



Commercial Honey Industry

The purpose of this factsheet is to introduce honey production and marketing as a potential business opportunity. This overview focuses on the key management issues in developing and operating a honey enterprise in Alberta. This profile isn't intended to be a substitute for individuals making their own thorough assessment of all the key factors that would influence the success of their individual enterprise.

Industry Highlights

- Honey was the world's primary sweetener prior to the use of refined sugar. The popularity of honey is largely due to it being a natural sweetener.
- Honey can be used as a food spread, in home baking and in beverages. Commercial uses of honey include being a sweetener in cereals, cake mixes, processed foods, jams, jellies and increasingly as an ingredient in health and beauty products.
- Commercial honey production is a year-round operation with the most intense activity being from March to October.
- The honey industry also produces:¹
 - beeswax for use in the pharmaceutical and dental industries as well as for cosmetics, ointments, candles and household waxes
 - pollen, rich in protein, which is used as a diet supplement
 - propolis which is becoming widely used as an ingredient in cosmetics and lip balms, as well as a tonic
 - royal jelly which is increasingly used in skin creams and lotions for its potential beneficial effect on aging skin

- In Canada there are an estimated 10,500 beekeepers operating more than 563,000 hives.²
- The following table documents the key production statistics for the Alberta honey industry over 10 years.³

Table 1. Historical Data on Alberta Honey Production

Year	Number of Beekeepers	Number of Colonies	Colonies per Beekeeper	Production per Colony (lbs)	Price per Pound
1988	1,140	150,000	132	154	\$0.399
1989	855	143,500	168	119	\$0.490
1990	840	152,000	181	154	\$0.581
1991	830	147,000	177	143	\$0.578
1992	800	148,000	185	156	\$0.587
1993	761	148,000	194	160	\$0.617
1994	750	159,000	212	195	\$0.682
1995	750	175,000	233	122	\$0.833
1996	750	175,000	233	116	\$1.25
1997	725	175,000	241	135	\$1.10
1998	730	205,000	281	187	\$0.887
1999	725	205,000	283	121	\$0.813
2000 ^p	747	215,000	288	108	\$0.80

^p Preliminary data

- Honey production in Alberta includes hobbyists, side-liners and commercial producers. Hobbyists produce for themselves, relatives and friends. Generally side-liners have less than 250 hives and produce honey for sale to consumers and processors. Commercial producers operate more than 250 hives and produce honey for sale to consumers, to processors and distributors of honey and honey products.

¹ *All About Canada's Honey Industry*; Agriculture and Agri-Food Canada factsheet.

² *All About Canada's Honey Industry*; Agriculture and Agri-Food Canada factsheet.

³ *The Economics of Honey Production*; by G. Nabi Chaudhary, Economics Unit, Alberta Agriculture, Food and Rural Development, September 2000; p.4.

- The following breakdown of beekeepers by size of operation is compiled from the annual registration of beekeepers.⁴

Table 2. Registered Beekeepers by Size of Operation

Size of Operation (No. of Colonies)	1995	1996	1997	1998	1999	2000
0	132	164	144	122	118	138
1-50	377	350	326	390	393	396
51 - 100	23	35	34	38	38	38
101 - 200	28	20	28	34	31	32
201 - 600	69	60	59	51	52	57
601 - 1250	41	41	40	48	43	40
1251 - 2000	21	16	13	21	19	15
2000+	18	18	22	24	28	31
Total	709	704	666	728	722	747

- The Prairie provinces account for 80 per cent of Canadian honey production. Alberta is the largest honey producing province, producing about 40 per cent of Canadian honey. Average honey production in Alberta is 141 pounds per hive annually, twice the world average.⁵

Table 3. Annual Alberta and Canadian Honey Production in Tonnes (000's pounds)⁶

	1996	1997	1998	1999	2000p
Alberta (t)	9,169	10,719	17,393	9,301	10,532
(000lbs)	(20,215)	(23,625)	(38,335)	(20,500)	(23,220)
Canada (t)	26,985	31,019	46,096	34,643	31,461
(000 lbs)	(59,475)	(68,366)	(101,595)	(76,353)	(69,359)

p Preliminary data

- Alberta honey producers have the following advantages:
 - long daylight hours in the summer
 - access to vast expanses of clover, alfalfa and canola that provide foraging for bees and results in a mild white honey that is sold for premium prices
 - a world wide reputation as suppliers of quality honey
- *The critical management issues* for Alberta honey producers are:
 - the wide variation in production levels from year to year (it's not unusual for production to rise or fall 50 to 100 per cent from one year to the next)

- volatile market prices
- disease problems
- maintaining colony count in spite of winter losses and limited offshore supplies of queen bees
- New entrants to the honey industry, (as well as their families) must recognize that keeping bees means being stung. For most people, a bee's sting means a brief period of discomfort. However a small portion of the population (0.4%) is in danger of death from anaphylactic shock due to a bee sting. Shortness of breath, hives over the body and itching in locations away from the actual sting are causes for concern.
- Individuals considering entering the honey industry must carefully consider the following factors:
 - ability to achieve acceptable levels of production (pounds per hive) for the areas they are working in
 - ability to achieve costs of production that are competitive with world market prices
 - ability to survive periods of low production or low prices
 - passion and commitment to working with bees on a daily basis
 - ability to effectively manage their time

Regulatory Basics

- The *Alberta Bee Act* regulates beekeeping in the Province of Alberta. The act requires all persons who own or possess bees or used beekeeping equipment to register annually with the Provincial Apiculturist.
- The *Alberta Bee Act* requires that a permit must be obtained from the Provincial Apiculturist in order to import honey bees into Alberta from any other Canadian province. A certificate of inspection at the originating province isn't a permit to move bees into Alberta.
- The Canada/U.S. border has been closed to honeybee imports since 1987, when the varroa parasitic mite was first detected in the United States. A permit from the Canadian Food Inspection Agency (CFIA) is required to import honey bees from Hawaii.
- Bees can be imported from Australia and New Zealand. The appropriate permits must be obtained from CFIA.
- The CFIA is monitoring the Africanized honeybee found in Central and South American.

