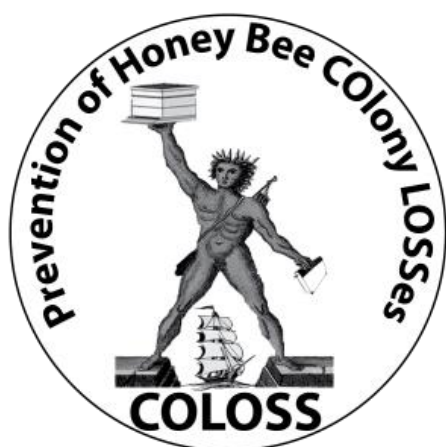


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COLONY LOSS MONITORING GROUP WORKSHOP

Proceedings

Glasgow, Scotland, 3RD-4TH FEBRUARY 2016

Colony Loss Monitoring Group Workshop

Topic

- Finalising the 2016 draft questionnaire, and review of results, working group operation, plans and strategy

When

- Wednesday 3rd and Thursday 4th February 2016

Where

- University of Strathclyde, Glasgow, Scotland, UK

Schedule

TUESDAY 2nd FEBRUARY 2016

Time	Pre-workshop
18.30-	Optional gathering in the foyer of the Premier Inn (187 George Street, Glasgow, G1 1YU), followed by dinner at 7pm at Wagamama (97-103 West George St, Glasgow G2 1PB), with participants from the COLOSS CSI Pollen workshop.

WEDNESDAY 3rd FEBRUARY 2016

Time	Session 1 – Registration
8.30-9.00	Registration/socialising in Department of Mathematics and Statistics, room LT9.11, Livingstone Tower, 26 Richmond Street, Glasgow G1 1XH

WEDNESDAY 3rd FEBRUARY 2016

Time	Session 2 – Welcome, overview, and results of data analysis
9.00-9.05	Welcome from local organisers/co- chairs (Alison Gray, Magnus Peterson, Robert Brodschneider) in LT9.07 (used throughout the workshop)
9.05-9.15	Welcome from Head of Department (Professor Iain Stewart) in LT9.07
9.15-9.40	Overview of workshop, review of the last year and outcomes from the COLOSS conference (Alison Gray, Robert Brodschneider)
9.40 -10.30	Results of 5 year data analysis 2011-2015 (Romee van der Zee, invited speaker)
10.30-11.00	Questions and discussion
11.00-11.30	Coffee/tea/discussion break in LT9.11
Session 3 – Review of main questionnaire	
11.30-13.00	Review of draft questionnaire for 2016 and data issues arising in the analysis
13.00-14.00	Lunch in LT9.11
Session 4 – Review of main questionnaire and pilot study	
14.00-15.00	Review of draft questionnaire for 2016
15.00-15.45	Review of pilot study for summer and annual losses (Austria, Scotland, Italy, Spain, Scandinavia) and discussion of the way forward ; short presentations of results (Robert Brodschneider, Alison Gray, Preben Kristiansen, Flemming Vejsnaes)
15.45-16.15	Coffee/tea/discussion break in LT9.11
Session 5 – Review and close of day	
16.15-17.00	Review of the day and open discussion
17.00	Close of day 1 (local organisers)
18.30-	Social dinner: Meeting at the Premier Inn (187 George Street, Glasgow, G1 1YU) for social dinner at 7pm at The City Merchant (97/99 Candleriggs, Merchant City, Glasgow, G1 1NP).

