

## Healthy Bees Plan

### Summary note of 6<sup>th</sup> Meeting of the Science and Evidence Advisory Group (SEAG)

22<sup>nd</sup> September 2011 - Nobel House, London

Present:

David Aston		Wally Shaw	
Dan Basterfield		Mark Tatchell	Chair
Giles Budge*	*dialled in - item 4		
Stephen Martin			
Liz McIntosh			
Belinda Phillipson	Secretary of group		

Apologies from Mike Brown, Norman Carreck, Robin Dean, Bernard Diaper, and Chris Hartfield. Francis Ratrieks absent.

#### 1. Welcome and introductions

The Chair welcomed the group.

#### Summary and actions from the last meeting

The Chair introduced the summary and actions from the last meeting.

Action 1 to be completed after the meeting.

Actions 2, 3, 5, 6 and 7 have all been completed.

Action 4 – redrafting the indicators – the indicators have been redrafted but are tabled for discussion under agenda item 3.

#### 2. Survey on winter colony losses

The Chair introduced and invited Wally Shaw to highlight the key points. Wally feels that information about the winter colony losses should be gathered through repeated monitoring rather than surveys. He thinks that assessing the winter losses is one of the requirements of the Healthy Bees Plan. In order to do this he suggests that we need to have a proper definition of the population and robust methodology. He feels that the Seasonal Bee Inspectors could do the monitoring as part of their day job.

Dan Basterfield asked whether we needed to know all the beekeepers. The Chair pointed out that there are several different populations of beekeepers some of which overlap, for example BBKA members, beekeepers registered on BeeBase, etc. Wally asked whether we can estimate how new and old beekeepers influence the number of colony losses? The Chair asked whether the number of unknown beekeepers prevents us from monitoring/surveying. Liz McIntosh said that £5K had been allocated to the colony loss survey under the HBP. She also outlined the work being done by the new EU reference laboratory including the surveillance programme. She asked whether SEAG felt that survey's being done in England and Wales should be aligned with the surveillance programme. The Group agreed that the surveys were likely to be more detailed than the surveillance

programme. Dan suggested that the £5K could be used to estimate the population of beekeepers.

The Chair asked what are we trying to measure and why ? There was a great deal of discussion about the various surveys, the terms they use, sample size etc. David Aston asked how the information from the survey was going to help the HBP. He also said that the BBKA colony losses survey is a 'political' topic partly driven by the media. The Chair asked whether we want one figure that says x% of colonies died with a certain degree of confidence ? Liz McIntosh explained how the colony loss figures can be used to measure the efficacy of the HBP so that the benefits are tangible to Defra, beekeepers and others.

The Group discussed what the figures really mean. If the figures are very similar year on year is the situation improving ? What is really happening ? There was a suggestion that if this happened the public and politicians may lose interest.

Stephen Martin highlighted the difference between winter and summer losses. Wally Shaw said that winter losses are driven by a number of different things, eg weather, husbandry skills and evolution of the diseases. Dan Basterfield pointed out that the Group had considered this in the first discussions about the indicators where it had been decided to use a rolling average of 10 year losses to overcome these influences. The Chair asked whether we should be considering overwinter or in year losses ? The Group suggested that overwinter losses are most appropriate because if beekeepers have prepared their bees adequately they will be able to overwinter. The losses in summer could be measured but these will be confounded by colonies being split, swarms collected, etc and therefore the error rates/confidence intervals will be higher. Stephen Martin said that before Varroa arrived winter losses were about 10% and now winter losses are around 20%.

**Decision:** SEAG concluded that overwinter losses should be used as the key parameter.

David Aston said that the NBU had collected data in a variety of different ways and wondered if they could be combined and used as a single figure because of this. Some members of the Group felt that there should be a single survey but during discussions it became clear that for a variety of reasons this would not be possible.

