



**AGRI-FOOD
& BIOSCIENCES
INSTITUTE**

Northern Ireland
Honey Bee
Husbandry Survey
2019 -20



Northern Ireland Honeybee Husbandry Survey 2019-20

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 2020

Date of report: July 2020

Disclaimer: There are currently estimated to be 1400 active beekeepers in Northern Ireland (2018). The data presented in this report was volunteered from 117 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.

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Summary

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

- Colony losses for the 2019-20 survey was 19% compared to 11% in 2018-19; 30% in 2017-18 and 10% in 2016-17.
- 56% of beekeepers reported no loss of colonies, which compares with 64% in 2018-19.
- Of the 114 colonies reported as lost by the respondents, 58 (10%) were attributed to queen problems.
- Products containing Oxalic acid and Thymol were the two most popular Varroa treatments used by 68% and 62% of beekeepers respectively.
- 8 beekeepers imported queens. They came from Great Britain, Republic of Ireland, Denmark and Germany.
- There were 117 responses from beekeepers. This compares with 94 in 2018-19; 106 in 2017-18 and 85 in 2016-17.
- 48 responses were completed via PC/laptop; 51 via smartphone and 18 via tablet.

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>). For the first time this year, the survey was exclusively completed electronically using PCs, laptops and mobile devices such as smartphones and tablets.

The survey closed on June 8th 2020.

Questions and Responses

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

Table 1.

County	Count of respondents
Antrim	37
Armagh	7
Down	36
Fermanagh	15
Londonderry/Derry	18
Tyrone	4

117 in total

Q2. How many years have you kept bees?

Table 2.

Number of year's beekeeping divided into categories				
Number of years keeping bees	1 - 3	4 – 10	11 – 20	>20
% of beekeepers	41	37	13	9

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

- a. The name of a city/town/village near to your apiary
- b. 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?

83 beekeepers (71 %) had 1 apiary. 34 beekeepers (29%) had from 2-12 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)

109 beekeepers responded 'Yes'; 8 beekeepers responded 'No'.

Q6. How many production colonies did you have before winter 2019-20?

The majority of respondent beekeepers had 1 - 2 production colonies. The total number was 593.

Table 3. The numbers of production colonies, divided into categories, maintained by individual beekeepers before winter 2019/20

	No. of production colonies maintained				
	1 - 2	3 - 5	6 - 10	11 - 20	20+
No. of beekeepers	59	29	16	9	4

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

1. Because they were alive but had unsolvable queen problems?..... 58 (10%)
2. Because of a natural hazard (e.g. storm/wind damage, floods)?..... 5 (1%)
3. Because they were dead?..... 51 (9%)

Overwintering losses in 2019/20 were **19%** compared to 11% in 2018/19, 30% in 2017/18, 10% in 2016/17 and 31% in 2015/16. Table 4 shows the breakdown per county.

Table 4. Colony losses, per county, during the winter of 2019/20

County	Live before winter	Colonies lost	% loss
Antrim	195	34	17
Armagh	51	5	10
Down	200	53	27
Fermanagh	66	10	15
Londonderry/Derry	63	8	13
Tyrone	18	4	22
TOTAL	593	114	19

56% of respondent beekeepers had no losses. In 2018/19 it was 64% and in 2017/18 it was 44%.

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?..... 10
- b. Had no or only a few dead bees in or in front of the hive?..... 8
- c. Had dead workers in cells and no food present in the hive (signs of starvation)?..... 5
- d. Had dead workers in cells while food was present in the hive?..... 23
- e. Had none of the above or unknown symptoms?..... 5

Q9. How many of the wintered colonies were weak but queenright after winter 2019-20?

Of the 479 surviving colonies, 136 (28%) were reported as weak but queenright.

Q10. How many production colonies did you have in

- a. Spring 2019 (last year)? 494 in total.
- b. Spring 2020? 479 in total.

Q11. How many of your wintered colonies had a new queen in 2019?

89 beekeepers had a total of 337 wintered colonies with a new queen.

Q12. What are the origins of your queens?

- Reared by the colony itself** 70 beekeepers used home-bred colonies.
- Reared by one of your own selected queens** 21 used their own selected queens.
- Acquired from local beekeepers** 49 were acquired locally.
- Imported** Yes: 8 beekeepers No: 109 beekeepers.

If you answered ‘Yes’ to Imported, from which country did you import and how many queens?

Table 5.

GB	6	* Please specify EU/Non EU country below
EU countries (inc. ROI) *	6, 1, 1	Republic of Ireland, Denmark, Germany
Non-EU countries *	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 2019 compared to what you usually have

More?	15%
Normal?	54%
Less?	5%
Don't know	26%

Q14. Compared with your colonies with old queens, have your colonies with young queens survived winter

Better?	19%
No differently?	47%
Worse?	5%
Don't know/not applicable	29%

Q15. How many of your surviving colonies had a large amount of faeces inside the hive after winter?