THURSDAY 4th FEBRUARY 2016

Time	Session 1 – <i>Vespa velutina</i>, and economics of colony loss
9.00-9.10	Review of progress and plan for day 2, in LT.907 (Robert Brodschneider, Alison Gray)
9.10-10.00	<i>Vespa velutina</i> (Daniela Laurino): a new COLOSS task force; potential for collaboration (10 minutes, followed by discussion)
10.00 -10.45	The economics of colony losses (Robert Brodschneider, followed by discussion; possibilities for joint efforts to quantify the costs)
10.45-11.15	Coffee/tea/discussion break in LT9.11
Session 2 – Working group operation and publicity	
11.15-12.15	Working group structure and proposals, funding possibilities (Alison Gray, followed by discussion)
12.15-13.00	Publicity strategy: press releases, data submission, deadlines and country specific issues, other publicity
13.00-14.00	Lunch in LT9.11
Session 3 – Plans for papers and publication strategy	
14.00-15.30	Publication strategy: papers, the current plan, other suggestions
15.30-16.00	Coffee/tea/discussion break in LT9.11
Session 4– Discussion, review and close of workshop	
16.00-16.30	Open discussion, next workshop, outstanding points, any other issues
16.30-17.00	Review of workshop (Robert Brodschneider, Alison Gray)
17.00	Close of workshop (Alison Gray, Magnus Peterson)
18.30-	Meeting at the Premier Inn (187 George Street, Glasgow, G1 1YU) followed by dinner at Jamie's Italian (7 George Square, Glasgow G2 1DY) at 7pm.

ORGANISER CONTACTS	
Alison Gray (main organiser and editor of these proceedings)	Magnus Peterson
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Abstract
Review of the COLOSS monitoring group work in 2015
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<p>The network of countries engaging with monitoring continues to grow. In 2015, 31 countries sent data from their monitoring survey to the international data co-ordinator for inclusion in the data analysis where possible. Egypt, Russia and the Ukraine participated for the first time in this initiative, which is the largest and longest running international study of honey bee colony losses.</p> <p>A press release with preliminary results for winter 2014-15 was issued in late July 2015, as usual. Owing to data issues arising from re-worded questions, and time pressures, this focused on winter mortality rates rather than all colony losses including those due to unresolvable queen problems. However this led to some confusion with interpretation and comparison of the results. Approaches to publicity will be discussed. In-depth analysis of 5 years of data has been taking place and results will be presented at the workshop by Romee van der Zee. A paper is to be produced based on these results, with inclusion of loss rates for all countries providing sufficient data. Progress on this will be reported.</p> <p>Collaboration with Epilobee was initiated following the COLOSS conference in Murcia in September 2014. Progress has been slow, but it was decided to start with comparison of results for one country, proceeding without the need for sharing individual level data. Some results have been exchanged.</p> <p>To test some suggested questions to collect information on summer and annual losses, a pilot questionnaire agreed at the monitoring workshop in 2015 was adopted by a few countries in the group for use in their national survey, as an optional extra set of questions which beekeepers were asked to answer. Experience of this will be reviewed.</p> <p>A small group was set up to consider the questionnaire, with invited input from the whole group, to avoid the need to spend the whole of the next workshop under time pressure on reviewing and finalising the questionnaire for use shortly afterwards by those beginning their surveys in February. This had been found to lead to disagreement, compromise and rushed wording and addition of questions. The proposal was to start the process earlier, produce a proposed questionnaire for use in the 2016 monitoring, review the near-final result at the workshop and so allow more time for discussion of strategy, new ideas and plans for the working of the group. A proposed draft questionnaire will be presented, with time for discussion.</p>

Abstract

Honeybee winter loss 2011-2015 explained by weather circumstances and control of the Varroa mite

Romée van der Zee et al.

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In this study possible correlations were investigated between honeybee colony winter loss, the effects of varroa control and weather data. In total 60.668 data was used from countries which could at least provide substantial country-wide mortality and varroa control data (max 50 colonies) for every year in the period 2011-2015. Monthly temperature and precipitation data were calculated for every single operation (with GPS information) for all 60 months by creating a raster based on relevant information of 1537 weather stations.

During the workshop detailed results of analysis will be presented. In general the analysis showed that:

- beekeepers who controlled the varroa mite in summer and winter had the lowest odds of winter loss in all years with the exception of the winter 2013-14 (winter loss 9,3% for the total population).
- monthly temperatures were correlated with odds of loss.

