



Canadian Association of Professional Apiculturists  
Preliminary report on Honey Bee Wintering Losses in Canada (2021)

*Prepared by CAPA National Survey Committee and Provincial Apiarists: Julie Ferland and Gabrielle Claing (co-chairs), Melanie Kempers, Karen Kennedy, Paul Kozak, Rhéal Lafrenière, Chris Maund, Cameron Menzies, Samantha Muirhead, Medhat Nasr, Lynae Ovinge, Steve Pernal, Jason Sproule, Paul van Westendorp, Geoff Wilson and Shelley Hoover*

This report presents the **preliminary data** collected by the provinces of Canada regarding honey bee losses for the winter of 2020-2021. The final data will be published in the annual Statement on honey bee wintering losses in Canada. There may be minor 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 were standardized as follows:

- 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 1<sup>st</sup> (British Columbia), May 15<sup>th</sup> (New Brunswick, Nova Scotia, Ontario, Prince-Edward-Island and Quebec) or May 21<sup>st</sup> (Alberta, Manitoba, Saskatchewan and Newfoundland and Labrador).

The colony loss and management questionnaire 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:

$$\text{Percentage Winter Loss} = \left( \frac{\text{Sum of the estimated total colony losses per province in spring 2021}}{\text{Sum of total colonies in operation in each province for 2020}} \right) \times 100$$

### **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 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 (2020-2021) by province

Province	Total number of colonies operated in 2020	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 2020	Number of respondents' colonies that were alive and viable in spring 2021	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	800	145	Email, telephone, text	12	12 (100%)	20	546	447	68%	18.1%
Prince Edward Island	5 500	883	Email, telephone	50	19 (38%)	1	5 045	4 235	92%	16.1%
Nova Scotia	26 323	3 232	Email	44	18 (41%)	50	16 043	14 073	61%	12.3%
New Brunswick	12 963	1 706	Mail, email, fax, telephone	32	23 (72%)	50	9 788	8 500	76%	13.2%
Quebec	55 508	10 555	Online	118	68 (58%)	50	32 275	26 138	58%	19.0%
Ontario	96 799	16 692	Online, telephone	252	74 (29%)	50	38 704	32 030	40%	17.2%
Manitoba	118 697	18 299	Email, online	166	44 (27%)	50	48 045	40 638	40%	15.4%
Saskatchewan	100 000	13 707	Online	363	129 (36%)	50	59 203	51 088	59%	13.7%
Alberta	288 320	91 843	Online	169	83 (49%)	100	165 323	112 660	57%	31.9%
British Columbia	57 313	18 444	Online	257	86 (33%)	25	19 981	13 551	35%	32.2%
<b>CANADA</b>	<b>76 2223</b>	<b>175 506</b>		<b>1 463</b>	<b>556 (38%)</b>		<b>394 953</b>	<b>303 360</b>	<b>52%</b>	<b>23.2%</b>