



## **Honeybee Husbandry Survey 2017-18**

**An AFBI research report**

**About the Agri-food and Biosciences Institute ([www.afbini.gov.uk](http://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 2018

**Date of report:** July 2018

**Disclaimer:** There are currently estimated to be 1000 active beekeepers in Northern Ireland (2016). The data presented in this report was volunteered from 106 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 25<sup>th</sup> 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 Ulster Beekeepers' Association (particularly the Hon. Secretary David McCartney), the Institute of Northern Ireland Beekeepers, the secretaries of all the local beekeeping associations and of course the many beekeepers who gave up their time to fill in our questionnaire.

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<b>Contents</b>	<b>Page</b>
Summary .....	1
Method .....	1
Questions and Responses .....	2 - 8

## **Summary**

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

- Colony losses for the 2017-18 survey was 30% compared to 10% in 2016-17 and 31% in 2015-16.
- 44% of beekeepers reported no loss of colonies, which compares with 71% in 2016-17.
- Of the 154 colonies reported as lost by the respondents, 27 (18%) were attributed to queen problems.
- Products containing Oxalic acid and Thymol were the most popular Varroa treatments used by 60% and 56% of beekeepers respectively.
- 6 beekeepers imported queens. They came from Great Britain, Republic of Ireland, Italy, Spain and Turkey.
- There were 106 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 to beekeepers by questionnaire paper copy including return stamp-addressed envelopes; by a fillable PDF file via e-mail and was also available electronically online at the AFBI website (<https://www.afbini.gov.uk/articles/bee-health>). The survey closed on 15<sup>th</sup> June 2018.

## Questions and Responses

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

County	Count of respondents
Antrim	23
Armagh	4
Down	43
Fermanagh	19
Londonderry	14
Tyrone	3

**106 in total**

(1 respondent from ROI had to be omitted due to the apiary location)

**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	38	45	17

**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.

**Q4. How many apiaries do you have?**

76 beekeepers (72 %) had 1 apiary. The maximum was 5 apiaries (2 beekeepers).

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

23 beekeepers responded 'Yes'; 7 beekeepers responded 'No'.

**Q6. How many production colonies did you have before winter 2017-18?**

Most of the respondent beekeepers had 1-2 production colonies (Table 1). The total number was **515**.

Table 1. The numbers of production colonies, divided into categories, maintained by individual beekeepers before winter 2017/18

	No. of production colonies maintained				
	1 - 2	3 - 5	6 -10	11 - 20	20+
No. of beekeepers	43	31	23	6	3

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

- a. Because they were alive but had unsolvable queen problems?.....27 (18%)
- b. Because of a natural hazard (e.g. storm/wind damage, flooding)?.....3 (2%)
- c. Because they were dead?.....124 (80%)

Overwintering losses in 2017/18 were **30%** compared to 10% in 2016/17, 31% in 2015/16 and 19% in 2014/15. Table 2 shows the breakdown per county.

Table 2. Colony losses during the winter of 2017/18 per county

County	Live before winter	Colonies lost	% loss
Antrim	139	40	29
Armagh	43	19	44
Down	171	56	33
Fermanagh	90	20	22
Londonderry	59	12	20
Tyrone	13	7	54
<b>TOTAL</b>	<b>515</b>	<b>154</b>	

44% of respondent beekeepers had no losses. In 2016/17 it was 71% and in 2015/16 it was 41%.

**Q8. How many of the dead colonies**

- a. Had many dead bees in or in front of the hive? ..... 25
- 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)? .. 14
- d. Had dead workers in cells while food was present in the hive? ..... 73
- e. Had none of the above or unknown symptoms?.....4

**Q9. How many of the wintered colonies were weak but queenright after winter 2017-18?**

Of the 361 surviving colonies, 137 (38%) were reported as weak but queenright.

**Q10. How many production colonies did you have in**

- a. Spring 2017 (last year)?                      375 in total.
- b. Spring 2018?                                      361 in total.

**Q11. How many of your wintered colonies had a new queen in 2017?**

83 beekeepers had a total of 302 wintered colonies with a new queen.

**Q12. What are the origins of your queens?**

- Reared by the colony itself**                                      71 (67%) beekeepers used home-bred colonies.
- Reared by one of your own selected queens**                      25 (24%) used their own selected queens.
- Acquired from local beekeepers**                                      40 (38%) were acquired locally.
- Imported**    Yes: 6 beekeepers      No: 100 beekeepers.