To my knowledge this will be the first study reporting the effects of outside weather conditions as an important explaining factor of honeybee colony loss.

Abstract

Winter losses of honey bee colonies during the winter 2014/15 in Austria
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In the framework of the international research network COLOSS, winter losses of honeybee colonies are surveyed in Austria since 8 years in a row. In the year 2015, 1259 beekeepers with in total 22882 wintered colonies participated online or by means of a paper-pencil questionnaire. 6051 of these wintered colonies were lost during the winter 2014/15, what equals to a loss rate of 28.4% (95% confidence interval: 27.0-29.9%), which is the highest winter loss rate in Austria since the beginning of our investigations. We checked answers of beekeepers for representativeness, and conducted analysis regarding the geographical distribution of losses, the accompanying symptoms of winter losses, and the mode of operation. We also evaluated the different treatments used against *Varroa destructor*. Loss rates differed according to the size of the operation, the sea level, and the availability of melliferous plants such as maize, oilseed rape and buckwheat. We found biotechnological treatments of colonies against *Varroa destructor* to be most successful in reducing winter losses. Furthermore, we found positive effects of formic acid long-term treatment on reducing winter losses, compared to short-term treatment. However, one single clear cause for the extremely high winter losses during winter 2014/15 could not be found and further research is needed.

Abstract

Monitoring winter colony losses in the Republic of Ireland

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Beekeeping in Ireland is predominantly practised as a hobby and coordinated by the Federation of Irish Beekeepers. There are approximately 2300 beekeepers affiliated to FIBKA and these are managing 24000 colonies. The majority of Irish beekeepers have one apiary and between 1-5 colonies. The biggest challenge facing these beekeepers is high winter losses. Since 2008 as part of the National Apiculture Programme in collaboration with the COLOSS network (Monitoring Task Force) winter losses have been monitored annually using the standardised questionnaire. The losses recorded have varied from 13% to 35%.

In 2015 as in previous years the annual survey was disseminated in late April as the dormant period in Ireland is generally from late October to early May. The survey was disseminated using different media including Survey Monkey online survey, post, meetings and the FIBKA beekeeper magazine (The Irish Beekeeper) which each affiliated member receives monthly. Despite subsequent additional reminders on FIBKA's webpage and magazine, the response rate was 11.5% of which 67% were returned as hard copies, while only 33% of responding beekeepers completed the survey online. The mean national winter losses were estimated at 19.3%, but there were isolated pockets with losses significantly higher and lower than the COLOSS study average (17.2%). Of surviving colonies, a total 14.2% were weak post-winter. Beekeepers perceived that approximately 7% of the colonies were lost as a consequence of queen problems, while the loss of colonies that were assumed to be queen-right were lost for unknown reasons or attributed predominantly to starvation/isolation starvation.

Among beekeepers the Varroa mite is considered widespread in Ireland and over 80% of beekeepers monitor/treat for Varroa annually. As an autumn treatment beekeepers either used Mite Away Quick Strips, a long term formic acid based treatment or Apiguard, a thymol based product, followed by an oxalic acid based winter treatment. However the survey also showed that although Varroa resistance to flumethrin has been reported to be widespread in Ireland since 2010 approximately 12% of beekeepers continued to use Bayvarol as a varroacide during 2015. Furthermore despite the close association between DWV and high Varroa mite loads, beekeepers did not consider DWV a serious problem in their colonies during the summer months with 40% and 48% respectively reporting the virus not present at all or to limited extent.

