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Statistical Overview of the Canadian Honey and Bee Industry and the Economic Contribution of Honey Bee Pollination 2021

Prepared by:
Horticulture Section
Crops and Horticulture Division
Agriculture and Agri-Food Canada
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Overview

Beekeeping is an important agricultural industry in Canada, producing honey and other hive products, and delivering valuable pollination services to farmers of orchard fruits, many berries, vegetables, forage, and the production of hybrid canola seed. AAFC has updated the estimate of the total annual economic contribution of honey bee pollination through direct additional harvest value; honey bees were directly tied to \$3.18 billion in additional harvest value. When the estimated contribution of honey bee pollination to the production of hybrid canola seed is added, the total estimated contribution rises to \$7 billion per year.

Like the previous year, the 2021 beekeeping season was affected by the disruptions in travel and transportation related to the COVID-19 pandemic. Limited travel options for Seasonal and Temporary Foreign Workers prevented or delayed the arrival of the workforce critical to many beekeeping operations. COVID-related transportation disruptions also affected the supply of imported replacement queen and package bees. These important supplies are shipped from a limited number of approved places including Australia, New Zealand, Chile, California, and Hawaii for queens; and Australia, New Zealand, Chile for 'package' bees (about one kilogram of worker bees and a mated queen bee to be placed in a hive box on arrival). These replacement bees complement domestic supplies, and typically arrive in the early spring to address hive losses and replace weak queen bees after the winter has passed.

Despite these challenges, beekeepers grew the numbers of honey bee colonies to a record high 810,496, 6.0% more than the previous year. Honey production in Canada in 2021, by volume, rose 7.9% from a year earlier to 89.8 million pounds. Thanks to higher volumes and sustained robust prices for honey, the total value of the 2021 harvest rose 39.4% (over 2020) to \$278.0 million.

While beekeepers operate in all provinces, the majority (67.6%) of Canadian honey bee colonies are kept in the Prairie provinces (Manitoba, Saskatchewan and Alberta) where long summer days and large areas of good forage crops for bees make it possible for beekeepers in those provinces to produce honey well in surplus to provincial demand. In contrast, the majority (57.4%) of beekeepers (anyone with one or more honey bee colonies) operate in Ontario and British Columbia, managing 20.3 % of the national total of colonies. The three Prairie Provinces produced 81.6% of the total national honey production in 2021, totalling 73,220 thousand pounds (out of a total national production of 89,773 thousand pounds).

This regional concentration of honey production is echoed in the regional balance of honey exports. The Prairie Provinces are the origin for 75.8% of export shipments of honey, almost all of the remainder (22.9%) of Canadian honey exports leave Canada from Ontario and Quebec. The United States has been the major export destination for Canadian honey for many years, with Japan following far behind; this has shifted recently. Since the start of 2020 many months have seen Japan emerge as the major export destination for Canadian honey. In the most recent complete year (2021), Japan was the destination for 54.5% (4,000 MT) of honey exports from Canada while the United States received 40.8% (2992 MT) of total annual exports.

Canadian beekeepers import queen bees and package bees (a few pounds of worker bees and a mated queen) each spring to supplement domestic supplies of bees. These imported bees are used to rapidly replace over-winter queen and hive losses and to grow beekeeping operations over the season. Queens can be imported from certain countries and regions which have been evaluated to ensure that bees from these places do not pose any unacceptable risk to Canada. Most imported queen bees come from California and Hawaii (84.1%), with contributions from Italy (5.5%), New Zealand (3.0%), Australia (2.1%), and Chile (2.1%).

Package bees come from a shorter list of approved sources: Australia, New Zealand and Chile. In 2021 supply and transportation challenges related to the COVID-19 pandemic stranded many sources of package bees overseas resulting in all 8,661 packages of bees arriving in Canada originating in Australia. The 2021 total of 8,661 represents 30% of the average quantity of packages received in each of the previous four years.



Section A: Statistical overview of Canadian honey and bee industry

1. Production

1.1. Number of beekeepers¹ by province

	2017	2018	2019	2020	2021	2021 % Share
Prince Edward Island	46	50	50	30	30	0.2%
Nova Scotia	604	631	690	788	874	6.7%
New Brunswick	374	388	415	450	495	3.8%
Quebec	402	425	440	485	511	3.9%
Ontario	3,331	3,026	2,506	2,856	3,227	24.6%
Manitoba	746	834	905	914	930	7.1%
Saskatchewan	1,044	1,059	1,101	1,050	1,226	9.4%
Alberta	1,420	1,572	1,653	1,621	1,512	11.5%
British Columbia	2,640	2,676	2,763	3,800	4,300	32.8%
Canada²	10,589	10,661	10,523	11,994	13,105	100.0%

Notes:

1. Beekeeper numbers may include pollinators that may not extract honey.
2. Newfoundland and Labrador is excluded since the province has limited beekeeping.

