



**AGRI-FOOD
& BIOSCIENCES
INSTITUTE**

Northern Ireland
Honey Bee
Husbandry Survey
2023-24



Northern Ireland Honey Bee Husbandry Survey 2023-24

An AFBI research report

About the Agri-food and Biosciences Institute (www.afbini.gov.uk)

The Agri-Food & Biosciences Institute (AFBI) was created on 1st April 2006 as an amalgamation of the Department of Agriculture and Rural Development (DARD) Science Service and the Agricultural Research Institute of Northern Ireland (ARINI). Based at seven sites around Northern Ireland, AFBI carries out research and development, statutory, analytical, and diagnostic testing functions for Government departments, public bodies and commercial companies.

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Period of survey investigation: March to June 2024

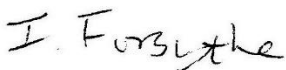
Date of report: July 2024

Disclaimer: There are currently estimated to be 1400 active beekeepers in Northern Ireland (c.2018). The data presented in this report was volunteered from 91 beekeeper respondents therefore it may not accurately reflect beekeeping husbandry practices during the period of investigation.

Data Protection: AFBI has processed the data from this survey in compliance with the EU General Data Protection Regulation (GDPR) which came into effect from 25th May 2018.

Declaration: We declare that this work was done under our supervision according to the procedures outlined and that the findings of this report are a true interpretation of the results obtained.

Acknowledgements: We gratefully acknowledge the assistance of the DAERA Senior Bee Health Inspectors; the Chairman and Hon. Secretary of the Ulster Beekeepers' Association; the Institute of Northern Ireland Beekeepers; the secretaries of all the local beekeeping associations, and of course the beekeepers who gave up their time to fill in our questionnaire.



Ivan Forsythe



Dr. Archie K. Murchie

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Summary

This is the sixteenth annual survey of beekeeping husbandry issues in Northern Ireland.

- Colony losses for the 2023-24 survey was 24% compared to 14% in 2022-23 and 11% in 2021-22.
- 50% of beekeepers reported no loss of colonies, which compares with 54% in 2022-23 and 60% in 2021- 22.
- Of the 111 colonies reported as lost by the respondents, 51 (46%) were attributed to queen problems.
- Oxalic acid; products containing Thymol; products containing Amitraz; Formic acid and drone brood removal were the five most popular Varroa mite treatments used by 58%, 45%, 38%, 19% and 18% of beekeepers respectively.
- 2 beekeepers imported queens. They all came from GB (England, Scotland & Wales).
- There were 91 survey responses from beekeepers. This compares with 61 in 2022-23, 57 in 2021-22 and 74 in 2020-21.

Method

The honey bee husbandry survey was made available to beekeepers in a questionnaire format available online at the AFBI website (<https://www.afbini.gov.uk/articles/bee-health>). The survey was exclusively completed electronically using PCs, laptops and mobile devices such as smartphones and tablets.

The survey closed on June 14th, 2024.

Questions and Responses

Q1. In which county do you keep your bees in the majority of the season?

County	Count of respondents
Antrim	26
Armagh	3
Derry/Londonderry	7
Down	45
Fermanagh	6
Tyrone	4
	91 in total

Q2. How many years have you kept bees?

Number of year's beekeeping divided into categories				
Number of years keeping bees	1 - 3	4 – 10	11 – 20	>20
% of beekeepers	35	39	18	8

Q3. To describe the location of your main apiary or operation, please state

- The name of a city/town/village near to your apiary**
- The post code of the apiary (or a post code nearby)**

All answers received are confidential and are processed according to the AFBI Privacy Notice in compliance with the EU General Data Protection Regulation (GDPR), 2018.

Q4. How many apiaries do you have?

62 beekeepers (68%) had 1 apiary.

29 beekeepers (32%) had from 2 – 11 apiaries.

Q5. If you have more than one apiary, are all your apiaries within a distance of about 15km (9 miles) of each other? (If you have only one apiary, please answer Yes)

24 beekeepers responded 'Yes' to having more than one apiary within a 15km distance.

5 beekeepers responded 'No'.

Q6. How many production colonies did you have before winter 2023-24?

The majority of respondent beekeepers had 1 - 2 production colonies. The total number was 455.

The numbers of production colonies, divided into categories, maintained by individual beekeepers before winter 2023-24

	No. of production colonies maintained				
	1 - 2	3 - 5	6 - 10	11 - 20	20+
No. of beekeepers	37	31	12	9	2

Q7. How many of these colonies (in Q6.) did you lose

1. Because they still had live bees present but had unsolvable queen problems? 51
2. Because of a natural hazard (e.g. storm/wind damage, floods)?..... 2
3. Because they were dead or the hive was empty?..... 58

Overwintering losses in 2023-24 were **24%** compared to 14% in 2022-23 and 11% in 2021-22.

