



Honeybee Husbandry Survey 2016-17

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 investigation: March to June 2017

Date of report: July 2017

Disclaimer: There are currently estimated to be 1000 active beekeepers in Northern Ireland (2016). The data presented in this report was volunteered from 85 beekeeper respondents therefore it may not accurately reflect beekeeping husbandry practices during the period of investigation.

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 ninth survey of beekeeping husbandry issues in Northern Ireland. A questionnaire survey was sent out hardcopy to beekeeping associations and an online copy made available on the AFBI website.

- Colony loss for the 2016-17 survey was 10% compared to 31% in 2015-16 and 19% in 2014-15.
- 71% of beekeepers reported no loss of colonies, which compares with 41% in 2015-16.
- Of the 46 colonies reported as lost by the respondents 29 (63%) were attributed to queen problems.
- Products containing Thymol were the most popular treatment used by 66 out of 85 beekeepers (78%).
- 2 beekeepers imported queens from Great Britain. There were 85 responses from beekeepers. This compares with 93 in 2015-16, 96 in 2014-15 and 83 in 2013-14.

Method

The honeybee husbandry survey was sent out by paper copy including stamp-addressed envelopes and was also available electronically and online on the AFBI website (<https://www.afbini.gov.uk/articles/bee-health>). 450 paper copies were sent to the two Northern Ireland beekeeping organisations, namely the Ulster Beekeepers' Association and the Institute of Northern Ireland Beekeepers (and also on request from individual beekeepers). Paper copies were sent out in March and April 2017, with a closing date of June 2017.

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	6
Down	43
Fermanagh	13
Londonderry	4
Tyrone	2

*There was 1 respondent from Donegal.

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	>10
% of beekeepers	35	43	22

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.

Q4. How many apiaries do you have?

65 beekeepers (76%) had 1 apiary. The maximum was 8 apiaries (1 beekeeper).

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

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

Q6. How many production colonies did you have before winter 2016-17?

Most of the respondent beekeepers had 1-2 production colonies (Table 1). The average number was 5.4

Table 1. The numbers of production colonies, divided into categories, maintained by individual beekeepers before winter 2016-17

	No. of production colonies maintained				
	1 - 2	3 - 5	6 -10	11 - 20	20+
No. of beekeepers	37	23	13	10	2

Q7. How many of these colonies did you lose

- a. **Because they were alive but had unsolvable queen problems?**.....29 (63%)
- b. **Because of a natural hazard (e.g. storm/wind damage, flooding)?**..... 0 (0%)
- c. **Because they were dead?**.....17 (37%)

Overwintering losses in 2016/17 were **10%** compared to 31% in 2015/16, 19% in 2014/15 and 9% in 2013/14. Table 2 shows the breakdown per county.

Table 2. Colony losses during the winter of 2016/2017 per county

County	Live before winter	Colonies lost	% loss
Antrim	88	5	6
Armagh	52	10	19
Down	207	24	12
Fermanagh	51	3	6
Londonderry	14	0	0
Tyrone	7	1	14
Other (Donegal)	40	3	8
Total	459	46	

71% of respondent beekeepers had no losses. In 2015/16 it was 41% and in 2014/15, 43%.

Q8. How many of the dead colonies:

- a. Had many dead bees in or in front of the hive? 2
- b. Had no or only a few dead bees in or in front of the hive?..... 3
- c. Had dead workers in cells and no food present in the hive (signs of starvation)? .. 4
- d. Had dead workers in cells while food was present in the hive? 3
- e. Had none of the above or unknown symptoms? 1
- f. Had dwindled away? 4

Q9. How many of the wintered colonies were weak but queenright after winter 2016-17?

Of the 413 surviving colonies, 119 (29%) were reported as weak but queenright.

Q10. How many production colonies did you have in

- a. Spring 2016 (last year)? 357 in total.
- b. Spring 2017? 413 in total.

Q11. How many of your wintered colonies had a new queen in 2016?

65 beekeepers had a total of 300 wintered colonies with a new queen in 2016.

Q12. What are the origins of your queens?

