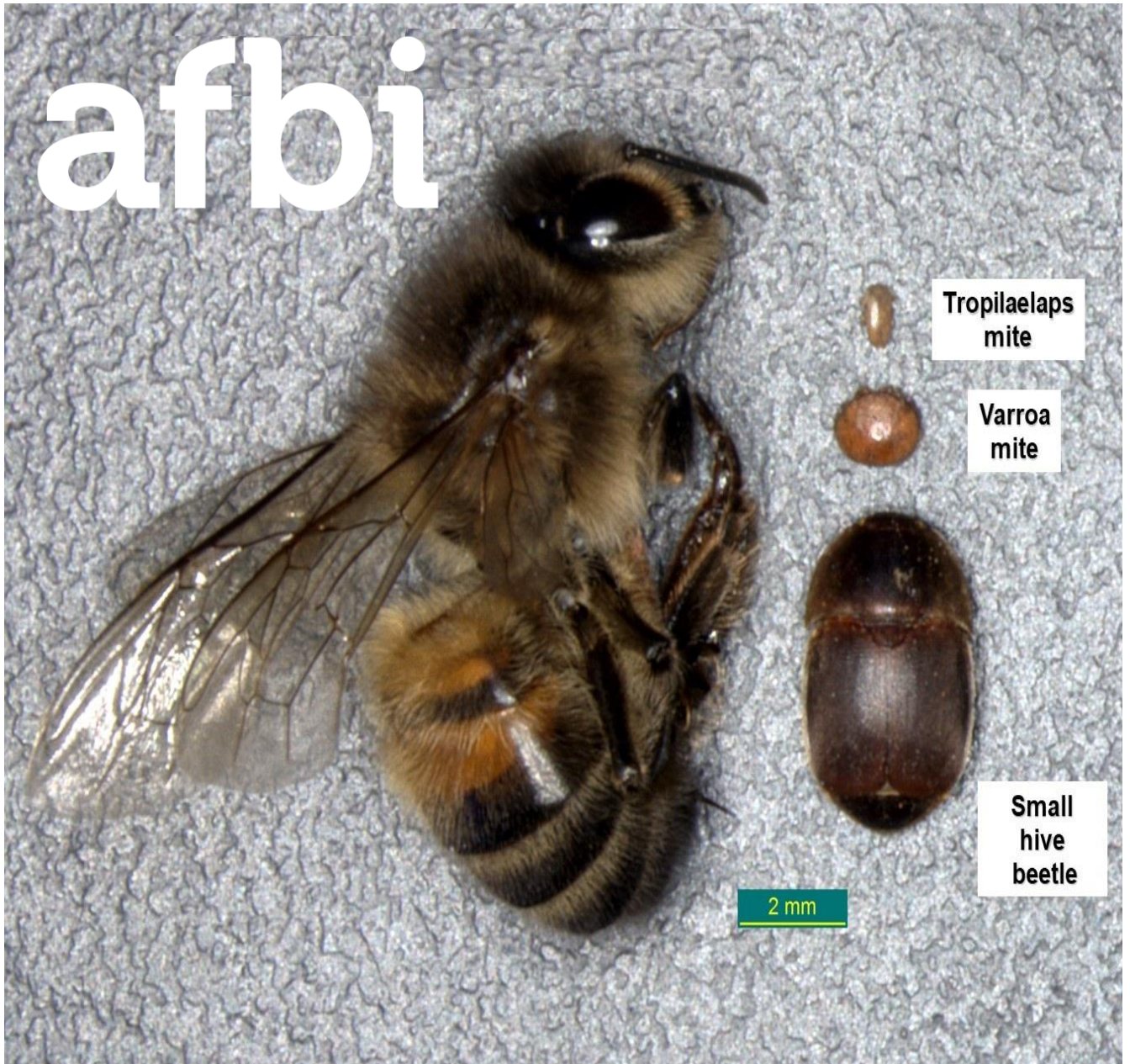


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**AGRI-FOOD
& BIOSCIENCES
INSTITUTE**

Northern Ireland Honey
Bee Husbandry Survey
2021-22



Northern Ireland Honeybee Husbandry Survey 2021-22

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.

Report by: Ivan Forsythe & Dr. Archie K. Murchie

Other Staff involved: Ashley Uprichard, AFBI Statistical Services Branch (website development)

Period of survey investigation: March to June 2022

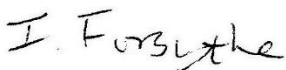
Date of report: July 2022

Disclaimer: There are currently estimated to be 1400 active beekeepers in Northern Ireland (c.2018). The data presented in this report was volunteered from 57 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 Tom Williamson, DAERA Senior Bee Health Inspector; Trevor Dawson, Hon. Secretary of the Ulster Beekeepers' Association; Lyndon Wortley, Chairman of 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 fourteenth annual survey of beekeeping husbandry issues in Northern Ireland.