Source: Statistics Canada. Table 32-10-0353-01 Production and value of honey

1.2. Number of colonies¹ by province

	2017	2018	2019	2020	2021	2021 % Share
Prince Edward Island	6,300	4,453	3,591	4,250	3,436	0.4%
Nova Scotia	26,426	25,446	25,716	26,282	27,596	3.4%
New Brunswick	7,100	8,141	4,120	8,456	9,250	1.1%
Quebec	61,020	60,439	66,700	67,173	57,498	7.1%
Ontario	105,244	100,413	90,675	101,989	102,328	12.6%
Manitoba	111,802	114,098	114,668	116,697	115,707	14.3%
Saskatchewan	115,000	114,000	115,000	100,000	115,000	14.2%
Alberta	317,000	311,000	314,800	283,000	317,500	39.2%
British Columbia	40,776	52,033	55,781	56,769	62,181	7.7%
Canada²	790,668	790,023	791,051	764,616	810,496	100.0%

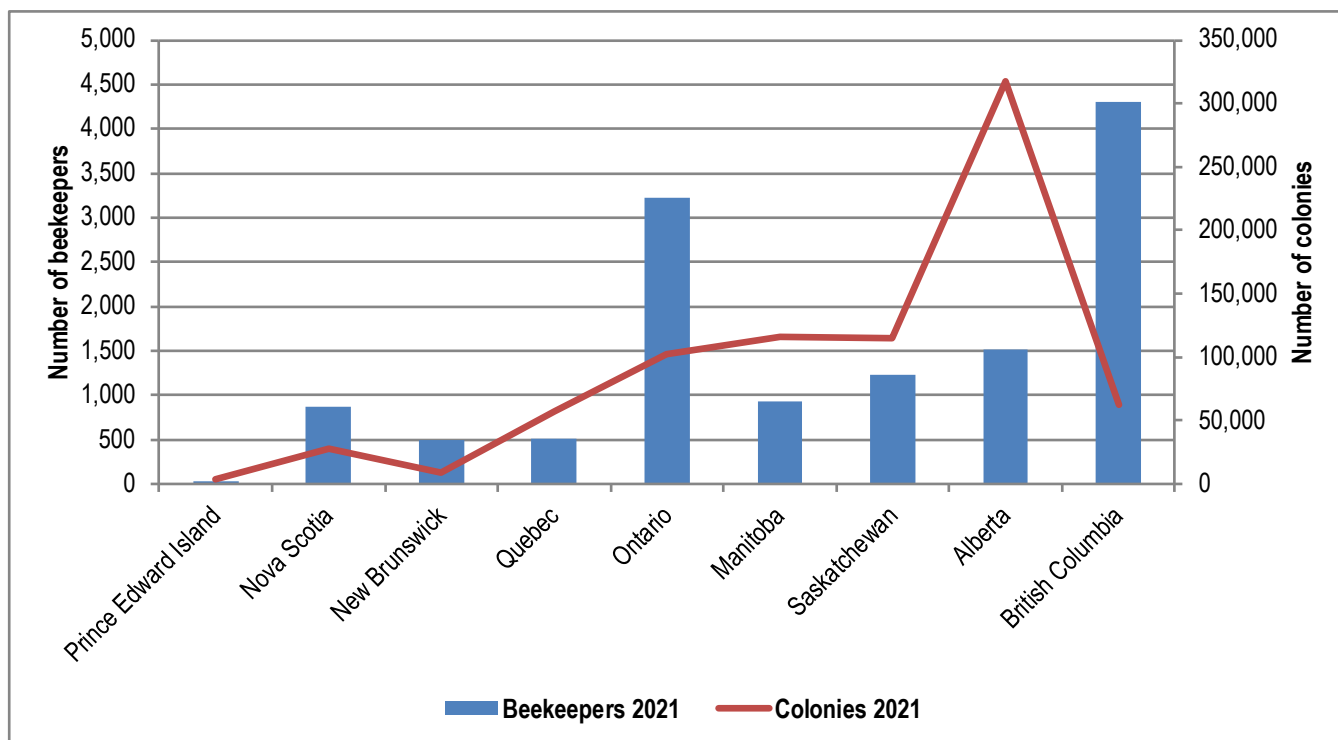
Notes:

1. Colony numbers may include pollinators that may not extract honey.
2. Newfoundland and Labrador is excluded since the province has limited beekeeping.

