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Proceedings of

COLOSS Workshop WG1
"Results and Finalising level 1 and 2 questionnaires"

August 26, 2011
Hotel Palace Belgrade/Serbia

UNIVERSITY OF BELGRADE
Belgrade - SERBIA

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A. Agenda

BELGRADE - COLOSS WORKSHOP "RESULTS AND FINALISING LEVEL 1 AND 2 QUESTIONNAIRES"- AGENDA			
day	**time**	**activity**	**place**
26.08. (Friday)	8:00-9:00	Registration	Hotel Palace, Banquet hall
	9:00-9:10	• **<u>Presentation of the workshop schedule</u>** (Nguyen Bach Kim)	
	9:10-10:00	• **<u>Informative presentation on the relationship between ANSES and COLOSS</u>** (Romée Van der Zée). 20′ • **<u>Discussion</u>** 30′ (Session chaires by Nguyen Bach Kim)	
	10:00-11:00	• **<u>Publication</u>** : "Managed honey bee colony losses in Canada, China, Europe, Israel and Turkey, for the winters of 2008-2009 and 2009–2010" (Romée Van der Zée). 15′ • **<u>Results of the two last years</u>** (mistakes and good things) (Romée Van der Zée). 20′ • **<u>Discussion</u>** 25′ (Session chaires by Nguyen Bach Kim)	
	11:00-11:30	Coffee break (Coffee, biscuits...)	
	11:30-14:00	• **<u>How to improve the quality of our results</u>** 40′(Romée Van der Zée) Why? Concretely how to improve the quality of our results? • **<u>Discussion</u>** (Session chaires by Nguyen Bach Kim) 40′ • **<u>Tranfert of the results to a third party (</u>**Nguyen Bach Kim) 30′ o Communication to the Beekeepers o Scientific article • **<u>Discussion</u>** 40′(Session chaires by Romée Van der Zée)	

	14:00-15:00	Lunch	
	15:00-17:00	• **<u>Coloss monitoring 2010 – 2011 results</u>** o Presentation of the results 30' o Integration of new countries 30' o Discussion (chaires by Nguyen Bach Kim) 30' • **<u>Synthesis of the workshop</u>** 30'(Nguyen Bach Kim)	
	17:00-17:30	Coffee break (Cofee, biscuits...)	

Registration on site is required:
Registration fee: 30 €

Workshop information

CONFERENCE LOCATIONS
Hotel Palace **Belgrad/SERBIA**

CONTACTS FOR FURTHER INFORMATIONS	
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CONTACTS FOR LOCAL INFORMATIONS	
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A. List of Abstracts

EFFICACY OF *VARROA DESTRUCTOR* REGISTERED TREATMENTS IN ALGERIA

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Varroa destructor was registered for the first time in Algeria in 1981 through the Algerian-Tunisian border to the east. Since then Algeria has approved the use of several products to control varroa, in order to minimize the impact of this parasite on the bee colonies and honey production.

This experiment was conduted in order to study current effectiveness of varroa treatments registered in Algeria,varroa resistant to these treatments ,The trials were conducted in the region of Mitidja (central Algeria) on 75 hives spread over three apiaries. All colonies where equipped with a mesh tray with insert as a diaper greased roasting for counting dead mites. The control treatment is performed with oxalic acid drip; effectiveness was measured by comparing the mites killed during the experimental treatments to mites killed during a control treatment.

The results showed a variation in efficacy between the treatments used Bayvarol saves the efficiency ratio is the most important (94.33%), followed Apistan and Apivar with 87.54% and 82.67% respectively. We note a decrease in the efficiency of these products, tests for resistance in vitro are needed to confirm this decline and to detect possible problem of resistance.

Natural treatments based on thymol record the lowest with 79.34% for and 72.65% for Thymovar and Apigaurd. Thymol as Apiguard and Thymovar can be regarded as complementary therapies to be integrated into a control program because the success rate is low and thus the beekeeper is required to use an alternative treatment.

The information obtained from this study concerning drug efficacy and resistance acaricides are essential for defining the control strategies adapted to the therapeutic treatment of Varroa disease in Algeria.

Keywords: *Varroa destructor*, efficiency, field trial, thymol, pyrethroids, amitraz.