The table below shows the breakdown figures per county.

Colony losses during the winter of 2023-24 per county

County	Live before winter	Colonies lost	% loss
Antrim	74	20	27
Armagh	18	5	28
Derry/Londonderry	18	4	22
Down	283	78	28
Fermanagh	23	1	4
Tyrone	39	3	8
TOTAL	455	111	x = 24.4

50% of respondent beekeepers had no losses; in 2022-23 it was 54% and in 2021-22 it was 60%.

Q8. How many of the dead colonies or empty hives (in Q7. 3.)

- a. Had many dead bees in or in front of the hive?..... 9
- b. Had no or only a few dead bees in or in front of the empty hive?..... 17
- c. Had dead workers in cells and no food present in the hive (signs of starvation)?..... 12
- d. Had dead workers in cells while food was present in the hive?..... 17
- e. Had none of the above or unknown symptoms?..... 3

Q9. How many of the wintered colonies (in Q6.) were weak but queenright after winter 2023-24?

Of the 344 surviving colonies, 134 (39%) were reported as weak but queenright.

Q10. How many production colonies did you have in

- a. Spring 2023 (last year)? 417 in total.
- b. this year, Spring 2024? 344 in total.

Q11. How many of your wintered colonies had a new queen in 2023?

Why were they replaced?

60 beekeepers had a total of 244 wintered colonies with a new queen.

The main reasons given for new queen replacement were old age, swarming, colony splits, and supersedure.

Q12. What are the origins of your queens?

- Reared by the colony itself** 36 beekeepers used only their own colony.
- Reared by one of your own selected queens** 7 used only their own selected queens.
- Acquired from local beekeepers** 20 only acquired locally.
- Imported** **Yes:** 2 beekeepers. **No:** 89 beekeepers.

If you answered ‘Yes’ to Imported, please give the number of queens you imported and from which country?

	Total Number of Queens	
GB (England, Scotland & Wales)	23	* Please specify EU/Non-EU countries below
Other Non-EU countries *	0	
EU countries (inc. ROI) *	0	

27 beekeepers used two or more of the above origins.

Q13. To what extent did you observe queen problems in your colonies during the foraging season of 2023 compared to what you usually have?

More 21% of beekeepers
Normal 55% of beekeepers
Less 5% of beekeepers
Don't know 19% of beekeepers

Q14. How many of your surviving colonies had a large amount of faeces inside the hive after winter?

74 beekeepers had no colonies with a large amount of faeces inside the hive after winter.
13 beekeepers replied, 'Don't know'.
4 beekeepers replied 'Yes' for 5 colonies.

Q15. Did you treat your colonies for *Nosema* before overwintering in 2023?

Yes: 11 beekeepers. **No/Don't know:** 80 beekeepers.

9 beekeepers treated with the product, HiveAlive; 1 beekeeper treated with the product, VitaFeed Gold and 1 beekeeper treated with the product, MAQS.

Q16. Did you migrate any of your colonies at least once for honey production or pollination in 2023?

Yes: 6 beekeepers (7%). **No/Don't know:** 85 beekeepers (93%).

Q17. Have you noticed bees with crippled/deformed wings in your colonies during the 2023 summer season? (These are signs of the presence of Deformed Wing Virus, which is spread by Varroa mites)

Not at all 50% of beekeepers
To a limited extent 45% of beekeepers
To a large extent 2% of beekeepers
Don't know 3% of beekeepers

Q18. Approximately what proportion of brood combs did you replace with comb foundation per colony in 2023?

0%	20% of beekeepers
1-30%	59% of beekeepers
31-50%	17% of beekeepers
More than 50%	4% of beekeepers

Q19. What particular measures apply for the majority of your beekeeping?

	<u>Percentage of beekeepers</u>	
a. Screened bottom board in Winter	Yes: 87%	No/Don't Know: 13%
b. Insulated hives in Winter (including double-walled hives)	Yes: 42%	No/Don't Know: 58%
c. Hives made from synthetic materials	Yes: 27%	No/Don't Know: 73%
d. Certified organic beekeeping	Yes: 4%	No/Don't Know: 96%
e. Queens bred from Varroa tolerant/resistant stock	Yes: 10%	No/Don't Know: 90%
f. Small brood cell size (5.1mm or less)	Yes: 8%	No/Don't Know: 92%
g. Comb without foundation	Yes: 9%	No/Don't Know: 91%
h. Purchase wax from outside own operation	Yes: 78%	No/Don't Know: 22%
i. Non-wax foundation in brood chamber	Yes: 1%	No/Don't Know: 99%

Q20. Have you monitored your colonies for Varroa during the period April 2023 – March 2024?

