

EARS: Eastern Associations Research Studentship: The Campaign

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What do we want? 'Research Funding.' When do we want it? 'Now'

WHAT A brilliant campaign. We have raised the profile of beekeeping significantly. Hardly a person you meet is unaware of the problems facing bees. Research funding has been a real hearts and minds success. The campaign may be about hearts and minds but research is not. If anything, the best research seeks to eliminate extraneous variables, opinions, emotions.

This article could well have been titled 'Beekeepers meet Scientists' for that is what it will cover: how a group of earnest beekeepers, frustrated by problems with their bees, ended up part-funding a studentship at Sheffield University.

THE WORLD OF BEEKEEPING RESEARCH

A straw poll of 26 beekeepers asked to name UK bee researchers, came up with an average of four including, poignantly, those who were at Rothamsted but are not currently active in the field. Actually research papers about bees are published worldwide at the rate of more than one a week; some of these papers represent years of hard work by a multinational or multidiscipline team. At the recent Apidology conference in Belfast in September 2008 around 200 topics were published in the proceedings.

By focusing on honey bees, we may miss interesting and relevant research on pollinators in general, such as the data recorded by BWARS (Bees, Wasps and Ants Recording Society) or projects such as ALARM (Assessing Large scale Risks for biodiversity with tested Methods) which looks at distribution shifts in pollinators including the effects of environmental chemicals, or BEE SHOP (Bees in Europe and Sustainable HOney Production) which aims to reduce potential sources of honey contamination, both of which have funding measured in millions of Euros.

Fortunately, the NBU (National Bee Unit) and several UK Universities are involved. As English speakers, not only can we miss but we can be quite cold about extensive research in other countries such as the old Communist block.



The new £4.4 million Environmental Research Centre at the University of Sheffield

With apologies for any offence it may cause, research on human beings leads to outrage and litigation, on mice it leads to an outcry, on bees ... Sometimes we can be at the very periphery of much larger projects covering medical or environmental issues and still be the beneficiaries of such research.

Does all the research address the pressing issues of the day as viewed by beekeepers? Probably not – but quiet background work such as the establishment of cell lines may be seen as prerequisites for substantial progress.

ACADEMIA IN ACTION

By now you are probably thinking, 'Fine, but what about my bees and my problems?' Here we get to the relationship between beekeepers and researchers.

As has been reported elsewhere from the recent meeting with the Wellcome Trust, funders are prepared to consider bees as suitable targets for research but the quality of the research has to be measured against all the other projects requesting finance. Work has to be original, precisely targeted and capable of peer-review by the scientific community.

Finding out if a piece of proposed research is original and what other data are available to provide insight is itself a challenge. Projects such as the 2005 BRAVE (Bee Research And Virology in Europe) identify needs but also recognise that apicultural research is highly dependent on other disciplines such as virology, toxicology and microbiology.

Those who are successful habitually in raising funds will tend to publish in high-citation journals such as *Nature* and *Science*. Bee journals such as *Apidologie* and IBRA's *Journal*



Dr Stephen Martin from Sheffield University



The old bee laboratories at Sheffield University

of *Apicultural Research* are some distance behind in their citation impact.

‘What about my bees?’ doesn’t cut the mustard as a research project. It is worth remembering that products such as Bayvarol and Apistan came from academic research rather than from practical trials of the type done by Richard Frow in the 1920s. Maybe there are no silver bullets left and beekeeping in the UK really has changed to continuous monitoring and response.

DISSEMINATION OF RESEARCH FINDINGS

General and beekeeping publications are often charged quite considerable amounts of money to reproduce original research findings. You may get the detail later, when its ‘value’ has declined, or you may get a tantalising glimpse from the lecture circuit without necessarily knowing contexts or parallel work.

There is a thriving market in interpretation of results, both in beekeeping periodicals and beekeeping forums on websites. Picking at random from EurBee (www.eurbee.org), who are we to know if a piece entitled ‘Why honey bees are heterozygote for phospho-glucomutase in winter’ will add to the pile of largely discarded research or change the methods of winter care of bees?

