

BEE INDUSTRY

ECONOMIC ANALYSIS

FOR CALIFORNIA

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PRINTED APRIL 1976

LEAFLET
2345

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AN ECONOMIC ANALYSIS OF THE CALIFORNIA BEE INDUSTRY

There were 5,580 registered apiaries in California in 1969. State law requires that all colonies of bees be registered as a means of controlling disease so these apiaries could vary from the hobbyist who has one colony to commercial operations having several thousand colonies. Registered colonies average 63 per apiary but Mariposa County recorded only one apiary with one colony. Imperial County had the largest number of apiaries registered but had only 23,300 colonies registered as opposed to San Diego and Fresno Counties which had nearly 29,000 colonies registered per county. Although most counties have some apiaries registered, the bulk of the bees are located in the San Joaquin - Sacramento Valley area and in Southern California.

The U.S. Department of Agriculture has reported between 500,000 and 565,000 producing hives in California each year over the past ten years. These hives have produced between \$2.2 million and \$10.7 million of income each year in honey and beeswax. This income does not include the contribution which bees have made to the pollination of the various fruit, seed and vegetable crops in California which are dependent on bees as a pollinating agency in order to maintain satisfactory yields. Honey production in California has varied from 16 to 46 million pounds during the last ten years and beeswax from 300,000 to nearly 900,000 pounds.

The bee industry is difficult to analyze not only because of the tremendous variation in size between operations but also the geographical distribution from Northern to Southern California. Most beekeepers will have income from honey, beeswax, bee sales, and pollination services but the relative importance of the various sources of income vary from those beekeepers in the northern part of the Sacramento Valley who are primarily packaged bee producers and whose main source of income is from that service through those in the San Joaquin Valley whose primary income is from pollination on to Southern California where most of the operators have honey as their primary income. The type of bee pasture being utilized will vary not only from one part of the state to the other but also between growers in a particular area. Trying to develop standards of income and expense which will fit such a wide diversity of operations presents many problems. Many beekeepers also have a combination production and marketing organization so that they may be buying bees for resale or will be processing honey for other producers.

NUMBER OF BEES, HONEY PRODUCTION, AND BEESWAX PRODUCTION
IN CALIFORNIA 1950-1975

Year	Number hives	Honey				Beeswax		
		Pounds per hive	Total pounds produced	Average price per lb.	Total value	Pounds produced	Price per pound	Total value
	000		000	cents	000	000	cents	000
1950	451	50	22,550	11.1	2,503	451	43	194
1951	487	58	28,246	11.5	3,248	480	51	245
1952	521	94	48,974	12.5	6,122	784	41	322
1953	537	44	23,628	12.6	2,977	402	40	161
1954	537	63	33,831	12.5	4,229	643	44	283
1955	537	56	30,072	13.4	4,030	601	52	313
1956	548	53	29,044	14.5	4,211	610	56	342
1957	559	40	22,360	13.8	3,086	447	57	255
1958	559	80	44,720	12.8	5,724	984	44	433
1959	570	25	14,250	11.2	1,596	299	44	132
1960	553	44	24,332	12.5	3,042	511	43	220
1961	553	36	19,908	12.1	2,409	458	45	206
1962	547	68	37,196	12.7	4,724	930	43	400
1963	553	47	25,991	14.3	3,717	520	41	213
1964	553	45	24,885	14.5	3,608	498	42	209
1965	553	62	34,286	13.4	4,594	617	46	284
1966	559	38	21,242	13.4	2,846	446	48	214
1967	559	54	30,186	11.3	3,411	694	63	437
1968	565	29	16,385	12.8	2,097	295	67	198
1969	559	83	46,397	13.4	6,217	882	62	547
1970	559	28	15,600	14.2	2,210	358	62	215
1971	511	39	19,929	18.1	3,607	399	61	243
1972	500	49	24,500	27.3	6,688	485	63	306
1973	500	62	31,000	43.0	13,330	558	74	413
1974	500	47	23,500	43.9	10,317	376	1.16	436
1975	500	49	24,500	41.9	10,266	441	1.04	459

Source: California Crop and Livestock Reporting Service, Bees and Honey, Annual Summaries, 1950-1975.

