

REFLECTIONS FROM THE NATIONAL BEE INSPECTOR

The 2012 Field Season

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Once again it has been a busy season for the National Bee Unit's (NBU's) Appointed Bee Inspectors (ABIs). During 2012 we examined a total of 35,671 honey bee colonies in 6631 apiaries (belonging to 5107 beekeepers). In England, this corresponded to 29,835 colonies and in Wales to 5836 colonies.

Given the atrocious weather conditions that seemed to define the 'summer' of 2012, I am very pleased with this level of inspection effort. It is, in fact, similar to those delivered in the previous two (more temperate) seasons: a total of 33,304 colonies were inspected in 2010 and 37,119 colonies in 2011 respectively (Figure 1).

Statutory Diseases and Exotic Pests

As always, our inspection priorities for 2012 were the detection and management of the statutory notifiable diseases, American foul brood (AFB) and European foul brood (EFB), and surveillance for exotic pest species the Small hive beetle (SHB; *Aethina tumida*) and *Tropilaelaps* mites.

In 2012 there were 37

confirmed cases of AFB disease in England and 20 confirmed cases in Wales (total 57 cases). Although these figures are lower than last year's (total 104 cases), I do not believe they signal any real decline in trend for this disease. If you take a rough average of annual AFB cases over the past 10 years (excluding those for the exceptional 2002 major outbreak), you find that incidence is fairly stable at around 50–60 cases/year.

The reason for this consistent and low incidence is almost certainly because, unlike EFB, AFB is relatively easily controlled at the apiary level. Once AFB is detected, our policy of destruction results in very rapid eradication. Unlike with EFB,

as long as a beekeeper whose apiary is infected with AFB is not moving contaminated stocks or equipment between apiary sites, then spread is contained – such good 'barrier management' wins the day.

American Foul Brood (AFB)

In terms of distribution, with the exception of Northern England, at least one case of AFB was detected in each region. Incidence was low in North East England, South West England, Southern England and South East England. The majority of AFB diseased colonies were found in Wales (35% of all cases) but cases were confined to a small

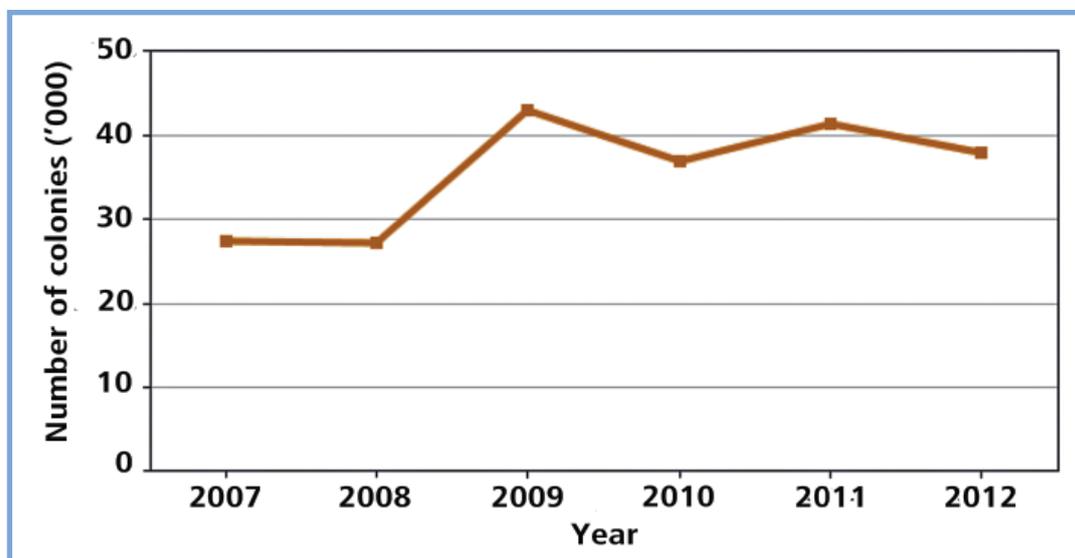
number of apiaries; Western England and Eastern England together account for a further 46% of the total incidence.