- Colony losses for the 2021-22 survey was 11% compared to 16% in 2020-21; 19% in 2019-20 and 11% in 2018-19.
- 60% of beekeepers reported no loss of colonies, which compares with 51% in 2020-21 and 56% in 2019-20.
- Of the 31 colonies reported as lost by the respondents, 18 (58%) were attributed to queen problems.
- Oxalic acid, products containing Amitraz and Thymol, Formic acid and drone brood removal were the five most popular Varroa mite treatments used by 58%, 52%, 29%, 19% and 12% of beekeepers respectively.
- 2 beekeepers imported queens. They came from GB (England, Scotland & Wales).
- There were 57 survey responses from beekeepers. This compares with 74 in 2020-21; 117 in 2019-20 and 94 in 2018-19.

Method

The honeybee 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 17th 2022.

Questions and Responses

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

County	Count of respondents
Antrim	16
Armagh	3
Down	24
Fermanagh	6
Londonderry/Derry	6
Tyrone	2
57 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	33	48	12	5

1 beekeeper did not answer this question (2%).

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).

Q4. How many apiaries do you have?

40 beekeepers (70%) had 1 apiary.

17 beekeepers (30%) had from 2 - 6 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)

13 beekeepers responded 'Yes';

4 beekeepers responded 'No'.

Q6. How many production colonies did you have before winter 2021-22?

The majority of respondent beekeepers had 1 - 2 production colonies. The total number was 294.

The numbers of production colonies, divided into categories, maintained by individual beekeepers before winter 2021-22

	No. of production colonies maintained				
	1 - 2	3 - 5	6 - 10	11 - 20	20+
No. of beekeepers	22	18	11	5	1

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

1. Because they still had live bees present but had unsolvable queen problems? 18
2. Because of a natural hazard (e.g. storm/wind damage, floods)?..... 0
3. Because they were dead or the hive was empty?..... 13

Overwintering losses in 2021-22 were **11%** compared to 16% in 2020-21, 19% in 2019-20 and 11% in 2018-19.

The table below shows the breakdown figures per county.

Colony losses during the winter of 2021-22 per county

County	Live before winter	Colonies lost	% loss
Antrim	86	9	10
Armagh	49	1	2
Down	107	16	15
Fermanagh	34	3	9
Londonderry/Derry	13	1	8
Tyrone	5	1	20
TOTAL			X = 11

60% of respondent beekeepers had no losses. In 2020-21 it was 51% and in 2019-20 it was 56%.

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?..... 3
- b. Had no or only a few dead bees in or in front of the empty hive?..... 1
- c. Had dead workers in cells and no food present in the hive (signs of starvation)?..... 1
- d. Had dead workers in cells while food was present in the hive?..... 7
- e. Had none of the above or unknown symptoms?..... 1

Q9. How many of the wintered colonies (in Q6.) were weak but queenright after winter 2021-22?

Of the 263 surviving colonies, 68 (26%) were reported as weak but queenright.

Q10. How many production colonies did you have in

- a. Spring 2021 (last year)? 216 in total.
- b. this year, Spring 2022? 263 in total.

Q11. How many of your wintered colonies had a new queen in 2021?

46 beekeepers had a total of 177 wintered colonies with a new queen.

Q12. What are the origins of your queens?

- Reared by the colony itself** 22 beekeepers used only home-bred colonies.
- Reared by one of your own selected queens** 2 used only their own selected queens.
- Acquired from local beekeepers** 17 only acquired locally.
- Imported** **Yes:** 2 beekeepers. **No:** 55 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)	9	* Please specify EU/Non EU countries below
Other Non-EU countries *	0	-
EU countries (inc. ROI) *	0	-

15 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 2021 compared to what you usually have?

More	9% of beekeepers
Normal	54% of beekeepers
Less	16% of beekeepers
Don't know	21% of beekeepers

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

48 beekeepers had no colonies with a large amount of faeces inside the hive after winter.
9 beekeepers replied 'Don't know'.

Q15. Did you treat your colonies for *Nosema* before overwintering in 2021?

Yes: 5 beekeepers. **No/Don't know:** 52 beekeepers.

All 5 beekeepers treated with the same product, HiveAlive.

Q16. Did you migrate any of your colonies at least once for honey production or pollination in 2021?

Yes: 4 beekeepers (7%). **No/Don't know:** 53 beekeepers (93%).

Q17. Approximately what proportion of brood combs did you replace with comb foundation per colony in 2021?