ECONOMIC FACTORS

Income

Beekeepers have three sources of income--honey and wax, bee sales, and pollination. The relative importance of these items as income producers to the individual beekeeper depends on his particular method of operation. Beekeepers tend to concentrate on one of the three sources of income and the other two items are secondary.

Honey production per hive will vary from practically nothing to as much as 120 pounds per year. Average production over the 1965-75 period has varied from 28 to 83 pounds per hive with an average of 49 pounds. For this analysis, we have assumed 100 pounds per hive for the honey producer, 25 pounds for the pollinator, and 20 pounds for the operator selling primarily packaged bees. These levels of production are in line with the incomes from honey reported by beekeepers.

Honey prices were relatively steady through 1970 with the annual averages varying from 11.3 to 14.5 cents per pound. Prices nearly tripled from 1970 to 1974, reaching an average of 43.9 cents per pound in 1974. Prices were down to about 35 cents per pound in 1975 and are likely to drop further because honey prices are closely correlated with sugar prices. The average price for the period 1965-1974 has been 21.1 cents. There is considerable variation at any given time between the prices of honey of various grades. The prices in 1975, for example, varied from 35 to 45 cents per pound. We have calculated the honey income on the basis of 25 cents per pound.

Beeswax is a minor income item to the beekeeper and in many cases is merely traded for supplies or services instead of being sold as a cash sale. Wax production averages about 2 percent of the honey production but each hive produces one pound of wax per year. Prices have varied from 46 cents to \$1.16 per pound over the 1965-1974 period with an average of 66.2 cents. Prices have been above 60 cents during the past eight years. We have used \$1.00 in this analysis.

Sales of bees by bee men range from an occasional local sale to those whose primary business is raising bees and queens for sale as replenishment stock to beekeepers who do not maintain their hives over the winter and to those wishing to increase their number of hives. Queens and bees are sold in numerous combinations. For this analysis of bee operations primarily engaged in bee sales we have assumed eight pounds of bees per hive and one queen per two pounds of bees. Prices used were \$3.50 per pound for bees and \$7.00 each for queens.

The providing of pollination service to the seed, fruit, vegetable, and other agricultural producers is the primary income source to many beekeepers. The charges vary by crop, region, time of year, and the bargaining power of the parties concerned. The Federal State Market News Service reports the following pollination charges for 1973-75:

Crop	Sacramento Valley		San Joaquin Valley		Other Areas	
	1973-74	1974-75	1973-74	1974-75	1973-74	1974-75
	Dollars per colony					
Almonds	4.00-6.00 mostly 5.00-6.00	6.00-10.00 mostly 6.00-8.00	7.00-15.00 mostly 9.00-10.00	8.00-14.00 mostly 10.00-12.00	5.00-6.00	5.00-6.00
Cherries	--	--	4.00-9.50	6.50-12.00	--	--
Other fruits (apples, pears, prunes, plums, peaches)	4.00-6.00 mostly 6.00	6.00-6.75	7.00-10.00 mostly 7.00-7.50	5.00-10.00 mostly 7.50-8.50	3.50	10.00
Melons (cantaloupes, watermelons, squash, cucumbers)	--	--	6.00-7.00	6.00-8.00	6.00-8.00 mostly 6.00	--
Alfalfa seed	4.00	6.00-10.00	6.50-7.50 mostly 6.00-7.00	8.00-10.00 mostly 8.50-9.00	--	--
Clover seed	4.00-5.00	6.00	4.00	4.00-6.00	--	--

Source: Federal State Market News Service, Marketing California Honey and Beeswax.

For this analysis we have used an average of \$10.70 per hive as pollination income for those beekeepers who are primarily providing pollination service, but have included budgets with pollination incomes of \$8.50, \$10.50, \$12.50 and \$14.50 per hive.