⁴ The *Alberta Bee Act* requires all persons who own or have in their possession bees or used beekeeping equipment to register annually with the Provincial Apiculturist. These registration numbers will also include owners of equipment who are not active in honey production.

⁵ *All About Canada's Honey Industry*; Agriculture and Agri-Food Canada factsheet.

⁶ Source Statistics Canada, prepared by Statistics and Data Development Unit, Alberta Agriculture and Rural Development.

- Federal regulations stipulate that all honey must be free of foreign material and be fit for human consumption.
- CFIA also regulates the packing of domestic and exported honey.⁷ Individuals who intend to export honey out of the province or country or sell into retail stores, must have their honey houses inspected and registered by CFIA.
- All honey to be exported from Canada must be inspected by officials from CFIA. It must be certified and have the number of the registered honey processing facility on its label.
- Honey for export to the United States must be shipped in containers that meet the requirements of the U.S. Food and Drug Administration (FDA) and U.S. Customs.
- Producers who market their honey directly to consumers or a wholesaler must comply with labeling regulations. The label must include: the common product name, quantity, name and address of producer or packer, grade and color of the honey. Honey shipped out of Alberta must have a registration number on the label.⁸
- Commercial beekeepers who operate in cities, towns, villages and some rural areas may be required to obtain business permits from the local municipality.

Marketing Basics

- Domestic honey consumption data for key honey consuming countries are presented in Table Number Four.⁹

	Canada	China	Germany	United States
1995	24,550	75,205	93,000	155,000
1996	25,144	85,760	88,950	151,526
1997	26,605	120,003	85,798	149,161
1998	26,900	123,100	88,000	151,000
1999	27,250	122,500	92,749	152,300
2000p	27,500	123,300	87,800	153,200

p Preliminary data

- Approximately one-half of Canadian honey is sold to domestic consumers or processors, while exports average 9,000 to 14,000 metric tonnes annually.¹⁰

⁷ Honey imports, exports and interprovincial trade must comply with the *Canadian Agricultural Products Act* and the Canadian Honey Regulations.

⁸ Up to date information concerning private labels for honey are available through the Retail Manufactured Foods, Canadian Food Inspection Agency, Room #205, 7000 - 113 Street Edmonton AB T6H 5T6; Phone 403-495-3333.

⁹ Honey Situation and Outlook in Selected Countries; presented in *Sugar: World Markets and Trade*, November 1995.

¹⁰ This data was prepared by the Market Analysis and Statistics Branch of Alberta Agriculture and Rural Development.

Table 5. Canadian Exports of Honey

		United States	Other Countries	Total Exports
1996 ^r	tonnes	8,002	1,980	9,981
	\$'000	22,835	5,171	28,006
1997	tonnes	3,941	3,479	7,420
	\$'000	12,530	8,867	21,397
1998	tonnes	7,050	4,158	11,208
	\$'000	18,820	9,540	28,360
1999	tonnes	12,084	2,632	14,716
	\$'000	25,782	5,180	30,962
2000	tonnes	12,963	2,360	15,323
	\$'000	26,342	4,638	30,980

^r revised

Table 6. Alberta Exports of Honey

		United States	Other Countries	Total Exports
1996 ^r	tonnes	624	732	1,356
	\$'000	2,223	1,951	4,174
1997	tonnes	624	1,726	2,350
	\$'000	1,918	4,465	6,383
1998	tonnes	1,545	2,615	4,160
	\$'000	4,250	6,025	10,276
1999	tonnes	2,649	1,667	4,316
	\$'000	5,443	3,312	8,755
2000	tonnes	1,746	1,164	2,910
	\$'000	3,686	2,343	6,029

^r revised

Source: Statistics Canada

Prepared by: Statistics and Data Development Unit (ARD)

- Honey produced in Alberta accounts for about one per cent of total world production and 1.5 to 2.0 per cent of total world honey trade. Approximately 20 per cent of Alberta's honey is used in Alberta. Significant amounts are used in Quebec, Ontario and the lower mainland of British Columbia.
- Alberta honey has earned world-wide respect for being a high quality product. The pure white clover honey produced in Alberta often earns a premium price in world markets.
- The primary honey producers in the world are China, United States, the former Soviet Union, Mexico, Argentina and Canada.

