

A REPORT FROM THE UNIVERSITY OF SUSSEX
FOR THE EVA CRANE TRUST

Outreach Of Applied Research Results To Help Honey Bees

November 2016



THANK YOU



Eva Crane Trust

LASI
LABORATORY OF APICULTURE
AND SOCIAL INSECTS

We are very grateful to the trustees of the Eva Crane Trust for supporting the Laboratory of Apiculture and Social Insects (LASI) outreach activities.

Sharing our knowledge and findings with relevant audiences is vital to our mission to make a positive and practical difference to the health and well-being of honey bees in the UK and beyond.

We communicate our science in a variety of ways, including workshops in our dedicated bee lab, talks, presentations, leaflets and films. We have a LASI YouTube channel in order to make videos widely available to people all over the world.

Thanks to your support, this year we were able to hold a series of seven workshops on the following important topics:

- **Determining the Most Attractive Plants for Bees and other Flower Visitors (2 workshops):** How to help bees and other flower visiting insects by planting the right flowers
- **Breeding and Using Hygienic Bees (2 workshops):** How to use hygienic bees to help control brood diseases
- **Integrated Varroa Management (3 workshops):** A workshop to help beekeepers manage honey bee pests and diseases

THE WORKSHOPS

Workshops 1 and 2 - Determining the Most Attractive Plants for

Bees and other Flower Visitors: How to help bees and other flower visiting insects by planting the right flowers

Friday 1 July 2016 – 23 attendees

Saturday 2 July 2016 – 14 attendees

Bees and many insects visit flowers to gather nectar and pollen. One reason why bees and other flower-visiting insects have declined is because there are fewer flowers. However, not all flowers are equally good for insects, and some insects preferentially visit certain plant species. So which are the best flowers?

The workshop was aimed at anyone interested in helping bees through flowers, whether ornamental garden flowers or wild flowers. Attendees learnt how to identify the main types of flower-visiting insects and how to quantify them so that it can be determined which attract the most insects and also which types of insects visit them. For example, some flowers attract more honey bees, some more bumble bees, some more butterflies.

Teachers included Professor Francis Ratnieks, Dr. Karin Alton and other LASI researchers.

Feedback:

'Thank you very much for such a good afternoon at LASI on 1st July. And

thanks to everyone involved in the organising. And for the marvellous cakes! Enjoyed it hugely, not least because I'm planning my MSc research along these lines, and my head is now full of ideas!'

Linsey Reid

'A great afternoon, thought provoking talk from the Prof & interesting practical sessions.... Not to forget the cakes. We have since been gardening all day and found ourselves checking out the numbers and types of insects on our plants.'

Shelagh Phelps



Above: Honey bee on borage

'Great day learning about plants 4 #pollinators with @LasiBee today, catmint and marjoram the clear winners on this breezy south coast day!'

Darryl Cox

'Thank you for very interesting workshops. Please would you thank Francis and all your lovely team'

Gill Walker

'Great to meet the @LasiBee lab @SussexUni really excellent workshop on best plants for bees & other pollinators'

Rachel Bicker

Biodiversity Consultant at Gatwick Airport

An additional bonus of this workshop was that Rachel Bicker (who is quoted above) was inspired and set about doing something practical at the airport. LASI supplied her with the 13 bee friendly plants, which Rachel and a team of staff volunteers have now placed in a garden at Gatwick. The following link takes you to a blog showing the creation of their bee friendly, wildlife garden.

