

Colony Losses: Putting it all in Perspective

Richard Ball, National Bee Inspector

We take a wider look at colony deaths in the UK

OVER-WINTERING DEATHS of bee colonies affect all beekeepers at some time and during the 2006–2007 winter some British beekeepers have suffered significant losses which is, to say the least, disappointing for them. Allied with huge bee losses in the United States as well as losses in southern Europe, there is some cause for concern that has recently been highlighted in the public media.

From the period around the Second World War until the late 1980s, individual losses in excess of 10% were considered to be significant. At the end of April 2007, data at the National Bee Unit (NBU) indicated an average colony loss rate of 19.6% in apiaries visited by the bee inspectors. This figure must be considered in context as inspectors initially visit apiaries with known disease issues or reported colony loss and over the course of a normal season, this figure will reduce.

However, over the past three years at comparable times of year, there has been a small increase in colony losses. This trend was expected as, following the identification of pyrethroid-resistant varroa mites in 2001 together with

their subsequent spread and the increased difficulty of control, extra colony losses would inevitably occur until beekeepers adapted to different varroa control methods.

MANY CAUSES

There are many reasons for bees to die through the winter including starvation, unidentified foul brood, nosema, acarine, varroa, the interactions of certain honey bee viruses, and the often forgotten influence of weather conditions. Harsh winters or long drawn out damp springs have, in the past, been responsible for huge numbers of colony losses sometimes far higher than those caused by pests or disease. Over the past 15 years, varroa has changed colony management significantly and it is clear that the mite has, so far, been the biggest problem faced worldwide by beekeepers.

INAPPROPRIATE CONTROL

It is sad to say that inappropriate varroa control has been a common cause of colony loss for many years. Often beekeepers use suitable control methods but apply them too late in September or October, by which time significant damage has been caused resulting in the colony succumbing during the autumn or winter. Few, if



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One of the keys to avoiding colony losses is to inspect for disease in your colonies and understand what you find

any, varroa mites remain as evidence. Treatment thresholds must be adhered to, as often when varroa is present in concert with virus disease or acarine mites, colony collapse occurs at low varroa mite populations.

Before the introduction of varroa it was commonplace for bees to be screened for acarine and nosema but in recent years these checks have been omitted even though these diseases are potentially fatal when acting either on their own or combined with the other disease threats.

COLONY COLLAPSE DISORDER IN THE USA

The widespread colony losses in the United States are a mystery to which they have ascribed, for want of an identifiable cause, the

name Colony Collapse Disorder (CCD). The signs are:

For collapsed colonies:

- ◆ no or few imago (adult) bees in or around the hive
- ◆ sealed brood is present
- ◆ stores are present which are not robbed out by bees or attacked by greater wax moth or the small hive beetle.

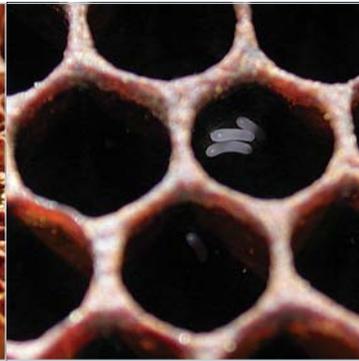
For colonies that are collapsing:

- ◆ there is a small population of younger bees which are unable to care for the amount of brood present
- ◆ the queen is present
- ◆ the colony is reluctant to take any food provided by the beekeeper.

CCD is mostly affecting

Colonies will fail for a number of reasons, including a drone-laying queen, laying workers or European foul brood

(photos: Richard Ball)



commercial migratory beekeeping units, some reporting losses of 50–90%. Colonies often appear healthy three weeks before the collapse occurs.

These signs are not considered typical of any known bee disease or combination of diseases so scientists are working to identify the cause to help protect this vital pollinator. The exotic microsporidian fungus *Nosema ceranae* has been confirmed in some of the CCD cases and is currently being investigated as one of the possible causes. Many scientists believe that the causes will be due to a combination of factors.

Further information is available from the Mid-Atlantic Apiculture Research and Extension Consortium at <http://maarec.cas.psu.edu/> Regular updates of the research will be posted on this website.

LOSSES IN SOUTHERN EUROPE

Some of the most recent losses of bees experienced in southern Europe have been ascribed to *N. ceranae*. However, in the UK it is important that all the evidence is examined and the true cause of our honey bee losses is identified rather than guessing or jumping to a conclusion.

If you experience abnormally high colony losses the NBU needs to know so that the evidence can be examined. Contact them on 01904 462510 or nbu@csl.gov.uk

In Europe, concern over worldwide bee losses has led to the formation of the 'Prevention of Bee Losses in Europe Working Group' (PoBLiE) at which the NBU is represented. The aim is to assess the true level of losses through common data collection systems and to co-ordinate research projects throughout the EU.

For some seasons a few bee clubs or associations have carried out winter loss surveys, which have usefully indicated an overall trend, and a recent survey in mainland Europe showed that although the overall situation was an important indicator, those beekeepers with a good understanding of bee diseases and control tend NOT to suffer colony losses.

KEY TO AVOIDING LOSSES

Recognising and dealing with pests and disease in the early stages is clearly the key to avoiding major colony losses. The NBU and its team of Regional and Seasonal Bee Inspectors carry out training in disease recognition and control which is generally well received. However, many groups avoid the training

sessions saying disease is depressing, such lectures put off beginners and so on. Yet all the indicators are that a good knowledge of disease is a major step for successful beekeeping. This is an absolutely essential part of managing livestock which is, of course, what bees are.

If you wish to arrange a training event please contact the NBU or your local inspector.

Details about disease recognition and control can

be found in the CSL/NBU leaflets *Managing Varroa*, *Foul Brood Disease of Honeybees: Recognition and Control* and others. These are available from your local inspector, the NBU headquarters at York (01908 462510) or online at <http://beebase.csl.gov.uk> This site also contains contact details for the NBU bee inspectors, NBU staff at York, notifiable disease and colony losses in England and Wales as well as a useful link to the MAAREC website. ♦

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