Investment

Most beekeepers own a minimum acreage of land where they can maintain their headquarters and establish a warehouse. The warehouse will provide storage space as needed, a shop area for repair work, and facilities for processing honey. The facilities at the headquarters area and the equipment owned by the operator will vary considerably among beekeepers.

For this analysis with a 1,000 hive operation, we have assumed two acres of owned land, 2,400 sq. ft. of warehouse with a well and pump, one pickup and one truck, 1,000 hives with all the components, and a representative complement of warehouse and extracting equipment.

We have also analyzed 2,000 and 3,000 hive pollination operations and have increased the inventory of space and equipment to accommodate the larger operation.

The inventory of facilities and equipment is valued at current prices. Hives are a difficult item to value because of the varied methods by which growers acquire such hives. A majority are purchased secondhand from other growers who are going out of business. In many cases the grower builds his own hives. Basically, we have used the cost of building hives as the investment.

The investment costs for a 1,000 hive operation are summarized as follows:

	<u>Per Hive</u>
Land	\$ 3.00
Warehouse	7.20
Well & pump	2.00
Pickup & truck	12.50
Hives	29.80
Bees	14.00
Warehouse equipment	5.00
Extraction equipment	<u>6.00</u>
Total investment	\$79.50

This investment is calculated for a 1,000 hive operation. The number of hives could be increased materially without increasing the total investment except for hives and bees. Therefore, it would be possible to cut the investment cost per hive substantially by increasing the number of hives.

We have used the same investment for the three types of beekeepers--honey producers, bee sales, and pollination because the sources of information

available provided no sound basis for differentiating the inventory. The package bee men and the pollinators would probably not require as much extraction equipment as the honey producer but they would need more of other items. The investment per hive would be substantially the same.

Expenses

The expenses used in this analysis are defined as the economic costs--a charge is made for all inputs to production whether it is a direct cost to the operator or not. Charges are made for the following factors going into the bee industry:

Cash costs--labor, feed, replacement bees, supplies, repairs, automotive expense, utilities, insurance, taxes, rent and miscellaneous. Interest on operating capital at 10 percent for six months is included as a cash cost.

Family labor--included in the total labor as a cash cost.

Management--5 percent of the gross income.

Depreciation--based on new costs and useful years of life.

Interest on investment--8 percent of the average value--cost or half of new cost in case of depreciable items.

Individual growers may have cash cost items not included above but these are representative of conditions over a period of years.

Family labor is not a cash cost to the grower but is included in cash expenses because of the difficulty of trying to divide the labor cost between hired and family and be representative of the industry.

Operators normally consider management and interest on investment as income but we have included them under expenses following our principle of economic costs.

Depreciation is a cash cost in the long run but is a fixed cost for any one year. Our depreciation cost is higher than that shown by most beekeepers because we have used new costs for our investment. This is a legitimate procedure because it is the situation facing producers who must replace their equipment.

INVESTMENT FOR 1,000 COLONIES

	Quantity	Price	Value		Depre- ciation	Inter- est 8%
			Total	Per hive		
Land	2 acres	\$1,500	\$ 3,000	\$ 3.00		\$ 240
Warehouse, 2,400 sq. ft.		3.00	7,200	7.20	360	288
Well and pump			2,000	2.00	100	80
Automotive:						
Pick-up 1/2 ton	1		5,000			
Truck 1-1/2 ton	1		<u>7,500</u>			
Total			12,500	12.50	1,562	500
Hives:						
Bodies	2,000	3.00	6,000	6.00	600	
Supers	3,000	3.00	9,000	9.00	900	
Frames	45,000	.20	9,000	9.00	1,800	
Lids and bottoms	2,400 ^{a/}	1.50	3,600	3.60	360	
Excluders	1,100 ^{b/}	2.00	<u>2,200</u>	<u>2.20</u>	<u>220</u>	
Total			29,800	29.80	3,880	1,192
Bees			14,000	14.00		1,120
Warehouse equipment:						
Clamp truck	1		100			
Barrel truck	1		100			
Power saw	1		500			
Welder	1		250			
Nucs	250		2,250			
Platform scales	1		300			
Power drill	1		100			
Power sander	1		100			
Paint sprayer	1		500			
Shaking equipment			200			
Pollen traps	50	6.00	300			
Staple gun			250			
Bee blower			250			
Miscellaneous			<u>300</u>			
Total			5,000	5.00	500	200
Extraction equipment:						
Extractor	1		1,500			
Pumps	1		100			
Motors	2		150			
Spinner and motor			300			
Uncapper			2,500			
Tank, 2,500 gal.			400			
Steam generator			150			
Burner and propane tank			150			
Capping melter			600			
Miscellaneous			<u>150</u>			
Total			6,000	6.00	600	240
TOTAL INVESTMENT			\$79,500	\$79.50	\$7,002	\$3,860