Stephen Martin suggested that information collected in the various surveys could be combined. The Chair said that geographical scale could be an issue. He suggested that within the HBP we are just trying to get a UK figure. He said that if we were to add value by combining the data from the 3 surveys we would need to use a mechanism to remove double counting. He pointed out that we may need to get statistical advice about the confidence levels because if for example we have 10% loss plus or minus 10% this is meaningless. Advice will also be useful to ensure that we understand what any changes in the figures actually mean.

Dan Basterfield asked if we can add confidence by estimating the total number of beekeepers and the total number of hives? The Group agreed that this would be relevant since the HBP influences ALL beekeepers – not just the ones we know about.

The Chair suggested that as SEAG don't have statistical skills to address the issues of combining information from surveys etc and suggested that the £5k from the HBP could be used to seek statistical advice. He also proposed that we could ask for advice about how to use the random elements of the various surveys and compare with the random element of inspections as highlighted by Wally Shaw.

The Chair asked if it is statistically viable to combine the data sets would BBKA be happy with this ? David Aston indicated that he was happy with this although he may have to consult within the BBKA.

The Chair said that the overall aim was to produce one figure for winter losses in England and Wales and we want to know what confidence we can have in that figure. The Group discussed who to seek statistical advice from and it was agreed to consult a Fera statistician.

**Action:** Subgroup of Mark Tatchell, David Aston, Liz McIntosh and Belinda Phillipson to meet with a Fera statistician and discuss the issues above.

**Action:** The subgroup are to consider whether the statistician should attend the next SEAG meeting.

#### 4. Update on the Random Apiary Survey

Giles Budge joined the meeting by phone to give an update on the Random Apiary Survey (RAS).

The first set of data is from the inspections. Many of the inspections were carried out in apiaries that would be considered 'low risk' under the priority inspection programme. The first findings show that there are not high levels of disease in the low risk apiaries which the bee inspectors don't visit very frequently. This information was then used to determine whether classing apiaries by risk is useful for the control of AFB and EFB. The data was also used to assess whether beekeeper characteristics influence the presence and absence of disease. For both AFB and EFB significantly more disease was found in apiaries containing a larger number of colonies. Dan Basterfield asked whether there was a cut off in terms of apiary size with respect to the apiaries with a large number of colonies (for example apiaries containing more than x colonies) ? He suggested that we could look at this with respect to good practice guidance.

The Chair asked whether second inspections are required ? Giles confirmed that where disease is found, follow up inspections are a statutory requirement (?). Could this be scrutinised further for policy review. He suggested that although the numbers are small even if difference is significant is this the best use of resources ? The Chair asked whether the RAS addresses the size of the risk zones and are they the right size (3 and 10 km) – no it doesn't. The use of the x number of cases per 10 000 term was questioned ? Giles said that this is a standard epidemiological term. Stephen Martin would like to have seen the p values and also asked what the results mean when a difference is significant in one year but not another ?

The next data set should be available for discussion at the SEAG meeting in November.

Giles highlighted that he was now aiming to publish the results from RAS in a peer reviewed journal prior to the beekeeping journals in change to what had been discussed previously. Stephen Martin suggest that Fera could consider paying for open access to papers so that everyone with an interest could see papers rather than just members of the academic community.

#### 3. Review of Indicators

During the discussion about the surveys the group had agreed that winter colony losses were key and this should be reflected in the indicators. David Aston suggested that indicator 4 should be changed to 'Reduced incidence of endemic pests and disease in the UK'. The

metrics could then reflect the specific pests and diseases. Metrics for other pests and diseases could be identified as part of the policy review. Dan Basterfield suggested that from the original discussions we had agreed to focus on the notifiable pests and diseases. However the group recognised that Varroa is a significant issue and considered how the indicators should reflect this ? They concluded that collecting information about the winter colony losses would reflect how well beekeepers were managing Varroa as well as husbandry practices. The Group agreed that this should be the first indicator as follows;

1. Improved colony survival – metric is decreased percentage of winter colony losses

This indicator is key because it reflects what goes on elsewhere, i.e. Beekeepers carrying out effective Varroa control, husbandry practices including preparing their bees for winter etc.

