Vita (Europe) Ltd

NEWS MITE

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The new, less messy Nosema: ceranae

In the mysteries that surround the global concerns over honeybee losses, a relatively new type of Nosema seems to be implicated although whether it is a cause, just another associated symptom or a trigger remains to be discovered. Whatever its role, beekeepers should be aware of its dangers and be prepared to try to protect their bees against it.

Dr Max Watkins, Technical Director of Vita (Europe) Limited said: "The unusually high numbers of honeybee colony losses across Britain and indeed the world in recent years is a continuing mystery. Beekeepers need to be particularly alert this spring and look for all the usual indicators of health: food stores, varroa populations, and a laying queen?

"But this year they should also watch for the symptoms of a disease which has spread across the globe – *Nosema ceranae*. Beekeepers have long been aware of the threat posed by *Nosema apis*. As a micro organism, it can cause dysentery in honeybees – with staining on the front of the hive as an obvious symptom.

"However, the symptoms of *Nosema ceranae* are not so obvious and hive-staining is less common. Bees dwindle in numbers but have no very obvious outward signs of poor health. Only a microscopic examination of the gut can show up the microsporidian organism that causes nosemaisis."

Nosema ceranae was first identified in the 1990s, but not until 2004 was it recognised as a serious threat when it was associated with the deaths of many colonies in Spain. It was then also evident in Italy and France.

The conventional treatment for *Nosema apis* in most countries is fumagillin. In trials to combat *Nosema ceranae* infections, Vita Feed Gold has been shown to stimulate a controlled and sustained build-up of colonies and has been shown to be effective in reducing the number of both *Nosema apis* and *Nosema ceranae* spores.

Pests and pollination

A study by Amanda Ellis and Keith Delaplane in the USA has indicated that pollination by colonies affected by the varroa mite and other pests is no worse than colonies without pests. But individual bees from these colonies seem not to be as effective pollinators on single visits.

This curious finding suggests that varroa-infested colonies might have to work harder in foraging and make more visits to flowers.

http://tiny.cc/83Sno

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Intriguing research findings
CCD – chasing the cause

Large-scale honeybee losses are not new. They have been recorded several times in the history of beekeeping with symptoms not that different from CCD.

Viruses can be found in almost all hive contents – and even in pollen on plants and in other pollinators.

In some CCD colonies, pollen has been found to be quarantined or entombed behind wax cappings suggesting that the bees were putting this food beyond use.

Viruses don't always debilitate colonies: infection can be covert and may depend on the viral load of the colony and the number of varroa mites present as well as other stress factors.

There seems to be a repellent in hives after CCD episodes – in the few weeks following CCD, the usual expected invasion by pests and scavengers does not occur.

Anyone with honeybee health research ideas is invited to apply for the Vita International Research Award.
See www.vita-europe.com

EDITORIAL

It is good to see the increasing allocation of research funding by several governments and the growing appreciation by politicians of the importance of honeybee pollination.

With 30 projects underway in countries across the globe, it's a very busy time for Vita. Vita receives no government aid, but has always invested a very substantial proportion of its turnover in R&D.

Meanwhile, research is showing that explanations of honeybee losses are far from simple. One concerning trend has been the level of pesticide residues discovered in some dying colonies in the USA. Some of the residues result from treatments that are illegal and some as a result of overdosing. We urge beekeepers to use treatments exactly as recommended.

I'm delighted to report that beekeepers in the orchards of Normandy, France seem to be rather happy with Vita's new feeds. On a recent visit, our colleague Jérôme Trouiller, Director of Vita-Swarm SAS, met with an unequivocal endorsement: Vita Feed Gold in the early spring to clean them up and Vita Feed Green in the summer to make them go like bombs not colonies!

Max Watkins
Technical Director
Vita (Europe) Ltd

NEW PRODUCT DEVELOPMENT FOCUS

Vita R&D news

Vita increases research investment

With continuing global concerns over honeybee health, Vita has this year committed one of its highest ever budgets to research and development. It has 30 projects underway in countries including Italy, Greece, France, and the USA, to tackle a wide range of pests and ailments that are afflicting bees.