- The key exporters in the world honey market are China supplying 30 to 35 per cent, Mexico supplying 20 per cent and Argentina supplying 15 to 20 per cent. The three biggest honey importers are Germany, Japan and the United States.
- Even though the United States produces 50 per cent of North American honey, most of it is consumed domestically. Since 1994, U.S. imports have ranged from 40,000 to 74,000 metric tonnes every year.¹¹
- The United States is the largest importer of Canadian honey purchasing 50 to 80 per cent of annual exports. Germany, Great Britain, France, the Netherlands, Sweden and Japan are also notable buyers of Canadian honey.
- Canadian honey is preferred by American packers due to its high quality and pale color. A large portion of Canadian raw, bulk honey imported into the United States is blended with the darker colored honey produced in the U.S.
- Since Alberta beekeepers compete in the world honey market, they are influenced by changes occurring in other producing and importing areas. Factors such as increasing Chinese production and the U.S. Farm Policy need to be considered when evaluating the long term prospects for Canadian honey in world markets.
- Honey is graded according to moisture and color. The color classifications for packaged honey are white, golden, amber and dark. Bulk honey also includes an extra white and light amber classification.
- The maximum moisture content for pasteurized and non-pasteurized honey regulations are currently under review.
- Alberta producers can sell their product to: retailers, honey co-operatives, honey packers and dealers, consumers or the export market.
- Honey producers should evaluate the following factors when comparing these markets:
 - payment terms
 - whether the buyer or the seller provides the barrels
 - whether the price is quoted for the farm gate or delivered to the buyer
 - how weights are determined
 - how and where quality is determined
- Honey can be sold directly to consumers through sales made at the honey house, road side stands or at farmers' markets.
- Producers who sell their honey directly to consumers must ensure their honey is clean, below the maximum moisture content, in new clean containers and properly

labeled. Producers who market at farmer's markets have to determine the appropriate preparation, packaging and pricing for their product.

- Pricing is an important issue in achieving sales and profitability. There are several important considerations in pricing honey. The price should be based on the cost of production. The minimum acceptable price should cover all production, marketing, transportation and labor costs. Competitor prices are an important consideration in pricing honey for sale to consumers. However, pricing at the same level as your competitors can be dangerous if your costs of production aren't taken into consideration. Pricing too low can be harmful to the industry.
- Farm gate sales at the honey house require proximity to large populations centres, good roads, a parking area, good signage, facilities to accommodate consumers and liability insurance.
- The advantages of farm gate sales include:
 - cash payments from consumers without incurring transportation costs
 - opportunity to market honey as "farm fresh"
 - opportunity to develop products for niche markets
 - opportunity to develop a complimentary agri-tourism operation
 - gaining a sense of independence and accomplishment
- There are several limitations to farm gate sales.
 - The potential to increase sales is limited and producers may not be able to market all of the product through their outlet. As a result, producers need other marketing channels for honey that can't be sold at the farm gate.
 - Farm gate sales require additional facilities, equipment, staff and liability coverage. Consumers often fill their own containers, so a heated tank with a continuous supply of honey is desirable. Also, honey sold at the farm gate requires packaging in various sized containers. This can be expensive.
 - Farm gate sales require a significant level of advertising and product promotion.
- The critical management considerations for farm gate sales are:
 - a highly visible location to attract customers
 - the ability to manage labor costs, particularly if retail sales requires having an additional person to manage the sales outlet

¹¹ Data collected by Provincial Apiculturist, Alberta Agriculture and Rural Development.

- Farmers' markets generally consist of a number of growers and producers selling their product directly to consumers at a common location. Each producer has a separate stall or stand at the market. There are farmers' markets located in most urban centres in Alberta. A publication listing the farmers' markets is available from the offices of Alberta Agriculture and Rural Development or on the department's web site at http://www.agric.gov.ab.ca/app21/rtw/markets/markets_map.jsp
- The advantages of farmers' markets include:
 - benefits from collective promotion
 - opportunity to gain new market exposure
 - provision of parking and good access to consumers that may not be available to individual producers
 - opportunity to market product and gain exposure at a number of markets since there are numerous farmers' markets operating during the summer season
- The limitations of farmers' markets are:
 - producers must package and transport their honey to the market
 - individual producers must be prepared for intensive price competition from other vendors in order to make sales
 - producers must be prepared to have unsold honey at the end of the day
- Some producers have developed their own label and market their honey directly to retailers in competition with packers. Selling to retailers requires providing the product in the size of packaging, quantity and time specified by the retailer.
- Producers who sell their honey to retailers must understand the marketing strategy employed by the retailer. For example, one retailer may pursue a strategy of lowest price while another retailer may pursue the strategy of selling high quality products.
- Honey producers considering selling to retailers must be prepared to perform the following marketing activities:
 - make business calls on retailers to develop their markets
 - maintain contact with retailers
 - respond to changing customer tastes and preferences
 - package and handle the honey product as required by the retailer
 - be prepared to work with several different retailers each requiring different packaging
- Honey co-ops, like Alberta Honey Producers Cooperative Ltd. in Spruce Grove, receive, grade and handle the honey delivered by member producers. This

Alberta co-op and its sister in Manitoba, market honey in Canadian and export markets.

- In order to ship honey to the co-op, a producer must be a member and be able to ship at least 5,000 pounds of honey. Some members have a contract that requires all honey to be shipped to the co-op. Quota 88 holders have an established quota they must ship. Over production must be sold elsewhere.
- The Alberta co-op uses a two-price system to determine payment to its members. Production up to a specific quota level is given one price while honey over the quota amount may be paid at a lower price.
- Selling honey to a honey co-op offers the following advantages:
 - marketing expertise that an individual producer may not have or wish to develop
 - provision of free honey barrels to members
 - protection against non-payment for honey
 - provision of a range of services including liability coverage and insurance against loss or damage to honey when it is shipped in co-op barrels
- The limitations of selling honey to co-ops are:
 - payments for honey take longer than through other market channels
 - loss of control over the price
 - production is committed to the co-op
 - over quota production can only be sold to the co-op at a lower price

Note: The Alberta Honey Co-op Ltd. gives Quota 88 producers the flexibility to market this over quota production in other markets
- Honey packers are privately owned businesses who purchase honey from producers and resell it in either domestic or export markets.
- Selling honey to a honey packer offers the following advantages:
 - full payment for honey within a few months of delivery
 - honey is purchased in barrels, thus eliminating the need for producers to repackage their honey
 - opportunity to negotiate freight costs, payment terms and delivery dates
 - opportunity for producers to develop long term markets for their honey
- There are limitations to selling honey to private packers. Producers must supply their own barrels or arrange for return of their barrels from the packer. As a result, producers must consider the cost of barrels and freight. There is also the risk that a packer may not be able to pay a producer for their honey or the terms of the sale may be changed.