a/ 20% extra

b/ 10% extra

SUMMARY OF INCOME AND EXPENSES

for 1,000 Hive Operations

	Honey	Bee	Pollination
	producer	producer	
Dollars per hive			
<u>Income</u>			
Honey	30.00	6.00	7.50
Wax	1.00	1.00	1.00
Bees	2.10	28.00	2.80
Queens		28.00	
Pollination	3.55	4.60	10.70
TOTAL INCOME	36.65	67.60	22.00
<u>Expense</u>			
Labor	7.50	14.62	8.12
Social Security, etc.	.90	1.75	.97
Feed - sugar	.80	1.97	.40
- candy		.06	
Bees and queens	3.78		7.00
Supplies			
Packages		1.50	
Feeder cans		.20	
Lath		.10	
Smokers	.02	.02	.02
Veils	.04	.04	.04
Hive tools	.02	.02	.02
Honey tins	3.00	.60	.75
Queen cages		.20	
Drugs and fumigants	.20	.20	.20
Foundations	.45	1.12	1.12
Wax	.37	.38	.38
Repairs	.60	.60	.60
Gas, oil, truck repair	3.00	3.00	3.00
Render wax	.33	.33	.33
Utilities	.35	.35	.35
Insurance	.60	.60	.60
Taxes	.80	.80	.80
Location rent	.15	.15	.15
Miscellaneous	.90	.90	.90
Interest on operating capital	1.07	1.33	1.16
TOTAL CASH EXPENSE	24.88	30.84	26.91
Management 5% of gross income	1.83	3.38	1.10
Depreciation	7.00	7.00	7.00
Interest on investment @ 8%	3.86	3.86	3.86
TOTAL EXPENSE	37.57	45.08	38.87
NET INCOME	<.92>	22.52	<16.87>

INCOME AND EXPENSES FOR HONEY PRODUCTION

1,000 Hive Operation

	Quantity	Price	Total value	Per
			1,000 hives	hive
<u>Income</u>				
Honey	100,000 lb.	\$.30	\$30,000	\$30.00
Wax	1,000 lb.	1.00	1,000	1.00
Bees	600 lb.	3.50	2,100	2.10
Pollination	1,000 hives	3.55	3,550	3.55
TOTAL INCOME			36,650	36.65
<u>Expense</u>				
Labor	2,500 hrs.	3.00	7,500	7.50
Social Security, etc.		12%	900	.90
Feed - sugar	4,000 lb.	.20	800	.80
Queens and bees	270 packages ^{a/}	14.00	3,780	3.78
<u>Supplies</u>				
Smokers			15	.02
Veils			35	.04
Hive tools			15	.02
Honey tins	1,670	1.80	3,006	3.00
Drugs and fumigants			200	.20
Foundations	2,250	.50	450	.45
Wax	375 lb.	1.00	375	.37
Hive repair			600	.60
Gas, oil, truck repair			3,000	3.00
Render wax @ 1/3 of wax	333 lb.	1.00	333	.33
Utilities			350	.35
Insurance			600	.60
Taxes			795	.80
Location rent			150	.15
Miscellaneous			900	.90
Interest on operating capital	6 months @ 9%		1,071	1.07
TOTAL CASH COST			24,875	24.88
Management 5% of \$36,650			1,832	1.83
Depreciation			7,002	7.00
Interest on investment 8%			3,860	3.86
TOTAL EXPENSE			37,569	37.57
NET INCOME			<916>	<.92>