Points to note here are that while overall incidence is low, the distribution of cases is not confined to specific regions of England and Wales but is widespread. The squares on the map overleaf (Figure 2) show where this disease has been confirmed during 2012 (England and Wales only). The graph (Figure 3, page ??) shows the incidence of AFB since 2007. You will see that, since 2009, disease incidence recorded by our counterparts in Scotland has also been included in the BeeBase dataset. This was a year in which a number of cases were found north of the border.

European Foul Brood (EFB)

In 2012, we confirmed 896 cases of EFB disease in England and 52 cases in Wales (total 948 cases). These figures are quite a bit higher than last year's (total 695 cases). It is hard to put a finger on one single reason why EFB incidence has risen. However, I am certain that the very poor weather during the beekeeping season is a

Figure 1. Number of colonies inspected by the NBU in England and Wales, 2007 to present



significant factor. It is documented that the incidence of EFB increases in stressed colonies. Poor weather limits the bees' ability to forage and poor nutrition is a recognised stress factor, so we shouldn't be surprised by observed increases in the number of diseased colonies this year.

The league table of EFB incidence is presented in Table 1. For many years, EFB has been 'traditionally associated' with the South of England and, to some degree, to the south of Wales, having a distinct North-South-east divide. Although this trend is largely born out by the 2012 figures, it is no longer true, as oft' quoted in the past, 'there is no EFB north of the Humber'.

The highest regional totals were in South West, Eastern, Southern and South East England (263 cases, 169, 141 and 139 cases, respectively). The county with the highest incidence of EFB disease was Somerset, in which 9.59% of the 1356 colonies inspected

were found to be EFB positive this year. This very high level of disease is partly due to a couple of hot spots which make disproportionate contributions to the county total.

Of course, the weather is also in part to blame, but other contributory factors are the increased number of new beekeepers and the (associated) increase in movements of honey bee stocks for trading purposes.

Other county hot spots include Devon, in which 6.9% of inspected colonies were affected; Norfolk (5.79%) and West Sussex (5%). Devon has been a severely infected county for many years and, in spite of a lot of hard work by inspectors, it is remaining at a similarly high figure each year. Factors sustaining this high level of disease vary from year to year but, again, the weather and increased bee movements also contribute. Norfolk has suffered with EFB over many years with considerable fluctuations each season.

Figure 4, page 38, shows the

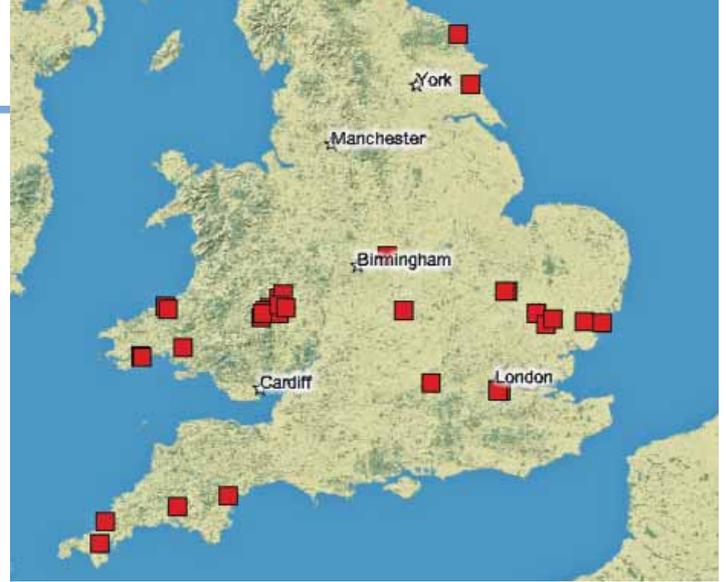


Figure 2. Distribution of American foul brood inspections in England and Wales 2012 (BeeBase data)

incidence of EFB in England and Wales (infected colonies) since 2007 and the squares on the map (Figure 5) show where this disease has been confirmed during 2012.

