

«One health: Potential risks for human health associated with *Dermanyssus gallinae* and dissemination strategies to communicate recommendations to professionals»

REPORT to the COREMI MC

Organizing Committee - Trainee Selection & Scientific Committee:

Ekaterini (Katerina) Tiligada

FA1404 MC Member & WG2 co-leader – Associate Professor of Pharmacology, Medical School, National and Kapodistrian University of Athens, Greece, aityliga@med.uoa.gr

Elias Papadopoulos

FA1404 MC Member, ex Vice Chair – Professor of Parasitology & Parasitic Diseases, Faculty of Veterinary Medicine, Aristotle University of Thessaloniki (AUTH), Greece, eliaspap@vet.auth.gr

Monique Mul¹

FA1404 MC Member [NL] & WG2 Leader – Researcher Animal Health, Wageningen UR Livestock Research, The Netherlands, Monique.Mul@wur.nl

Location: Nafsika Palace, Itea, Greece²

Dates: 31 July – 3 August 2017

Type: 3.5 days problem-based learning course funded by COST Action FA1404³

Four trainers, 3 guest lecturers and 22 trainees from 12 COST countries⁴ (HR, HR, DK, EL, IT, NL, NO, PT, RO, RS, SI, ES, UK; male:female ratio 55%:45%) participated in the Training School (TS), as shown in Annex I.

The TS started on July 31st, 2017 and the programme ran largely as scheduled. K. Tiligada (EL) **welcomed** the participants and presented the **aims of the TS** and the **course outline**.

Session I: Tutorial & Guest Lectures [Moderators: K. Tiligada & E. Papadopoulos]

Following the **self-introduction of the participants**, the session provided the background information focusing on the potential risks for animal and human health associated with PRM. During the 4 hour duration of the **Tutorial Lectures**, the trainers introduced the following topics: '*Parasites & parasitic diseases: Focus on PRM*' (E. Papadopoulos, EL), '*The PRM at the interface of human, animal and environmental domains: One health opportunities*' (E. Tiligada, EL), '*Potential medical significance of D. gallinae in zoonotic*

¹ M. Mul pulled out of the organization/training of the TS as indicated in the email of 28.6.2017. The views stated in the email are not shared by the other organizers

² The transfer of participants from/to Athens International Airport to/from the venue was organized on 31.7.2017 and 4.8.2017, respectively

³ There was no financial support for this event by other parties (see Annex II)

⁴ Country Codes: Croatia (HR), Denmark (DK), Greece (EL), Italy (IT), Netherlands (NL), Norway (NO), Portugal (PT), Romania (RO), Serbia (RS), Slovenia (SI), Spain (ES), United Kingdom (UK)

diseases: knowledge gaps and challenges' (A. Kavallari, EL) & 'Dissemination strategies targeting the professionals & regulatory affairs related to PRM' (L. Hondema, NL). The 2 hour duration of the **Guest Lectures** consisted of a talk entitled 'PRM from the view of a practitioner veterinarian' delivered by the local veterinarian Mrs K. Tola and 2 remote presentations via Skype. The first presentation on the 'Diagnosis of parasitic diseases in allergology' was delivered by Dr. G. Guibas (UK) and ran smoothly as planned. Dr. Guibas is chairing the Task Force 'Poultry Red Mite Dermatitis' of the European Academy of Allergy and Clinical Immunology (EAACI) that was initiated following the COREMI meeting in Amsterdam (April 2016). Some internet connection problems occurred during the second remote presentation on the 'Differential diagnosis of parasitic diseases in medical microbiology' delivered by Dr. T. Hekker (NL) and it had to be rescheduled.

Session II: Group Work [Moderators: All trainers]

The trainees worked in 5 groups of 4-5 members each. The trainees were heterogeneous in their competences due to their differences in working experience and education background. The allocation of trainees to each group was based on their CV and interests (as presented in the application form), respecting gender balance and geographical distribution. Each group had to address various topics related to the One Health dimension of the PRM. The work was guided and monitored by a trainer and coordinated by an Early Career Investigator (ECI) or senior trainee as shown below:

Groups 1 & 2: Characteristics of the PRM and related parasites – *Trainer:* E. Papadopoulos (EL)

Coordinators: I. Symeonidou (EL) & A. Petrović (RS)

Members: A. Angelou (EL), H. Cortes (PT), A. Gruianu (RO)
S. Knežević (RS), L. Lozica (HR), A. Polychroniadis (EL), S. Ptochos (UK)