Source: Statistics Canada. Table 32-10-0353-01 Production and value of honey



1.3. Number of beekeepers and number of colonies by province



Source: Statistics Canada. Table 32-10-0353-01 Production and value of honey

1.4. Total honey production¹ by province – thousands of pounds

	2017	2018	2019	2020	2021	2021 % Share
Prince Edward Island	231	168	181	159	192	0.2%
Nova Scotia	553	522	390	550	578	0.6%
New Brunswick	201	469	218	346	406	0.5%
Quebec	3,723	4,472	3,963	2,996	4,628	5.2%
Ontario	6,087	8,174	7,963	8,535	6,402	7.1%
Manitoba	19,120	18,710	18,350	20,300	18,630	20.8%
Saskatchewan	21,965	20,520	20,240	15,700	19,665	21.9%
Alberta	40,576	38,564	31,418	30,735	34,925	38.9%
British Columbia	3,556	3,397	3,907	3,843	4,346	4.8%
Canada²	96,012	94,996	86,630	83,165	89,773	100.0%

Notes:

1. Production excludes inventory.
2. Newfoundland and Labrador is excluded since the province has limited beekeeping.

Source: Statistics Canada. Table 32-10-0353-01 Production and value of honey



1.5. Production value¹ of honey by province – thousands of Canadian dollars

	2017	2018	2019	2020	2021	2021 % Share
Prince Edward Island	666	393	423	332	462	0.2%
Nova Scotia	1,586	1,574	1,073	2,133	1,689	0.6%
New Brunswick	511	1,430	666	1,399	1,809	0.7%
Quebec	15,120	16,655	15,408	8,136	17,000	6.1%
Ontario	20,257	34,329	29,437	32,007	30,088	10.8%
Manitoba	32,268	32,786	32,997	43,435	57,380	20.6%
Saskatchewan	34,045	33,858	32,384	31,400	58,995	21.2%
Alberta	71,359	66,472	58,188	66,846	96,358	34.7%
British Columbia	14,292	13,320	11,040	13,780	14,248	5.1%
Canada²	190,104	200,816	181,615	199,468	278,029	100.0%

Notes:

1. Value excludes inventory sales except for in Quebec.

2. Newfoundland and Labrador is excluded since the province has limited beekeeping.

Source: Statistics Canada. Table 32-10-0353-01 Production and value of honey



2. Trade

2.1. Trade balance

2.1.1. Canada's honey trade balance – thousands of Canadian dollars

	2017	2018	2019	2020	2021
Export	76,986	78,011	53,827	47,371	44,663
Import	41,284	36,787	45,403	42,576	47,479
Trade Balance (Exports - Imports)	35,702	41,224	8,424	4,795	- 2,816

Source: Statistics Canada. (CATSNET, February 2022)



2.2. Exports

2.2.1. Canada's honey exports by province¹ – by value (thousands of Canadian dollars)

	2017	2018	2019	2020	2021	2021 % Share
Prince Edward Island	0	0	0	2	0	0.0%
Nova Scotia	126	15	60	113	2	0.0%
Quebec	5,446	4,602	4,098	6,200	5,314	11.9%
Ontario	3,864	6,362	5,722	2,527	6,217	13.9%
Manitoba	19,310	13,033	11,943	16,407	17,270	38.7%
Saskatchewan	19,928	20,511	11,097	7,230	3,178	7.1%
Alberta	27,150	31,749	19,735	14,387	12,080	27.0%
British Columbia	1,160	1,739	1,172	506	602	1.3%
Canada	76,986	78,011	53,827	47,371	44,663	100.0%

Note:

1. Exports may include honey not produced in that province.

Source: Statistics Canada. (CATSNET, February 2022)

2.2.2. Canada's honey exports by province – by volume (metric tonnes)

	2017	2018	2019	2020	2021	2021 % Share
Prince Edward Island	0	0	0	1	0	0.0%
Nova Scotia	22	2	7	20	0	0.0%
Quebec	1,006	838	611	965	736	10.0%
Ontario	828	1,219	1,006	398	946	12.9%
Manitoba	5,242	3,160	2,959	3,358	2,941	40.1%
Saskatchewan	5,541	5,127	2,735	1,630	599	8.2%
Alberta	6,372	7,958	4,358	2,852	2,020	27.5%
British Columbia	186	284	171	85	98	1.3%
Canada	19,196	18,587	11,847	9,309	7,341	100.0%

Source: Statistics Canada. (CATSNET, February 2022)



2.2.3. Canada's top honey export destinations – by value (thousands of Canadian dollars)

	2017	2018	2019	2020	2021	2021 % Share
Japan	12,432	12,643	17,884	23,735	25,036	56.1%
United States	60,878	62,005	33,615	19,363	17,574	39.3%
South Korea	550	696	503	671	823	1.8%
China	1,981	1,903	1,403	1,648	458	1.0%
United Kingdom	0	0	0	93	178	0.4%
Hong Kong	460	347	154	688	144	0.3%
India	366	2	0	70	92	0.2%
Greece	0	2	0	48	65	0.1%
Belgium	0	0	37	0	51	0.1%
Kuwait	23	13	5	60	42	0.1%
Others	296	400	227	995	200	0.4%
Total	76,986	78,011	53,827	47,371	44,663	100.0%

Source: Statistics Canada. (CATSNET, February 2022)