a/ Queen and 2 lbs. bees

INCOME AND EXPENSES FOR PACKAGED BEE OPERATION

1,000 Hive Operation

	Quantity	Price	Total value	Per hive
			1,000 hives	
<u>Income</u>				
Honey	20,000 lb.	\$.30	\$6,000	\$ 6.00
Wax	1,000 lb.	1.00	1,000	1.00
Bees	8,000 lb.	3.50	28,000	28.00
Queens	4,000	7.00	28,000	28.00
Pollination	1,000 hives	4.60	4,600	4.60
TOTAL INCOME			67,600	67.60
<u>Expenses</u>				
Labor	4,500	3.25	14,625	14.62
Social Security, etc.		12%	1,755	1.75
Feed - sugar	985 lb.	.20	1,970	1.97
- candy			60	.06
<u>Supplies</u>				
Packages			1,500	1.50
Feeder cans			200	.20
Lath			100	.10
Smokers			15	.02
Veils			35	.04
Hive tools			15	.02
Honey tins	335	1.80	603	.60
Queen cages			200	.20
Pig tail			6	
Drugs and fumigants			200	.20
Foundations	2,250	.50	1,125	1.12
Wax	375 lb.	1.00	375	.38
Hive repair			600	.60
Gas, oil, truck repair			3,000	3.00
Render wax @ 1/3 of wax	333	1.00	333	.33
Utilities			350	.35
Insurance			600	.60
Taxes			795	.80
Location rent			150	.15
Miscellaneous			900	.90
Interest on operating capital	6 months @ 9%		1,328	1.33
TOTAL CASH COST			30,840	30.84
Management 5% of 67,600			3,380	3.38
Depreciation			7,002	7.00
Interest on investment			3,860	3.86
TOTAL EXPENSE			45,082	45.08
NET INCOME			22,518	22.52

INCOME AND EXPENSE FOR POLLINATION SERVICE

1,000 Hive Operation

	Quantity	Price	Total value 1,000 hives	Per hive
<u>Income</u>				
Honey	25,000 lb.	\$.30	\$ 7,500	\$ 7.50
Wax	1,000 lb.	1.00	1,000	1.00
Bees	800	3.50	2,800	2.80
Pollination	1,000 hives	10.70 ^{a/}	10,700	10.70
TOTAL INCOME			22,000	22.00
<u>Expenses</u>				
Labor	2,500 hours	3.25	8,125	8.12
Social Security, etc.		12%	975	.97
Feed - sugar	2,000 lb.	.20	400	.40
Queens	1,000	7.00	7,000	7.00
Supplies				
Smokers	2		15	.02
Veils	10		35	.04
Hive tools	5		15	.02
Honey tins	420	1.80	756	.75
Drugs and fumigants			200	.20
Foundations	2,250	.50	1,125	1.12
Wax	375 lb.	1.00	375	.38
Hive repair			600	.60
Gas, oil, truck repairs			3,000	3.00
Render wax @ 1/3 of wax	333	1.00	333	.33
Utilities			350	.35
Insurance			600	.60
Taxes			795	.80
Location rent			150	.15
Miscellaneous			900	.90
Interest on operating capital	6 months @ 9%		1,159	1.16
TOTAL CASH COST			26,908	26.91
Management @ 5% of 22,000			1,100	1.10
Depreciation			7,002	7.00
Interest on investment @ 8%			3,860	3.86
TOTAL EXPENSE			38,870	38.87
NET INCOME			<16,870>	<16.87>

a/ Pollination income based on - almonds 75% of hives @ 7.00 5.25
alfalfa, etc. 90% of hives @ 6.00 5.40
miscellaneous .05
Total per hive 10.70

ANALYSIS OF POLLINATION SERVICE

Price

The foregoing analysis indicates that the beekeepers who are primarily providing pollination service are in a worse economic situation than are the honey and package bee producers. The following section analyzes the economics of providing pollination service at various incomes per hive and at three sizes of operation.