THE PREVALENCE OF NOSEMOSIS IN HONEY BEE COLONIES *APIS MELLIFERA INTERMISSA* IN THE MID-NORTH OF ALGERIA

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The objective of this work is to study the prevalence of Nosemosis, diseases caused by a protozoan *Nosema* sp in bee colonies *Apis mellifera intermissa*. The samples were taken between late February and early March on eight apiaries in 3 regions with high potential Bee (Blida, Boumerdes, Algiers). Our study showed that 44.7% of the colonies are infected with Nosema, the heavy infestation is related to the sampling period, or the highest level of infection is detected at this time of year. Apiaries in the Boumerdes region are characterized by an infection rate of 56%, this rate is significantly higher compared to rates in the apiaries of Blida and Algiers. This high prevalence of Nosema in the Boumerdes region is linked to climatic conditions (high humidity and long winters).

Keywords: *Nosema* sp, Honey Bees, Algeria, sampling, spores, prevalence, climate

PRELIMINARY RESULTS OF HONEY BEE COLONY LOSSES IN AUSTRIA 2010/2011

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Since 2007/2008 we survey the winter losses of honey bee colonies in Austria, distributing the COLOSS questionnaire on meetings, via the internet and a beekeeping journal. So far, losses were between 9.3 and 16.2%, with remarkable differences among regions and years. The latest figures show that 24,451beekeepers in Austria kept 307,303 colonies in 2010. This is more than reported in previous years, because for the first time the 60.000 colonies kept by 248 professional beekeepers are also included. Up to now (May, 13th), we received 353 questionnaires representing 9394 colonies. The total loss from this sample population was 15.8% (95% confidence interval: 12.0-19.6%). Again, some regions suffered total losses of up to 27.1% whereas others experienced lower losses (10.5%). According to the beekeepers, 6.1% of all surveyed colonies 'disappeared' without dead bees in the colony, a symptom indicating any form of depopulation syndrome. Winter losses made up the majority of colony losses in our surveyed period: Of 7648 colonies kept by 334 operations in summer, a total loss of 2.2% (95% confidence interval: 0.6-3.8%) was reported by beekeepers. The number of colonies lost can be compensated by beekeepers to maintain the population size of honey bee colonies in Austria. Still, some operations and also regions experienced losses that require considerable efforts for compensation. We will present this data at the working group 1 workshop and also at the COLOSS conference in Belgrade.

SURVEY ON COLONY LOSSES IN FRANCE: IMPROVEMENT OF KNOWLEDGE

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The technical and scientific institute for beekeeping and pollination: "ITSAP – Institut de l'abeille" runs a survey on winter colony losses since 2008. This survey leads to the estimation of the loss rate during winter. Results exhibit differences in colony losses with years: 26.8% [23%-30%]CI 5% ; 23.4% [21%-25%]CI 5% ; and 29.3% [26%-32%]CI 5% (respectively for 2010, 2009, 2008)
Beyond these estimations, principal risk factors are identified from about twenty variables. From the comparison of the first two years results, two variables appear as important risk factors in 2008 and in 2009: the strength of colonies population and the Varroa fight strategy. From those first results, new studies have been launched to describe with more details the role of those two factors on colony losses.

The questionnaire has then been sent to the same beekeepers in 2009 and 2010. 95 of them have answered both campaigns. From these new data, it is possible to characterize the effects of losses on the operation management. For each operation, the number of colony in 2008, the number of colony losses during 2008/2009 winter time, the number of colony in 2009 and the number of losses during 2009/2010 winter time are estimated.

We conclude on the beekeeper ability in compensating the losses and stabilizing their livestock of colony, or even in increasing the number of colony in their operations.

We also study which factors of the operations play a significant role on this ability.

Additionally, we use a large dataset based on three successive campaigns, to understand to which extend the identification of principal risk factors is depending on years of observation.