Varroa control

Tackling varroa remains a top priority for Vita and investigations are underway into three potential treatments – all with different active ingredients which when used as part of IPM should also inhibit the build-up of resistance.

The target is to produce treatments that are effective, easily administered, low cost and non-toxic to bees, man and the environment. Max Watkins is delighted to have three strong and very different treatment candidates and has commissioned research into them in different parts of the world.

Wax moth offensive

In Greece, preliminary tests are underway for a natural control product for wax moth. Vita already supplies B401, a bio control, and it is hoped that the new product will complement that treatment.

The new approach is investigating a natural product of the hive. Its green credentials and its easy method of application should make it popular amongst professional and hobbyist beekeepers.

As usual, Vita's research into the product is very intensive and rigorous, and success will provide beekeepers with a natural, safe, easily applied, highly effective way to control wax moth, a very destructive pest in many warmer climates.

Hornet alert

With increasing numbers of attacks on honeybees by the growing population of Asian hornets (*Vespa velutina*) in parts of Greece and Southern France, Vita is stepping up its work with Alexandros Papachristoferou to produce a hornet trap which will fit on to the side of bee hives.

A sight that must strike fear into Mediterranean bees – *Vespa velutina*, an Asian hornet.
Photo: Emmanouil Filippou www.greecephotobank.

The Asian hornets hover in front of honeybee colonies and take workers as they leave the hive to feed them to their young. *Vespa velutina i*s thought to have been introduced in SW France in imported pottery. Its spread is being monitored.

Virus reduction

The rapid increase in a whole range of honeybee viruses that are debilitating colonies is causing great concern amongst beekeepers across the world.

The virus threat resembles a series of moving goal posts, so Vita is looking at potential methods which will attempt to reduce the general virus load within colonies.

CURRENT DEVELOPMENTS

Research in Florida

Vita meets and collaborates with researchers across the globe. Husband and wife team Jamie and Amanda Ellis, based in Florida, are two of those researchers.

It's an exciting time for Dr James (Jamie) Ellis, Assistant Professor of Entomology at the University of Florida. Brought up in Georgia, USA, and having completed a PhD in Grahamstown, South Africa in 2004, he now lives in Florida. He is about to become a collaborator on BeeCAP the $4 million US Managed Pollinator Co-ordinated Agricultural Project that aims to identify and mitigate the causes of Colony Collapse Disorder (CCD).

Jamie has extensive experience in honeybee research and his

current projects include new varroa control methods, the mapping of Nosema across the USA, the role of bumblebees as hosts for small hive beetles, the effects of pesticides on immature honeybees and RNAi technology to combat viruses.

Sub-lethal effects

Jamie is particularly interested in the sub-lethal impact of pesticides on honeybees.

"A lot of research into honeybees and pesticides has focused on adult bee mortality, but actually we know very little about the sub-lethal effects of pesticides. And we're not just talking about pesticides applied to agricultural crops – there are the potential effects of some varroa treatments on honeybees. Pesticides in general could exacerbate a number of honeybee ailments," says Jamie.

Research kills two quick fixes

Jamie's wife Amanda has also been a honeybee researcher although at the moment she is taking time off to raise their young child. She has worked in Florida and Georgia on a range of bee research projects, some with Jamie and many with another friend of Vita, Jerry Hayes of the Florida Department of Agriculture.

Not all of Amanda's research has turned out quite as expected: "I sometimes seem to be the bearer of bad news," she says. She has worked on research to test anecdotal reports that small cell comb and dusting colonies with powdered sugar could inhibit varroa. Rigorous experiments were unable to reproduce the results reported by some beekeepers.

She has also worked with Vita to see if impregnating wax foundation with B401 could inhibit the development of wax moth – although it stunted the moths' growth and lessened their impact, it wasn't deemed a big enough effect to warrant the commercial development of foundation impregnated with B401.

But she takes such results philosophically: "Sometimes it seems discouraging because we are hoping for nice simple fixes, but if all research projects worked out as expected, there wouldn't be much need for researchers!" And they ensure that beekeepers don't waste their time with ineffective treatments.