16 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	2	* Please specify country
GB	8	
EU countries *	2	Italy, Spain
Non-EU countries *	2	Turkey

**Q13. To what extent did you observe queen problems in your colonies during the foraging season of 2017 compared to what you usually have**

More? .....	19%
Normal? .....	49%
Less? .....	7%
Don't know.....	25%

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

Better?.....	19%
No differently? .....	37%
Worse? .....	16%
Don't know/not applicable.....	28%

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

Yes: 2                                      No/Don't Know: 359

**Q16. Did you migrate any of your colonies at least once for honey production or pollination in 2017?**

Yes: 10 (9%)                                      No/Don't Know: 96 (91%)

**Q17. Approximately what proportion of brood combs did you replace with comb foundation per colony in 2017?**

0%.....	27 (26%)
1-30%.....	45 (42%)
31-50%.....	23 (22%)
More than 50%.....	11 (10%)

**Q18. Did the majority of your bee colonies have a significant flow on one or more of the following plants in 2017?**

<b>a. Orchards</b>	Yes: 18%	No: 49%	Don't Know: 33%
<b>b. Oil seed rape</b>	Yes: 13%	No: 64%	Don't Know: 23%
<b>c. Maize</b>	Yes: 1%	No: 64%	Don't Know: 35%
<b>d. Sunflower</b>	Yes: 2%	No: 63%	Don't Know: 35%
<b>e. Heather</b>	Yes: 14%	No: 57%	Don't Know: 29%
<b>f. Autumn forage crops</b>	Yes: 49%	No: 26%	Don't Know: 25%

24% of beekeepers responded 'Yes' to two or more of the above.

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

<b>a. Screened bottom board in winter</b>	Yes: 71%	No/Don't Know: 29%
<b>b. Insulated hives in winter</b>	Yes: 45%	No/Don't Know: 55%
<b>c. Hives made from synthetic materials</b>	Yes: 14%	No/Don't Know: 86%
<b>d. Certified organic beekeeping</b>	Yes: 2%	No/Don't Know: 98%
<b>e. Queens bred from Varroa tolerant/resistant stock</b>	Yes: 2%	No/Don't Know: 98%
<b>f. Small brood cell size (5.1mm or less)</b>	Yes: 14%	No/Don't Know: 86%
<b>g. Comb without foundation</b>	Yes: 7%	No/Don't Know: 93%
<b>h. Purchase wax from outside own operation</b>	Yes: 68%	No/Don't Know: 32%
<b>i. Non-wax foundation in brood chamber</b>	Yes: 3%	No/Don't Know: 97%



**Q20. Have you monitored/treated your colonies for Varroa during the period April 2017 – April 2018?**

83 out of 106 beekeepers (78%) responded ‘Yes’ to monitoring for Varroa.

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

Oxalic acid was the most popular treatment used by 60% of beekeepers followed by Thymol, used by 56% of beekeepers.

**Q21. Have you noticed bees with crippled/deformed wings in your colonies during the 2017 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 ..... 29%
- To a large extent ..... 1%
- Don’t know..... 4%

**Q22. Did you feed your colonies between April 2017 and April 2018?**

Yes = 102 (96%)

No = 4 (4%)

Table 3. Feeding methods used by beekeepers in Northern Ireland

Feed for bees	Count of beekeepers (n = 102)	% of beekeepers
Ambrosia	15	15
Pollen/Patty feed product	24	24
Candy/Fondant	84	82
Feed supplement (e.g. Vita Feed, HiveAlive etc.)	19	19
Honey	11	11
Sugar Syrup	82	80
Beet Sugar	2	2
Inverted Beet Sugar Syrup	10	10
High Fructose Corn Syrup (HFCS)	1	1
Other	1	1

**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?**

82 beekeepers (77%) gave their colonies a supplemental sugar feed. The average was 5.6 kg per colony.

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

a. Acarine.....	62%
b. Nosema.....	83%
c. Chalkbrood.....	98%
d. Sacbrood.....	72%
e. American Foulbrood (AFB).....	97%
f. European Foulbrood (EFB).....	96%
g. Varroa.....	100%
h. Wax moths.....	85%
i. Asian Hornet.....	84%

50 out of 106 beekeepers (47%) 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.**

Unfortunately there were a few errors in the online version of the survey, e.g. in Q12 where 'colonies' were mentioned instead of 'queens'. This and other examples given have been noted and will be corrected for next year's survey.