- Reared by the colony itself?** 52 (61%) beekeepers used home-bred colonies.
- Reared by one of your own selected queens?** 21 (25%) used their own queens.
- Acquired from local beekeepers?** 31 (36%) were acquired locally.
- Imported?** Yes: 2 No: 83

18 beekeepers used two or more of the above.

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

Republic of Ireland	-	* Please specify country
GB	2	
EU countries *	-	-
Non-EU countries *	-	-

Q13. To what extent did you observe queen problems in your colonies during the foraging season of 2016 compared to what you usually have

More? 15%
 Normal? 55%
 Less? 7%
 Don't know..... 22%

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

Better?..... 27%
 No differently?..... 38%
 Worse? 6%
 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: 1 beekeeper, 1 colony. No/Don't Know: 84

Q16. Did you migrate any of your colonies at least once for honey production or pollination in 2016?

Yes: 7 (8%) No: 78 (92%)

Q17. Approximately what proportion of brood combs did you replace with comb foundation per colony in 2016?

0%.....21 (25%)
 1-30%.....44 (52%)
 31-50%.....13 (15%)
 More than 50%..... 7 (8%)

Q18. Did the majority of your bee colonies have a significant flow on one or more of the following plants in 2016?

- | | | | |
|-------------------------|----------|---------|-----------------|
| a. Orchards | Yes: 20% | No: 58% | Don't Know: 22% |
| b. Oil seed rape | Yes: 7% | No: 72% | Don't Know: 21% |
| c. Maize | Yes: 0% | No: 73% | Don't Know: 27% |
| d. Heather | Yes: 9% | No: 77% | Don't Know: 14% |

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

a. Screened bottom board in winter	Yes: 80%	No/Don't Know: 20%
b. Insulated hives in winter	Yes: 45%	No/Don't Know: 55%
c. Plastic hives	Yes: 7%	No/Don't Know: 93%
d. Certified organic beekeeping	Yes: 0%	No/Don't Know: 100%
e. Varroa tolerant stock	Yes: 7%	No/Don't Know: 93%
f. Small brood cell size (5.1mm or less)	Yes: 2%	No/Don't Know: 98%
g. Natural comb (without foundation)	Yes: 4%	No/Don't Know: 96%
h. Purchase wax from outside own operation	Yes: 68%	No/Don't Know: 32%

Q20. Have you monitored/treated your colonies for Varroa during the period April 2016 – April 2017?

75 out of 85 beekeepers (88%) responded 'Yes' to monitoring for Varroa.
 81 out of 85 beekeepers (95%) responded 'Yes' to treating for Varroa.
 Thymol was the most popular treatment used by 66 out of 85 beekeepers (78%).

Q21. Have you noticed bees with crippled/deformed wings in your colonies during the 2016 summer season? (These are signs of the presence of Deformed Wing Virus, which is spread by Varroa mites)

Not at all.....	66%
To a limited extent.....	33%
To a large extent.....	0%
Don't know.....	1%

Q22. Did you feed your colonies between April 2016 and April 2017?

Yes = 80 (94%)

No = 5 (6%)

Table 3. Feeding methods used by beekeepers in Northern Ireland

Feed for bees	Count of beekeepers (n = 80)	% of beekeepers
Ambrosia	10	12
Pollen/Patty feed product	10	12
Candy/Fondant	59	74
Feed supplement (e.g. Vita Feed, HiveAlive etc.)	10	12
Honey	4	5
Sugar Syrup	62	78
Inverted Beet Sugar Syrup	10	12

Q23. For any of your colonies that received 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?

74 out of 85 beekeepers (87%) gave their colonies a supplemental sugar feed. The average was 6.5 kg per colony.

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

- a. Acarine..... 55%
- b. Nosema..... 82%
- c. Chalkbrood..... 99%
- d. Sacbrood..... 74%
- e. American Foulbrood (AFB)..... 95%
- f. European Foulbrood (EFB)..... 92%
- g. Varroa..... 100%
- h. Wax moths..... 87%
- i. Asian Hornet..... 79%

34 out of 85 beekeepers (40%) recognised and/or knew information about all 9 diseases/pests.

Q25. 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.

For Question 23 it was suggested the answer would have been better given in litres rather than kg.