

# AN BEACHAIRE

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# COLONY LOSSES

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## The Importance of Recording Winter Losses and of Monitoring for the Presence of Parasites/Pathogens in the Colony

The continuous increase in Winter colony losses is serious problem facing Irish beekeepers and beekeepers worldwide. To assess the extent of this problem it is necessary to monitor Winter losses on an annual basis, hence the importance of completing this year's COLOSS Survey which was published in last month's edition of *An Beachaire*. Copies has now been distributed to the secretaries of all local Associations and hopefully will also be available on the FIBKA webpage. The Survey not only hopes to quantify Winter losses but also to identify the possible causes of these losses. To date scientists believe that the reported increase in losses is not caused by a single factor, but a complex interaction between a number of a factors including; parasites/pathogens, nutrition, use of agrochemicals including neonicotinoids, colony management, reduced vitality and diversity, and colony collapse disorder (CCD).

Although many of the mentioned factors are outside the control of the beekeeper, the early detection and effective and timely control of parasites/pathogens in a colony should play an integral part of all beekeepers' seasonal beekeeping management strategies and hence improve the health status of Irish honeybees.

In honeybee colonies a number of parasites/pathogens exist and include parasitic mites, such as *Varroa* and tracheal mite, microsporidia such as *Nosema* spp., bacteria which include American foulbrood (AFB)/European foulbrood (EFB), fungi such as chalkbrood, and a wide range of viruses, many which are vectored by the *Varroa* mite. These parasites/pathogens have independent life cycles and rarely compete for the same sites of infection. They co-exist at different infection levels which inevitably lead to various synergistic effects, and subsequently results in an increase in colony

### BEE DIAGNOSTIC SERVICE

I wish to remind beekeepers, if you are sending samples for diseases diagnosis

- ◆ Send live, or recently dead worker bees, do not send bees that died overwinter.
- ◆ Comb for American Foul Brood (AFB) should contain suspected brood. The sample should contain sealed, dead and/or discoloured brood if possible. It would assist diagnosis if the capping were not damaged (ie squashed in the post).
- ◆ Cheques or Postal Orders **must** be made payable to **Teagasc**.

(This is on the advice of our bank.)

### PLEASE!

### SEND SAMPLES

of your bees and combs at least twice a year for inspection whether you suspect disease or not to:-

### BEE DIAGNOSTIC SERVICE

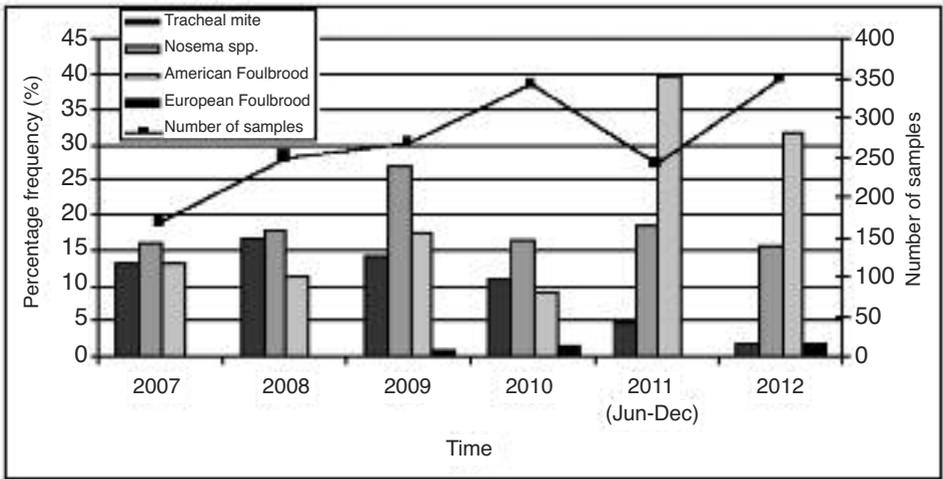
Fee €5 per sample

DR MARY COFFEY,  
TEAGASC,  
OAK PARK,  
CARLOW.

losses. However, in recent years the *Varroa* mite has emerged as one most serious threat to honeybee health. The intense feeding action of this parasitic mite not alone causes physical damage to the adult bee and brood, but it also reduces protein content, body weight and hinders organ development. In addition, the mite is a vector of a wide range of viruses including deformed wing virus (DWV), acute bee paralysis virus (ABPV), Kashmir virus (KBV), chronic bee paralysis virus (CBPV), Israeli acute bee paralysis virus, sacbrood virus (SBV) and slow paralysis virus (SPV). In many instances these viruses not alone weaken the bee's immune system and suppress the expression of immune related genes, they also contribute to morphological deformities which reduce longevity, vigour and homing ability. These viruses are frequently co-infected and even in the presence of relatively low *Varroa* mite infestation, can result in colony collapse. The dual infection of a colony with the two parasitic mites, namely tracheal mite and the *Varroa* mite, also reduces the probability of colony survival. Other interactions/co-infections which contribute to increased colony losses include *Nosema apis* and black queen cell virus (BQCV) and *Nosema ceranae* and CCD. In Irish honeybee colonies many of these parasites/pathogens frequently occur and in many cases are endemic. Figure 1 shows the frequency of occurrence of the various diseases based on the samples received at the Bee Diseases Diagnostic Service during 2012 compared with data collected since 2007.

**Figure 1**

The frequency of occurrence of parasites/pathogens in honeybee samples analysed at the Bee Disease Diagnostic Service during 2007-2012. (Note the bar charts for 2011 only represent 7 months as the data for the remaining 5 months was not available).



The line graph indicates the number of samples analysed per annum. The bar charts indicate the frequency of occurrence of the various parasites/pathogens. The results indicate an increase in the incidence of foulbroods (AFB and EFB) especially in 2011/2012, and a decrease in tracheal mite over the entire reported period. The incidence of *Nosema* spp. fluctuated annually. Although the data should be treated

with caution as the sample collection method lacks a research level of sampling, it indicates the health threats these parasites/pathogens are placing on the colonies. It also highlights the importance of recording losses and identifying the possible causes of these losses. One step to achieving this goal is the completion of this year's COLOSS Survey and the sending of samples at regular intervals for analysis to the Bee Disease Diagnostic Service in Teagasc, Carlow. All completed surveys should be returned to me by email ([Mary.Frances.Coffey@ul.ie](mailto:Mary.Frances.Coffey@ul.ie)) or by post (Mary F Coffey, Teagasc Oakpark Research Centre, Carlow) by June 15<sup>th</sup> 2013.

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## Contribute your Mites

Please send samples of *varroa* mites from your hives to Carla Surlis, at NUI Maynooth. Her PhD work on these pests is providing new and important clues about how we can combat the threat they pose to our bees, details of which were recently outlined in her article, which featured in the April 2013 edition of *The Irish Beekeeper*. If you have used sticky insert papers to count the mite drop, you could send her the insert when you have finished with it.

If you use solid floors in your hives, try to keep some of the mite drop when you clean the floors, put the mites into a small box, and send it to her.

If you use mesh floors with a shelf below, there will be mite drop on the shelf.

Please send to: **Carla Surlis**  
**Department of Biology, NUI Maynooth, County Kildare.**

Email address: [Carla.Surlis@nuim.ie](mailto:Carla.Surlis@nuim.ie)

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[www.bottlesandjars.co.uk](http://www.bottlesandjars.co.uk)



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