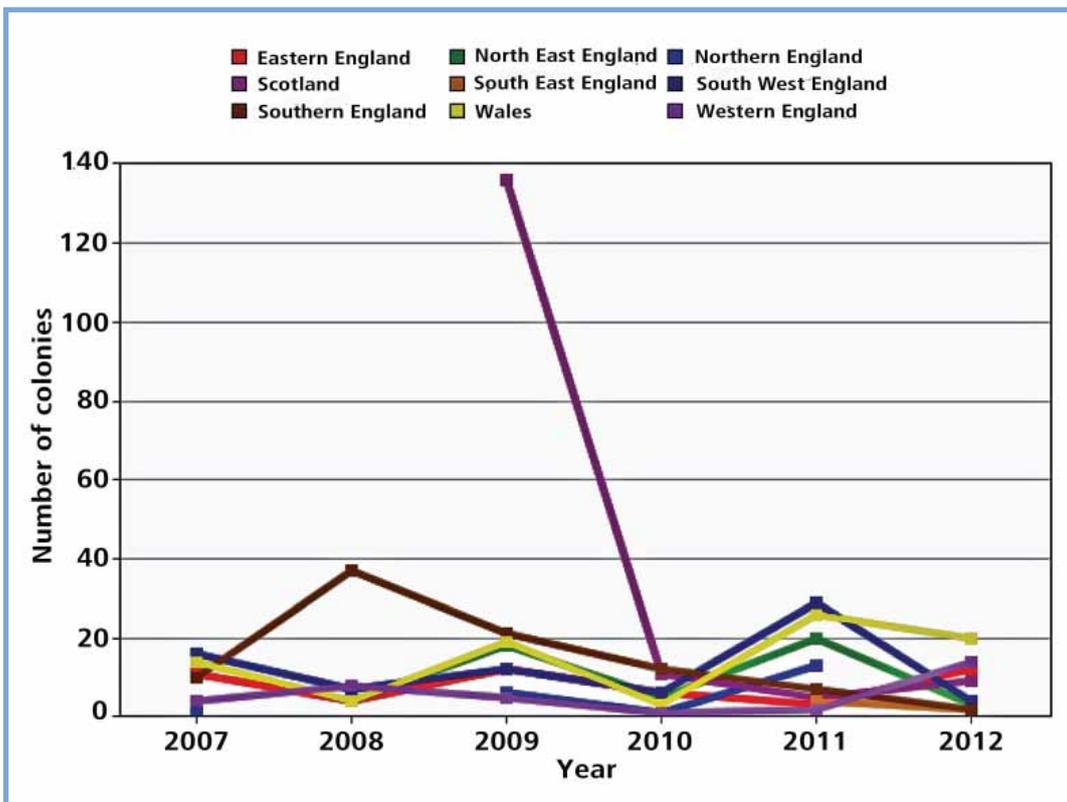
It is difficult to draw conclusions from these figures of incidence and there is no doubt a need for further research to help us properly understand any trends. Through its participation in the Insect Pollinators Initiative (<http://www.bbsrc.ac.uk/pollinators/>) and collaborative projects with the University of York and Bee

Diseases Insurance (see Ed Haynes's article on BeeBase: *Biology and Spread of European Foul Brood: Some Preliminary Results* <https://secure.fera.defra.gov.uk/beebase/index.cfm?pageid=166>), the NBU is proactive in addressing questions about the biology and spread of this serious and economically damaging disease.

