



Thank you for participating in the **2022-2023 Bee Informed Partnership Colony Loss and Management Survey**

Backyard beekeeper version (50 or fewer colonies on 1 October 2021)

Your participation in this research is confidential. All your answers will be stored in a secure, password protected database application that uses SSL encryption. No personally identifiable information will be disclosed in any publication or presentation resulting from this research. Mention of a beekeeping product/practice in this survey does not constitute an official endorsement or approval by the Bee Informed Partnership. Please only complete this survey if you are 18 years or older.

Please enter your answers electronically, on:

<https://beeinformed.org/take-survey/> (1 April – 30 April 2023)

Completion of this survey is voluntary. If you are not comfortable answering a question, please leave it blank. That said, questions marked by an asterisk (*) are very important! Without answers to them, your data will have limited value.

Loss Survey

For the purpose of this survey, a **'colony'** is defined as any unit of bees housed in a hive. That is, a full-sized colony, a nuc, a newly created split, a newly installed package or swarm, but NOT a mating nuc. It must be headed by a mated queen, or at least contain young brood, a queen cell, or a virgin queen. In other words, it should not be hopelessly queenless.

1* How many colonies did you own on 1 October 2022? (Please select one of the following.)

- 50 or fewer colonies 51 or more colonies

2* In what states and territories were your colonies stationed between 1 April 2022 and 1 April 2023?

(Please choose ALL options relevant to you, including areas visited for pollination services and indoor colony storage. Do not include areas passed through when transporting your colonies.)

- | | | | | |
|---|---|--|---|--|
| <input type="checkbox"/> Alabama | <input type="checkbox"/> District of Columbia | <input type="checkbox"/> Maine | <input type="checkbox"/> New Mexico | <input type="checkbox"/> Tennessee |
| <input type="checkbox"/> Alaska | <input type="checkbox"/> Florida | <input type="checkbox"/> Maryland | <input type="checkbox"/> New York | <input type="checkbox"/> Texas |
| <input type="checkbox"/> American Samoa | <input type="checkbox"/> Georgia | <input type="checkbox"/> Massachusetts | <input type="checkbox"/> North Carolina | <input type="checkbox"/> U.S. Virgin Islands |
| <input type="checkbox"/> Arizona | <input type="checkbox"/> Guam | <input type="checkbox"/> Michigan | <input type="checkbox"/> North Dakota | <input type="checkbox"/> Utah |
| <input type="checkbox"/> Arkansas | <input type="checkbox"/> Hawaii | <input type="checkbox"/> Minnesota | <input type="checkbox"/> Ohio | <input type="checkbox"/> Vermont |
| <input type="checkbox"/> California | <input type="checkbox"/> Idaho | <input type="checkbox"/> Mississippi | <input type="checkbox"/> Oklahoma | <input type="checkbox"/> Virginia |
| <input type="checkbox"/> Colorado | <input type="checkbox"/> Illinois | <input type="checkbox"/> Missouri | <input type="checkbox"/> Oregon | <input type="checkbox"/> Washington |
| <input type="checkbox"/> Commonwealth of the Northern Mariana Islands | <input type="checkbox"/> Indiana | <input type="checkbox"/> Montana | <input type="checkbox"/> Pennsylvania | <input type="checkbox"/> West Virginia |
| <input type="checkbox"/> Connecticut | <input type="checkbox"/> Iowa | <input type="checkbox"/> Nebraska | <input type="checkbox"/> Puerto Rico | <input type="checkbox"/> Wisconsin |
| <input type="checkbox"/> Delaware | <input type="checkbox"/> Kansas | <input type="checkbox"/> Nevada | <input type="checkbox"/> Rhode Island | <input type="checkbox"/> Wyoming |
| | <input type="checkbox"/> Kentucky | <input type="checkbox"/> New Hampshire | <input type="checkbox"/> South Carolina | |
| | <input type="checkbox"/> Louisiana | <input type="checkbox"/> New Jersey | <input type="checkbox"/> South Dakota | <input type="checkbox"/> Non US territory |

Time Period Covered by this Survey:

The survey covers the period between 1 April 2022 and 1 April 2023.

Summer 2022 is defined as the period from **1 April 2022** to the **morning of 1 October 2022**;

Winter 2022-23 is defined as the period from **1 October 2022** to the **morning of 1 April 2023**.