Abstract

Alison Gray¹, Magnus Peterson²

Monitoring colony losses in Scotland

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In Scotland we have carried out surveys of beekeepers since 2006. In 2010 we joined with the COLOSS loss monitoring group and since then have carried out annual colony loss surveys. The 2015 survey invited 375 beekeepers randomly selected using a geographically stratified sampling design in a now well-established approach, using an online survey supplemented by a postal questionnaire where necessary. Of those invited to participate, 243 responded (a 64.8% response rate), 192 online and 51 by post, of whom 184 in total were keeping bees (142 responding online and 42 by post). The overall proportion of colonies lost over winter was 14.2% (137 of 968 colonies going into winter), 14.4% for those responding online (110 of 762 colonies) and 13.1% for the postal responses (27 of 206 wintered colonies), for the 173 beekeepers with valid winter loss data. In total 41.0% of beekeepers lost colonies, compared to 34.4% the year before and 56.5% in winter 2012-13. The 14.2% overall loss rate is similar to the 13.5% loss rate for winter 2013-14, both much lower than the 31.6% loss rate for winter 2012-13.

We implemented the pilot questions proposed at the 2015 monitoring workshop, for estimation of summer and annual loss rates. These asked for numbers of colonies lost and numbers of distinct colonies managed for at least a month over summer, over winter and over the whole year, in order to identify the numbers of colonies at risk of being lost, in an epidemiological approach. Most respondents with bees did answer most of these questions and relatively few commented on especial difficulty answering the questions, though there were a few missing responses. A few felt that either the examples or the questions were confusing, or that the questions made sense but better record keeping was needed to answer them well. Whilst estimation of summer and annual loss rates is important for comparison with loss rates in some other countries, the questions to be asked require more consideration and/or follow up with beekeepers. Wording suitable questions to obtain the required information from the beekeeper is challenging.

As well as our usual questions on available forage sources, we also included for the first time questions on land use and agricultural crop types near to the main apiary, as used in the Netherlands, and found some significant associations with risk of winter loss.

Abstract

Pilot project – alternative questionnaire to calculate winter and summer losses
– as suggested at the monitoring workshop in Copenhagen in 2015

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The COLOSS winter loss group has been active since 2008 with annual calculation of winter losses. A general discussion over the years has been the importance and the calculation of winter and summer losses. Especially northern Europe countries do not see any or very low summer losses. Those losses seem mainly to be a problem in the US and other warm countries.

At the COLOSS Monitoring workshop in Copenhagen it was suggested a new type of questionnaire. Longer discussion in regard to complexity and understanding was undertaken. Different countries did accept to test the pilot questionnaire in addition of the regular questionnaire. Below we represent some of the results for Denmark. The questionnaire in its English version can be seen on this link:

<http://web.trictrac.com/servlet/trictrac?e=GdIpiD8zdPwmM8Ldp>

In total we had 1213 answers to the normal winter loss questionnaire and among those 330 answered the pilot questionnaire. The following table summarizes some of the results where we have focused on how well the beekeepers could answer the questions correct and the summer losses we can calculate.

Control of summer losses

	Answers	Fraction of answers	Loss rate
Total answers	330		
Answers to calculate summer loss	272	82.4%	
Answers after control (Q2-Q3-Q4=0)	173	52.4%	
Answers with mistake	99	30.0%	
Summer losses all	272	82.1%	3.2%
Summer losses after control	173	52.4%	2.4%

We have also analyzed how difficult they find the questions. Interestingly some answered that e.g. Q2 was easy but they did not answer the question.

Looking on the winter losses reported in the pilot study compared to the big questionnaire, there is a minor difference, but we have not calculated confidence intervals for these data.

Winter losses

	Answers	Fraction of answers	Loss rate	Low C.I.
Total answers	330			
Winter losses	275	83.3%	9.9%	8.7%
Winter loss in big questionnaire	1213		13.7%	13.1%

Looking through the answers it is clear that those beekeepers who have answered the pilot questionnaire are mainly small beekeepers, avg 9.6 beehives compared to 11.3 in the big questionnaire. Whether this have any effect on the winter losses is difficult to say.