The Group also agreed that the metrics under indicator 4 should only cover confirmed cases of disease and not suspect cases.

**Action:** Belinda Phillipson to amend the indicators to reflect the changes agreed.

**Action:** the Chair to present the indicators at the 15<sup>th</sup> PMB meeting being held on 23<sup>rd</sup> September, 2011

## 5. Update from the policy review

Stephen Martin asked about the work done by the NBU on EFB and shook swarm as he felt it would be key for the review.[ Following the SEAG meeting Giles Budge reminded us that the work had been published in the Journal of Invertebrate Pathology in 2010 so the review can draw upon this information.] David Aston felt that this would be useful as he and some members of the policy review team have difficulties in accessing articles published in academic journals.

In general the group felt that the scientific evidence feeding into the policy review was very important. The Chair suggested that SEAG could peer review the evidence that feeds into the policy review and although the group seemed receptive to this suggestion, the mechanism for how this might be done was not discussed.

David Aston asked whether the division between commercial and amateur beekeepers was relevant ? He suggested that maybe it should be the number of colonies. The Chair pointed out that a shared apiary could be viewed as a large/commercial apiary. Is the important point the fact that they are large apiaries, or are they a risk due to multiple beekeepers or is there some other factor such as nutrition involved ? David Aston suggested maybe colony density is important as forage may be limiting. He said that movements of the bees have a major impact particularly when forage is rare.

One of the points highlighted in the provisional conclusions from the Random Apiary Inspections data is that larger apiaries were more at risk of having AFB or EFB. The group discussed whether it would be possible to get a more detailed breakdown of the numbers of colonies in the apiaries.

From the profile the Chair noted that disease is more prevalent in the south. Is this because of density, climate, or some other factor such as vegetation diversity, for example chalk lands ? Stephen Martin said that there is a slow trend for disease moving north. He also

suggested that changes in policy and the numbers of inspectors has had an impact on disease spread. David Aston said that individual inspectors had an impact as well as introduction and use of the Lateral Flow Devices.

Dan Basterfield asked whether we had received any information from the Scottish beekeepers about the costs of destroying colonies ? He suggested that the policy lever/option 1 on stricter controls on movements of bees would have implications for beekeepers. When considering policy lever/option 2 – take specific actions in areas/zones of high risk, Jersey could also be considered as a case study. The group discussed whether there should be tighter controls on queens as these are more likely to be moved. Stephen Martin suggested that the same rules should apply to queens and the group agreed. Following policy lever/option 8 the group felt that ‘destruction only’ should be a separate option.

Dan Basterfield pointed out that the self-policing in Jersey and Scotland had not been very successful. The group discussed whether EFB was a major problem. Stephen Martin felt that it was equivalent to the human cold which comes and goes but can have different effects. It was suggested that it was a greater problem in some countries possibly due to different strains. David Aston considers EFB to be a husbandry and nutrition issue. See separate paper.

6. Dates of next meeting and items for the agenda

**ACTION:** Belinda Phillipson to circulate a doodle poll with dates for the next meeting.

Action Number	Action	Person(s) responsible
1	To send a summary of the 5 <sup>th</sup> SEAG meeting to the Devolved Administrations and to arrange for the summary to be posted on BeeBase	Belinda Phillipson
2	To circulate a summary of the 6 <sup>th</sup> SEAG meeting to the group. Following agreement send the summary to the Devolved Administrations and to arrange for the summary to be posted on BeeBase.	Belinda Phillipson
3	Subgroup of Mark Tatchell, David Aston, Liz McIntosh and Belinda Phillipson to meet with a Fera statistician and discuss issues of combining information from surveys.	Belinda Phillipson
4	Subgroup to consider whether statistician should attend next SEAG meeting.	Belinda Phillipson
5	To amend indicators and Mark Tatchell to present to PMB.	Belinda Phillipson/Mark Tatchell
6	To circulate a doodle poll for a meeting date in November	Belinda Phillipson