MONITORING COLONY LOSSES IN IRELAND

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In 2007, Colony Collapse syndrome (CCD) became a very important phenomenon and since then there has been an increased awareness of the importance of bees and numerous discussions on the consequences of colony losses. However, colony losses are not only a modern a beekeeping problem, but also an historic one. In 1906, the Isle of Wight disease resulted in high colony losses and further losses were experienced with the arrival of the exotic pest, Varroa destructor in the late 1970s. The development of resistance further accentuated the detrimental effect of this pest on colony survival. However, numerous studies have shown that colony losses are not caused by a single factor but are the result of a complex interaction between many factors which include; CCD, pathogens, nutrition, agrochemicals, colony management, reduced vitality and diversity. Although many of these problems are applicable to Irish beekeeping, data on colony losses is sparse. In 2010, the first monitoring programme was initiated using the COLOSS questionnaire. To stimulate interest in the questionnaire, and to ensure active beekeeper participation, we established close collaborations with the Federation of Irish Beekeepers' Associations (FIBKA). Oral presentations and publications in the FIBKA journal (An Beachaire) were also utilized to achieve this goal. The questionnaire was primarily disseminated at beekeeping meetings, although email, the FIBKA webpage and the FIBKA journal were also used. The response was good with almost 22% of beekeepers responding. The mean estimated colony losses experienced during 2009/2010 was 22.3%. The perceived primary cause of colony losses was poor queens. Other important contributors were Nosema spp. and weak colonies. The present aim is to monitor colony losses on an annual basis, thus this year the revised version of the questionnaire has been disseminated to all beekeepers with the assistance of secretaries of local associations and is also available on the FIBKA web page and the FIBKA magazine. The survey during 2010/2011 not alone aims to quantify the percentage losses, but also to identify possible causes.

BEEKEEPING JOURNALS AND ASSOCIATIONS RESPONSE TO THE PROPOSAL OF A COLOSS QUESTIONNAIRE IN ITALY: ARE THEY REALLY INTERESTED IN THESE QUESTIONNAIRES?

FRANCO MUTINELLI, LUCIANA BARZON, ALESSANDRA BAGGIO

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In Italy 1,127,836 hives are officially declared and some 75,000 beekeepers are present. In order to improve data collection through the COLOSS questionnaire proposed in Spring 2011, the questionnaire has been sent to beekeeping journals and beekeeping associations active at national level with an explanation about the purposes of the questionnaire and the explicit request of collaboration to spread the questionnaire among associates and to have it published in journals and web sites. The reply from the beekeeping journals was as follows: Apitalia (ANAI, National Association of Italian Beekeepers): questionnaire published in issue n. 3/2010; Apimondia Italia (FAI, Italian Federation of Beekeepers): questionnaire published in issue n. 3/2010 and active support at local level; L'Apicoltore Italiano (Associazione Produttori Agripiemontemiele): short note presenting the initiative published in issue n. 3/2010 and questionnaire in the website www.apicoltoreitaliano.it; Lapis, journal of UNAAPI (National Union of Beekeepers Associations) and AAPI (Italian Professional Beekeepers Association): no response. They have prepared their own questionnaire. Other entities were also contacted such as CONAPI (National Beekeepers Consortium): no response; Osservatorio nazionale del miele (National Honey Observatory): no response. At local level, when directly administered to beekeepers during meetings or through telephone interview, a good level of interest and participation as well as of response were registered. Actions are in progress to sensitize those journals or associations that did not reply to COLOSS proposal. Conflict of interests could also exists among beekeepers associations that prefer to have their own questionnaire and that demonstrated limited interest to contribute to data collection at European level through the COLOSS action.

EVALUATION OF THREE YEARS OF COLOSS MONITORING

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The past three years 3 COLOSS questionnaires were developed and implemented. Which failures have we met, what progress has been made, how can we improve on:

- Question development
- Question testing
- Coverage
- Presentation of colony losses
- Publication of results

THE PRELIMINARY RESULTS OF THE SURVEY ON COLONY LOSSES IN POLAND DURING THE WINTER OF 2010/2011

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The winter of 20010/2011 was the fourth to be followed by an investigation of honey bee colony losses in Poland, but the third when the survey was carried out using the Coloss questionnaire. This time the questionnaire was published in the two most popular beekeeping journals "Pszczelarstwo" and "Pszczelarz Polski". For the first time our action was supported by the biggest beekeeper's association, that is the Polish Beekeeping Association, which had sent the questionnaire to its regional branches. By the 29 April we received questionnaires from 291 beekeepers (owing 8571 colonies). Announcement in "Pszczelarstwo", where the questionnaire was published together with the results of the previous survey, got the greatest response from beekeepers. As in earlier years, few beekeepers filled in the questionnaire using the Internet.

An analysis of these partial data showed that the last winter was a bit better for Polish beekeepers than the previous one; the estimated total colony loss in Poland was about 16,5%. However in some provinces (Dolnośląskie, Podkarpackie, Śląskie) losses were about 24%. It seems that similarly as during the previous winters the losses were higher in small apiaries than in bigger ones. It also seems that the time when Varroa infestation was treated in some way may have influenced the level of losses.

We can already draw the conclusion that the questions concerning apiary management during 2010 were too detailed for many beekeepers, particularly for those who filled in the questionnaires during beekeepers meetings and conferences.