- Alberta producers can sell their honey in foreign markets either directly or through honey agents. Selling into the export market may increase returns to producers by receiving a premium price for their honey paid at the farm gate.
- Producers considering selling into the export market require a high level of knowledge and skills, together with the ability to deal with an increased level of paperwork. Because of the distances involved, any problems that arise can be expensive and difficult to sort out.
- Honey producers who sell to packers or into the export market may be exposed to increased risk of non-payment for their honey. In addition to ensuring they are dealing with a reputable buyer, producers may want to diversify and deal with a number of buyers.
- A detailed overview of the many issues associated with exporting honey is available in *Exporting Honey*, Module 10, in the Agricultural Marketing Manual, published by Alberta Agriculture and Rural Development in March 1995.
- Market potential for honey and its by-products is expanding in the medicinal and cosmetic industries as a result of growing interest in natural ingredients.
- A growing market opportunity is honey with the essence of a specific wild flower, herb or special crop. These products are in demand for their nutritional, culinary and medicinal properties.
- New Zealand is a leader in honey related agri-tourism and direct marketing honey and its products. There is potential for expansion in Alberta.
- Wax sales contribute revenues of \$10 per hive or more for Alberta beekeepers. Generally, wax prices will rise and fall with honey prices.
- An alternative market for a limited number of Alberta beekeepers is providing bee colonies to ensure pollination of crops including hybrid canola, borage, alfalfa and clover. The beekeepers are paid on a per hive basis for providing the service. Beekeepers must be prepared to respond to the demands of the crop owner with respect to the moving hives. Beekeepers have found that hives committed to this pollination produce substantially reduced honey crops. Revenue is mostly generated from renting beehives. In 1999, there were over 80,000 pollinating hives in Alberta.
- The *critical marketing issues* for Alberta beekeepers are:
 - ability to identify the specific markets for Alberta honey products
 - careful assessment of the supply and the demand characteristics for these markets in order to determine the prices available for honey

- determining the various activities and costs required to gain access to various domestic markets and export markets
- determining the knowledge and skills required to market honey into the various markets

Production Basics

- New entrants to honey production must be prepared to study both existing operations and published material in order to gain information that will assist them in establishing their enterprise.
- Beekeeping practices are best learned by working with an experienced beekeeper. Only through hands-on experience can new entrants gain the basic skills required for opening hives, removing frames, identifying queens, recognizing the difference between brood and honey cappings, and recognizing the difference between honey and pollen in a cell.
- The joint publication *Beekeeping in Western Canada* is available from the agriculture departments in each western province.
- Producers must be familiar with the nectar flows of various crops and the impact weather will have on these flows. The nectar is collected by the bees and used to produce honey for the hive. Generally, there are three nectar flows on the Prairies. The spring flow is left for the bees to build up the hive. The main flow generally occurs from the end of June to the end of July. This flow produces the surplus honey that is harvested by beekeepers. The fall flow is generally left for the bees to build up for over wintering.
- Plants that are considered major nectar producing plants in Alberta include dandelions, canola, clovers, sanfoin, alfalfa and, to a lesser extent, sunflower and faba beans.
- Prior to 1988, most Alberta beekeepers were dependent on package bees imported from the United States. On December 31, 1987 the Canada - U.S. border was closed to package bee imports. As a result, most beekeepers responded by overwintering hives to produce their own supply of bees for the next year.
- Beekeepers require a fundamental understanding of honey bee behavior.
 - Bees are social animals. The basis of this social behavior is the transferring of food as well as pheromones from individual bee to individual bee throughout the hive.
 - The honey bee colony is a family consisting of a single mother (the queen), many daughters (the workers) and a varying number of sons (the drones).