2.2.4. Canada's top honey export destinations – by volume (metric tonnes)

	2017	2018	2019	2020	2021	2021 % Share
Japan	2,799	2,785	3,575	4,362	4,002	54.5%
United States	15,762	15,221	7,872	4,143	2,992	40.8%
South Korea	109	124	128	135	141	1.9%
China	323	326	209	295	82	1.1%
United Kingdom	0	0	0	15	26	0.4%
Hong Kong	72	55	19	120	20	0.3%
India	75	0	0	13	17	0.2%
Greece	0	0	0	15	14	0.2%
Belgium	0	0	5	0	9	0.1%
Kuwait	4	2	1	11	8	0.1%
Others	52	74	39	199	31	0.4%
Total	19,196	18,587	11,847	9,309	7,341	100.0%

Source: Statistics Canada. (CATSNET, February 2022)



2.3. Imports

2.3.1. Canada's honey imports by province – by value (thousands of Canadian dollars)

	2017	2018	2019	2020	2021	2021 % Share
Nova Scotia	8	2	73	3	2	0.0%
New Brunswick	7	30	7	0	22	0.0%
Quebec	12,356	10,783	10,817	11,302	15,249	32.1%
Ontario	24,631	19,685	27,543	24,404	24,214	51.0%
Manitoba	72	15	44	28	378	0.8%
Saskatchewan	5	20	69	1	550	1.2%
Alberta	28	837	737	825	1,019	2.1%
British Columbia	4,178	5,414	6,112	6,013	6,045	12.7%
Canada	41,284	36,787	45,403	42,576	47,479	100.0%

Source: Statistics Canada. (CATSNET, February 2022)

2.3.2. Canada's honey imports by province – by volume (metric tons)

	2017	2018	2019	2020	2021	2021 % Share
Nova Scotia	1	0	22	1	0	0.0%
New Brunswick	0	3	0	0	4	0.0%
Quebec	2,633	2,501	2,896	3,080	3,460	42.2%
Ontario	3,585	2,306	3,151	3,660	4,070	49.6%
Manitoba	9	1	5	2	63	0.8%
Saskatchewan	0	1	2	0	100	1.2%
Alberta	3	24	25	26	120	1.5%
British Columbia	418	369	412	376	383	4.7%
Canada	6,650	5,207	6,513	7,144	8,200	100.0%

Source: Statistics Canada. (CATSNET, February 2022)



2.3.3. Canada's top sources of honey imports – by value (thousands of Canadian dollars)

	2017	2018	2019	2020	2021	2021 % Share
New Zealand	9,560	12,759	17,470	14,122	12,918	27.2%
Brazil	7,384	4,227	6,890	5,864	11,650	24.5%
United States	2,667	3,213	2,539	4,931	3,518	7.4%
India	2,018	2,315	3,397	3,342	3,391	7.1%
Spain	3,121	1,490	2,606	2,013	3,162	6.7%
Australia	3,102	3,008	3,110	2,719	2,594	5.5%
Thailand	1,856	4,011	3,476	2,450	1,955	4.1%
Greece	1,227	1,290	1,282	1,439	1,628	3.4%
Saudi Arabia	951	959	1,297	990	1,373	2.9%
Viet Nam	900	481	276	1,356	955	2.0%
Others	8,498	3,033	3,058	3,351	4,335	9.1%
Total	41,284	36,787	45,403	42,576	47,479	100.0%

Source: Statistics Canada. (CATSNET, February 2022)

2.3.4. Canada's top sources of honey imports – by volume (metric tons)

	2017	2018	2019	2020	2021	2021 % Share
Brazil	1,280	913	1,811	1,749	2,509	30.6%
India	506	745	1,092	1,079	1,118	13.6%
United States	469	566	575	1,148	807	9.8%
Spain	735	315	529	416	795	9.7%
Thailand	484	970	891	700	756	9.2%
Viet Nam	326	216	129	544	438	5.3%
Greece	178	138	142	255	338	4.1%
New Zealand	346	344	412	331	285	3.5%
Australia	334	324	279	223	219	2.7%
Argentina	78	71	85	84	179	2.2%
Others	1,916	604	567	614	755	9.2%
Total	6,650	5,207	6,513	7,144	8,200	100.0%

Source: Statistics Canada. (CATSNET, February 2022)



2.3.5. Canada's sources of package honey bee imports – by value (Canadian dollars)

	2017	2018	2019	2020	2021	2021 % Share
Australia	331,206	853,887	1,255,269	84,870	736,172	100.0%
New Zealand	1,510,369	1,278,340	1,988,220	951,273	0	0.0%
Chile	316,067	651,930	167,180	86,400	0	0.0%
Total	2,157,642	2,784,157	3,410,669	1,122,543	736,172	100.0%

Note:

Does not include queen bees and live bees that are not honey bees.