The estimated net incomes for a 1,000 hive operation at different incomes per hive are as follows:

<u>Pollination income per hive</u>	<u>Net income per 1,000 hives</u>
\$ 8.50	<\$18,960>
10.50	< 17,060>
12.50	<15,160>
14.50	<13,260>

These figures indicate that with pollination at \$14.50 per hive, the beekeeper would not be making an economic return on a 1,000 hive operation.

Size

After a beekeeper has acquired a basic component of equipment and facilities, he can usually expand the size of his operation without proportionate increases in investment. This reduces the fixed costs per hive for depreciation, interest, taxes, insurance, and other costs. This section analyzes the economics of 1,000, 2,000, and 3,000 hive operations supplying pollination services. The 1,000 hive investment figures were increased as necessary to provide the equipment and facilities necessary to operate the larger operations. Also the operating costs were increased where necessary. These operations were then analyzed at pollination incomes varying from \$8.50 to \$14.50 per hive. The results were as follows:

Net Income For Three Sizes of Operations
At Various Pollination Incomes Per Hive

Number of hives	Pollination income per hive			
	\$8.50	\$10.50	\$12.50	\$14.50
1,000	<\$18,960>	<\$17,060>	<\$15,160>	<\$13,260>
2,000	< 28,261>	< 24,461>	< 20,661>	< 16,861>
3,000	<37,766>	<32,066>	< 26,366>	<20,666>

These net income figures illustrate that the larger beekeeper has an economic advantage over the smaller operator and should be able to stay in business under conditions where the small operator will have to call it quits.

INCOME AND EXPENSE FOR POLLINATION SERVICE
AT VARIOUS INCOMES PER HIVE

For 1,000 Hive Operation

	Pollination income per hive			
	\$8.50	\$10.50	\$12.50	\$14.50
<u>Income</u>				
Honey	\$ 7,500	\$ 7,500	\$ 7,500	\$ 7,500
Wax	1,000	1,000	1,000	1,000
Bees	2,800	2,800	2,800	2,800
Pollination	8,500	10,500	12,500	14,500
TOTAL INCOME	19,800	21,800	23,800	25,800
<u>Expenses</u>				
Labor	8,125	8,125	8,125	8,125
Social Security, etc.	975	975	975	975
Feed - sugar	400	400	400	400
Queens	7,000	7,000	7,000	7,000
Supplies				
Smokers	15	15	15	15
Veils	35	35	35	35
Hive tools	15	15	15	15
Honey tins	756	756	756	756
Drugs and fumigants	200	200	200	200
Foundations	1,125	1,125	1,125	1,125
Wax	375	375	375	375
Hive repair	600	600	600	600
Gas, oil, truck repairs	3,000	3,000	3,000	3,000
Rendering wax	333	333	333	333
Utilities	350	350	350	350
Insurance	600	600	600	600
Taxes	795	795	795	795
Location rent	150	150	150	150
Miscellaneous	900	900	900	900
Interest on operating capital	1,159	1,159	1,159	1,159
TOTAL CASH COST	26,908	26,908	26,908	26,908
Management @ 5% of gross	990	1,090	1,190	1,290
Depreciation	7,002	7,002	7,002	7,002
Interest on investment @ 8%	3,860	3,860	3,860	3,860
TOTAL EXPENSE	38,760	38,860	38,960	39,060
NET INCOME	<18,960>	<17,060>	<15,160>	<13,260>