<http://biodiversitygatwick.blogspot.co.uk/2016/08/plants-for-pollinators.html>

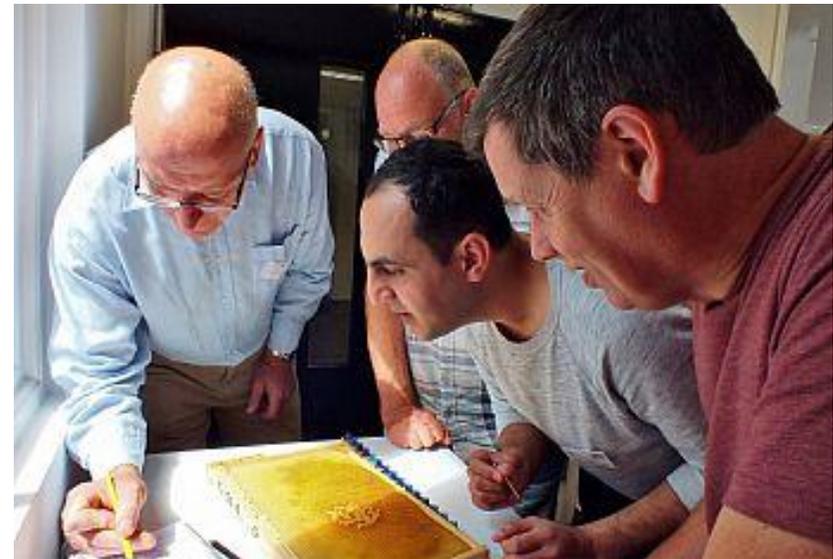
Workshops 3 and 4 - Breeding and Using Hygienic Bees:

How to use hygienic bees to help control brood diseases

Friday 8 July 2016– 29 attendees

Saturday 9 July 2016 – 27 attendees

As beekeepers know, honey bees have many diseases. The simplest way of controlling honey bee diseases would be if the bees themselves did it. Hygienic behaviour is a natural form of disease resistance in which worker bees remove dead and dying brood from capped cells. Hygienic behaviour is effective against chalk brood, American foulbrood, Varroa, and Deformed Wing Virus.



Above: Dr Hasan Altoufailia demonstrates how to graft honey bee larvae

This workshop was aimed at beekeepers who wanted to learn more about hygienic behaviour, whether to breed their own hygienic bees or simply to buy hygienic queens to use to requeen their own colonies. The workshop gave background information on hygienic behaviour and how effective it is at controlling Varroa, at controlling Deformed Wing Virus, and at reducing colony mortality. It also provided practical information on how to breed hygienic bees.

Teachers included Professor Francis Ratnieks, Mr. Hasan Al Toufalia, Mr Luciano Scandian, Dr. Karin Alton, Mr Norman Carreck and other LASI researchers.

Feedback:

'Thank you for the very informative workshop. Thoroughly enjoyed it.'

Ellen Montelius

'It was brilliant, thanks a lot everyone'

Chris Went

'Thank you for the workshop – really, really interesting - I learnt an enormous amount and will be breeding daughter queens next spring if they overwinter well.'

Julie Parker

'Karin and LASI team it was a very good afternoon, very interesting and very well presented. Especially good to have Hassan show us how to graft. You are doing some terrific work and I hope as many people as possible can benefit from it..... And my LASI queen is laying like a good 'un! Thank you very much.'

Paul Jenkins

Workshops 5, 6 and 7 - Integrated Varroa Management:

A workshop to help beekeepers manage honey bee pests and diseases

Friday 2 September 2016 – 29 attendees

Saturday 3 September 2016 – 28 attendees

Sunday 4 September 2016 – 22 attendees

Varroa mites are a serious problem to beekeepers. They harm honey bees directly and also spread virus diseases that can kill the whole colony. Until recently Varroa could be controlled using Apistan strips. However, Varroa are now resistant to Apistan. There are many alternative treatments but how effective are they, and how can they be combined to provide integrated control?

This workshop was aimed at beekeepers who want to keep the Varroa populations in their hives under control. The focus was on how oxalic acid can be applied using the sublimation method to kill 97% or more of the Varroa without harming the bees. The

workshop gave information on the effectiveness of some other Varroa control methods including hygienic behaviour, drone trapping, and Apistan. It also showed beekeepers how to quantify the Varroa in their hives.

Teachers included Professor Francis Ratnieks, Mr. Hasan Al Toufailia, Mr Luciano Scandian, Dr. Karin Alton and other LASI researchers.

Feedback:

‘Many thanks to you and the LASI team for the Varroa workshop yesterday which I found extremely useful. A good mix of lectures, practical demonstration and Q&A... all crammed into one afternoon! For a novice beekeeper, it was a refreshing change to be given clear advice based on peer reviewed research rather than the usual (with no disrespect to my BK colleagues) opinion and anecdote. I shall be adopting the recommendations for OA sublimation this winter.’

Chris Ahier

‘Many thanks for the excellent workshop yesterday.’