Source: Statistics Canada. (CATSNET, February 2022)

2.3.6. Canada's sources of package honey bee imports – by volume (kilograms)

	2017	2018	2019	2020	2021	2021 % Share
Australia	2,880	7,959	13,462	720	8,661	100.0%
New Zealand	20,637	16,839	25,308	12,010	0	0.0%
Chile	3,870	6,840	2,569	1,016	0	0.0%
Total	27,387	31,638	41,339	13,746	8,661	100.0%

Note:

Does not include queen bees and live bees that are not honey bees.

Source: Statistics Canada. (CATSNET, February 2022)



2.3.7. Canada's sources of queen bee imports – by value (Canadian dollars)

	2017	2018	2019	2020	2021	2021 % Share
United States	7,138,232	7,111,970	7,177,805	7,313,155	7,327,062	85.9%
Italy	0	0	0	136,325	471,134	5.5%
New Zealand	63,232	884,234	103,034	318,928	254,707	3.0%
Australia	265,108	212,140	191,143	106,147	179,022	2.1%
Chile	217,937	225,279	504,080	143,554	177,519	2.1%
Others	2,767	14,166	0	22,001	117,351	1.4%
Total	7,687,276	8,447,789	7,976,062	8,040,110	8,526,795	100.0%

Source: Statistics Canada. (CATSNET, February 2022)

2.3.8. Canada's sources of queen bee imports – by quantity (number)

	2017	2018	2019	2020	2021	2021 % Share
United States	218,058	220,270	208,530	193,794	220,403	84.1%
Italy	0	0	0	4,089	17,170	6.6%
New Zealand	1,609	21,983	2,843	8,721	5,452	2.1%
Australia	8,527	9,676	7,837	3,023	7,302	2.8%
Chile	7,834	9,762	16,718	3,625	7,554	2.9%
Others	82	427	0	691	4,132	1.6%
Total	236,110	262,118	235,928	213,943	262,013	100.0%

Source: Statistics Canada. (CATSNET, February 2022)



3. Consumption

3.1. Honey available¹ for consumption in Canada – kilograms per person

	2017	2018	2019	2020	2021
Honey ²	0.90	0.85	0.95	0.98	1.14

Notes:

1. Food available per person is calculated by dividing the domestic disappearance by the Canadian population as of July 1st of the reference year, at the retail level.

Domestic disappearance represents the total food available for human consumption from the Canadian food supply chain.

Total Supply = Beginning stocks + Production + Imports

Domestic Disappearance = Total supply – Exports – Manufacturing - Waste - Ending stocks

2. Does not adjust for losses, such as waste and/or spoilage in stores, households, private institutions or restaurants or losses during preparation.

Source: Statistics Canada. Table 32-10-0054-01 Food available in Canada



4. World data

4.1. World trade data

4.1.1. Top exporters of honey worldwide – by value (thousands of Canadian dollars)

	2017	2018	2019	2020	2021	2021 % Share
New Zealand	348,666	317,420	304,314	440,858	409,756	13.2%
China	350,287	322,762	311,714	340,817	326,422	10.5%
Argentina	238,189	226,370	194,508	230,082	274,924	8.8%
Brazil	158,802	123,790	90,693	132,113	204,008	6.6%
Germany	182,095	182,512	176,548	201,025	184,366	5.9%
Ukraine	172,619	127,788	134,398	185,340	180,765	5.8%
India	135,573	132,635	134,046	111,235	170,838	5.5%
Spain	143,404	136,902	117,712	150,682	161,366	5.2%
Mexico	136,753	156,140	90,040	91,148	147,438	4.7%
Hungary	116,502	111,907	107,558	119,692	106,654	3.4%
Belgium	100,054	101,179	86,187	101,367	81,272	2.6%
Poland	55,506	55,894	57,868	83,525	79,129	2.5%
Romania	67,107	63,658	56,262	65,794	66,172	2.1%
Bulgaria	62,839	54,701	53,611	53,331	52,872	1.7%
Australia	35,455	38,705	44,369	49,901	46,110	1.5%
Netherlands	14,004	27,490	23,605	31,390	45,091	1.4%
Canada	76,986	78,011	53,827	47,371	44,663	1.4%
Uruguay	33,317	18,298	21,624	42,089	44,134	1.4%
France	47,128	41,448	39,824	38,342	43,167	1.4%
Turkey	30,245	33,190	32,850	35,080	39,127	1.3%
Others	510,085	504,996	438,534	478,483	403,409	13.0%
Total	3,015,616	2,855,796	2,570,092	3,029,665	3,111,683	100.0%

Source: Global Trade Tracker (February 2022)