Please refer to these definitions and the timeline below when completing the survey.

START OF SUMMER 2022:

START OF WINTER 2022-23:

START OF SUMMER 2023:

Start date: 1 April 2022

Start date: 1 October 2022

Start date: 1 April 2023



Summer 2022



Winter 2022-23

3* Did you make one or more **split during 2022**?
 No Yes If Yes, on what date did you start splitting in 2022?

4* Did you make one or more **split during 2023**?
 No Yes If Yes, on what date did you start splitting in 2023?

5* How many colonies did you own at each time?

1 April 2022

1 October 2022

1 April 2023

6 How strong was your average colony at each time? Estimate the number of 'frames of bees'.

(One 'frame of bees' = One deep Langstroth frame fully occupied by bees on both sides).

1 April 2022

1 October 2022

1 April 2023

7* How many colonies did you **obtain** from outside your operation during each period?
(Please include both those that did AND did not successfully survive in your operation after your initial installation.)

Summer 2022

Winter 2022-23

Remember: 'Summer 2022 is defined as the period between 1 April 2022 and 1 October 2022. 'Winter 2022-23' is defined as the period between 1 October 2022 and 1 April 2023.

8* How much **net increase** in colonies did you make from splitting your own colonies during each period?
(Please include both those that did AND did not successfully survive. Also include packages, nucs, and splits that were eventually sold.)

Summer 2022

Winter 2022-23

Examples of **net increase** by splitting:

- 1) You might break down an entire colony while making splits. If you break down 1 colony into 3 smaller colonies, this represents a **net increase** of 2 colonies.
- 2) You might take extra bees and brood from strong colonies. Two strong colonies results in one new colony AND the two original colonies. This represents a **net increase** of 1 colony.

9* How many colonies did you **sell or give away** during each period?

Summer 2022

Winter 2022-23

Remember: our definition of a colony includes full-sized colonies, as well as newly made splits/nucs and packages.

10* How much was your **net decrease** in colonies due to intentionally combining your colonies?

Summer 2022

Winter 2022-23

Example of **net decrease** by combining: You might combine 2 weak colonies into one. This represents a **net decrease** of 1 colony.

11* What **percentage of loss** over the last **winter (Winter 2022-22)** would you consider acceptable? *Between 0-100%*

12 What factors do you think were the most prominent **cause(s) of colony death** in your operation in **Summer 2022?** *(Select up to 3)*

I did not experience summer loss
 Natural disaster (e.g. hurricane, flood)
 Shipping stress (e.g. overheating, truck issues)
 Adverse weather (e.g. drought)
 Nutritional stress (pollen deprivation)
 Equipment failure (e.g. moisture, ventilation)
 Brood diseases (e.g. EFB, AFB)
 Starvation (honey/nectar/sugar water)
 Failure of environmental controls in sheds
 Queen issues
 Non-apicultural pesticides
 Predators (e.g. bears)
 I don't know
 Apicultural treatments (e.g. formic acid, amitraz)
 Scavenger pests (e.g. small hive beetle, wax moth)
 Varroa mites and associated viruses

Other, please specify:

13 What factors do you think were the most prominent **cause(s) of colony death** in your operation in **Winter 2022-22?** *(Select up to 3)*

I did not experience winter loss
 Natural disaster (e.g. hurricane, flood)
 Shipping stress (e.g. overheating, truck issues)
 Adverse weather (e.g. cold snap)
 Nutritional stress (pollen deprivation)
 Equipment failure (e.g. moisture, ventilation)
 Brood diseases (e.g. EFB, AFB)
 Starvation (honey/nectar/sugar water)
 Failure of environmental controls in sheds
 Queen issues
 Non-apicultural pesticides
 Predators (e.g. bears)
 I don't know
 Apicultural treatments (e.g. formic acid, amitraz)
 Scavenger pests (e.g. small hive beetle, wax moth)
 Varroa mites and associated viruses

Other, please specify:

14 What was the ZIP code of your **primary apiary** during the survey period? *5-digit ZIP codes only*
(Please provide only one even if you keep bees in multiple locations.)