0%	23% of beekeepers
1-30%	61% of beekeepers
31-50%	12% of beekeepers
More than 50%	4% of beekeepers

Q18. Have you noticed bees with crippled/deformed wings in your colonies during the 2021 summer season? (These are signs of the presence of Deformed Wing Virus, which is spread by Varroa mites)

Not at all.....63%
 To a limited extent.....33%
 To a large extent 0%
 Don't know 4%

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

- | | | |
|---|----------|---------------------|
| a. Screened bottom board in Winter | Yes: 81% | No/Don't Know: 19% |
| b. Insulated hives in Winter
(including double-walled hives) | Yes: 47% | No/Don't Know: 53% |
| c. Hives made from synthetic materials | Yes: 28% | No/Don't Know: 72% |
| d. Certified organic beekeeping | Yes: 2% | No/Don't Know: 98% |
| e. Queens bred from Varroa
tolerant/resistant stock | Yes: 9% | No/Don't Know: 91% |
| f. Small brood cell size (5.1mm or less) | Yes: 9% | No/Don't Know: 91% |
| g. Comb without foundation | Yes: 11% | No/Don't Know: 89% |
| h. Purchase wax from outside own
operation | Yes: 67% | No/Don't Know: 33% |
| i. Non-wax foundation in brood chamber | Yes: 0% | No/Don't Know: 100% |

Q20. Have you monitored your colonies for Varroa during the period April 2021 – March 2022?

37 out of 57 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 2021 – March 2022?

52 out of 57 beekeepers (91%) responded ‘Yes’ to treating for Varroa.

The top 5 treatments used were:

1. Oxalic acid - trickling and sublimation (evaporation) (58%).
2. Amitraz - (Apivar) strips and fumigation/aerosol (52%).
3. Thymol (Apiguard / ApiLife Var) (29%).
4. Formic acid – short term and long term, e.g. MAQS (Mite Away Quick Strips) (19%).
5. Drone brood removal (12%).

Q22. Please identify in which month(s) ...

	2021										2022		
	April	May	June	July	August	September	October	November	December	January	February	March	
you added supers?	10	28	18	11	4	1	-	-	-	-	-	3	
you changed queens?	1	5	10	11	9	3	1	-	-	-	-	-	
you split colonies?	1	18	21	8	2	-	-	-	-	-	-	-	
you merged colonies?	2	-	1	2	8	12	2	1	-	-	-	-	
you harvested honey?	-	3	5	2	31	18	2	-	-	-	-	-	
you often experienced colony losses?	4	1	1	2	3	4	2	1	2	3	8	7	
you managed the highest number of colonies?	1	1	13	23	17	10	5	6	2	3	2	1	
you managed the lowest number of colonies?	18	9	-	1	1	3	6	7	10	8	14	18	
your colonies swarmed?	1	11	19	14	2	-	-	-	1	1	1	1	
your colonies absconded?	-	2	2	4	1	1	-	-	-	-	-	-	
your colonies relied on food stores only?	8	8	11	7	8	5	14	20	25	24	19	11	

Number of beekeepers for each month.

Q23. Did you feed your colonies between April 2021 and March 2022?

Yes = 56 beekeepers

No = 1 beekeeper

Feeding methods used by beekeepers in Northern Ireland

Feed for bees	Count of beekeepers (n = 56)	% of beekeepers
Ambrosia	7	13
Pollen/Patty feed product	7	13
Candy/Fondant	47	84
Feed supplement (e.g. Vita Feed, HiveAlive etc.) *	22	39
Honey	5	9
Sugar Syrup	40	71
Beet Sugar	1	2
Inverted Beet Sugar Syrup	5	9
High Fructose Corn Syrup (HFCS)	1	2
Other	0	0

* HiveAlive was the most popular Feed supplement

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

- a. Acarine..... 35%
- b. Nosema..... 81%
- c. Chalkbrood..... 93%
- d. Sacbrood..... 60%
- e. American Foulbrood (AFB)..... 90%
- f. European Foulbrood (EFB)..... 90%
- g. Varroa..... 96%
- h. Wax moths..... 86%
- i. Asian Hornet..... 77%

16 beekeepers (28%) recognised and/or knew information about all 9 diseases/pests.

2 beekeepers didn't recognize or know information about any of the diseases/pests.

Q25. Have you made use of any of the following services, provided by DAERA/AFBI, in 2021-22?

A bee health apiary visit by DAERA Bee inspectors 8 beekeepers

Sent a sample of bees/brood comb for laboratory examination to AFBI 10 beekeepers

Asked for advice from either DAERA or AFBI 6 beekeepers

Registered on DataBees 15 beekeepers

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

26 out of 57 beekeepers (46%) made use of one 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

Please send out survey in a simple to access form, QR codes are alien to some of us.

Reply

As was stated on the survey invitation letter sent to the beekeeping associations, paper copies of the survey and return stamped addressed envelopes were freely available on request.

Comment

How many Queens were replaced due to age or other...becoming drone layers?..laying unfertilised eggs?

Reply

This is a good suggestion as to why queens are replaced. It will be included as a question in next year's survey.

Comment

The questions on managing the highest and lowest number of colonies was unclear as to their meaning.

Reply

This refers to a time when if you split or merge to form a greater or lesser number of colonies. These questions are more relevant to beekeepers with multiple colonies and/or more than one apiary.

Other questions will be reviewed in response to further comments made.

Questions 3, 6-9, 11, 16, 18, 20 & 21 are standardized by COLOSS, a Europe based honey bee research association, as part of their world-wide survey and unfortunately cannot be changed.