



Canadian Association of Professional Apiculturists
Preliminary report on Honey Bee Wintering Losses in Canada (2022)

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This report presents the **preliminary data** collected by the provinces of Canada regarding honey bee losses for the winter of 2021-2022. The final data will be published in the annual Statement on honey bee wintering losses in Canada. There may be discrepancies between results in the preliminary and final reports.

Methodology

Beekeepers that owned and operated a specified minimum number of colonies (Table 1) were included in the survey. The survey reported data from full-sized producing honey bee colonies that were wintered in Canada, but not nucleus (partial) colonies. Thus, the information gathered provides a valid assessment of honey bee losses and commercial management practices.

The common definitions of a honey bee colony and a commercially viable honey bee colony in spring that were used in the survey were as the following:

- Honey Bee Colony: A full-sized honey bee colony either in a single or double brood chamber, not including nucleus colonies (splits).
- Viable Honey Bee Colony in Spring: A honey bee colony that survived winter, with a minimum of 4 frames with 75% of the comb area covered with bees on both sides on May 1st (British Columbia), May 15th (New Brunswick, Nova Scotia, Ontario, Prince-Edward-Island and Quebec) or May 21st (Alberta, Manitoba, Saskatchewan and Newfoundland and Labrador).

The questionnaire of colony loss and management was provided to producers using various methods of delivery including mail, email, an online and a telephone survey; the method of delivery varied by jurisdiction (Table 1). In each province, data were collected and analyzed by the Provincial Apiarist. All reported provincial results were then analyzed and summarized at the national level. The national percent winter loss was calculated as follows:

$$\text{Percentage Winter Loss} = \left(\frac{\text{Sum of the estimated total colony losses per province in spring 2022}}{\text{Sum of total colonies in operation in each province for 2021}} \right) \times 100$$

Preliminary results

The survey delivery methods, size of beekeeping operations and response rate of beekeepers for each province are presented in Table 1. It is important to note that the total number of colonies operated in a province reported by this survey may vary slightly from Statistics Canada official numbers. In some provinces, the data collection periods for the provincial database and the Statistics Canada report are done at different times of year. This can result in minor discrepancies between the official Statistics Canada total number of colonies and this survey's total reported colonies per province.

Table 1: Survey parameters and honey bee colony mortality (2021-2022) by province

Province	Total number of colonies operated in 2021	Estimated number of colonies lost based on the estimated provincial winter loss	Type of data collection	Number of beekeepers targeted by survey	Number of respondents (% of participation)	Size of beekeeping operations targeted by survey (# colonies)	Number of respondents' colonies that were wintered in fall 2021	Number of respondents' colonies that were alive and viable in spring 2022	Percentage of surveyed colonies as a proportion of the total number of colonies in the province	Provincial Winter Loss including Non-viable Colonies
Newfoundland and Labrador	700	153	Email	12	11 (92%)	20	596	466	85%	21.8%
Prince Edward Island	6 800	3 527	Email	50	20 (40%)	1	5 294	2 548	78%	51.9%
Nova Scotia	27 115	4 130	Email	41	15 (37%)	50	17 613	14 930	65%	15.2%
New Brunswick	13 250	2 621	Email, mail, telephone	31	22 (71%)	50	10 408	8 349	79%	19.8%
Quebec	55 974	27 504	Online	130	79 (61%)	50	48 611	24 725	87%	49.1%
Ontario	102 328	48 374	Online, telephone	203	94 (46%)	50	32 240	16 999	32%	47.3%
Manitoba	114 837	65 687	Email, online	178	65 (37%)	50	71 492	30 614	62%	57.2%
Saskatchewan	115 000	39 724	Online	341	99 (29%)	50	45 833	30 001	40%	34.5%
Alberta	319 922	161 511	Online	182	83 (46%)	100	189 448	93 806	59%	50.5%
British Columbia	62 000	19 931	Online	262	106 (40%)	25	24 024	16 301	39%	32.1%
CANADA	817 926	373 163		1430	594 (42%)		445 559	238 739	54%	45.6%