Topics: Key features, prevalence and burden of PRM • Current practice for the confirmatory and/or presumptive diagnosis and management of RPM infestation • Diseases/pathologies associated with PRM in poultry • Evidence for PRM infestation in companion animals

Group 3: Human pathologies associated with PRM – *Trainer:* K. Tiligada (EL)

Coordinator: T. Küster (UK)

Members: A. Cimpan (RO), J. Lima (ES), M. Mainiero (UK)

Topics: Human health concerns related to PRM infestation • The PRM as a potential allergen source

Group 4: Human pathologies associated with PRM – *Trainer:* A. Kavallari (EL, ECI)

Coordinator: Ø. Øines (NO)

Members: C. Cocciolo (IT), M. Kakolyri (EL), E. Karp-Tatham (UK)

Topics: RPM involvement in zoonoses & modes of disease transmission • Link between PRM control measures and human pathologies

Group 5: Dissemination strategies - Regulatory affairs – *Trainer:* L. Hondema (NL, ECI)

Coordinator: J. Skov (DK)

Members: P. Bandelj (SI), E. Fragiadaki (EL), M. Mateus (PT), F. Strikou (EL)

Topics: PRM importance for public health • Information to be disseminated & stakeholder selection

The trainees received 10 hours of **problem-based training** through demanding participation and critical evaluation of the available literature and the prior theoretical/practical knowledge, thus facilitating active and deep learning. The literature was distributed to all TS participants electronically before the TS and provided in hard copies and on CD upon registration at the venue.

An **interactive state-of-the-art talk** on PRM was delivered by E. Papadopoulos (EL), followed by a **practical demonstration** of PRM morphology observed with naked eye and at low magnification under the light microscope and compared to other small-sized arthropods (tick larvae/adults, lice, fleas, bugs, etc). Both activities were enthusiastically received by the participants.

Session III: Presentations by the Group Coordinators [Moderators: A. Kavallari & L. Hondema]

At the end of the collaborative exercise, each group coordinator delivered a comprehensive summary of the outcome and **communicated the rational & the conclusions of the group work** to the TS participants.

Round Table: General Discussion and Conclusions [All participants]

All sessions were followed by **extensive and fruitful discussions**. Networking, interaction and collaboration between trainers, trainees and, occasionally, guest observers were very successful as productive discussions and debates developed throughout the TS. All participants came to an absolute agreement on the key points of the TS, thus substantiating the high level of data management and critical evaluation.

The **conclusive remarks** are summarised as follows:

- ✓ General: PRM is a cosmopolitan hematophagous ectoparasitic mite of wild, domestic and synanthropic birds that presents serious economic threats to the laying hen sector.
- ✓ PRM control measures: Organochlorine and organophosphates are common residues. EU and other guidelines are not properly followed. Vaccination provides an attractive alternative, yet vaccine development against arthropods is notoriously difficult.
- ✓ Host expansion: Although PRM is regarded as avian-specific, studies confirm attacks on humans, companion animals (dogs and cats), horses, goats and rodents. Induced host specificity may arise due to pesticide driven selection.
- ✓ PRM genetic diversity: There is a need to define whether different strains exist and their relation to pathogenicity and host specificity.
- ✓ PRM vector capacity is still an emerging science. There is no documented evidence on zoonotic pathogens in PRM.
- ✓ One health threat: The available evidence is inconclusive. Many cases may be misdiagnosed, underdiagnosed or underreported. As no reliable routine methods are

available to identify PRM infestation, there is a need for preliminary controlled human studies to identify e.g. immunological markers associated with PRM infestation.

- ✓ Dissemination strategy: Several challenges were identified, including knowledge gaps and difficulties in communicating the complexity of PRM biology, epidemiology and diagnosis to a large variety of stakeholders. T
- ✓ Proposed dissemination approaches⁵: (i) expansion of the COREMI website and social media activities, (ii) establishment of an online case report platform with app support, (iii) production of leaflets with increasing levels of detail from poultry farmers to veterinarians and clinicians, (iv) preparation of a position paper by group 3 emphasising all relevant 'one health' points.

The scientific part of the TS ended with the ceremony awarding the **Certificates of Attendance** to the COREMI participants.