Because of a very poor response from beekeepers from some provinces, it will probably be necessary to send extra emails to regional beekeeping associations.

COLONY LOSSES IN SOUTH AFRICA

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Although, the two subspecies in South Africa, *Apis mellifera capensis* and *A. m. scutellata*, are geographically separated, it happened that due to migratory beekeeping A. m capensis was introduced into the A. m. scutellata region. This laid the foundation of the emergence of a social parasite in 1991, which until now has resulted in the loss of thousands of colonies. Even 20 years later and despite other potential threats it remains a major problem with increasing number of colony losses during the last season.

Most other pests and diseases, including American foulbrood, are present in South Africa; however no major losses have been observed yet. During 2009 and again in 2010 / 2011 questionnaires were distributed among beekeepers, both through the local Bee Journal and on the website of the South African Bee Industry Organisation. The response for 2009 amounted to 5% of possible beekeepers and even less results for 2010. Colony losses in the *A. m. scutellata* region amounted to 48.8% while losses in the *A. m capensis* region were 37.6%. It appears as though beekeepers are unconcerned and consider the wild bee population in South Africa as a sufficient inexhaustible resource from which they restock their empty hives.

WINTER COLONY LOSSES IN SWITZERLAND: JUST ABOVE NORMAL FOR 2010/11?

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In spring 2011, Swiss beekeepers were asked to participate in the COLOSS colony losses questionnaire for a 3rd consecutive year. In total, 852 beekeepers (~5 % of beekeepers in the country) managing 16,852 colonies in 1,114 apiaries responded, an increase from 650 beekeeper respondents the previous year.

Between 1 October 2010 and 1 April 2011, mean colony losses among respondents was 14.4 % (between 9 and 36 %, depending on canton), with an additional 5.0 % of colonies described as too weak in spring to develop into productive colonies for summer. Neither bee race managed, apiary elevation, nor timing of Varroa destructor summer treatment affected colony mortality; however, fewer colonies treated with oxalic acid and Bayvarol® died compared to those that received a thymol-based treatment or none at all, and colonies treated in November survived best compared to those treated during other winter months.

Colony losses for the reporting period were below the previous five year average of ~19 %, but above 5 and 10 % previously considered as 'normal' before and after V. destructor introduction to Switzerland, respectively.

A SURVEY IN UNITED STATES

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The Apiary Inspectors of America (AIA) and the United States Department of Agriculture (USDA) conducted an online survey to estimate honey bee colony losses for the 2010/2011 winter season. A total of 5,572 U.S. beekeepers, or 20% of the estimated number of beekeepers in the country, responded. Collectively these beekeepers managed over 15% of the country's estimated 2.68 million colonies.

Preliminary survey results indicate that 30% of managed honey bee colonies in the United States were lost during the 2010/2011 winter. The percentage of losses have remained relatively steady (near or above 30%) over the last 5 years. Specifically, previous survey results indicated that 34% of the total colony loss in the winters of 2009/2010; 29% in 2008/2009; 36% in 2007/2008; and 32% in 2006/2007.

If we consider colony losses within individual beekeeper's operations, then responding U.S. beekeepers lost an average of 38.4% of their operation. This is a 3.8 point or 9.0% decrease in the average operational loss experienced by U.S. beekeepers during the winter of 2009/2010. Beekeepers reported that, on average, they felt losses of 13% would be acceptable. Sixty-one percent of responding beekeepers reported having losses greater than this.

Colony Collapse Disorder (CCD) is a phenomenon in which an entire colony of bees abruptly disappears from its hive. Of beekeepers surveyed who reported losing some colonies, 31% lost at least some of their colonies without the presence of dead bees. We cannot confirm that these colonies had CCD, but respondents to this question reported higher average colony losses (61%) than those respondents who lost colonies but did not report the absence of dead bees (34%).

It is important to note that this survey only reports on losses that occur during the winter and does not capture the colony losses that occur throughout the summer as queens or entire colonies fail and need to be replaced. Preliminary data from other survey efforts suggest that these "summer losses" can also be significant. Beekeepers can replace colonies lost in the summer and winter by splitting the populations of surviving colonies to establish a new hive. This process is expensive, so replacing 30% of the nation's colonies annually is not considered sustainable over the long-term.

C. List of participants

Name-Surname	Country
Mary F Coffey	UK
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Grażyna Topolska	Poland
Hannelie Human	S. Africa
Kim Nguyen Bach	Netherlands
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Romée van der Zee	Nethrlands
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