Abstract

Colony losses and risk factors for honey bees in Israel

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Honeybees' wellbeing is crucial for intensive agriculture. In the last years in order to follow annual colony losses and in attempt to isolate main risk factors, an internet survey is conducted among beekeepers. The COLOSS questionnaire was used after translation with a few additional questions. The survey addressed losses during the winter 2014-15 and summer 2014. Beekeepers were mainly asked about: levels of colony loss, symptoms, specific times, treatment times and treatments methods against Varroa and Nosema. This year 67 beekeepers participated in the survey, representing a third of the total number of bee colonies in the country. These were beekeepers representing different operation sizes from migratory beekeepers with 5000 colonies to backyard beekeepers keeping just a few colonies. The questionnaire is still not perfect; in particularly questions that meant to classify losses remain unclear to the growers. Results show that the average winter colony were 14%, while spring-summer losses were 20%. These numbers show that there is increase in winter loss in comparison to former years. Although beekeepers indicated that queen problems are one of the major, it was impossible to characterize it as queens are rarely marked. Although all the colonies were treated against Varroa the treatment was not conducted at the same time and not by the same techniques. The fact that most beekeepers noticed deformed bees in their hives despite treatments against Varroa mite indicates that the mite and the viruses it vectors remain the major problem. It also shows that the management against Varroa not efficient as it used to be. Another risk factor appears to be *Nosema ceranae*. Significantly higher winter losses were observed among beekeepers that haven't treated against *Nosema*. The meaning of the treatment is not clear since about 50% treated regardless of the pathogen existence. We plan to continue the survey in the coming year.

Abstract

Factors affecting winter losses in Sweden

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Surveys on winter losses in Sweden have been carried out since 2009. They've been done with the questionnaire made by the colony loss monitoring group and as a web-based survey. The proportion of beekeepers who have answered the questions has increased from around 5% in 2009 to around 13% in 2015. The proportion of colonies included in the survey has been around 15% the latest years. The losses have varied between 9,6% (2013/2014) to 24,7% (2009/2010). Some years we've compared the results from the web-based survey with surveys among a randomly chosen group of beekeepers. We've even compared our results with the results from the Epilobee-project. Apart from loss rate we've looked at factors affecting the losses, and in addition to varroa control methods it has been e.g. honey production, amount of winter feed, queen problems and symptoms of virus infections. Results regarding those factors will be presented.

Abstract

Monitoring bee losses in Spain (2015)

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COLOSS questionnaires were disseminated during 2015 to estimate the colony losses in Spain. The dissemination of the questionnaires was made by asking collaboration through beekeepers associations and during meetings. Also, some beekeepers were contacted by phone and asked to answer the questionnaire that the interviewer was filling out.

As in previous years, a low participation was achieved and only 86 beekeepers answered the questionnaire. Some questionnaires (n=15) were also received after the deadline, that were not included in the study. This represented just 0.3% of participation according to the number of beekeepers in Spain. The colony mortality rate was 13.19% and the most of beekeepers declared there were no bees inside the colony (69.1% of lost colonies). Additionally, the 34.3% of the colonies were declared to be weak after winter. Conversely, only the 1.6% of the colonies were declared to have queen problems. Transhumance was an activity declared by the 29.5% of the participant beekeepers and the most of them did not have a significant flow on oil seed rape or maize (>70% in both cases). All beekeepers reported to treat against Varroa following the sanitary rules in the country and the most used treatments were coumaphos and amitraz strips.

Additionally, a pilot study about the yearly/seasonal losses was also attempted, however as in the regular questionnaire the success was very low and only 5 beekeepers answered it.

New methods to improve the dissemination of the questionnaire should be developed to increase the number of beekeepers collaborating in these surveys.

