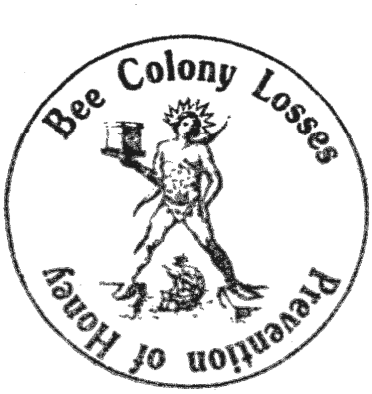
Action FA0803: Prevention of honeybee Colony Losses (COLOSS)



Proceedings of the WORKSHOP

Analysis of GEI disease data and publication

28 June to 1 July, 2012

LLH Bieneninstitut Kirchhain, 35274 Kirchhain, Germany

Workshop Analysis of GEI disease data and publication June 28 to July 1, 2012

List of participants

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AGENDA

TIME	PROGRAM
28.06. 2012 (Thursday	
	Arrival to Kirchhain
19:30	Welcome and social gathering
29. 06.2012 (Friday)	
09:00 – 09:30	Registration
09:30 – 12:30	Discussion with coffee: Varroa infestation levels of GEI colonies
12:30 – 13:30	Pizza Lunch
13:30 – 18:00	Discussion with coffee: Nosema infestation levels of GEI colonies
19:30	Visit to Marburg, welcome dinner
30.06.2012 (Saturday)	
9:00 – 12:30	Discussion with coffee: Virus infestation levels of GEI colonies
12:30 – 13:30	Lunch
13:30 – 18:00	Summary of disease results, preparation of graphs and tables for publication
19:30	Social dinner, barbecue in the institute garden, if weather permitting
01.07.2012 (Sunday)	
	Departure

Completion of genotype-environment experiment data on disease prevalence

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The international experiment to estimate the importance of genotype-environment interactions on honeybee vitality and colony losses was started in July 2009 with 621 colonies, involving 18 strains of European honeybees in 16 test locations spread all over Europe. During the experiment, the health status of these colonies was continuously monitored, in addition to survival and colony performance. Each colony was regularly checked for any disease symptoms, and samples were taken several times per year and analyzed for Varroa infestation level, the presence of Nosema spores, determination of Nosema species, and the infection with bee viruses.

The analysis of the data obtained is still in progress and submission of the respective publication is anticipated by the end of the year.

The investigation of samples from the GEI experiment in Poland for Nosema spp. and viruses

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At the Laboratory of Bee Diseases at WULS we examined bee samples from GEI colonies received from COLOSS participants from Olsztyn and Pulawy. We investigated: summer bees - for *Nosema* spp. (PCR method described in OIE manual), summer and autumn bees - for the level of *Nosema* infection (haemocytometric method), autumn bees - for the Deformed wing virus and Acute bee paralysis virus [extraction of total RNA using Total RNA Mini Kit (A&A Biotechnology), transcription of RNA to cDNA using Revert Aid First Strand cDNA Synthesis Kit (Fermentas), PCR using Taq PCR CoreKit (Qiagen)].

From the beginning of the experiment till autumn of 2011, three lines of bees had a survival rate of colonies of over 50%: Kortówka from Pulawy (66.6% of the colonies survived), Croatian and Austrian line from Olsztyn (respectively 66.6% and 70% of colonies survived).

For comparison we took samples from the colonies that survived. In the beginning of the experiment 94% of them had mixed *Nosema* (*ceranae* + *apis*) infection. In 2011 42% out of all those colonies were infected only with *N. ceranae*. Two lines: Austrian and Croatian (from Pulawy) freed themselves from the initial mixed infection. The remaining lines freed themselves of *Nosema* in 50 or more percent of colonies.

Acute bee paralysis virus occurred initially in bees (whole insects) of 6 lines (Austrian, Bulgarian, Carniolan, GR1, Croatian (Pulawy) and Kortówka (Pulawy). In autumn of 2011 the heads of bees from all the samples of all the examined lines were free of ABPV, which suggests that even if the infection was present it should not have had serious consequences. Deformed wing virus was detected in heads of bees from all the samples received in the autumn of 2011 from Pulawy, however a few samples from Olsztyn seemed to be free from the virus and the results suggest that most samples were slightly infected.