Other networking, dissemination & visibility activities

A number of **guest observer veterinarians and animal scientists** from Greece, Cyprus, Bosnia & Herzegovina, Bulgaria, Romania and Slovenia, having expressed interest in the TS activities (mainly in the lectures) were invited to attend on a voluntary basis (Annex III). Among them, some veterinarians were highly experienced in poultry management. Actually, primarily groups 1 & 2 profited from their advice on field management practices of laying hens in Europe, the activity being greatly appreciated by all parts involved. In this way, the dissemination of the COREMI activities to complementary stakeholders and the requirement of the EAACI Task Force to enrich the TS with the views of active professionals were successfully achieved at no extra COST expenses.

In addition, a **satellite lecture** presenting the PRM to the local audience in a simplified way was given in the Town Hall of Itea (Annex III). The audience consisted of people with small backyard laying hen farms, pigeons and companion birds (mostly canaries), who expressed a strong interest in the aims of this European TS. The emergence of the scandal regarding the presence of fipronil residues in eggs further motivated the audience to know more about the PRM. This talk increased the visibility not only of the COREMI Action but also of COST to a wider range of people.

The **social activities** during this TS included a guided visit at the Archaeological site and the Museum of Delphi, as well as common lunch and dinners every day and a last night outing at a local bar. These activities further facilitated not only the interaction of all participants but also the positive scientific brainstorming, setting the ground for future collaborations among young researchers.

⁵ To facilitate the successful implementation of the dissemination approaches, the TS participants propose this topic to be discussed in the next COREMI MC meeting

Evaluation

The trainers agreed that, overall, *the trainees were very enthusiastic, cooperative and competent*. On the other hand, they identified the limited involvement of health practitioners/medical doctors, and they pointed out the *relative difficulty of most of the participants coming from the vet field to follow the lectures and the discussion on the medical aspects and the one health approach*.

Finally, the trainees were asked to complete anonymously an evaluation questionnaire. Nineteen trainees (~86%) returned the completed questionnaire (see Annex IV). The trainees commented that they enjoyed most the '*Group work/activities, collaboration and networking*', the overall impression being that this was '*an enjoyable and well-run TS*'.



Katerina Tiligada
Associate Professor of Pharmacology

Elias Papadopoulos
Professor of Parasitology & Parasitic Diseases

August 11th, 2017



COST is supported by the EU Framework Programme
Horizon 2020

<http://www.coremi.eu>



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ARISTOTLE
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THESSALONIKI



LIVESTOCK RESEARCH
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Annex I: COREMI Participants

TRAINEES

1. Angelou Athanasios, AUTH, Thessaloniki, Greece, amangelo@vet.auth.gr
2. Bandelj Petra, University of Ljubljana, Slovenia, petra.bandelj@vf.uni-lj.si
3. Cimpan Andrei-Alexandru, University of Agricultural Sciences & Veterinary Medicine Iasi, Romania, andrei2005_user@yahoo.com
4. Cocciolo Giulio, University of Bari, Italy, giulio.cocciolo@uniba.it
5. Espiguinha Cortes Helder Carola, University of Évora, Portugal, heldercortes@gmail.com
6. Fragiadaki Eirini, Hellenic Pasteur Institute, Athens, Greece, eirfrag@gmail.com
7. Gruianu Alexandra, Faculty of Veterinary Medicine of Bucharest, Romania, alexandra.gruianu@gmail.com
8. Kakolyri Maria, NKUA, Athens, Greece, mkakolyr@med.uoa.gr
9. Karp-Tatham Eleanor, Royal Veterinary College, Hatfield, UK, ekarp@rvc.ac.uk
10. Knežević Slobodan, Scientific Veterinary Institute Novi Sad, Serbia, slobodan.knezevic@niv.ns.ac.rs
11. Küster Tatiana, Royal Veterinary College, Hatfield, UK, tkuester@rvc.ac.uk
12. Lima Barbero José Francisco, Wildlife Research Center, Ciudad Real, Spain, josefranvet@gmail.com
13. Lozica Liča, Faculty of Veterinary Medicine, Zagreb, Croatia, lica.lozica@gmail.com
14. Mainiero Margherita, University of Bristol, UK, Margherita.Mainiero@bristol.ac.uk
15. Mateus Teresa Letra, Escola Superior Agrária de Ponte de Lima, Portugal, tlmateus@gmail.com
16. Øines Øivind, Norwegian Veterinary Institute, Oslo, Norway, oivind.oines@vetinst.no
17. Petrović Aleksandra, University of Novi Sad, Serbia, petra@polj.uns.ac.rs
18. Polychroniadis Alkiviadis, AUTH, Thessaloniki, Greece, alkipoly@gmail.com
19. Ptochos Sokratis, University of Edinburgh – SRUC, UK, Sokratis.Ptochos@sruc.ac.uk
20. Skov Jacob, University of Copenhagen, Denmark, jask@sund.ku.dk
21. Strikou Flora, NKUA, Athens, Greece, florastrikou@gmail.com
22. Symeonidou Isaia, AUTH, Thessaloniki, Greece, isaia@vet.auth.gr

