H - 460	80,000	12,000.00	1,200	660.00	12,660.00
I - 350	61,500	9,225.00	922	507.10	9,732.10
N - 883	160,000	24,000.00	2,400	1,320.00	25,320.00
Total 2903	511,100	\$76,665.00	7,666	\$4,216.30	\$80,881.30
Average per Beekeeper	63,887.50	\$9,583.12	956.25	\$527.04	\$10,110.16
Average per Colony	176.02	\$26.41	2.64	\$1.45	\$27.86

APPENDIX 24

MANITOBA CO-OPERATIVE HONEY PRODUCERS LIMITED

APPROXIMATE HONEY POOL RECEIPTS AND PAYMENTS 1947 - 1958

Crop	Extra White	White	Golden	Light Amber	Light & Dark Amber & Dark	Dark Amber and Dark	Total Pounds
1947	\$0.21½	\$0.21	\$0.20½	-	\$0.20	-	1,751.827
1948	0.09¼	0.08¾	0.08¾	0.07¾	-	0.06¾	2,329.231
1949	0.08¾	0.08¾	0.07¾	0.07¾	-	0.06¾	1,678.078
1950	0.10	0.09½	0.09	0.08½	-	0.08	1,578.360
1951	0.10½	0.10	0.09½	0.09	-	0.08	1,679.189
1952	0.12	0.11½	0.11	0.10½	-	0.10	1,191.761
1953	0.14	0.13½	0.13	-	0.12	-	1,975.287
	905,162 lbs	784,240 lbs	64,982 lbs		216,673 lbs		
1954	0.16	0.15½	0.16	-	0.15	-	1,832.362
	975,512	634,008	82,004		140,838		
1955	0.17	0.16½	0.16	-	0.15	-	3,153.301
	1,489,187	818,889	212,450		632,775		
1956	0.16½	0.16	0.15	-	0.12	-	3,580.152
	1,306,436	1,158,436	350,617		764,476		
1957	0.15½	0.15	0.13	-	0.11	-	3,658.538
	2,264,169	949,096	98,135		347,138		
1958	-	-	0.11	-	0.10	-	3,310.614
	2,225,005	740,085	81,788		263,736		

Basis No. 1 Honey

No. 2 Honey ¼¢ less than No. 1

No. 3 Honey ½¢ less than No. 1

APPENDIX 25

1958 CROP YEAR

COST OF PRODUCTION SURVEY IN SASKATCHEWAN

Number of Beekeepers co-operating.....8
 Number of Colonies involved.....,5,645
 Size of outfits.....1950 to 1,300 colonies
 Total honey production.....922,468 pounds
 Average yield per colony......164 pounds

<u>CURRENT EXPENSES</u>	<u>Cost of Operating 5,645 Colonies</u>	<u>Cost Per Hive</u>	<u>Cost Per Pound</u>
Bees and Queens (including express)	\$25,344. 00	\$4.49	\$2.75
Sugar and Drugs	6,621. 00	1.17	.72
Labor (hired only) (no charge for operator and family)	10,516. 00	1.86	1.14
Vehicle Expense	6,867. 00	1.22	.75
Taxes and Insurance	1,199. 00	.41	.13
Repairs, Equipment and Buildings	3,009. 00	.53	.32
Fuel and Electricity	860. 00	.15	.09
Miscellaneous Expenses	2,996. 00	.53	.32
* TOTALS	\$57,412. 00	\$10.36	\$6.22

(Continued)

(Continued)

<u>DEPRECIATION</u>	<u>Cost of Operating 5,645 Colonies</u>	<u>Cost Per Hive</u>	<u>Cost Per Pound</u>
Vehicle Depreciation	\$5,815. 00	\$1.03	0.63
Building Depreciation	2,305. 00	.41	.25
Equipment Depreciation (including bulk containers)	5,160. 00	.91	.56
* TOTALS	<u>\$13,280. 00</u>	<u>\$2.35</u>	<u>\$1.44</u>
 <u>INTEREST CHARGES</u>			
Interest on Capital Investment	\$8,102. 00	\$1.44	.88
Interest on Borrowed Operating Capital	654. 00	.12	.08
*TOTALS	<u>\$8,756. 00</u>	<u>\$1.56</u>	<u>0.96</u>
* CURRENT EXPENSES.....	\$57,412. 00	\$10.36	\$6.22
* DEPRECIATION.....	13,280. 00	2.35	1.44
* INTEREST CHARGES.....	8,756. 00	1.56	.96
* TOTALS	<u>\$79,448. 00</u>	<u>\$14.27</u>	<u>\$8.62</u>