- The bee colony perpetuates itself through successive cycles of brood rearing.¹²
- A shortage of honey, pollen or water will lead to a reduction or even a stoppage of brood rearing activities.
- The key resource requirements for commercial honey operations are location and equipment.
- Location is important. A honey operation requires long-term access to productive beeyards, as well as labour and room for expansion.
- Important considerations for establishing beeyards are:
 - they shouldn't be located near private residences or hamper others from using nearby land for recreation
 - there should be access to an abundant supply of nectar-secreting and pollen-bearing plants
 - there should be protection from predators, vandals and the elements
 - there should be an acceptable distance from the honey house and the beeyards of other beekeepers
 - they should be accessible in all types of weather
- Basic honey production equipment includes structures for the bees and equipment for the processing and transportation of the honey.
 - Hives provide an environment similar to those bees would seek in nature in order to build wax combs consisting of hexagonal cells that are used for brood rearing as well as storing pollen and honey. The boxes that make up bee hives are known as supers. They should be a standard length and width so you can exchange supers from hive to hive. This will also produce a higher resale value. Each hive will require a bottom board as well as a cover.
 - The hexagonal wax cells are enclosed by frames that can be moved from super to super. Depending on the needs of the beekeeper, a standard super may have 8, 9, or ten frames.
 - Dark colored combs are preferred by the queen for egg-laying while light colored combs are used for storing honey. Generally, two brood chambers (supers) and three to five honey supers are required per hive.
 - Feeders are required for supplementary feeding during spring and fall. When feeding sugar, it must be mixed, taken to the hives and distributed. This involves some kind of tank and mixing system. Most beekeepers place a tank and pump on a trailer behind a truck.
 - Smokers and hive tools are required for working the beehives. Coveralls, a helmet and a veil are required for protection from bees when working the beehives.
- Extracting equipment includes an uncapper, an extractor, pumps and a storage tank. A key management consideration for extracting equipment is matched to the size of the operation, the facilities and the available labor.
- Additional equipment includes carts, pallets or forklifts for moving hives. Scales, a pressure washer and wax handling equipment are also needed.
- A honey house is required to provide a loading area, hot room, extracting area and storage area.
- Trucks equipped with flat decks or trailers are required for hauling supers and honey.
- Generally, the production process for a commercial honey enterprise begins with wintered hives or purchased bees in the spring. The critical production activities during the year are as follows:
 - feeding the hive until nectar and pollen becomes available
 - providing medication treatments to ensure diseases don't become established
 - managing the hive to control swarming and replacing winter losses
 - managing the hive during the honey flow
 - extracting the honey
 - preparing the hives for winter
 - managing the hives during the winter period if indoor wintering is used
- Beekeeping operations have a high labor requirement. In most enterprises, the owner operator needs to determine labour requirements, recruit the best possible individuals, provide the necessary training and provide effective supervision for the employees.
- A high quality product is essential for every honey operation. Managing key factors in the extraction process will affect honey quality.
 - Excessive heat during extraction will darken the honey. Certain export markets have minimum standards for diastase (an enzyme which can be destroyed by heat) and the level of sugar breakdown due to heat. To prevent heat damage to honey, producers need to carefully manage the wax melting process and pay attention to storage conditions.
 - The process of extraction introduces air, bee parts and beeswax. These impurities cause the honey to granulate more readily. Management practices to reduce natural impurities focus on developing an extraction process that removes wax and bee parts, and reduces the amount of air incorporated into the honey.

¹² Brood is the immature or developing stages of bees including eggs, larvae and pupae.

- Excessive moisture in honey may cause it to ferment. Furthermore, honey is hygroscopic, meaning it will take on moisture from the surrounding air. Although very dry honey is not likely to ferment, it will become very hard when granulated. Pasteurizing will kill the natural yeasts in honey and thus prevent fermentation.¹³ However, pasteurization isn't a feasible practice for many beekeepers.
- Crystallization is the process of granulating. Consumers have accepted finely granulated honey, but find a coarsely granulated product to be unsatisfactory. Crystallization is generally managed through proper storage temperatures.
- *A critical production management* issue for new entrants to honey production is recognizing their limitations with respect to the size of honey operation they can comfortably handle.

Economic/Finance Basics

- New entrants to the honey industry must carefully assess the profitability and cash flow implications of their proposed operation.
- Detailed economic information for honey production in Alberta is available through *The Economics of Honey Production in Alberta 2000*.¹⁴ The economic data provided in this publication is based on a survey of 24 beekeepers located throughout Alberta.
- Table 7 presents a summary of production costs and returns originally presented in the above publication.

¹³ There are several different ways to pasteurize honey. One method is to heat the honey to 68° C for 5 minutes then cool very rapidly.

¹⁴ *The Economics of Honey Production*; by G. Nabi Chaudhary, Economics Unit, Alberta Agriculture, Food and Rural Development, September 2000.

Table 7. 1999 Honey Production Costs and Returns (per hive) by Size of Operation

			Up to 600 Hives	601 to 1,000 Hives	Over 1,000 Hives
			\$/Hive	\$/Hive	\$/Hive
A	1	Bulk honey sales	88.39	54.29	60.22
	2	Bulk honey inventory	0.00	24.00	11.27
	3	Consumer pack sales	12.00	10.66	.04
	4	Consumer pack inventory	1.59	60.23	30.86
	5	Other honey sales	.72	.34	.29
	6	Wax/pollen/other sales	2.82	3.89	4.59
	7	Crop insurance receipts	0.00	2.75	0.00
	8	Miscellaneous receipts	0.00	0.00	.15
	9	Less – honey purchase for resale	0.00	.19	0.00
		Value of Production	\$105.53	\$156.35	\$107.43
B	1	Bee purchases – package bees	0.00	1.16	8.15
	2	Bee purchases – queens	2.22	3.35	2.98
	3	Freight & trucking	2.49	1.19	.45
	4	Feed – sugar	5.15	12.79	10.58
	5	Medicinal sugar/bee repellent	3.77	2.44	3.83
	6	Product & crop insurance	.01	.29	.35
	7	Fuel	6.90	6.60	1.76
	8	Repairs – machine	11.47	8.49	3.77
	9	Repairs – buildings & improvements	7.63	4.22	1.63
	10	Utilities & heating fuel	7.36	4.96	1.62
	11	Custom work & machine rental	.03	3.78	2.02
	12	Assoc. dues, prof. fees, promotion & travel	3.48	4.69	1.73
	13	Small tools, supplies & miscellaneous expenses	11.11	7.49	8.87
	14	Operating interest	.30	2.37	1.76
	15	Paid labour & benefits	3.23	20.81	17.65
	16	Unpaid labour	35.39	19.58	12.77
		Variable Costs	\$100.55	\$104.21	\$79.93
C	1	Land rent/lease, building rent & forage access	.96	.66	.71
	2	Taxes, licences & general insurance	10.32	5.35	3.29
	3	Equipment & building (a) depreciation	30.02	36.67	28.69
		(b) lease payments	.26	0.00	0.00
	4	Paid capital interest	10.42	9.68	1.71
		Total Capital Costs	\$51.98	\$52.37	\$34.41
D		Cash costs (B + C - B16 - C3a)	87.41	100.33	72.88
E		Total production costs (B + C)	152.53	156.58	114.33
F		Gross Margin (A - D)	18.41	56.02	34.55
		Return to Unpaid Labour (A - E + B16)	(11.61)	19.35	5.86
		Return to Investment (A - E + C4)	(36.59)	9.46	(5.20)
		Return to Equity (A - E)	(47.01)	(.23)	(6.91)
		Management			
		Number of hives	277.00	794.00	2,567.60
		Average yield per hive (lbs.)	131.33	194.19	136.46
		Honey produced (lbs.)	36,379.17	185.20	50,371.80