15 If you keep bees in additional apiaries, in which ZIP code(s) are they located? *5-digit ZIP codes only*

[Q16-19 large-scale survey version questions]

20 How many colonies on average share the same location (apiary)?

21 At the start of each month, how many colonies did you own in each state/territory?

State	1 Jan 2022	1 Feb 2022	1 Mar 2022	1 Apr 2022	1 May 2022	1 Jun 2022	1 July 2022	1 Aug 2022	1 Sept 2022	1 Oct 2022	1 Nov 2022	1 Dec 2022	1 Jan 2023	1 Feb 2023	1 Mar 2023	1 Apr 2023
-																
-																
-																
-																

22 Please provide your **email address**
This email is requested for administrative purposes and will never be disclosed.
The Bee Informed Partnership does not share any email addresses.

23 Would you be willing to be **contacted** regarding survey results and future surveys? Yes No

24 Would you like to receive additional updates from the Bee Informed Partnership and learn about its various programs? Yes No

Congratulations and thank you! You have just completed **Part 1** of the survey. Your information will be used to generate **colony loss** information that is critical to monitor the health of honey bee colonies in the country.

Please keep going! **Part 2** focuses on how you managed your colonies last year. This information allows us to understand how your management practices are connected to the health of your colonies.

Management Survey

Pest Management

This year's Management Survey focuses on practices related to **Pest Management** in your colonies. This includes questions on prevention, monitoring, and interventions, as well as why (and why not) you prefer some practices to others.

25* Which of the following physical or cultural practices to manage **Varroa** did you apply to any of your colonies between your **Start of Summer 2022** and **Start of Summer 2023**? *(Select all that apply)*

- | | | |
|--|--|--|
| <input type="checkbox"/> None of the following | <input type="checkbox"/> Indoor winter storage | <input type="checkbox"/> Splitting (without brood break) |
| <input type="checkbox"/> Bees bred for resistance to <i>Varroa</i> | <input type="checkbox"/> <i>Miticide in conjunction with brood break from indoor wintering</i> | <input type="checkbox"/> Splitting that induced a brood break |
| <input type="checkbox"/> Drone brood removal | <input type="checkbox"/> Location/strategic migration that induced a brood break | <input type="checkbox"/> <i>Miticide in conjunction with above brood break</i> |
| <input type="checkbox"/> Screened bottom boards | <input type="checkbox"/> <i>Miticide in conjunction with above brood break</i> | <input type="checkbox"/> Other method of inducing a brood break |
| <input type="checkbox"/> Other, please specify: <input type="text"/> | | |

26 Which, if any, of the following physical or cultural practices to manage **non-Varroa** pests or disease did you apply to any of your colonies between your **Start of Summer 2022** and **Start of Summer 2023**? *(Select all that apply)*

- None of the following
- Bees bred for resistance to disease
- Requeening after seeing disease
- Supplemental feeding to prevent disease
- Supplemental feeding in response to seeing disease
- Nonchemical traps for small hive beetle
- Other

27* Which of the following did you apply to any of your colonies between **April 1, 2022** and **April 1, 2023**? *(Select all that apply)*

- | | | |
|--|--|---|
| <input type="checkbox"/> None of the following | <input type="checkbox"/> Fluvalinate-based product (Apistan) | <input type="checkbox"/> Oxalic Acid |
| <input type="checkbox"/> Amitraz-based product (Apivar/other) | <input type="checkbox"/> Fumagillin (Fumidil-B) | <input type="checkbox"/> Oxytetracycline (Terramycin, Oxytet) |
| <input type="checkbox"/> Coumaphos-based product (CheckMite+) | <input type="checkbox"/> Hop oil-based product (HopGuard) | <input type="checkbox"/> Thymol-based product (ApiLife VAR, ApiGuard) |
| <input type="checkbox"/> Essential oils | <input type="checkbox"/> Menthol-based product (Mite-A-Thol) | <input type="checkbox"/> Tylosin-based product (Tylan) |
| <input type="checkbox"/> Formic Acid (MiteAway QuickStrips – MAQS) | <input type="checkbox"/> Mineral oils | |
| <input type="checkbox"/> Other, please specify: <input type="text"/> | | |

28 **[CONDITIONAL: any treatment selected in Q27]** You indicated you used the treatment(s) below.