INVESTMENT FOR 1,000, 2,000, AND 3,000 HIVE OPERATIONS

	1,000 hives			2,000 hives			3,000 hives		
	Total value	Depre- ciation	Interest	Total value	Depre- ciation	Interest	Total value	Depre- ciation	Interest
Land	\$ 3,000	\$	\$ 240	\$ 3,000	\$	\$ 240	\$ 3,000	\$	\$ 240
Warehouse	7,200	360	288	12,000	600	480	14,400	720	576
Well & pump	2,000	100	80	2,000	100	80	2,000	100	80
Pickup	5,000			5,000			10,000		
Trucks	7,500	1,562	500	15,000	2,500	800	15,000	4,025	1,288
Forklift							7,200		
Hives	29,800	3,880	1,192	59,600	7,760	2,384	89,400	11,640	3,576
Bees	14,000		1,120	28,000		2,240	42,000		3,360
Warehouse & extracting equipment	11,000	1,100	440	16,800	1,680	672	24,300	2,430	972
Total	79,500	7,002	3,860	141,400	12,640	6,896	207,300	18,915	10,092
Per hive	79.50	7.00	3.86	70.70	6.32	3.45	69.10	6.31	3.36

INCOME AND EXPENSE FOR POLLINATION SERVICE
FOR 1,000, 2,000 AND 3,000 HIVE OPERATIONS

	1,000 hives		2,000 hives		3,000 hives	
	Total	Per hive	Total	Per hive	Total	Per hive
	Dollars					
<u>Income</u>						
Honey	7,500	7.50	15,000	7.50	22,500	7.50
Wax	1,000	1.00	2,000	1.00	3,000	1.00
Bees	2,800	2.80	5,600	2.80	8,400	2.80
Pollination @ \$10.70/hive	10,700	10.70	21,400	10.70	32,100	10.70
TOTAL INCOME	22,000	22.00	44,000	22.00	66,000	22.00
<u>Expense</u>						
Labor	8,125	8.12	12,185	6.09	15,845	5.28
Social Security, etc.	975	.97	1,462	.73	1,901	.63
Feed - sugar	400	.40	800	.40	1,200	.40
Queens	7,000	7.00	14,000	7.00	21,000	7.00
Supplies						
Smokers	15	.02	20	.01	25	.01
Veils	35	.04	50	.03	70	.02
Hive tools	15	.02	20	.01	25	.01
Honey tins	756	.75	1,512	.75	2,268	.76
Drugs & fumigants	200	.20	400	.20	600	.20
Foundations	1,125	1.12	2,250	1.13	3,375	1.13
Wax	375	.38	750	.38	1,125	.38
Hive repair	600	.60	1,200	.60	1,800	.60
Gas, oil, truck repairs	3,000	3.00	4,500	2.25	5,850	1.95
Render wax	333	.33	666	.33	1,000	.33
Utilities	350	.35	525	.26	700	.23
Insurance	600	.60	1,045	.52	1,475	.49
Taxes	795	.80	1,414	.70	2,073	.69
Location rent	150	.15	200	.10	250	.08
Miscellaneous	900	.90	1,350	.68	1,800	.60
Int. on operating capital	1,159	1.16	1,996	1.00	2,807	.94
TOTAL CASH COST	26,908	26.91	46,345	23.17	65,189	21.73
Management @ 5% of gross	1,100	1.10	2,200	1.10	3,300	1.10
Depreciation	7,002	7.00	12,640	6.32	18,915	6.31
Interest on investment	3,860	3.86	6,896	3.45	10,092	3.36
TOTAL EXPENSE	38,870	38.87	68,081	34.04	97,496	32.50
NET INCOME	<16,870>	<16.87>	<24,081>	<12.04>	<31,496>	<10.50>