Trends in Treatment

Regarding any trends in the use of various treatment options for foul brood-affected colonies, all AFB affected colonies are destroyed. However, use of the antibiotic oxytetracycline (OTC) against EFB was down and use of the Shook Swarm (SS) option was up. It remains to be seen how effective EFB management has been nationally. We will have to wait until re-inspections in the 2013 season to make any proper evaluation. However, it is acknowledged that the success of SS is highly dependent on the degree of aftercare that beekeepers are able to provide, post-treatment. If you would like to read more about foul brood management options, please visit BeeBase to download our free Foulbrood Disease of Honey Bees leaflet. Otherwise get in touch with us at the NBU office (contact details below) and we can send you a copy.

Figure 3. Regional trends of AFB



Exotic Pest Surveillance

We have continued our surveillance for the exotic pests, the Small hive beetle (SHB) and *Tropilaelaps* spp. mites. (You can read more about the biology of these pests in our free leaflets available through BeeBase or the NBU office; contact details below).

A total of 3908 colonies in 930 apiaries were specifically examined in England and 719 colonies in 159 apiaries in Wales. In addition, 166 samples were also submitted voluntarily by concerned beekeepers.

None of these inspections revealed any exotic pests and no samples submitted by beekeepers tested positive. At present, both pests are believed absent from the UK, but please remain vigilant.

Contingency Plan

Should either species be detected within our shores, we have a Contingency Plan (CP) in place (see BeeBase at <https://secure.fera.defra.gov.uk/beebase/index.cfm?pageid=206>). This describes all eradication and containment efforts which would be implemented in the event of an outbreak, and specifies 'who does what' (ie, which responsible parties) in order to deliver the most effective and rapid outcome.

To ensure that all responsible parties are familiar with their responsibilities under the CP, the NBU holds regular Contingency Planning Exercises.

This year we held a major exercise using apiaries in and around the Bristol area. Involving ABIs from three regions (South West, South and Western England respectively), the test scenario was that an adult SHB had been found alive inside a colony belonging to a local

Table 1. Regional incidence of EFB by county (England and Wales 2012)

Region	County	No. EFB positive colonies	% inspected colonies/county with EFB
South-West-England	Somerset	130	9.59
	Devon	127	6.90
	Cornwall	6	0.94
	Regional total	263	
Eastern-England	Norfolk	70	5.79
	Suffolk	27	2.54
	Lincolnshire	25	2.80
	Essex	24	2.16
	Hertfordshire	19	2.19
	Cambridgeshire	4	0.44
	Regional total	169	
Southern-England	Hampshire	37	3.05
	Dorset	29	2.43
	Oxfordshire	27	2.37
	Buckinghamshire	22	3.42
	Wiltshire	17	5.65
	Berkshire	8	2.04
	Northamptonshire	1	0.24
		Regional total	141
South-East-England	Kent	64	4.72
	West Sussex	38	5.00
	Surrey	15	2.58
	Greater London	12	1.59
	East Sussex	10	2.49
	Regional total	139	
Western-England	Herefordshire	40	4.27
	Worcestershire	30	3.45
	Gloucestershire	18	2.95
	Avon	8	5.23
	Warwickshire	7	1.06
	Cheshire	5	0.56
	Regional total	108	
North-East-England	North Yorkshire	24	1.41
	Derbyshire	20	4.09
	South Yorkshire	9	3.72
	Nottinghamshire	8	6.56
	West Yorkshire	1	0.20
	Regional total	62	
Wales	Powys	20	2.41
	Mid Glamorgan	15	2.13
	Dyfed	8	0.42
	Gwent	7	1.54
	South Glamorgan	2	1.35
	Regional total	52	
Northern-England	Greater Manchester	9	2.80
	Cumbria	4	0.89
	County Durham	1	0.54
		Regional total	14