4.1.2. Top exporters of honey worldwide – by volume (metric tons)

	2017	2018	2019	2020	2021	2021 % Share
China	129,274	123,478	120,845	132,469	145,886	21.1%
India	52,980	58,231	65,351	54,834	70,514	10.2%
Argentina	70,321	70,576	65,242	71,564	65,720	9.5%
Ukraine	67,907	49,461	55,769	80,872	57,590	8.3%
Brazil	27,053	28,524	30,039	45,728	47,190	6.8%
Mexico	27,723	55,674	26,901	27,485	32,082	4.6%
Germany	24,433	22,788	25,320	29,742	29,342	4.3%
Spain	24,833	23,090	22,528	28,263	28,442	4.1%
Poland	15,843	14,705	16,837	24,691	19,277	2.8%
Belgium	19,720	19,837	19,324	22,512	18,194	2.6%
Hungary	22,260	20,932	19,389	19,629	15,861	2.3%
New Zealand	11,038	9,024	9,455	14,358	13,840	2.0%
Bulgaria	13,302	10,719	12,950	12,834	10,793	1.6%
Romania	12,250	10,509	10,497	13,185	10,767	1.6%
Uruguay	9,186	5,803	7,904	15,778	10,600	1.5%
Thailand	12,855	10,265	7,908	7,672	10,315	1.5%
Turkey	6,455	6,418	5,548	6,038	9,995	1.4%
Portugal	7,161	4,840	6,112	7,442	8,557	1.2%
Italy	6,765	5,335	5,458	3,731	7,584	1.1%
Canada	19,196	18,587	11,847	9,309	7,341	1.1%
Others	84,144	84,664	78,561	90,098	70,230	10.2%
Total	664,699	653,460	623,785	718,234	690,120	100.0%

Source: Global Trade Tracker (February 2022)



4.1.3. Top importers of honey worldwide – by value (thousands of Canadian dollars)

	2017	2018	2019	2020	2021	2021 % Share
United States	739,697	627,684	553,350	592,344	833,597	26.1%
Germany	406,723	396,781	338,773	373,687	390,897	12.2%
Japan	185,433	188,619	191,607	233,619	212,746	6.7%
United Kingdom	169,545	166,461	147,531	161,610	164,218	5.1%
France	169,489	168,417	157,580	173,210	151,321	4.7%
China	118,605	91,170	112,618	119,270	132,001	4.1%
Poland	75,759	81,491	84,143	105,908	114,464	3.6%
Italy	106,654	130,572	105,873	108,676	111,636	3.5%
Spain	100,241	88,671	77,001	88,430	104,310	3.3%
Belgium	103,308	94,871	85,369	94,106	104,136	3.3%
Saudi Arabia	86,795	99,313	99,935	140,765	100,412	3.1%
Netherlands	79,273	84,481	70,282	75,328	86,964	2.7%
Switzerland	47,447	51,507	47,995	50,582	54,432	1.7%
Canada	41,284	36,787	45,403	42,576	47,479	1.5%
Australia	59,244	69,352	48,783	55,041	44,955	1.4%
Indonesia	7,536	10,316	16,663	35,204	40,768	1.3%
Austria	39,286	37,426	33,708	33,657	32,777	1.0%
Singapore	35,631	31,198	28,550	30,993	30,947	1.0%
Denmark	28,504	25,273	23,056	21,168	30,145	0.9%
Portugal	22,296	20,440	20,889	22,899	26,568	0.8%
Others	377,539	346,903	321,128	369,321	377,286	11.8%
Total	3,000,289	2,847,733	2,610,237	2,928,394	3,192,059	100.0%

Source: Global Trade Tracker (February 2022)



4.1.4. Top importers of honey worldwide – by volume (metric tons)

	2017	2018	2019	2020	2021	2021 % Share
United States	202,565	187,588	178,948	196,531	220,231	30.2%
Germany	93,070	85,980	82,203	90,136	78,580	10.8%
Japan	42,821	44,521	44,788	49,348	47,112	6.5%
United Kingdom	46,092	50,590	48,830	52,655	45,852	6.3%
Poland	26,449	25,726	29,802	37,343	37,594	5.2%
Spain	32,251	27,920	26,547	31,690	31,628	4.3%
Belgium	25,925	24,914	24,849	28,077	31,265	4.3%
France	35,570	32,302	32,819	34,869	29,292	4.0%
Italy	23,602	27,875	23,580	21,041	21,074	2.9%
Saudi Arabia	16,294	16,969	18,512	23,529	19,292	2.6%
Netherlands	16,341	16,846	15,115	13,584	16,313	2.2%
Portugal	7,457	6,270	7,553	8,707	9,406	1.3%
Switzerland	8,192	8,229	8,240	8,192	8,229	1.1%
Canada	6,650	5,207	6,513	7,144	8,200	1.1%
Australia	8,621	6,873	4,784	8,010	7,921	1.1%
Greece	5,747	7,617	8,576	8,596	7,822	1.1%
Indonesia	1,500	2,026	3,041	6,216	7,235	1.0%
South Africa	4,206	4,407	5,261	6,003	6,868	0.9%
Austria	8,140	7,081	6,619	6,899	6,212	0.9%
Czech Republic	3,178	2,706	3,057	3,584	5,638	0.8%
Others	79,775	68,765	68,315	80,985	83,027	11.4%
Total	694,446	660,412	647,952	723,139	728,791	100.0%

