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The SBA survey 2008: some preliminary findings

by

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Following the survey of SBA members in 2006, a second survey was carried out in late spring of 2008 to monitor the ongoing effects of *Varroa* and experiences of colony loss. It also attempted to collect information on various environmental factors rumoured to be possible causes of colony collapse disorder (CCD), to enable further investigation and modelling of the risk of sudden colony collapse. The design of this survey was described in the November 2008 issue of the Scottish Beekeeper.

Here we give an analysis of the pattern of responses to the survey and some general information about respondents, as well as describing the responses to some new questions included in the 2008 questionnaire. A further article will appear in the Scottish Beekeeper in the spring of 2009, giving more detailed findings from the questionnaire as a whole and comparisons where possible with the results of the 2006 survey.

Response rate: One thing which disappointed us this time was the much poorer response rate to our questionnaire, which was just over 40% with only 50 questionnaires returned out of 119 posted out. We believe that the excellent response rate in 2006 can at least partly be attributed to the personal contact made in the sample selection. This time the sample was more scientifically (and impersonally) selected, but, with a poor response rate, the gain from that is doubtful. On the other hand, most of those who responded were happy to be contacted for further information, only 8 respondents choosing to remain anonymous.

Local Association Membership: We asked this time about membership of Local Beekeeping Associations. Of our 50 respondents, 33 belonged to at least one Local Association, with 16 stating that they did not. One respondent chose not to answer the question. Four respondents stated that they belonged to two different Local Associations. In our view this represents quite a good level of support for Local Associations, particularly as five respondents this time live in outlying areas in the Highlands and Islands where no Local Association is available. Of the 33 who do belong to a Local Association, all attend meetings at least occasionally with over half of them attending regularly.

To allow some comparisons across areas, respondents were categorised by SBA area according to their postcode, address, or code number of their Local Association, where these were provided. In only two cases was it not possible to do this and only one such respondent was a practising beekeeper (so providing data for analysis).

Colony Collapse Disorder: There has been much news in the media lately of “Colony Collapse Disorder” among honeybees, particularly in the United States. We believe that in at least some cases this may be identified with what we called in 2006 the “Mary Celeste” type of colony loss being experienced by some beekeepers in Scotland. We first of all asked how aware our respondents were of this problem, and secondly, whether they believed it was already present in Scotland. One respondent failed to answer the question about awareness, but only 3 of the others were not sure of what the term

meant. On the other hand only 23 respondents believed it was already in Scotland, with 22 believing it was not, and the remainder not giving an opinion.

Beekeepers in the Survey: In the 2006 survey, we ensured that all those invited to participate were beekeepers. This time we selected our sample by a random mechanism from among the SBA membership. Of those returning the questionnaire, only 44 out of 50 respondents were active beekeepers. The beekeepers were asked the year in which they first started beekeeping. The 32 who replied to this question showed a large spread of experience from just 1 year to 78 years in one case. There was a slight preponderance of fairly new beekeepers.

On the question of whether or not beekeepers kept all their bees in the home area of their Local Association, 31 of 43 (72%) respondents answering did do so. This question was not well phrased, as three respondents not covered by a Local Association did keep their bees nearby but gave different responses. Those others responding 'no' either kept more than one apiary, moved their bees, or located their bees elsewhere, presumably to try for better honey yields or to take advantage of different forage.

Size of Enterprise: The sizes of the beekeeping enterprises of our respondents were also investigated. The number of apiaries managed varied from 1 (23 respondents) to 10 (just 1 respondent). Just 4 reported that they were managing 2 apiaries and only 4 altogether said they were managing more than 2 apiaries. At the end of the survey period in April 2008, the median number of stocks being kept was 4, with the largest enterprise being one in the West area where 50 stocks were being managed. In 2006, that median number was as high as 8. This confirms our suspicion that our method of sample selection in 2006 tended to pick out the more committed and large-scale beekeepers, and we believe that this year's profile of the sizes of beekeeping enterprises is much more typical of the membership of the SBA.

Colony Losses: Concerning losses of colonies, the total number of stocks lost during winter 2006-07 was 70 out of a total of 399 stocks being kept in September 2006, representing an average rate of winter loss of about 18%, whereas in winter 2007-08 78 stocks were lost out of a total of 365 being kept in September 2007, an average rate of winter loss of 21%. The winter of 2007-08 seems to have been a more difficult one for bees than the winter of 2006-07, but the difference is not statistically significant. Summer losses are more difficult to quantify than winter ones, because summer brings the opportunity to beekeepers to create new colonies, as well as the risk of losing existing ones. During the summer of 2006, 18 colonies were reported as lost, whereas during the summer of 2007, 32 colonies were reported as lost.

Various possible causes of loss were investigated. The total number of reported losses during the whole survey period amounted to 277 lost colonies. Of these, 27 (10%) were stated to be due to starvation, 31 (11%) were attributed to queenlessness, 23 (8%) to *Varroa*, 6 (2%) to vandalism, and 28 (10%) were stated to be of "Mary Celeste" type where an apparently flourishing hive is suddenly found abandoned with still ample stores in the combs. Other losses were attributed to a variety of other causes.