bee farmer. For the purposes of the exercise, a 'Disease Control Centre' was set up inside a (very accommodating) local hotel, from which all operations were coordinated. To make the exercise as realistic and rigorously-testing as possible, tiny life-size photographs of beetles or larvae were secreted inside colonies in just a couple of 20 sites in the designated 16 km radius Statutory Infected Area (SIA). Inspectors who had no knowledge of where these were hidden had to search all 'infected' hives at the 20 sites to locate and report their findings. The event involved myself, 15 other ABIs and members of the NBU office team. In addition we are greatly indebted to the 15 beekeepers from the Bristol area who also participated. Through fog, torrential rain and the cold, they gave unwavering support. This is appreciated tremendously. Two further, small-scale exercises were also held in 2012, in the eastern Region (near Norwich) and Northern Region

(near Manchester) – thank you, too, to the beekeepers who took part there – we simply could not do this without your help.

Asian Hornet

In terms of new threats from overseas, many readers will be aware of the Asian hornet (*Vespa velutina*; see *Bee Craft*, 2011, September, p16, October, p35 and 2012, May, page 7), which predates honey bees and several other insect species.

Accidentally imported into France, in less than 10 years its geographical range has expanded rapidly within continental Europe and it is now present in several regions of northern coastal France. ABIs have been proactive in raising awareness amongst beekeepers and are an important part of the first line of defence against this invasive non-native insect.

To date, there have been no confirmed sightings in the UK, but should *V. velutina* be detected, ABIs will be involved in locating nests and Fera staff will be responsible for nest



Figure 5. Distribution of European foul brood inspections in England and Wales 2012 (BeeBase data)

destruction. (Reminder – at this time of year it is very unlikely that you will see any hornet, Asian or otherwise, on the wing in the UK. However, should you encounter a suspect hornet please report it to the Non Native Species Secretariat at alert_nonnative@ceh.ac.uk)

BeeBase

The total number of beekeepers registered on BeeBase, at nearly 29,000, is the highest it has ever been. Since 2010, there have been over 9000 new registrations. This is

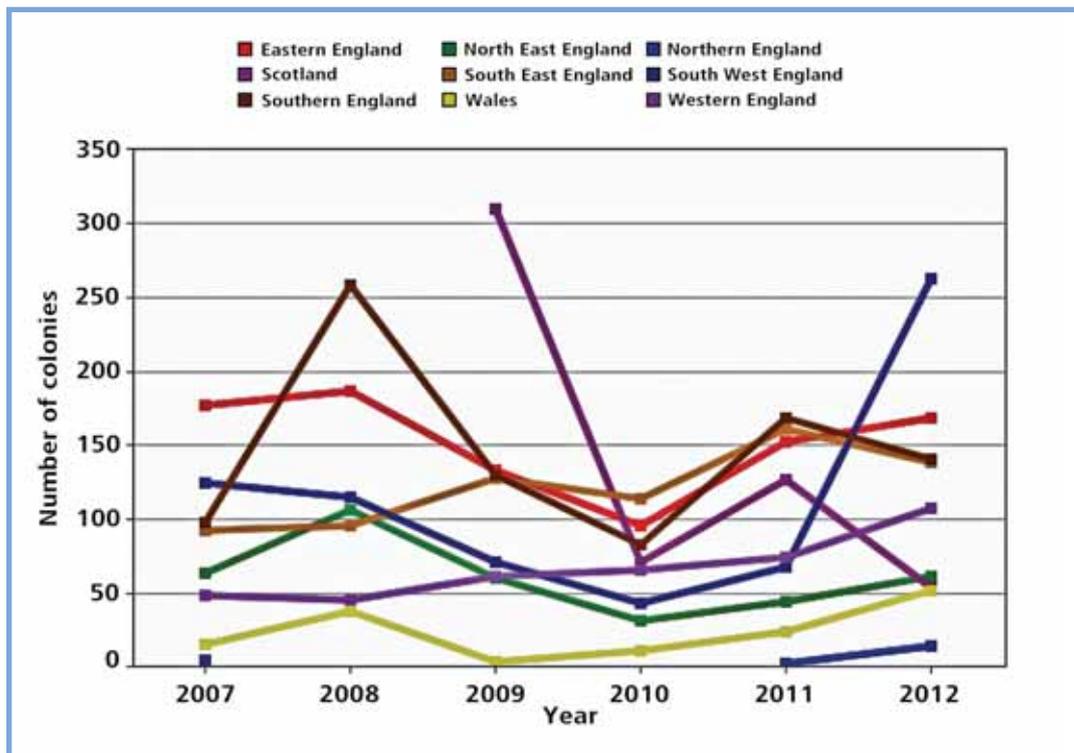
a wonderful achievement and marks a significant improvement in bee health security. The more beekeepers who are registered, the more rigorous our bee health surveillance can be and, crucially, the better our chances of intercepting and eliminating exotic pest threats like the Small hive beetle. Thank you to long-time registered beekeepers and welcome to all recent members.