TRAINERS

23. Hondema Laurens Severijn, GGD Hart voor Brabant, Tilburg, The Netherlands, l.hondema@ggdgm.nl
24. Kavallari Andriana, Medical School, NKUA, Athens, Greece, andrikava@hotmail.com
25. Papadopoulos Elias, School of Veterinary Medicine, AUTH, Greece, eliaspap@vet.auth.gr
26. Tiligada Katerina, Medical School, NKUA, Athens, Greece, aityliga@med.uoa.gr

GUEST LECTURERS

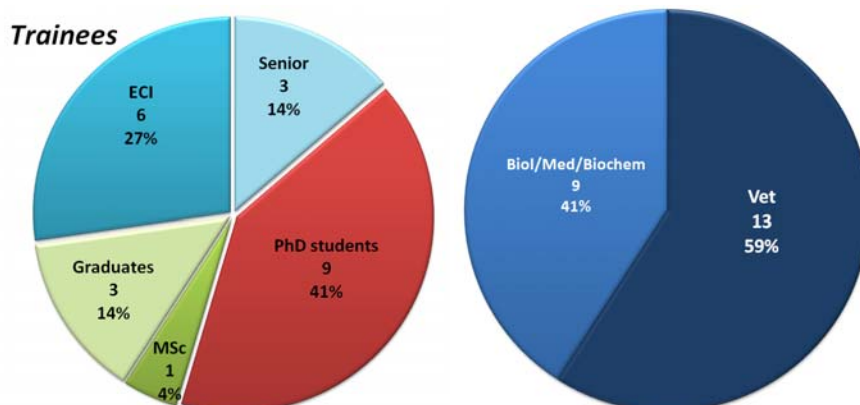
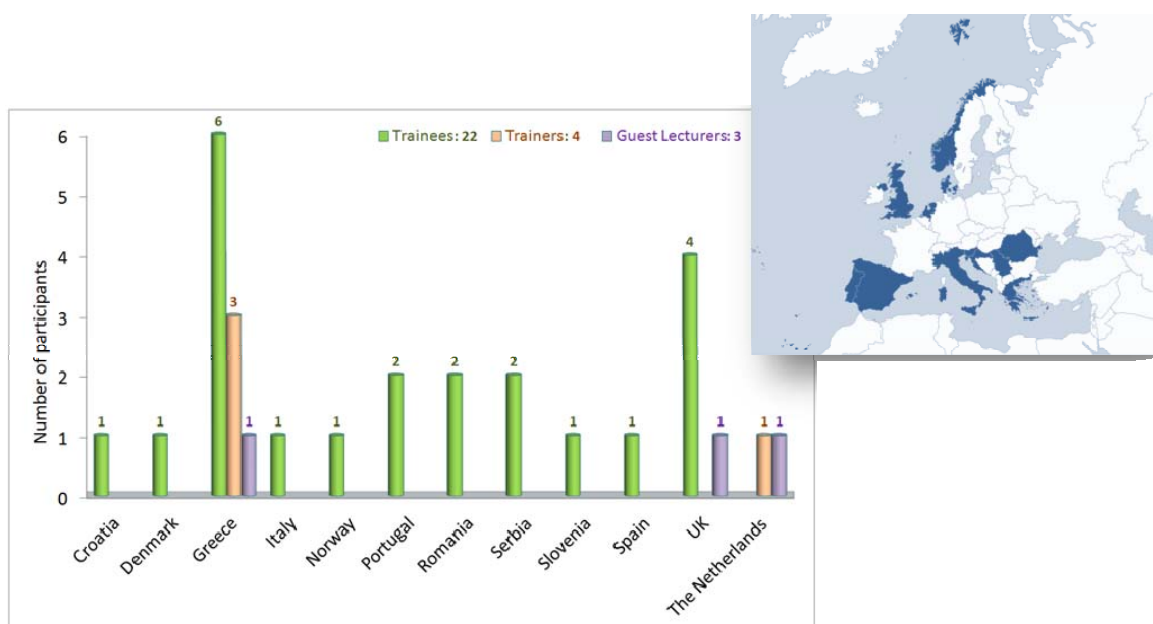
27. Guibas George, Royal Manchester Children's Hospital, University of Manchester, UK, georgios.gkimpas@manchester.ac.uk
28. Hekker Thecla, VU Medical Center, Amsterdam, The Netherlands, tam.hekker@vumc.nl
29. Tola Kleoniki, Local Veterinarian, Itea, Greece