Source: Global Trade Tracker (February 2022)



4.2. World production

4.2.1. Top producers of honey worldwide¹ – by volume (metric tons)

	2016	2017	2018	2019	2020	2020 % Share
China	555,000	542,544	446,879	444,054	458,100	28.2%
Turkey	105,727	114,471	107,920	109,330	104,077	6.4%
Iran	67,783	67,302	77,388	77,973	79,955	4.9%
Argentina	68,123	76,379	79,468	78,844	74,403	4.6%
Ukraine	59,294	66,231	71,279	69,937	68,028	4.2%
United States	73,429	67,596	69,857	71,179	66,948	4.1%
Russia	69,764	65,167	65,006	63,526	66,368	4.1%
India	61,853	62,138	62,197	62,063	62,132	3.8%
Mexico	55,358	51,066	64,253	61,986	54,165	3.3%
Brazil	39,677	41,696	42,268	45,801	51,508	3.2%
Canada	42,900	43,550	43,089	39,295	37,601	2.3%
Tanzania	30,112	30,740	30,890	31,148	31,405	1.9%
Spain	31,018	29,393	36,394	31,161	30,513	1.9%
South Korea	32,328	25,866	26,414	29,744	29,375	1.8%
New Zealand	19,885	14,855	20,000	23,000	27,000	1.7%
Others	559,147	583,485	572,401	491,676	381,031	23.5%
Total	1,871,398	1,882,479	1,815,703	1,730,717	1,622,609	100.0%

Note:

1. FAO production data for the year 2021 was not yet available at the time of writing this report.

Source: Food and Agriculture Organization (FAO) of the United Nations | © FAO Statistics Division 2022



Section B: Honey bee pollination

5. Economic contribution of honey bee pollination to Canadian agriculture

5.1. Background

Honey bee pollination is a critical input for many agricultural commodities. An established methodology can be applied to estimate the value of the direct economic contribution to agriculture generated by honey bee pollination.

Honey bees placed near target crops by commercial and hobbyist beekeepers are the most common form of managed pollination, though alfalfa leafcutter bees, bumblebees and some other insect species are used in specific agricultural circumstances. This analysis attempts to exclude the contribution of natural and controlled pollinators other than honey bees. Pollination services for blueberry, cranberry, orchard fruit and canola seed production generate the bulk of the demand for honey bee pollination.

This analysis relies on 2021 Canadian farm gate value or farm cash receipts for key commodities. The estimation uses established coefficients for each crop to determine the proportion of the crop harvest reliant on insect pollination and the proportion of insect pollination that is delivered by honey bees.

5.2. Value of bee pollination by crop

The contribution of honey bee pollination to agricultural production can be estimated using an established formula:

$$V \times D \times P$$

where

V = Annual value of crop

D = Dependency of the crop on insect pollinators

P = Proportion of effective insect pollinators of the crop that are honey bees

The estimates used for D and P are those used by Morse and Calderone (2000).



5.3. Estimated contribution of Canadian honey bee pollination to value of key crops in 2021 (thousands of Canadian dollars)

Crop	D ¹ (1 = 100%)	P ² (1 = 100%)	D x P ³ (1 = 100%)	V ⁴ (CAN\$ '000)	Value of honey bee pollination D x P x V (CAN\$ '000)
Tree fruits				386,678	315,495
Apples	1	0.9	0.9	242,730	218,457
Apricots	0.7	0.8	0.56	1,950	1,092
Sour Cherries	0.9	0.9	0.81	4,301	3,484
Sweet Cherries	0.9	0.9	0.81	68,593	55,560
Nectarines	0.6	0.8	0.48	7,943	3,813
Peaches	0.6	0.8	0.48	41,411	19,877
Pears	0.7	0.9	0.63	11,203	7,058
Prunes/Plums	0.8	0.9	0.72	8,547	6,154
Berries				806,699	427,462
Grapes	0.1	0.1	0.01	202,997	2,030
Blueberries	1	0.9	0.9	311,658	280,492
Raspberries	0.8	0.9	0.72	26,471	19,059
Strawberries	0.2	0.1	0.02	128,562	2,571
Cranberries	1	0.9	0.9	137,011	123,310
Cucurbits				157,832	64,730
Cucumbers	0.9	0.9	0.81	46,413	37,595
Melons	0.8	0.9	0.72	27,155	19,552
Pumpkins	0.9	0.1	0.09	33,268	2,994
Squash/Zucchini	0.9	0.1	0.09	50,996	4,590
Oilseeds				15,089,847	2,355,169
Canola	0.2	0.9	0.18	12,033,069	2,165,952
Sunflower	1	0.9	0.9	31,710	28,539
Mustard Seed	0.2	0.8	0.16	85,672	13,708
Soybeans	0.1	0.5	0.05	2,939,396	146,970
Forage seed				134,713	13,471
Alfalfa Seed	1	0.1	0.1	134,713	9,407
Total				16,575,769	3,176,327

Notes:

1. D = Dependency of the crop on insect pollinators.
2. P = Proportion of effective insect pollinators of the crop that are honey bees.
3. D x P = Combined coefficient.
4. V = 2021 value of crop.