- The following budgets assess the investment and operating requirements for a commercial operation of 794 hives. For more financial information refer to *The Economics of Honey Production in Alberta 2000*.
- These budgets provide producers with a framework that identifies the type of information required and the types of analyses required to assess the viability of a proposed operation.
- Table 8 describes the capital investment required to acquire the land, equipment and facilities needed to establish a 800 hive operation. Also included in this budget are estimates of depreciation and interest (opportunity) cost of capital. Table 9 provides estimates of the revenues, costs and returns from operating the proposed 800 hive operation.

Table 8. Honey Production Enterprise Investment, Alberta by Size of Operation (600 - 1,000 Hives) 1999

Investment Summary	Total \$		\$/Hive
Land 7.00 acres	4,625.00		5.82
Buildings	62,540.00		78.77
Bee equipment	208,737.60		262.89
Machinery	37,435.00		47.15
Total Investment	313,337.60		394.63
Investment Detail			
Investment Detail	Enterprise Value (\$)	Age (years)	Depreciation (\$)
Land	4,625.00		
Honey house	35,880.00	16.80	1,794.00
Wintering shed	4,800.00	.40	240.00
Houses (25%)	4,900.00	19.35	245.00
Other buildings	16,960.00	12.16	848.00
Buildings Sub-total	62,540.00		3,127.00
Hives	143,200.00	24.20	16,468.00
Pallets	3,030.00	14.20	348.45
Fork lift	8,500.00	0.00	680.00
Hive feeders	3,640.00	12.00	418.60
Super elevator	0.00	0.00	0.00
Uncapping machines	3,900.00	10.40	312.00
Honey extractor	4,100.00	16.40	328.00
Dryer/heat exchanger	0.00	0.00	0.00
Wax spinner/separator	1,480.00	10.80	118.40
Honey tank & pipe	5,620.00	13.20	646.30
Feed tank	2,500.00	6.66	287.50
Storage vessel	0.00	0.00	0.00
Boiler furnace	600.00	10.00	48.00
Water system	0.00	0.00	0.00
Compressor	350.00	4.20	28.00
Pressure washer	359.00	4.60	28.72
Fuel tank	0.00	0.00	0.00
Scales	636.00	15.80	73.14
Barrels	2,069.40	1.40	237.98
Barrel loader	0.00	0.00	0.00
Carts	450.00	15.00	51.75
Fencers/shockers	703.20	8.62	80.87
Shop tools	7,700.00	6.00	885.50
Staplers	662.00	1.40	76.13
Office equipment	0.00	0.00	0.00
Lawn mover	1,780.00	5.20	142.40
Over-wintering equipment	2,965.00	3.20	340.98
Miscellaneous equipment	14,493.00	12.06	1,330.90
Equipment Sub-total	208,737.60		22,931.62
Trucks	26,620.00	11.21	1,889.60
Tractors	3,800.00	10.20	304.00
Other machinery	10,015.00	8.86	651.60
Power Equipment Sub-total	37,435.00		2,845.20
Total Investment	313,337.60		28,903.82

Table 9. Honey Production Costs and Returns, Alberta by Size of Operation (600 - 1,000 Hives) 1999