Yes: 6 No/Don't Know: 111

Q16. Did you treat your colonies for *Nosema* before overwintering in 2019?

Yes: 10 No/Don't Know: 107

6 beekeepers treated with HiveAlive; 2 beekeepers treated with Nozevit; 1 beekeeper used a solution of Thymol added to syrup and 1 beekeeper used Thyme oil in feed.

Q17. Did you migrate any of your colonies at least once for honey production or pollination in 2019?

Yes: 8 (7%) No/Don't Know: 109 (93%)

Q18. Approximately what proportion of brood combs did you replace with comb foundation per colony in 2019?

0%	33 (28%)
1-30%	56 (48%)
31-50%	17 (15%)
More than 50%	11 (9%)

Q19. Did the majority of your bee colonies have a significant flow on one or more of the following plants in 2019?

a. Orchards	Yes: 17%	No: 56%	Don't Know: 27%
b. Oil seed rape	Yes: 13%	No: 68%	Don't Know: 19%
c. Maize	Yes: 1%	No: 75%	Don't Know: 24%
d. Sunflower	Yes: 3%	No: 72%	Don't Know: 25%
e. Heather	Yes: 6%	No: 70%	Don't Know: 24%
f. Autumn forage crops	Yes: 50%	No: 28%	Don't Know: 22%

26% of beekeepers responded 'Yes' to two or more of the above.

Q20. What particular measures apply for the majority of your beekeeping?

a. Screened bottom board in winter	Yes: 75%	No/Don't Know: 25%
b. Insulated hives in winter (including double-walled hives)	Yes: 44%	No/Don't Know: 56%
c. Hives made from synthetic materials	Yes: 20%	No/Don't Know: 80%
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: 7%	No/Don't Know: 93%
g. Comb without foundation	Yes: 6%	No/Don't Know: 94%
h. Purchase wax from outside own operation	Yes: 76%	No/Don't Know: 24%
i. Non-wax foundation in brood chamber	Yes: 3%	No/Don't Know: 97%

Q21. Have you monitored your colonies for Varroa during the period April 2019 – March 2020?

84 out of 117 beekeepers (72%) responded ‘Yes’ to monitoring for Varroa.

Q22. Have you treated your colonies for Varroa during the period April 2019 – March 2020?

106 out of 117 beekeepers (91%) responded ‘Yes’ to treating for Varroa.

The top 5 treatments used were: Oxalic acid (68%); Thymol (Apiguard / Api Life Var) (62%); Amitraz (Apivar) strips (27%); Formic acid (16%) and Drone brood removal (11%).

Q23. Have you noticed bees with crippled/deformed wings in your colonies during the 2019 summer season? (These are signs of the presence of Deformed Wing Virus, which is spread by Varroa mites)

Not at all	65%
To a limited extent	31%
To a large extent	1%
Don’t know	3%

Q24. Did you feed your colonies between April 2019 and March 2020?

Yes = 110 (94%) No = 7 (6%)

Table 6. Feeding methods used by beekeepers in Northern Ireland

Feed for bees	Count of beekeepers (n = 110)	% of beekeepers
Ambrosia	11	10
Pollen/Patty feed product	24	22
Candy/Fondant	87	79
Feed supplement (e.g. Vita Feed, HiveAlive etc.)	17	15
Honey	11	10
Sugar Syrup	91	83
Beet Sugar	3	3
Inverted Beet Sugar Syrup	15	14
High Fructose Corn Syrup (HFCS)	1	1
Other	0	0

Q25. If you gave your colonies a supplemental sugar feed (sugar solution or inverted sugar) last year to prepare for winter, how many kilograms of sugar (dry matter) did you give on average per production colony?

91 beekeepers (78%) gave their colonies a supplemental sugar feed. The average was 6.38 kg per colony.

Q26. Can you recognize and do you know any information about the following bee diseases and pests?

a. Acarine.....	56%
b. Nosema.....	87%
c. Chalkbrood.....	97%
d. Sacbrood.....	68%
e. American Foulbrood (AFB).....	95%
f. European Foulbrood (EFB).....	87%
g. Varroa.....	97%
h. Wax moths.....	89%
i. Asian Hornet.....	89%

53 beekeepers (45%) recognised and/or knew information about all 9 diseases/pests.

Q27. 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.

A lot of comments were made regarding the difficulty in giving an answer to Question 25. This question has proved to be unpopular over the last few years due to supplemental sugar feeds usually being given in terms of volume rather than kilograms. Therefore, this question will not be asked in future surveys.

It was pointed out that the questionnaire does not really work if you have multiple apiaries as answers may be different for each apiary; if this is the case, then filling in separate questionnaires for each apiary will be accepted.

Questions 3 – 11, 13 – 15 and 17 - 23 are standardised by CoLOSS as part of their European survey and, unfortunately, cannot be changed. The other questions will be reviewed in response to other comments.