Please indicate, during each period, how many times did you initiate a round of... (Enter: 0 / 1 / 2 / 3 / 4 or 5+)

Products selected in Q27:	Early summer (Apr1-Jun30)	Late summer (Jul1-Sept30)	Early winter (Oct1-Dec31)	Late winter (Jan1- Mar31)
-				
-				
-				
-				
-				
-				
-				
-				

29 **[CONDITIONAL: Varroa chemical treatment selected in Q27]** You indicated you treated for *Varroa* last year.

What triggered your decision to use treatment(s)? *(Select all that apply)*

- As part of my regular maintenance / calendar treatment
- I measured *Varroa* levels above action threshold
- I visually observed signs of infestation
- I don't know

30 [CONDITIONAL: *Varroa* chemical treatment NOT selected in Q27] You indicated you did not treat for *Varroa* last year. What triggered your decision to not treat? (Choose one)

I intentionally did not treat for *Varroa*

I intended to treat but was unable to (cost, time, etc.)

I measured *Varroa* levels below action threshold

I visually observed no or limited signs of infestation

I don't know

31* If Yes, please indicate how many times you did during each time period (Enter: 0 / 1 / 2 / 3 / 4 or 5+)

During the survey period, did you initiate a round of...	Early summer (Apr1-Jun30)	Late summer (Jul1- Sept30)	Early winter (Oct1-Dec31)	Late winter (Jan1-Mar31)
... colony inspections? (including opening the hive and inspecting the surface of at least one frame) <input type="radio"/> No <input type="radio"/> Yes				
.. <i>Varroa</i> mite monitoring? (only consider quantitative measures using an alcohol wash, sugar shake, sticky boards, counting mites in brood cells, etc.) <input type="radio"/> No <input type="radio"/> Yes				
... <i>Vairimorpha (Nosema)</i> monitoring? (only consider quantitative measures using a microscope) <input type="radio"/> No <input type="radio"/> Yes				

32 When inspecting your colonies last year, did you routinely record notes (colony condition, disease, pests, etc.) in the following ways? (Select all that apply)

I did not record notes

In a temporary manner (e.g., on the hive lid)

On paper

In an electronic format (Excel, Database, app)

33 [CONDITIONAL: Q32 take notes (any form)] You indicated you took notes from your colony inspections last year. When inspecting your colonies, on which of the following did you keep notes? (Select all that apply)

Colony size (frames of adult bees)

Queen status (or presence of eggs)

Signs of diseases

Amount of food stores

34 How confident are you in your ability to perform the following actions? (Select one option per row)

	Not Confident	Confident	Confident and I have done it in the past
Recognizing eggs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estimating size of the adult bee population	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assessing if food stores are sufficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assessing quality of brood pattern	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identifying uncapped or cannibalized pupae	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identifying bees with deformed wings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identifying European foulbrood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identifying American foulbrood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

35 [CONDITIONAL: Q31 *Varroa* monitoring==Yes] You indicated you monitored for *Varroa* last year. Which monitoring method did you use most frequently? (Select all that apply)

Alcohol wash Sugar shake/roll Sticky board Counting mites in brood cells

Other

36 [CONDITIONAL: Q31 *Varroa* monitoring==NO] You indicated you did not measure *Varroa* loads last year.
 Why not? (Choose the main reason)

- I do not think it is important
- Not enough time
- Lack of resources (equipment, cost, etc.)
- I don't know how
- I think visual observations are good enough
- I don't want to kill bees / the queen
- Other

37 [CONDITIONAL: Q31 *Vairimorpha (Nosema)* monitoring==NO] You indicated you did not quantitatively monitor for *Vairimorpha (Nosema)* last year.
 Why not? (Choose the main reason)

- I do not think it is important
- Not enough time
- Lack of resources (equipment, cost, etc.)
- I don't know how
- I think visual observations are good enough
- I don't want to kill bees / the queen
- Other

38 **Small Hive Beetles**

Did you observe Small Hive Beetles (SHB) in your operation last year? No Yes

Please describe the impact of SHB on your beekeeping. (Select all that apply)

- No noticeable impact
- Colonies lost or killed
- Decreased bee population or brood production
- Complicated honey harvesting/production
- Complicated protein feeding practices
- Complicated queen production
- Complicated colony divisions
- Other