For details of BeeCAP, see www.beeccdcap.uga.edu

BUZZWORDS

Honeybees fight back

There is a fascinating if grim 17 second video from Vita research associate Alexandros Papachristoferou on You Tube showing honeybees thermo-balling a hornet.

Search www.youtube.com under "hornets asphyxiated".

Chimps' hive tools

Chimpanzees in the Congo are rather fond of honey and will spend hours with their own set of hive tools bashing bee nests. A researcher from the Max Plank Institute in Leipzig, Germany says that the nutritional returns don't seem large, but they get very excited when they get to the honey. They are smart too – they target only stingless bee nests!

Eye back on the ball

The UK Government is now putting another £500k each year for five years into honeybee research although a leading civil servant has admitted that research into bee disease had not been a "top priority". Dame Helen Ghosh said that the government had now woken up to beekeepers' concerns, although she played down the significance of honeybees as pollinators saying that they were just one of many pollinators.

RNA rescue?

In an attempt to tackle the multiple viruses afflicting bees, researchers are investigating if they can stop viruses from reproducing inside a bee's cells by interfering with its RNA (a chemical cousin of DNA).

RESEARCH

Vita Research Award helps unscramble crisis

A project at the University of Parma in Italy to develop a new green bio-control agent to combat the varroa mite has won the 2009 Vita Research Award.

The Parma researchers have already discovered several fungi that can kill varroa and their next crucial step, for which Vita has awarded the research prize, is to ensure that the fungi are perfectly safe for bees and will be effective in the warm, humid environment of the hive.

2007 Award findings

The results of the 2007 Vita Research Award, recently announced, provide important further evidence that three viruses implicated in the demise of honeybee colonies are global rather than regional in distribution.

Working in Jordan, Dr Nizar Haddad applied the latest molecular (DNA) techniques to detect honeybee viruses. With the first work of its type in the region, he showed that three of the six main honeybee viruses were widespread in Jordan – and by implication in neighbouring countries. The three viruses – Acute Bee Paralysis Virus, Sac Brood Virus, and Deformed Wing Virus – never before conclusively identified as being widespread in Jordan have been implicated in recent colony deaths in many other parts of the globe.

2007 Vita award-winner Dr Nizar Haddad of Jordan applying molecular techniques in the laboratory.

Jeremy Owen, Sales Director of Vita (Europe) Ltd said: "The biannual international Vita Research award series which we launched in 2005 is exceeding the hopes we had for it. The two completed studies thus far have produced vital information with practical implications for treatment."

Apply now for 2011 award

"As the largest dedicated honeybee health company in the world, we are eager to foster much-needed new research to combat threats to honeybees," continued Jeremy. "The next award will be in 2011 and I would encourage researchers across the world to consider making an application and to talk to us soon."

The Vita research award, valued at around Euros 10,000, was launched in 2005 with Viktor Yuschenko President of the Ukraine and also an ardent beekeeper as patron.

Application details: www.vita-europe.com

Bees are the new cool

Awesome apiaries

- White House garden, Washington
- roof of Opera Garnier in Paris, France
- atop Fortnum & Masons, London
- roof of Vancouver's new convention centre, Canada.

Celebrity beekeepers

- Alexander the Great, conqueror
- Aristotle, philosopher
- Sherlock Holmes, detective
- Sting of the rock band Police
- Mick Jagger, Rolling Stones
- Sir Edmund Hillary, Everest mountaineer
- Paul Theroux, travel writer
- Henry Fonda, Hollywood actor
- Lord Baden Powell, founder of the Scouts
- Maria von Trapp, hill singer.

Vita products

Apistan
Varroa control strips (pyrethroid)

Apiguard
Varroa control gel (thymol)

EFB Testing Kit
European Foulbrood hiveside test

AFB Testing Kit
American Foulbrood hiveside test

B401
Biological wax moth control

Vita Feed Green
to strengthen colonies

Vita Feed Gold
to help prevent diarrhoea and strengthen weak colonies

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Produced by Palam Communications
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Vita (Europe) Limited
21/23 Wote Street
Basingstoke, Hants RG21 7NE
United Kingdom

Telephone: +44 (0)1256 473175
Fax: +44 (0)1256 473179
Website: www.vita-europe.com