Abstract

Some doubts about the value of Varroa control data in the COLOSS monitoring of colony losses

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From the data concerning COLOSS monitoring of honey bee colony winter losses from previous years, we already know that Varroa control is a very important risk factor for the colony's survival in the winter period. However, the influence of the particular methods could have been improperly estimated. For instance, in Poland, in the year 2014, 89 % beekeepers declared using medicines containing amitraz, which are in the form of tablets for fumigation (Apiwarol) or strips for hanging in the nest (Biowar). But from the answers to the questions in the questionnaire we could not learn if the medicines had been used properly. It is especially important in the case of tablets which are often used in the presence of brood, in which case they should be applied 4 times at intervals of 4-6 days between applications. However, beekeepers often fumigate 1-2 tablets and the intervals are often much longer. Also, many beekeepers use their own devices for fumigation and these do not always ensure that the proper dose of active substance is introduced into the hive. In all these cases the effectiveness of the treatment can be substantially reduced. In fact, in a group of beekeepers who used Apiwarol for Varroa control (and removed the drone brood or applied other supplementary methods to lower the mite infestation level) 40 % had low losses (up to 10%) and 28 % had high losses (above 20%). The situation could be similar in other countries in the case of using other medicines (e.g. strips of Bayvarol, kept for an insufficient time in the colonies).

Abstract

Monitoring colony losses in France in 2015

Julien Vallon

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The ITSAP (French Institute for Beekeeping) monitors colony losses since 2008 to estimate reliable references and identify factors that can explain losses in France. The questionnaire from COLOSS Monitoring workgroup is available to all beekeepers (hobbyist, *i.e.* <150 colonies, or professionals) by internet or mail. In 2015, 463 suitable answers representing 39 148 colonies were received, a big decrease compared to 2014 (698 answers for 83 818 colonies), and represent 3.6% of the total number of colonies estimated in France.

Hobbyist answers in higher number compared to professionals (respectively 385 and 78 answers) but the number of colonies kept by professionals remains superior (respectively 31 988 *vs* 7160) that lead to imbalance in the results. Professionals beekeepers explained: the questionnaire was not adapted to their situation (high number of colonies, details needed to explain losses...).

Total Losses (van Engelsdorp *et al.* 2012) for winter 2015 is estimated 26.6 % [22.6 % - 30.7 %]. It represents an increase in colony losses compared to the past three years (17.2 % [14.4 % - 20.0 %] in 2014, close to 2013 and 2012 rates) but identical to losses observed from 2008 to 2011 (around 25%).

One of the main reason identified for colony losses in the past surveys from 2008 to 2011 was *Varroa* treatments (Holzmann *et al.*, 2012) we classified in six different profiles (Holzmann *et al.*, 2012). From 2012 to 2014, some beekeepers used Apivar® (amitraz) twice a year (before and after winter) with less colony losses (10.9% in average) compared to the others profiles. Even if the number of beekeepers applying this treatment strategy was very low (only 27 answers *i.e.* 1.8% of the total) and they were keeping little colonies (75% kept less than 17 colonies), this rate was statistically different compared to the other profiles (Chi² test on data from 2012 to 2014). The improve of winter survival for double treated colonies with Apivar® should therefore be experimentally validated.

Finally, because the colony losses rate estimated only represent the population that answer the questionnaire, it is essential to improve the participation of beekeepers in the survey for the years ahead, adapting to the questionnaire for professional beekeepers (proposing the questionnaire before the winter so they can note the details of various losses that occurred according to the wanted criteria) as well as the questions describing their working mode (by providing more modulations in responses).

Workshop Summary and Outcomes

Alison Gray¹, Robert Brodschneider²

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Responsibilities, history, progress and achievements of the group were reviewed, including the very high level of citation of the group's 2012 comparative winter loss rate publication (top 1% of papers in its academic field; Web of Science). Some national newspapers had picked up on the press release from July 2015. The network of 31 active countries was still expanding. A pilot study had started to address annual and summer losses. An Austrian interdisciplinary students' course had made a promising start on addressing economic impact of colony losses, with results presented later in the workshop for discussion. It was agreed that this topic should be pursued by the group. Some comparison of Epilobee and monitoring group results had also taken place and was proceeding slowly.