EASTERN REGION BEE FORUM

The Eastern Region of England annual ‘Forum’ brings together a broad spectrum of representatives from BBKA (British Beekeepers’ Association), non-BBKA and BFA (Bee Farmers’ Association) associations.

Last year Regional Bee Inspector Andy Wattam brought along Dr Giles Budge, NBU Research Projects Manager, to talk to us. Giles, along with Tim Lovett, an alumnus of the University of East Anglia (motto: Do Different), has made a point of building bridges between scientific institutions and

practical research. In particular, he talked about the cost efficiencies that can accrue from getting research funding for PhD studentships. A relatively small amount of beekeepers’ money can leverage a large amount of funding for a University PhD.

THE BIRTH OF EARS

At one point a participant asked, ‘Couldn’t we get involved in something like that?’ and Giles opined that it ought to be possible. The rest, as they say, is history.

There are two major funders of Studentships relevant to beekeeping research in the UK, the Natural Environment Research Council (NERC) and the Biotechnical and Biological Sciences Research (BBSRC) which fund 88 Collaborative Awards in Science and Engineering (CASE) PhD Studentships.

Industry, ie, beekeeping, has to put up some of the cash (£1000 per annum for three years for NERC and £4500 for four years for BBSRC) and the funding body puts up the rest – between £60,000 and £120,000.

So far, associations, including Cambridgeshire, Bedfordshire, Suffolk, Essex, Huntingdonshire, Peterborough and West Norfolk, have pledged £2500 per annum. We hope and expect as time goes on that other associations will join in.

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APPLYING FOR FUNDING

There is a significant lead-time before our PhD student can get underway. The funding application to BBSRC was submitted before the 15 October 2008 deadline. With many more applications than funded places, successive cycles of elimination occur until the best science has been agreed by the awarding panel – the longer you don't hear back the better! The success rate for BBSRC funding is 23% and this is pathfinder application.

If successful, you then have to find a young studious beekeeper keen to do a PhD at the research establishment of your choice. Easy!

Under guidance from several sources, this first EARS application is for work at Sheffield University under Dr Stephen Martin. The department at Sheffield is a natural choice for such a collaboration due to the achievement record of Dr Martin in the field of virus interactions and also because state-of-the-art facilities are due to be available shortly. This proposed studentship brings together committed end users in the industry with leading government and academic scientists.

There are some interesting challenges – it is a very positive aspect for large numbers of beekeepers to be involved in research but from the funder's point of view, it wants to make sure there is single point of contact – dealing with 2000+ beekeepers is not an appealing proposition. We



Ricky Kather, a fourth-year MSc student, testing the blank state hypothesis in honey bees by conducting a series of bioassays to elucidate the function of alkanes and alkenes in the honey bee recognition system

selected an Association (West Norfolk and King's Lynn) and individual to 'front' the beekeepers.

Funders will only fund through approved industry partners. EARS isn't recognised but BBKA is. We talked with Tim Lovett who, initially cautious, recognises the power of the concept of 'My Research' and 'My Researcher' to beekeepers and appreciates that the PhD is within the scope of the research projects being coordinated by BBKA.

THE PROJECT

The principal aim of the studentship is to investigate the effect of viral diseases on honey bee recognition systems and how these are exploited by mites.

There are many obstacles in our way, but we might sow the seeds for a student to join the thin ranks of apicultural professors in years to come. Certainly we hope that others will follow.

THE STORY CONTINUES ...

In March, BBSRC announced funding for the project.

Professor Douglas Kell, BBSRC Chief Executive, said, 'It is very valuable for researchers to work alongside industrial partners; by working with people who have practical experience of keeping bees, this student will be able to set their research in the important context of the agricultural industry. Varroa mite is a real threat to the UK's honey bee population and this work to understand the interactions between the mite and the honey bee host will provide the fundamental scientific knowledge that will help us to tackle this economically important problem'.

Our thanks go to Sheffield University, NBU, BBKA, BFA and, in particular, each of the associations involved in EARS. ❖

BJ Eng