Spread of *Varroa*: The spread of *Varroa* across Scotland continues to be a matter of concern to all those connected with beekeeping. As in 2006, we asked respondents to state what was the year in which they were first aware of having that infestation, or alternatively whether they had not yet found the *Varroa* mite. From the East area only 1 respondent (9%) claimed not yet to have found the mite, whereas from the West and

North respectively 5 (24%) and 4 (36%) had not yet found it. There may be some distortion here compared with the 2006 survey because our sample this time includes beekeepers from very remote northern locations, but it does appear that some of the remote parts of Scotland are still clear of this pest. Of the respondents from the East 4 (36%) and of those from the West 3 (14%) have had the mite for 5 years or more, so that both these areas now have many beekeepers with fairly long experience of managing *Varroa*.

New sections in the questionnaire for the 2008 survey asked questions about the practice of migratory beekeeping, and also about environmental concerns of beekeepers regarding factors which might adversely affect honeybees and/or cause losses of honeybees.

Migratory Beekeeping: Surprisingly perhaps, most beekeepers in this survey did not move their bees to temporary locations in either 2006 or 2007 to take advantage of a seasonal honey flow. Only 23% (10 of 43) of respondents moved their bees in either year. Although the pattern appears a little different amongst areas, with 19% (4 of 21 respondents), 27% (3 out of 11) and 10% (1 of 10) of respondents in the West, North/Aberdeen, and East areas respectively moving their bees in 2006 and 14% (3 of 21), 36% (4 of 11) and 9% (1 of 11) in 2007, the numbers are too small to test for a significant difference amongst areas concerning this practice. Seven out of 10 of these beekeepers moved bees in both years. These moves were mostly to access Ling Heather in later summer (for 15 of 22 moves in total), with a minority for Oil-seed Rape (in April), and 1 (in Shetland) to Sycamore and garden flowers. Numbers of stocks moved varied from 1 to 25 or 30 in the first move, and to 15 or 16 in any second move, with a move of 5-7 stocks being typical.

Only about a third of those moving bees did so twice in one year (typically a spring move in April to June/July followed by a late summer move in August to September/October). Single moves were all made in the summer. Those who moved bees twice moved them the same distances in all but one instance. Bees were moved distances of 4 to 36 miles, with 7 or 8 being a typical distance for the respondents in this survey to move their bees if they move them at all. The temporary sites used were shared with at most one other beekeeper. One respondent reported concern about the movement of colonies as a source of spreading disease.

Environmental Concerns: There is considerable concern amongst beekeepers about environmental factors affecting their bees. Regarding pesticides and herbicides as a possible cause of losses of honeybees, nearly 80% (35 of 44) of beekeepers reported some level of concern about this. Thirty six % (16) were moderately concerned and 43% (19) were very concerned, although only 19% (8 of 43) of respondents were aware of the use of such chemicals on local fields and/or gardens within foraging distance of their own bees. All respondents in the North/Aberdeen areas were concerned about pesticides and herbicides. On the question of electromagnetic radiation (EMR) however, only 5% (2 out of 42) of respondents felt this was a serious threat, and a majority were of the opinion that if EMR had any effect on honeybees this would be slight and unimportant. Clearly pesticides and herbicides are a much greater cause of concern, although unfortunately it is much more difficult to establish the nature and presence of these than of sources of EMR (and hence to study any statistical effect). However, data were provided on the distances of various EMR sources from apiary sites, and further analysis to be reported will

consider whether there is any statistical relationship between any of these environmental factors and reported colony losses.

Regarding mobile phone masts, most commonly these were not known of within 1km of apiary sites, although 28% (12 of 43) of respondents knew of them between 500m and 1km away from their main apiary, and 2 respondents were aware of these within 100m and 500m of their other apiaries. Power lines were more commonly known of nearby, with 31 of 72 (43%) apiaries being closer than 500m to a power line, and 51 of 72 (71%) being within 1km of a power line. There were only 6 known instances out of 67 of microwave telecoms towers, and 9 known instances out of 72 cases of TV/radio masts, respectively within 1km of an apiary. The only other possible such hazard mentioned was an amateur radio mast between 500m and 1km distant from a main apiary.

Respondents were also asked about any other issues of concern to them regarding their beekeeping. The most commonly reported concerns were about adverse weather and changing climate patterns, mentioned by 9 respondents. There was no other concern common to many respondents. Two respondents mentioned GM crops. One respondent mentioned agricultural use of industrially produced artificial fertilisers as a concern. Other comments mentioned viral problems, inbreeding, queen rearing and queen mating difficulties, and the possible adverse effects of repeated treatment for *Varroa*.

We expect our next report on the results of this survey to be able to give much more detail, and to address various topics which are not covered in this brief report.