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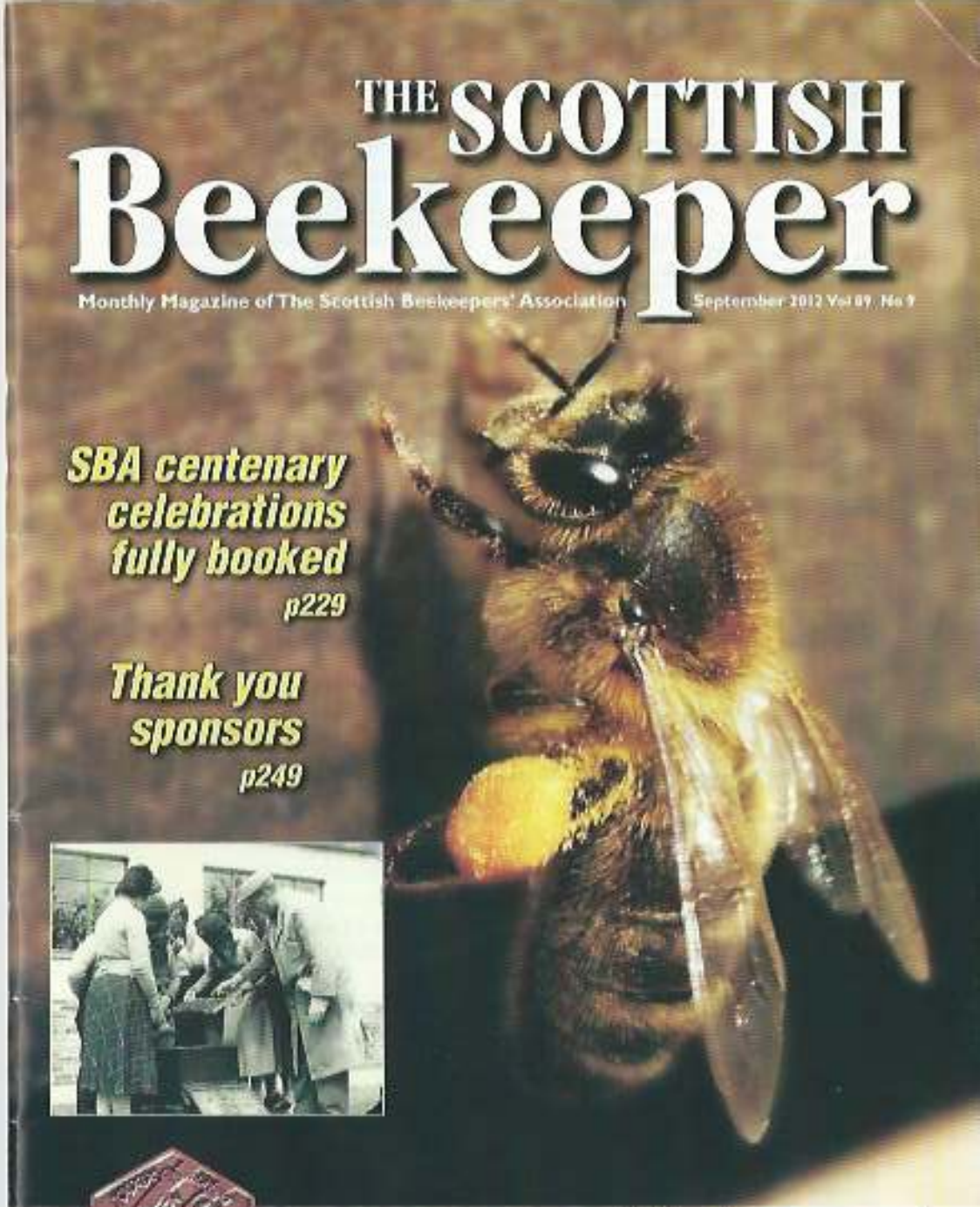

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Letters to the Editor

Sir,

The article entitled 'Investigation of Winter Loss Rates' published in the Scottish Beekeeper (August 2012 p.205) is a very misleading and unhelpful contribution to the important debate on the possible effects of neonicotinoids on honey bees.