Total trainees applications received: **29** (mean age 35.5 years; male:female ratio 59%:41%)
from **13** countries, including
3 applicants from 1 Near Neighbour Country (NNC) &
11 applicants from 6 Inclusiveness Target Countries (ITCs)

Successful applicants: **25** (mean age 34.3 years; male:female ratio 56%:44%)
(following independent evaluation
by the Trainee Selection Committee) from **13** countries, including 2 applicants from 1 NNC (8%)
& 9 applicants from 6 ITCs (36%)

Applicants that accepted the invitation: **22** (mean age 33.8 years; male:female ratio 54.5%:45.5%)
from **11** countries, including 8 applicants from 5 ITCs (36%)

Total number of participants: **29** (male:female ratio 55%:44%)
(trainees/trainers/guest lecturers) from **12** countries, including 8 trainees from 5 ITCs (27.6%)



Annex II: Budget

Trainees' accommodation & travel expenses

Each trainee received a grant funded entirely by COST FA1404 as follows:

	Surname	Name	Country	Email	Grant amount (€)
1.	Angelou	Athanasios	EL	amangelo@vet.auth.gr	700
2.	Bandelj	Petra	SI	petra.bandelj@vf.uni-lj.si	855
3.	Cimpan	Andrei-Alexandru	RO	andrei2005_user@yahoo.com	855
4.	Cocciolo	Giulio	IT	giulio.cocciolo@uniba.it	855
5.	Espiguinha Cortes	Helder Carola	PT	heldercortes@gmail.com	855
6.	Fragiadaki	Eirini	EL	eirfrag@gmail.com	600
7.	Gruianu	Alexandra	RO	alexandra.gruianu@gmail.com	855
8.	Kakolyri	Maria	EL	mkakolyr@med.uoa.gr	600
9.	Karp-Tatham	Eleanor	UK	ekarp@rvc.ac.uk	855
10.	Knežević	Slobodan	RS	slobodan.knezevic@niv.ns.ac.rs	800
11.	Küster	Tatiana	UK	tkuester@rvc.ac.uk	855
12.	Lima Barbero	José Francisco	ES	josefranvet@gmail.com	855
13.	Lozica	Liča	HR	lica.lozica@gmail.com	855
14.	Mainiero	Margherita	UK	Margherita.Mainiero@bristol.ac.uk	855
15.	Mateus	Teresa Letra	PT	tlmateus@gmail.com	810
16.	Øines	Øivind	NO	oivind.oines@vetinst.no	855
17.	Petrović	Aleksandra	RS	petra@polj.uns.ac.rs	800
18.	Polychroniadis	Alkiviadis	EL	alkipoly@gmail.com	700
19.	Ptochos	Sokratis	UK	Sokratis.Ptochos@sruc.ac.uk	855
20.	Skov	Jacob	DK	jask@sund.ku.dk	855
21.	Strikou	Flora	EL	florastrikou@gmail.com	650
22.	Symeonidou	Isaia	EL	isaia@vet.auth.gr	700
TOTAL (€)					17475

The grant covered

- * Accommodation, meals, welcome & farewell dinner, access to coffee/tea throughout the TS (all inclusive package) 10950 €
- * Transfer from/to Athens International Airport to/from the venue: 1210 €
- * Long distance Travel 5315 €
(45€/trainee from Attica to reach the AIA; max 145 €/trainee travelling from other Greek cities; max 300€/trainee travelling from other countries)

Trainers' accommodation & travel expenses

	Surname	Name	Country	Email	Amount (€)
23.	Hondema	Laurens Severijn	NL	l.hondema@ggdgm.nl	According to the submitted TRR
24.	Kavallari	Andriana	EL	andrikava@hotmail.com	
25.	Papadopoulos	Elias	EL	eliaspap@vet.auth.gr	
26.	Tiligada	Ekaterini	EL	aityliga@med.uoa.gr	

Organiser support

The room at Nafsika Palace where the TS was held and the room for the satellite lecture at the City Hall of Itea were free. The TS was organized under the Auspices of the *Medical School of the National and Kapodistrian University of Athens (NKUA), Greece*. Organization support was provided by the *Department of Pharmacology of the Medical School* & by the *Research Account of the NKUA*.

