

SBA – Dundee University research collaboration

2013-14 Overwinter and 2014 honey surveys

This report is based on the information returned from 272 beekeepers around Scotland. Data were obtained from a survey in April/May 2014 requesting information on overwinter losses, apiary Varroa estimations and treatments, habitats and specific forage. A follow up survey on honey yields for the 2014 summer season was also sent out. The vast majority of responses were from hobbyist beekeepers.

Figure 1: summary of responses

Postal code areas	Average winter losses % of colonies	Average honey yields lbs/colony
Aberdeenshire (AB)	9.4 (n=8)	N/A (n= 0)
Dumfries & Galloway (DG)	4.4 (n= 7)	24.6 (n= 10)
Edinburgh & Lothians (EH)	9.3 (n= 27)	18.4 (n= 14)
Falkirk & Forth Valley (FK)	10.5 (n= 4)	N/A (n= 2)
Glasgow & Greater Glasgow (G)	10.6 (n= 8)	18.8 (n= 11)
Inverness-shire (IV)	3.0 (n= 37)	24.8 (n= 9)
Ayrshire & surrounds (KA)	2.6 (n= 9)	33.7 (n= 5)
East & West Fife (KY)	9.7 (n= 16)	20.7 (n= 12)
Argyllshire and inner Islands (PA)	6.9 (n= 23)	11.8 (n= 13)
Perthshire, Central & West Highlands (PH)	12.5 (n= 21)	24.7 (n= 6)
Borders & South East (TD)	20.0 (n= 12)	19.0 (n= 11)

Care is required with any interpretation as postal code areas (in Figure 1) are extensive and include diverse habitats but useful comparisons can be made from year to year. A more detailed study is being performed by the School of the Environment, University of Dundee, where all data from the last 3 years is being incorporated.

Winter Losses

This year the data do not show any clear east-west divide as has been noted in the past with the highest losses in the east but there are regional differences. In Fife winter losses were 32% over the winter of 2011–2012 but were down to 9.7% over the 2013–2014 winter. Overall 2013-2014 winter losses were closer to the expected 10% mark but some areas were much lower such as Ayrshire (2.6%), Inverness-shire (3.0%) and Dumfries & Galloway (4.4%). The losses remain high in the Borders region with a 20.0% loss (19.7% in 2011-12) but are lower in most other areas.

Honey Yields

The average honey yields per colony are not impressive, despite the better summer, with the best returns from Ayrshire (33.7 lbs/colony) and then Inverness-shire (24.8) and Dumfries & Galloway (24.6); the lowest returns were from Argyllshire (11.8). Examining the data more closely showed that mid/central Ayrshire was the best with lower honey yields north of the Clyde into Argyllshire. But further northwards on the west coast this was reversed with high yields in South Skye and the west mainland Kyle and Strathcarron areas. I also looked at the data with the benefit of knowledge of certain beekeepers making a qualitative assessment of experience, which although not scientific,

does provide some insight. In the Perth (PH) area both close to Perth and the west (Fort William) there were 2 high colony honey yields. Similarly in Inverness-shire, but with the higher yield in the west (70lbs/colony). There were experienced beekeepers in the Ayrshire and Renfrew areas with very good returns (60, 67 and 75lbs/colony). This shows what is achievable where experienced beekeepers are focussed on honey production. Those beekeepers are likely to have elected to keep their colonies in potentially good honey producing areas and to have a successful system and suitable bees for their situation. Many others are new beekeepers or are dedicated to 'nuc' production and not honey. The variations within each area means that there is no clear statistically significant difference within these broad post code areas.

Weather patterns

Regional weather patterns do have effects on honey yields as is well known by beekeepers but many factors inter-act making analysis difficult. This will be looked at more closely by other professionals.

Looking back at honey yields

There is a report on honey yields during the summer of 1983 in the *Scottish Beekeeper* but this appears to be largely based on estimates of the beekeeper numbers and presumably the honey yields.