The workshop mostly focused on results of the recent data analysis presented by Romee van der Zee, review of the questionnaire for use in 2016, a new threat to honey bees in some countries (*Vespa velutina*), and planned discussion time on various topics.

Data issues arising from the analysis included lack of representative data in some cases, difficulties with regions and postal codes of apiaries in some countries, and obtaining numbers of colonies lost due to queen problems. Providing early warning in beekeeper journals of the nature of the information sought might help with beekeeper record-keeping. In wording better questions, focusing on the concept and more use of pilot testing would be helpful. The group was reminded that the queen losses question arose from research indicating a link with pesticides.

The questionnaire had been reviewed by a small group in order to produce a revised version incorporating suggestions from members of the larger working group. The small group operation had not worked out as originally envisaged, owing to other work commitments, however revisions were presented to participants and discussed in much less time than in previous years. A final version for circulation would be produced in the days following the workshop. Part of the 2015 questionnaire involved a series of optional questions on summer, winter and annual losses using an epidemiological approach. Only a few countries had used these. Several short presentations were made for Austria, Scotland, Sweden and Denmark concerning the outcomes. Italy and Spain reported using the questions, with differing success. It emerged that France had also used the pilot questions, and Israel had adopted the approach in their main questionnaire rather than as a pilot study. It was decided that the results should be more carefully reviewed before deciding whether to implement these or modifications of them as part of the monitoring questionnaire.

A presentation to the group on *Vespa velutina*, the subject of a new COLOSS task force, led to considerable discussion and highlighted possibilities for collaboration. There was potential for this pest to spread as far north as the south of England and Ireland, dependent on temperature and humidity, with potentially devastating impact on local honey bee populations.

The data analysis and planned publication strategy was reviewed. This involved a mortality rates/loss rates paper over 5 years, involving countries providing data felt to be reasonably representative of the beekeepers and colonies in that country. Countries providing data not satisfying those criteria should be supported in their efforts, with the aim of improving representativeness of the data collected. Personal contact was stressed as important to keep countries involved. Additionally a lot of time had been spent on a modelling paper for the same 5 years, involving limited variables in order to involve as many countries as possible. Diverse views were expressed on this. It was established that there was support for a further modelling paper(s) including more of the variables recorded using the COLOSS questionnaire in the participating countries, planned for after the papers mentioned above. It was agreed that regular group publications were desirable, ideally providing annual updates of loss rates in participating countries. These could be short notes rather than full research papers taking longer to produce. This was important for group visibility and judgement of its output.

There was continuing interest in an annual press release. Deadlines for data provision and the press release were discussed. It was agreed that timing of the press release should not be constrained by deadlines for national press releases, which might have to focus on national results not international ones, to allow sufficient time for data processing and analysis. Data quality criteria and representativeness would inform decisions as to which countries were included in the press release. Countries wishing to be considered for inclusion must provide data for all essential questions and all data at once in the required format. Requirements for data consistency would be issued to countries providing loss rates, to avoid unexpected discrepancies between nationally published rates and those in the press release. A 48-hour window would be allowed for reaction of the countries to the planned press release, assuming timely provision of data enabling this before release.

Discussion of the possibility of forming subgroups to address different aspects of the remit of the working group was inconclusive. There was support for a regional group for the southern countries, however it was unclear who would lead this. Possible venues for next year's workshop were discussed, to be followed up after the meeting. There was some feeling that there should be more presentations from different countries, as in earlier workshops. In this workshop and the previous one the approach had been to invite talks from a selected few representatives with something different to present, to allow more time for discussion. It was agreed that a few talks could be presented per workshop.

Romee van der Zee announced her intention to resign as international data co-ordinator. On behalf of the working group, we thank Romee very much for her extremely hard and innovative work, thoughtful insights, scientific drive and guidance of the group over many years. Alison Gray is willing to act as international data co-ordinator.

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