We need to keep up this momentum (it is believed that up to 50% of beekeepers may still not be on the database). If you are not yet registered, please visit the public pages of BeeBase (www.nationalbeeunit.com) where you can sign up. Otherwise, get in touch with the NBU office team who will be happy to help (contact details at the end of article). By telling us who you are, you'll be playing a very important part in helping to maintain and sustain honey bees for the future.

Helping your Bees this Winter

My feeling is that a lot of colony losses may occur this winter as a result of poor mating resulting in failed queens. Again, we must put this down to the terrible weather experienced at critical times in the 2012 season. However, while we can't control

Figure 4. Regional trends of EFB





the weather, as beekeepers there are things we are still able to do as livestock guardians. Between now and next season, key activities to give your bees the best chance overwinter are:

- monitor the weight of your colonies regularly by 'hefting' (Figure 6). Put your hand under the back of the hive floor and gently lift to get a sense of the weight of the hive. If it feels light, feed your bees with fondant
- monitor natural varroa mite drop. Consider using a winter varroa treatment if this is part of your management regime, depending on the level of infestation
- if you do lose any colonies, try to establish the cause of death before destruction and removal
- if you suspect any notifiable pest or disease, always contact your local ABL.

Further Reading

To read more about current and historic incidence of honey bee pests and disease in England and Wales, please visit the BeeBase website.

The Disease Incidence and Reports page gives live information on the location of confirmed cases of EFB and AFB and varroa in England and Wales. It also provides information on imports of bees from EU Member States and Third Countries.

Data from the inspections programme is updated every day of the season. This information is important. As a beekeeper you can remain vigilant to the whereabouts of diseased apiaries (on a 10 km square basis).

The pages also provide details on the surveillance for exotic threats and recent disease trends. All of the graphs and maps presented in this article can be found there too. □



Andy Wattam

Andy is National Bee Inspector – Head of the Fera National Bee Unit's Bee Health Field Inspectorate. He has been a beekeeper for 30 years. He worked for 11 years as a Bee Inspector in both the North Eastern and Eastern Regions, prior to taking the reigns as National Bee Inspector in 2009. Andy runs 40 of his own bee colonies and is a keen pianist. He lives in rural Lincolnshire with his wife, Jane, and Black Labradors, Digby and Merlin.

Gay Marris

Gay became the NBU's Science Coordinator in 2008 - current interests include exotic pest threats (e.g. Asian hornet, Small hive beetle, *Tropilaelaps*) and the economics of pollination. She is also project manager for the EU Pilot Surveillance Programme in England and Wales. As a practical research scientist for many years, Gay studied the biology of parasitic wasps.



Contacts

For general enquiries please contact the National Bee Unit, The Food and Environment Research Agency, Sand Hutton, York, UK, YO41 1LZ; e-mail: nbu@fera.gsi.gov.uk; Tel: +44(0)1904 462510; Fax: +44(0)1904 462240.

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