When I read the article I was reminded of a phrase popularised by Mark Twain (and attributed to Prime Minister Benjamin Disraeli) that there were 'three kinds of falsehood: lies, dammed lies and statistics'. The authors of this article had previously published information concerning winter losses in IBRA's Journal of Apicultural Research 49(1): 129-131 in 2010, where they acknowledge that there are many factors involved in winter losses e.g. mis-management, the effects of Nosema and Varroa destructor, climate variations and queenlessness.

The article printed in the August edition of the Scottish Beekeeper makes no mention of this wide range of factors, nor does it give any indication of how many beekeepers were surveyed or their locations. It is not possible, on the basis of such a small survey, to make the assertion that bees that forage on OSR, where the seed may have been dressed with insecticides, are more likely to suffer from winter losses.

I have kept bees that have had easy access to OSR for more than 30 years and I have never experienced such a high loss rate. During this period the farmers on whose land my hives have been placed have used a wide variety of pest management techniques. In recent years there has been a significant reduction in the number of times the crop has been sprayed - because of the use of insecticidal seed dressing which makes it much less necessary. During the 2012 season my local OSR farmer has sprayed only twice and on both occasions it was with a fungicide. I well remember the days in the 1980s when broad spectrum insecticide spraying was commonly carried out to control cabbage stem flea beetle and pollen beetles. The effect of this spraying was to kill many other insects – including the natural enemies of the pests. It is an uncomfortable fact for beekeepers to face that the new generation of systemic seed dressing insecticides considerably reduce the pest problem for farmers and for the necessity of broad spectrum spraying.

The possible effect of neonicotinoids on honeybees is a vital debate, but it is not helped by the publishing of flawed research based on very limited surveys. On the basis of this survey there is absolutely no evidence whatever to link the difference in winter losses to the use of neonicotinoids.

I am concerned that the official journal of the Scottish Beekeepers Association should be publishing articles that give conclusions and make assertions that do not bear scrutiny on such an important subject.

Dr Stephen Palmer *FRGS FLS*

Oh, East is East and West is West

THE August Scottish Beekeeper carried two articles on winter loss rates showing apparent differences between East and West Scotland, or differences in reported exposure to oilseed rape. The articles concluded *"this finding supports the hypothesis that neonicotinoid-treated OSR may be contributing to the honeybee decline in the UK', and 'these results appear to lend further weight to the contention that the use of neonicotinoid seed dressing on this particular crop may have an adverse effect".*

Dividing data sets according to geography or cropping patterns which correlate with geography is going to throw up associations which are not cause and effect. In addition, common sense argues against oilseed rape pesticides affecting winter survival. Such a hypothesis would require a rather unlikely series of events. Bees exposed to oilseed rape usually in April and May behave normally, waggle dance and recruit their colleagues normally, and build from small overwintered stocks to booming colonies on this diet every year. Mine do, and other people's bees do. Then the bees use other forage in June, July, August and September, replace their worker populations twice or three times over the summer, and show normal colony vigour according to the forage available and the weather. Early spring exposure is very unlikely to cause colony deaths in the following December to March in these circumstances

The suggestion of a link between mass colony deaths and pesticides first surfaced in France where at least the colony losses and exposure were not widely separated in time. More recently there have been spring poisoning events in continental Europe associated with risky planting strategies and the release of poisonous dust. However the long separation between oilseed rape exposure, usually in May, and late winter colony deaths always made this exposure an unlikely cause for concern and the addition of interaction between mite treatments and this early spring agricultural pollution hardly adds credence to this hypothesis.

So, I decided to conduct my own research. It took me perhaps an hour, though the participating beekeeper will have spent more hours going through his records and adding up the figures. A detour to Murray McGregor's base in Coupar Angus on my way home from work one evening a few days ago was all that was required.

Let's start with the basic data. I have reproduced the figures produced by Magnus Peterson and Alison Gray and by John Durkacz and Christopher Connolly *(see table below)* to compare with those of the biggest beekeeper in Scotland Murray McGregor.