			Total \$	\$/Hive	\$/Lb.	
A	1	Bulk honey sales	5,5096.00 lbs	43,102.90	54.29	.28
	2	Bulk honey inventory	27,395.20 lbs	19,053.89	24.00	
	3	Consumer pack sales	4,780.00 lbs	8,466.00	10.66	
	4	Consumer pack inventory	66,372.00 lbs	47,822.14	60.23	
	5	Other honey sales	542.00 lbs	271.00	.34	
	6	Wax/pollen/other sales	1,034.00 lbs	3,091.50	3.89	
	7	Crop insurance receipts		2,185.20	2.75	
	8	Miscellaneous receipts		0.00	0.00	
	9	Less – honey purchase for resale		150.00	.19	
		Value of Production		124,142.63	156.35	.81
B	1	Bee purchases – package bees		925.00	1.16	
	2	Bee purchases – queens		2,656.40	3.35	
	3	Freight & trucking		947.60	1.19	
	4	Feed – sugar		10,159.00	12.79	
	5	Medicinal sugar/bee repellent		1,939.00	2.44	
	6	Product & crop insurance		228.80	.29	
	7	Fuel		5,239.00	6.60	
	8	Repairs – machine		6,744.40	8.49	
	9	Repairs – buildings & improvements		3,349.93	4.22	
	10	Utilities & heating fuel		3,940.40	4.96	
	11	Custom work & machine rental		2,997.40	3.78	
	12	Assoc. dues, prof. fees, promotion & travel		3,721.20	4.69	
	13	Small tools, supplies & miscellaneous expenses		5,944.80	7.49	
	14	Operating interest		1,881.98	2.37	
	15	Paid labour & benefits	1,659.80 hours	16,523.80	20.81	
	16	Unpaid labour	1,480.60 hours	15,546.30	19.58	
		Variable Costs		82,745.00	104.21	.54
C	1	Land rent/lease, building rent & forage access		525.00	.66	
	2	Taxes, licences & general insurance		4,245.60	5.35	
	3	Equipment & building	(a) depreciation	29,118.87	36.37	
			(b) lease payments	0.00	0.00	
	4	Paid capital interest		7,689.48	9.68	
		Total Capital Costs		41,578.95	52.37	.27
D		Cash costs	(B + C - B16 - C3a)	79,658.78	100.33	.52
E		Total production costs	(B + C)	124,323.95	156.58	.81
F		Gross Margin	(A - D)	44,483.85	56.02	.29
		Return to Unpaid Labour	(A - E + B16)	15,364.98	19.35	.10
		Return to Investment	(A - E + C4) 2.4%	7,508.15	9.46	.05
		Return to Equity	(A - E)	(181.32)	(.23)	(.00)
		Management				
		Number of hives		794.00		
		Average yield per hive (lbs.)		194.19		
		Honey produced (lbs.)		154,185.20		

- Table 10 presents the capital required to establish a pollination production enterprise. Table 11 presents estimates of revenues, costs and returns for this operation. These figures are based on averages from eight beekeepers who rented their hives for pollination purposes in 1999. Note that almost 85 per cent of the income for this group was generated from renting bee hives for pollination purposes. The balance of the income was received from honey sales, wax and pollen and miscellaneous receipts.

Table 10. Pollination Production Enterprise Investment, Alberta 1999

Investment Summary		Total \$		\$/Hive
Land	11.38 acres	5,370.63		1.37
Buildings		171,720.31		43.68
Bee equipment		946,259.00		240.70
Machinery		142,837.50		36.33
Total Investment		1,266,187.44		322.08
Investment Detail		Enterprise Value (\$)	Age (years)	Depreciation (\$)
Land			5,370.63	
Honey house		85,000.00	16.13	4,250.00
Wintering shed		0.00	0.00	0.00
Houses (25%)		10,851.56	24.50	542.58
Other buildings		75,868.75	10.00	3,793.44
Buildings Sub-total		171,720.31		8,586.02
Hives		751,616.50	6.17	86,435.90
Pallets		33,359.38	6.25	3,836.33
Fork lift		10,250.00	0.00	820.00
Hive feeders		7,087.50	4.38	815.06
Super elevator		0.00	0.00	0.00
Uncapping machines		2,500.00	8.00	200.00
Honey extractor		18,937.50	6.00	1,515.00
Dryer/heat exchanger		1,133.13	2.50	90.65
Wax spinner/separator		3,750.00	5.50	300.00
Honey tank & pipe		3,950.00	13.59	454.25
Feed tank		4,175.00	6.88	480.13
Storage vessel		0.00	0.00	0.00
Boiler furnace		1,537.50	6.88	123.00
Water system		0.00	0.00	0.00
Compressor		1,081.25	10.50	86.50
Pressure washer		1,549.38	3.38	123.95
Fuel tank		0.00	0.00	0.00
Scales		2,393.75	8.75	275.28
Barrels		3,962.50	3.25	455.69
Barrel loader		0.00	0.00	0.00
Carts		812.50	6.50	93.44
Fencers/shockers		25.00	2.50	2.88
Shop tools		12,500.00	3.25	1,437.50
Staplers		647.50	2.50	74.46
Office equipment		250.00	0.00	20.00
Lawn mover		1,400.00	4.13	112.00
Over-wintering equipment		17,015.63	2.50	1,956.80
Miscellaneous equipment		66,325.00	6.44	5,337.06
Equipment Sub-total		946,259.00		105,045.87
Trucks		125,037.50	7.05	10,003.00
Tractors		0.00	0.00	0.00
Other machinery		17,800.00	7.07	1,277.00
Power Equipment Sub-total		142,837.50		11,280.00
Total Investment		1,266,187.44		124,911.88

Table 11. Pollination Production Costs and Returns, Alberta 1999.