59 out of 91 beekeepers (65%) responded 'Yes' to monitoring for Varroa.
2 beekeepers monitored continuously throughout the period.

Q21. Have you treated your colonies for Varroa during the period April 2023 – March 2024?

80 out of 91 beekeepers (88%) responded 'Yes' to treating for Varroa.

The top 5 treatments used by these beekeepers were:

1. **Oxalic acid** - trickling and sublimation (evaporation)..... 58%
2. **Thymol** (Apiguard/ApiLife Var) 45%
3. **Amitraz** (Apivar/Apitraz) strips 38%
4. **Formic acid** – short term and long term, e.g. MAQS (Mite Away Quick Strips)
..... 19%
5. **Drone brood removal** 18%

Q22. What method did you use to monitor your production colonies for Varroa during the 2023-24 season?

- Mite fall on bottom board** 76% of beekeepers
- Visual inspection of the colony** 64% of beekeepers
- De-capping brood** 14% of beekeepers
- Adult bees sugar shake/roll, washing with detergent, CO₂**..... 15% of beekeepers
- Sent sample to laboratory** 2% of beekeepers
- None of the above** 9% of beekeepers

54 beekeepers (59%) used two or more of the above methods.

Q23. Did you feed your colonies between April 2023 and March 2024?

Yes = 82 beekeepers

No = 9 beekeepers

Feeding methods used by beekeepers in Northern Ireland

Feed for bees	Count of beekeepers (n = 82)	% of beekeepers
Ambrosia	5	6
Pollen/Patty feed product	15	18
Candy/Fondant	65	79
Feed supplement (e.g. Vita Feed, HiveAlive etc.)	30	37
Honey	15	18
Sugar Syrup	57	69
Beet Sugar	0	0
Inverted Beet Sugar Syrup	4	5
High Fructose Corn Syrup (HFCS)	0	0
Other (Own mix + sugar syrup)	1	1

Q24. Can you recognize and/or do you know any information about the following bee diseases and pests?

- a. Acarine..... 34% of beekeepers**
- b. Nosema..... 76% of beekeepers**
- c. Chalkbrood..... 91% of beekeepers**
- d. Sacbrood..... 57% of beekeepers**
- e. American Foulbrood (AFB)..... 86% of beekeepers**
- f. European Foulbrood (EFB)..... 88% of beekeepers**
- g. Varroa..... 94% of beekeepers**
- h. Wax moths..... 90% of beekeepers**
- i. Asian Hornet..... 81% of beekeepers**

25 beekeepers (27%) recognised and/or knew information about all 9 diseases/pests.

Q25. Have you made use of any of the following services, provided by DAERA and/or AFBI, in 2023-24?

A bee health apiary visit by DAERA Bee inspectors	4 beekeepers
Sent a sample of bees/brood comb for laboratory examination to AFBI	6 beekeepers
Asked for advice from either DAERA or AFBI	8 beekeepers
Registered on DataBees	25 beekeepers
None of the above	59 beekeepers

If you would like information about registering on DataBees, please go to
<https://www.daera-ni.gov.uk/articles/beekeepers-voluntary-registration>

8 out of 91 beekeepers (9%) made use of two or more of the above services.

Q26. If you found it difficult to answer the questionnaire, please indicate which question(s) you found difficult to answer and say why they were difficult to answer.

Comment

“I tried twice to submit my details to bee database, has been rejected”

Reply

Please contact Tom Williamson, DAERA Bee Health Head Inspector, Tom.Williamson@daera-ni.gov.uk

Comments

“Annoying to have to say not used on things rather than leaving blank on phone”

“The last page was a pain. That massive list should by default be set to not used, then I’d only have to select which I used, rather than selecting not used many times”

Reply

These comments will be forwarded to the survey webpage designers to adjust for next year’s survey.

Comment

“Not able to access as not with Acrobat also do not know what to do with pixilated square. Use different format and do not assume that beekeepers are all computer literate select- not used- etc. replacement with simple ticks would speed up doing”

Reply

The AFBI Honey bee Husbandry survey is available to complete in paper copy format every year. Paper questionnaires (with return stamp addressed envelopes) can be requested from:

Bee Health Laboratory, Agri-Food & Biosciences Institute, 18a Newforge Lane, Belfast BT9 5PX.

Questions 3, 6-10, 13 & 16-22 are standardized by COLOSS, a Europe based honey bee research association, as part of their world-wide survey and cannot be changed.

Once again, thank you to all the beekeepers who participated in this survey.

Without your help we would have little knowledge of Northern Ireland beekeeping practices and the various challenges that beekeepers face. Your responses will contribute to future departmental policy for the sustainability of honey bee health.