Cost of producing lb. of honey.....\$8. 62

Cost of operating 1 hive.....\$14. 27

APPENDIX 26

INCOME TAX SCHEDULE

The following is the approved schedule. Beekeepers are assured that if they make out their tax on this basis that it will pass with the minimum of delay.

Beekeepers are perfectly free to make out their income tax in any other way but they may have more explanations to make and experience more delay than if the approved schedule is used.

1. Income items will include:

- (a) Revenue from sales of honey.
- (b) Revenue from sales of wax.
- (c) Revenue from sales of colonies of bees.
- (d) Value of produce consumed or given away.
- (e) Beekeepers' co-operative patronage dividends.
- (f) Beekeepers' co-operative payments for honey or wax.

2. Expenses will include:

- (a) Cost of package bees (including one queen).
- (b) Cost of quees used for replacements.
- (c) Cost of foundation.
- (d) Cost of small tools (itemize if over \$25.00).
- (e) Cost of paint.
- (f) Truck expenses.
- (g) Rent on apiary locations, etc.
- (h) Wages of labor employed.
- (i) 10% depreciation on all bee equipment:

All equipment to be listed with date of purchase;

10% depreciation on engines, motors, extractors, etc;

20% depreciation on trucks;

5% depreciation on frame buildings;

(j) Cost of honey containers.

(k) Cost of sugar.

Explanation:

1. Hive:

(a) One bottom board.

(b) One hive cover.

(c) 5 supers normally.

(d) 50 drawn combs or frames of foundation.

(e) The bees and queen.

The hive with the exception of the bees and foundation, is considered as capital and depreciation will be allowed at 10% of cost per annum for a period of 10 years.

Beekeepers who employ help to manufacture their own supers, frames, etc, may charge labor costs as an expense. Depreciation on equipment so manufactured can only be charged on the cost of the lumber, hardware and paint etc, used.

2. Bees:

The cost of package bees and queens is an expense deductible in the year of purchase.

3. Foundation:

The cost of foundation is an expense deductible in full the year of purchase. Revenue from the sale of drawn comb should be reported as income.

4. Beeswax:

Revenue from the sale of wax secured from cappings, trimmings and damaged or old comb is income.

5. Purchase of Colonies:

In the case of the purchase of a colony (e.g. a complete hive with bees) the following division should be made:

(a) The cost of the bees, the drawn combs or foundation is an expense.

(b) The cost of the floor board, supers, lid and frame is a capital expense.

Depreciation may only be claimed on the capital expense portion.

6. American Foulbrood:

Hives, Frames, drawn comb bees and honey destroyed due to American foulbrood constitute a capital loss and no deduction from income tax may be claimed on this account. No depreciation may be claimed on any equipment after it has been destroyed.

Supers, covers and floor boards which are salvaged after singeing off may be deemed to have depreciated 50%.

7. Sale of Hives:

The sale of hives without bees is a recovery of capital. Revenue from sale of drawn comb, bees and honey is revenue.

When an occasional hive is sold it will be deemed to be 50% depreciated.

When a whole apiary or a large portion of it is sold, the depreciation must be accounted for in the regular way.

8. Hobby and Commercial Producers:

Less than 10 hives will be deemed to be a hobby.

The Income Tax Branch will not relieve hobby beekeepers of income tax. However, in practice they may not try to collect it.

9. Paint:

Cost of paint is an expense. Hives will be deemed to require painting one in ten years.

10. Insurance and Rentals:

Fire Insurance premiums and yard rentals are an expense.

11. The above is a basis for agreement applying to future income tax returns only.