			Total \$	\$/Hive	\$/Lb.
A	1	Bulk honey sales 122,812.50 lbs	89,825.00	22.85	.44
	2	Bulk honey inventory 0.00 lbs	0.00	0.00	
	3	Consumer pack sales 3,875.00 lbs	4,062.50	1.03	
	4	Consumer pack inventory 72,000.00 lbs	51,087.50	13.00	
	5	Other honey sales 3,917.63 lbs	2,820.69	.72	
	6	Wax/pollen/other sales 6,045.63 lbs	11,136.88	2.83	
	7	Crop insurance receipts	0.00	0.00	
	8	Miscellaneous receipts	244.63	.06	
	9	Less – honey purchase for resale	184.63	.05	
	10	Hive rental – pollination	352,968.75	110.52	
		Value of Production	512,330.57	130.32	2.53
B	1	Bee purchases – package bees	59,871.00	15.23	
	2	Bee purchases – queens	15,677.69	3.99	
	3	Freight & trucking	4,612.25	1.17	
	4	Feed – sugar	45,088.32	11.47	
	5	Medicinal sugar/bee repellent	11,089.00	2.82	
	6	Product & crop insurance	211.00	.05	
	7	Fuel	12,460.75	3.17	
	8	Repairs – machine	16,250.88	4.13	
	9	Repairs – buildings & improvements	5,916.63	1.51	
	10	Utilities & heating fuel	7,556.50	1.92	
	11	Custom work & machine rental	5,137.13	1.31	
	12	Assoc. dues, prof. fees, promotion & travel	10,587.00	2.69	
	13	Small tools, supplies & miscellaneous expenses	28,326.50	7.21	
	14	Operating interest	4,086.88	1.04	
	15	Paid labour & benefits 12,987.93 hours	135,031.70	34.35	
	16	Unpaid labour 2,978.25	31,271.63	7.95	
		Variable Costs	393,174.83	100.01	1.94
C	1	Land rent/lease, building rent & forage access	3,431.25	.87	
	2	Taxes, licences & general insurance	9,831.38	2.50	
	3	Equipment & building (a) depreciation	125,131.94	31.83	
		(b) lease payments	0.00	0.00	
	4	Paid capital interest	33,140.50	8.43	
		Total Capital Costs	171,535.07	43.63	.85
D		Cash costs (B + C - B16 - C3a)	408,306.33	103.86	2.02
E		Total production costs (B + C)	564,709.90	143.65	2.79
F		Gross Margin (A - D)	104,024.23	26.46	.51
		Return to Unpaid Labour (A - E + B16)	(21,107.71)	(5.37)	(.10)
		Return to Investment (A - E + C4) -1.5%	(19,238.83)	(4.89)	(.09)
		Return to Equity (A - E)	(52,379.33)	(13.32)	(.26)
		Management			
		Number of hives		3,931.25	
		Average yield per hive (lbs.)		51.54	
		Honey produced (lbs.)		202,605.13	

- The long-term viability of a honey operation will depend on:
 - achieving an acceptable level of production
 - managing operating costs
 - achieving acceptable market prices for product
- In terms of financing, conventional lenders, such as banks, may not be familiar with honey enterprises. In order to acquire the capital needed to develop an enterprise, individual managers will be required to have:
 - a solid business plan complete with marketing plan
 - high levels of equity capital to put into the venture
 - access to capital from private sources such as family and friends
 - a sound production process

Resources

Industry Associations

Alberta Beekeepers Association
 #102, 11434 - 168 Street
 Edmonton, Alberta T5M 3T9
 Phone: 780-489-6949
 E-mail: honeybee@albertabeekeepers.org

Canadian Honey Council
 236, 234 - 5149 Country Hills Blvd. NW
 Calgary, Alberta T3A 5K8
 Phone: 403-208-7141
 Fax: 403-547-4317
 E-mail: chc-ccm@telusplanet.net

Central Alberta Beekeepers Association
 Phone: 403-782-6025

Calgary and District Beekeepers Association
 Phone: 403-932-4204

Edmonton and District Beekeepers Association
 Phone: 403-362-3951

Southern Alberta Beekeepers Association
 Phone: 403-223-8784

Peace River Beekeepers Association
 Phone: 780-323-4283

Publications

Alberta Bee News
 Published by the Alberta Beekeepers Association

The Economics of Honey Production, Alberta
 by G. Nabi Chaudhary, Economics Unit
 Alberta Agriculture, Food and Rural Development
 September 2000

Websites

Alberta Agriculture and Rural Development
<http://www.agriculture.alberta.ca>

All About Canada's Honey Industry
 Agriculture and Agri-Food Canada
http://www.agr.ca/cb/factsheets/2honey_e.html

FAO Agriculture Services Bulletin Beekeeping
http://www.beekeeping.com/index_us.htm

Government Resources

Economics

Economics Unit
 Economic and Competitiveness
 Alberta Agriculture and Rural Development
 Phone: 780-422-4054

Regulatory

Honey Export Regulations
 Canadian Food Inspection Agency
 Agri-Food Product Program
 Phone: 403-292-5867
 Website: www.cfia-acia.agr.ca

Bee Import Licensing
 Canadian Food Inspection Agency
 Animal Health Program
 Phone: 403-292-5825
 Website: www.cfia-acia.agr.ca

Key Management Issues

- If you continue to investigate honey production as an agricultural business opportunity, it's essential that you are able to answer the following questions concerning the honey industry and the management requirements of an honey enterprise.
 - Have you identified specific markets for your honey?
 - Have you clearly defined the marketing activities that you will be required to perform to market your product to specific markets?
 - Have you clearly defined the production process and the production resources that you will require in addition to the production costs you will incur to produce honey and market it to specific markets?
 - Are you aware of the amount of time you will be required to devote to continuously researching your markets and to adjusting your production activities to best meet the needs of the market?

- Are you aware of the amount of time required to manage the production activities of a commercial honey operation?
- Are you aware of the key performance factors and the level of performance needed in order for your business to be economically viable?
- Have you assessed your level of passion and commitment to working with bees on a regular basis?

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Association

Eric Abell – Beekeeper

For more information

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Call toll free: 310-FARM (3276)

Website: www.agriculture.alberta.ca