Figure 3: Scottish Blossom Honey Crop 1983: *Scottish Beekeeper*

Area	Beekeepers	Stocks	Average yield (lbs/colony)	Crop (tons)
East	3400	16036	35	250.5
West	2400	7128	35	111.4
North	3670	18992	30	254.4
Totals & Averages	9470	42156	32.7	616.3

During 1983 the oilseed rape crop was a failure so the figures are for blossom honey. The numbers of beekeepers are assumed and given that the SBA membership would have been around 1400 (excluding Aberdeenshire) any other figures can only be guesswork. However it will have been a reasonable guess based on historical knowledge. The corresponding seasonal averages by area for heather yields in lbs/colony were given as follows. East, 20lbs; West, 10lbs; North, 15lbs. Interestingly it was assumed that 50% of colonies were transported to the heather. Whereas many Scottish beekeepers will be within reach of heather from permanent sites, the annual migration of colonies by hobbyists to the heather in numbers is less than before due to transport costs and earlier concerns following the EFB outbreak.

In 1970 the Scottish Agricultural Colleges published a 'Survey of Beekeeping Potential' (from the Technical Liaison Committee) which examined the honey production potential of the old counties. Looking at Aberdeenshire alone there were 3,000 beekeepers with over 21,000 colonies; only 700 were SBA members and the average honey yield per year (over a 10 yr period) was 40 lbs clover and 25 lbs ling heather honey. This report was from A.S.C. Deans who knew the area intimately and as college advisor visited many beekeepers. This was the picture repeated for many of these area reports. Clearly the situation was consistently better than now. The loss of large areas of clover pasture to silage and the marked reduction in the number of hives managed by experienced small semi-commercial units, where beekeeping was a profitable side-line, no doubt contributed to this decline. In many areas the advent of oilseed rape helped commercial units but was not usually an adequate replacement for hobbyists who had permanently sited apiaries. I have an old lantern slide

from the SBA archives (circa 1930s) which illustrates this well. Eastern agricultural areas with little tree cover but vast expanses of dense clover growth. Although average temperatures were lower I have often been told by old beekeepers in the North East that there were longer periods of stable summer weather. (No doubt some will be puzzled by the numbers of beekeepers mentioned in these reports).

Apiary Varroa loads

A very small number of responses came from areas thought to remain Varroa free and reported no winter losses but the numbers were not significant. Apiaries with high Varroa loads surprisingly reported lower colony losses but this has been noted in previous surveys and may indicate beekeepers with more awareness by regular checks. A few beekeepers continue to use Apistan/Bayvarol and more are using formic acid or thymol preparations. BienenWohl (oxalic acid, citric acid, propolis, alcohol and essential oils) is also being used more often.

Figure 4: Reported apiary Varroa loads and outcomes

	Varroa level		
	High	Medium	Low
Average honey yield in lbs/colony	N/A	15.1	28.5
% colony losses	5.7	12.7	5.5

Habitat types and colony performance

Information on several habitat types was sought. Often colonies had access to more than one type within their foraging range. Abstracted data showed that access to 'wilderness' or unmanaged areas was better in terms of honey yield and reduced colony losses. When access to urban areas was included honey yield was doubled and colony losses halved. If there was also access to gorse, lime (eg. parkland or managed estates) this appeared to be beneficial. Here honey yields were 40 lb per colony and losses 5.1%. Areas lacking these factors had low yields (11 lbs honey and 20% losses).

We would like to continue the collection of data on the performance of honeybee colonies in Scotland with the continued support of members of the SBA. An independent professional analysis will be performed on data from several years (3 years so far) to indicate particular stressors in Scotland such as weather, land use, Varroa and disease. Crudely, in the first year we experienced losses that were concentrated in the east, then a year where high losses were found in most areas and finally a good year with low loss rates in most areas. There will an attempt to look at any emerging trends and examine this by region, habitat type and deviations in weather patterns.

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