Sources:

The estimates for D and P used are those used by Morse and Calderone (2000)

The estimates for crop value: Statistics Canada



5.4. Discussion of contribution of honey bee pollination to crop production

Fruits and Vegetables

Insect pollination is critical to the economic performance of key crops in the horticulture (fruit and vegetable) sector. In Table 5.3, the established methodology is used to estimate the contributions of honey bee pollination to the Canadian harvest of major insect-pollinated crops. Apple production in Canada in 2021 generated a total harvest value of \$243 million (farm gate value) of which honey bees were responsible for 90% or \$218 million. For berries, in the rapidly growing blueberry sector honey bees are responsible for \$280 million out of \$312 million (90%) in high-bush and low-bush blueberries combined. In total, the 2021 economic contribution of honey bee pollination to production of fruits and vegetables is estimated at \$808 million.

Canola

Special consideration of the contribution of honey bees to the production of canola is merited. Most canola planted in Canada today is hybrid seed. The production of hybrid canola seed grown to be subsequently planted by farmers the following season requires precisely timed and thorough insect pollination to bring together the separate genetic lines of the male and female parent plant strains. Since hybrid canola seed is produced primarily with managed pollinators, a portion of the value of this crop can be included as part of the direct agricultural contribution of honey bees through pollination.

Most of the hybrid canola seed produced in Canada is subsequently planted in Canada. While commodity canola is primarily wind-pollinated, research indicates that honey bees foraging on canola can add to harvest quantity and quality. Researchers offer a wide range of estimates for the increase in production linked to honey bee foraging depending on plant variety and a number of local conditions, including the abundance of natural pollinators. The highest estimates suggest a gain approaching 20% in additional harvest value, while more modest gains from 2% to 15% have also been reported. Most of the 548,207 hives in the Prairie provinces forage on commodity canola for several weeks in the peak of summer.

Honey bees are estimated to be responsible for about half of the pollination that makes the production of hybrid canola seed possible (with alfalfa leafcutter bees primarily responsible for the other half). One approach to estimating the magnitude of this contribution is to take this share (50%) of the total farm gate value of canola into account as a key economic contribution of honey bees to the total value produced by Canadian agriculture. Total farm cash receipts for producers of canola were \$12.0 billion in 2021. If honey bees are credited with making 50% of the production of canola seed possible (for a contributed value \$6 billion), in order to avoid double counting, the additional estimated contribution from honey bee pollination to commodity canola from Table 5.3 must be removed from the total contribution. The additional agricultural value of all other crop pollination, less canola, is \$1.01 billion, generating a total estimate for the contribution of honey bees of \$7 billion.

5.5. Estimated economic contribution of honey bee pollination to crop production

The 2021 total annual economic contribution of honey bee pollination through direct additional harvest value is estimated at \$3.18 billion (Table 5.3). Value beyond this is created by the contribution of honey bees to the production of hybrid canola seed was estimated \$6 billion per year in 2021. The contribution to canola production combined with other agricultural production which benefits from honey bee pollination suggests the economic harvest value contributed by honey bees could be as high as \$7 billion per year.

While a more rigorous and detailed scientific assessment of each commodity in production could produce higher or lower estimates, this analysis shows that the value to agriculture of honey bee pollination is substantially greater than the value of honey and other hive products produced (about \$280 million per year). This estimate does not capture the growing contribution of alfalfa leafcutting bees to canola and blueberry production, managed bumble bees, nor the valuable contribution of natural pollinators.



6. Key Resources

- Food and Agriculture Organization of the United Nations, Statistics Division
- Global Trade Tracker
- Morse&Calderone. (March 2020). "The Value of Honey Bees As Pollinators of U.S. Crops in 2000." *Beeculture*.
<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.472.4894&rep=rep1&type=pdf>
- Statistics Canada. Table 32-10-0353-01 Production and value of honey
- Statistics Canada. Table 32-10-0054-01 Food available in Canada
- Statistics Canada. CATSNET

Import and export data is based on the following Harmonized System Codes (H.S. Codes):

Honey for import: 0409000010; 0409000021; 0409000022; 0409000023; 0409000024;
0409000025; 0409000026; 0409000029; 0409000090

Honey for export: 04090000

Honey Bees for import: 0106410010; 0106410011; 0106410012; 0106900011; 0106900012

Queen Bees for import: 0106410020