39 **European foulbrood**

Did you observe European foulbrood (EFB) in your operation last year? No Yes

Please describe the impact of EFB on your beekeeping. (Select one)

- No noticeable impact
- Some negative impact
- Severe negative impact

40 **Chalkbrood**

Did you observe chalkbrood in your operation last year? No Yes

Please describe the impact of chalkbrood on your beekeeping. (Select one)

- No noticeable impact
- Some negative impact
- Severe negative impact

41 ***Vairimorpha (Nosema)***

Did you observe *Vairimorpha (Nosema)* in your operation last year? No Yes

Please describe the impact of *Vairimorpha (Nosema)* on your beekeeping. (Select one)

- No noticeable impact
- Some negative impact
- Severe negative impact

Thank you for answering our Pest Management questions as the special focus of our 2023 survey.
 The following questions are part of a longer-term effort to document changes in management practices through time.

New colonies & queens

Note that **‘providing a new queen’** includes giving a colony a mated queen, a queen cell, and even the opportunity to raise a new queen by making a walk-away split or removing the old queen.

42*	During the survey period, did you start or obtain any new colonies?	<input type="radio"/> No	<input type="radio"/> Yes
43	If Yes, how did you start or obtain your new colonies during the survey period? <i>(Select all that apply)</i>		
	<input type="checkbox"/> Splits	<input type="checkbox"/> Swarms	<input type="checkbox"/> Packages
	<input type="checkbox"/> Nucs	<input type="checkbox"/> Full colonies	
44*	Did you provide any new queens to your colonies during the survey period? <i>(Include queens provided both during splitting and requeening.)</i>	<input type="radio"/> No	<input type="radio"/> Yes
45	If Yes, how many of each type of queen did you provide to your colonies during the survey period?		
	Type	Number	
	Mated queens	<input type="text"/>	
	Queen cells	<input type="text"/>	
	Virgin queens	<input type="text"/>	
	Walk-away splits, or killed queen to allow colony to raise emergency queen	<input type="text"/>	
	Other	<input type="text"/>	

Feeding

46*	During the survey period, did you initiate a round of...	If Yes , please indicate how many times you did during each time period (Enter: 0 / 1 / 2 / 3 / 4 or 5+)			
		Early summer (Apr1-Jun30)	Late summer (Jul1- Sept30)	Early winter (Oct1-Dec31)	Late winter (Jan1-Mar31)
	... supplemental carbohydrate/sugar feed?	<input type="radio"/> No	<input type="radio"/> Yes	<input type="text"/>	<input type="text"/>
	... supplemental protein feed? (e.g., protein patties)	<input type="radio"/> No	<input type="radio"/> Yes	<input type="text"/>	<input type="text"/>

A little bit about you

47	Why did you keep bees? <i>(Select all that apply)</i>
	<input type="checkbox"/> For pollination contracts <input type="checkbox"/> To produce queens or queen cells for sale <input type="checkbox"/> To produce packages for sale <input type="checkbox"/> To produce nucs for sale <input type="checkbox"/> Other <input type="checkbox"/> To produce honey/wax/pollen for sale <input type="checkbox"/> To produce honey/wax/pollen/queens for personal use <input type="checkbox"/> For enjoyment/hobby <input type="checkbox"/> For teaching/education
48	To which age bracket do you belong? <i>(Select one category)</i>
	<input type="radio"/> 18-24 years old <input type="radio"/> 25-34 years old <input type="radio"/> 35-44 years old <input type="radio"/> 45-54 years old <input type="radio"/> 55-64 years old <input type="radio"/> 65-74 years old <input type="radio"/> 75-84 years old <input type="radio"/> 85 years or older
49	Approximately how many years have you been keeping bees?
	<input type="text"/> (in years)

[Q50-51 large-scale survey version questions]

Thank You!

We appreciate your time in answering our Colony Loss and Management Survey!

The Bee Informed Partnership is a non-profit organization that works to improve honey bee health.

By answering these questions on colony loss and management, you are helping us describe a realistic picture of the losses in the US and better understand factors that contribute to colony losses, so that we can work together to reduce losses.

We rely on word of mouth to reach as many beekeepers as possible. Please share the survey announcement far and wide with your beekeeping friends and local clubs!

Please visit beeinformed.org for insights on how the results of this survey can improve your colony management decision making!