INCOME AND EXPENSE FOR POLLINATION SERVICE
 AT VARIOUS INCOMES PER HIVE
 For 2,000 Hive Operation

	Pollination income per hive			
	\$8.50	\$10.50	\$12.50	\$14.50
	Dollars			
<u>Income</u>				
Honey	15,000	15,000	15,000	15,000
Wax	2,000	2,000	2,000	2,000
Bees	5,600	5,600	5,600	5,600
Pollination	17,000	21,000	25,000	29,000
TOTAL INCOME	39,600	43,600	47,600	51,600
<u>Expenses</u>				
Labor	12,185	12,185	12,185	12,815
Social Security, etc.	1,462	1,462	1,462	1,462
Feed - sugar	800	800	800	800
Queens	14,000	14,000	14,000	14,000
Supplies				
Smokers	20	20	20	20
Veils	50	50	50	50
Hive tools	20	20	20	20
Honey tins	1,512	1,512	1,512	1,512
Drugs and fumigants	400	400	400	400
Foundations	2,250	2,250	2,250	2,250
Wax	750	750	750	750
Hive repair	1,200	1,200	1,200	1,200
Gas, oil, truck repairs	4,500	4,500	4,500	4,500
Render wax	666	666	666	666
Utilities	525	525	525	525
Insurance	1,045	1,045	1,045	1,045
Taxes	1,414	1,414	1,414	1,414
Location rent	200	200	200	200
Miscellaneous	1,350	1,350	1,350	1,350
Interest on operating capital	1,996	1,996	1,996	1,996
TOTAL CASH COST	46,345	46,345	46,345	46,345
Management @ 5% of gross	1,980	2,180	2,380	2,580
Depreciation	12,640	12,640	12,640	12,640
Interest on investment	6,896	6,896	6,896	6,896
TOTAL EXPENSE	67,861	68,061	68,261	68,461
NET INCOME	<28,261>	<24,461>	<20,661>	<16,861>

INCOME AND EXPENSE FOR POLLINATION SERVICE
AT VARIOUS INCOMES PER HIVE

For 3,000 Hive Operation

	Pollination income per hive			
	\$8.50	\$10.50	\$12.50	\$14.50
	Dollars			
<u>Income</u>				
Honey	22,500	22,500	22,500	22,500
Wax	3,000	3,000	3,000	3,000
Bees	8,400	8,400	8,400	8,400
Pollination	25,500	31,500	37,500	43,500
TOTAL INCOME	59,400	65,400	71,400	77,400
<u>Expense</u>				
Labor	15,845	15,845	15,845	15,845
Social Security, etc.	1,901	1,901	1,901	1,901
Feed - sugar	1,200	1,200	1,200	1,200
Queens	21,000	21,000	21,000	21,000
Supplies				
Smokers	25	25	25	25
Veils	70	70	70	70
Hive tools	25	25	25	25
Honey tins	2,268	2,268	2,268	2,268
Drugs and fumigants	600	600	600	600
Foundations	3,375	3,375	3,375	3,375
Wax	1,125	1,125	1,125	1,125
Hive repair	1,800	1,800	1,800	1,800
Gas, oil, truck repairs	5,850	5,850	5,850	5,850
Render wax	1,000	1,000	1,000	1,000
Utilities	700	700	700	700
Insurance	1,475	1,475	1,475	1,475
Taxes	2,073	2,073	2,073	2,073
Location rent	250	250	250	250
Miscellaneous	1,800	1,800	1,800	1,800
Interest on operating capital	2,807	2,807	2,807	2,807
TOTAL CASH COST	65,189	65,189	65,189	65,189
Management 5% of gross income	2,970	3,270	3,570	3,870
Depreciation	18,915	18,915	18,915	18,915
Interest on investment	10,092	10,092	10,092	10,092
TOTAL EXPENSE	97,166	97,466	97,766	98,066
NET INCOME	<37,766>	<32,066>	<26,366>	<20,666>

ECONOMIC CONSEQUENCES

The results depicted in the preceding income and cost analysis indicate that except for those selling queens and bees, beekeepers in general are sustaining an economic loss. Except for pollinators, the beekeeper who can provide most of the labor required, is not paying cash for management, has his investment clear of debt, and has equipment which has been completely or largely depreciated, can operate and show some net cash income. He will not be making \$3.25 per hour for his labor, 5 percent for his management, or 8 percent on his investment. Whether he stays in the bee business under these conditions will depend on his alternatives.

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