Murray's losses are one third of those recorded in the articles for bee colonies without access to oilseed rape, and one sixth

Colony losses over two recent winters	*Winter*	*Forage*	*Total colonies*	*Wintering losses*
Petersen and Gray	2010-11	Eastern Scotland	80	30%
		Western Scotland	172	15%
Durkacz and Connolly	2011-12	With OSR	89	30%
		Without OSR	82	16%
Murray McGregor	2011-12	All with OSR *	2000	5%

** All of Murray McGregor's Tayside and Lothian colonies were taken to winter oilseed rape for the flowering season in April and May.*

of the losses of those surveyed colonies which could forage on oilseed rape in 2011. How can this be?

Bear in mind that Murray's sample size is about ten-fold larger than the total in each of the other studies. Murray has no magic dust to sprinkle over the hives to counter the exposure to traces of the neonicotinoids that are put on oilseed rape seed to control flea beetle and aphids on young plants. There is no secret to his management of his bees. He controls Varroa effectively, ensuring his colonies are strong and healthy by boosting problem or underperforming colonies throughout the season, usually with queen-right nucs and splits. Some problem colonies are just shaken out on the heather so that the bees can join better colonies. He feeds his bees adequately at the end of the season and occasionally at other times. He also takes them to oilseed rape and the heather, both of which give them a boost.

Murray has analysed his 2011-2012 losses further. His 5% overall losses in his Scottish bees stood at 3% in his polystyrene hives and 8% in his wooden hives. These losses were the lowest he has seen for several years. He also manages colonies in Hereford where there's no exposure to oilseed rape and there the losses were 7% over the 2011-2012 winter. In Hereford, as in Scotland, losses were usually due to queen failure.

Looking back to the summer of 2010 when he had a total of 1500 colonies, Murray said that due to the EFB outbreak 25% of his colonies were in apiaries under Standstill Orders and were not moved to oilseed rape. These colonies produced considerably less honey than the colonies which were moved to oilseed rape and over the 2010-2011 winter they had higher losses than his other bees. He attributed this to less well nourished bees, fewer young bees and colonies generally in poorer shape for wintering although it has to be said that there may also have been some exposure to foulbrood in the non-OSR colonies. Colonies able to be moved to winter OSR were better but best, by far, were colonies with access to spring oilseed rape which gave them a good mid-season boost.

Murray summarised his opinion as follows:

- *There is no negative association from exposure to oilseed rape*
- *He actively seeks OSR for all colonies to gain the boost in colony vigour and honey production from that forage crop.*
- *Bees in Eastern Scotland in particular have suffered in recent years due to the prevalence of E winds, a change from the normal pattern of weather dominated by SW winds.*
- *Queen failure (missing queens, non-laying queens and drone laying queens) are all directly associated with the length of time it takes for the queen to find a window in the weather to mate and come into lay. This happens in OSR and non-OSR areas. Second year queens tend to overwinter better than first year queens.*
- *In addition to weather-related problems, parts of Eastern Scotland suffer from relatively high bee populations. There can be a nutritional dearth when flora is in short supply particularly in agricultural areas.*
- *He isn't complacent about the low losses in 2011-2012 and expects much higher losses in 2012-2013 due to the poor season this year, unless we are blessed with a wonderful late August and September.*

Science should proceed with an open mind and without any hint of seeking support for pre-determined positions. Interpreting such data without properly considering the wider issues simply misleads people. For example, a progressive rise in loss rate going from OSR, soft fruit and orchard to mixed woodland foraging carries with it association with a range of other variables that can easily explain the data. The quality and length of foraging season for the bees are two of these variables. Differences between east and west will correlate not only with level of exposure to oilseed rape, but also general agricultural 'deserts', Varroa presence or absence, colony density and the changes in nutrition and even Varroa pressure that brings, weather, and potentially even quality of beekeeping and beekeeping philosophies.

The main lessons to learn from this are, you can reduce your winter losses by feeding as required to top up stores and raise young bees for the winter, moving your bees to gain access to good forage, even when treated with neonicotinoids, keeping colonies strong, and by controlling Varroa with effective methods. The patterns in the results presented in the August Scottish Beekeeper indicate correlations not causations, and there are more comprehensive data that point in a different direction.