Chris Went

‘Many thanks for the excellent workshop yesterday.’

Miriam Knight, Gwent Beekeepers Association



Above: Luciano Scandian with a participant demonstrating the sublimation method of applying Oxalic Acid

All seven workshops were held at LASI and combined lectures with hands on activities, based on the results of LASI research carried out in the Sussex Plan for Honey Bee Health & Well Being.

PAMPHLETS AND VIDEOS

Pamphlets

We have created two "How To" pamphlets on the topic of "How to Apply Oxalic Acid Via Sublimation to Control Varroa" – see copies attached to the report. Printed copies were given away at events such as the National Honey Show.

We also translated the pamphlets into three other languages: French, Dutch and Finnish. Next year we plan to make translations into additional languages and also to translate other pamphlets. Beekeeping is a worldwide activity and we are committed to making our findings available to as wide an audience as possible. Importantly, the information being provided in these pamphlets is relevant to beekeeping in all countries where they have varroa mites and European honey bees.

We also recognise that Dr. Eva Crane was herself committed to international communication, through the Multilingual Dictionary of Beekeeping Terms, for example.

For further information on our pamphlets, please visit:
<http://www.sussex.ac.uk/lasi/sussexplan/varroamites>

Videos

We are also producing two films on the subject. The first video illustrates 'How To Determine Varroa Infestation Levels In Hives'.

This can be viewed by clicking the following link:

<https://youtu.be/dtE4iCvhWmY>

The second video will be completed imminently and both will then be made available to view by anyone in the world via the LASI YouTube channel.

<https://www.youtube.com/user/LASIBeeResearch>

Articles

In addition to these pamphlets and videos, Professor Ratnieks has also written articles for beekeeper magazines that present the results of LASI research in a more accessible way for beekeepers than the original scientific papers.

- E102. Ratnieks, F. L. W. 2016. Butterfly research at the University of Sussex. Butterfly Conservation (Sussex Branch) Autumn Newsletter 2016, Issue 107: 24-30.
- E101. Ratnieks, F. L. W., Al Toufailia, H. 2016. Comparing the effectiveness of different control methods against varroa. Bee Farmer October 2016:13-15.
- E100. Ratnieks, F. L. W. Al Toufailia, H. 2016. How to apply oxalic acid via sublimation to control varroa. LASI Pamphlet
- E99. Alton, K., Ratnieks, F. L. W. 2016. Hygienic behaviour: what do beekeepers know? Bee Craft 98 (June): 7, 9.
- E98. Ratnieks, F. L. W. 2016. LASI Queen Bees: a research spin-off. BBKA News June 2016: 205

- E97. Ratnieks, F. L. W., Al Toufailia, H. 2016. Integrated control of honey bee diseases. The British Bee Journal 3: 9-10.
- E96. Ratnieks, F. L. W., Al Toufailia, H. 2016. Hygienic Queens. Bee Farmer (June 2016) 20-21.
- E94. Ratnieks, F. L. W., Al Toufailia, H. 2016. LASI Queen Bees. Bee Craft 98 (July) 26-27.
- E93a. Ratnieks, F. L. W., Scandian, L., Al Toufailia, H. 2016. Using oxalic acid to kill varroa. Bee Farmer (February 2016) 11-15.
- E93b. Ratnieks, F. L. W., Scandian, L., Al Toufailia, H. 2016. Using oxalic acid to kill varroa. LBKA (London Beekeepers Association) News, March 2016, pages 22-26
- E93c. Ratnieks, F. L. W., Scandian, L., Al Toufailia, H. 2016. Sublimation: the best way to kill Varroa with oxalic acid. Bee Culture (March 2016) 35-40.
- E92. Ratnieks, F. L. W., Al Toufailia, H. 2016. How to apply oxalic acid via sublimation to control varroa. (LASI Information Sheet) Also published in the LBKA (London Beekeepers Association) News, March 2016, page 27.
- E91. Al Toufailia, H., Ratnieks, F. L. W. 2016. How effective is Apistan® at killing varroa? Results from a LASI trial. Bee Craft 98 (2) 7-11.

FOR MORE INFORMATION

Thank you once again for supporting LASI's outreach activities. If you would like any further information about this or any other aspect of LASI's work, please get in touch.

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