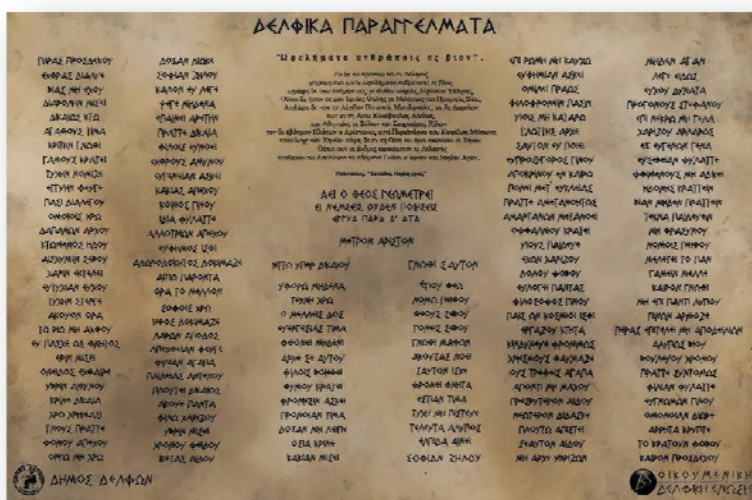


COREMI participants boarding the Shuttle bus at the Arrivals terminal of Athens International Airport on 31 July 2017 under the guidance of local organizers wearing the yellow T-shirts with the COST sign...

Social activities

The guided tour in Delphi was kindly organized and supported by the *Municipality of Delphi* and the *Ephorate of Antiquities of Fokis*. Free admission to the Museum and the Archaeological site of Delphi was arranged for the TS participants holding academic or student cards.

The Chair of the *Tourism Development and Promotion Committee of the Municipality of Delphi*, Mrs Elli Kotsanou welcomed the participants, thanked COST for holding the event in this inspiring *UNESCO World Heritage location* and gave a copy of the 'Delphic maxims' to the participants courtesy of the *Municipality of Delphi*.



The Delphic maxims are a set of 147 aphorisms inscribed at Delphi.

Originally, they were attributed to the Greek god Apollo, but contemporary scholars consider them as ancient popular proverbs.

The most famous of the maxims is '**know thyself**' which was carved on the Temple of Apollo at Delphi.

Annex III: Guest Observers & Satellite Open Lecture

The following guest observers made their own arrangements to attend on a voluntary basis:

- | | |
|------------------------------|------------------------|
| 1. Aida Kustura | Bosnia and Herzegovina |
| 2. Nedim Begić | Bosnia and Herzegovina |
| 3. Zvezdelina Kirkova | Bulgaria |
| 4. Stavros Panagiotis Sellas | Cyprus |
| 5. Panos Vasiliou | Cyprus |
| 6. Marianna Andreopoulou | Greece |
| 7. Vasilios Kompoulis | Greece |
| 8. Dimitris Koutsianos | Greece |
| 9. Kimonas Koutsianos | Greece |
| 10. Nikos Theodoropoulos | Greece |
| 11. Aristotelis Mitsos | Greece |
| 12. George Fotakis | Greece |
| 13. Thomas Paparounis | Greece |
| 14. Ioannis Paratsokas | Greece |
| 15. Eugenia Avram | Romania |
| 16. Lazar Andrada Hermina | Romania |
| 17. Marius Munteanu | Romania |
| 18. Alexandra Oprescu | Romania |
| 19. Zoia Paraschiv | Romania |
| 20. Serafim Tudor Razvan | Romania |
| 21. Valentin Tudor | Romania |
| 22. Mihai George Zamfir | Romania |
| 23. Simon Jerebic | Slovenia |

We have the pleasure to invite you to the Satellite Lecture
which will take place within the framework of the
COST FA1404 – COREMI 'One Health' Training School:

**"Update on the Poultry Red Mite:
why is this parasite so important?"**

Elias Papadopoulos, DVM, MSc, PhD, Dip. EVPC, Dip. ECSRHM

Professor of Parasitology & Parasitic Diseases
School of Veterinary Medicine
Aristotle University of Thessaloniki, Greece

August 2nd, 2017

10.00 am

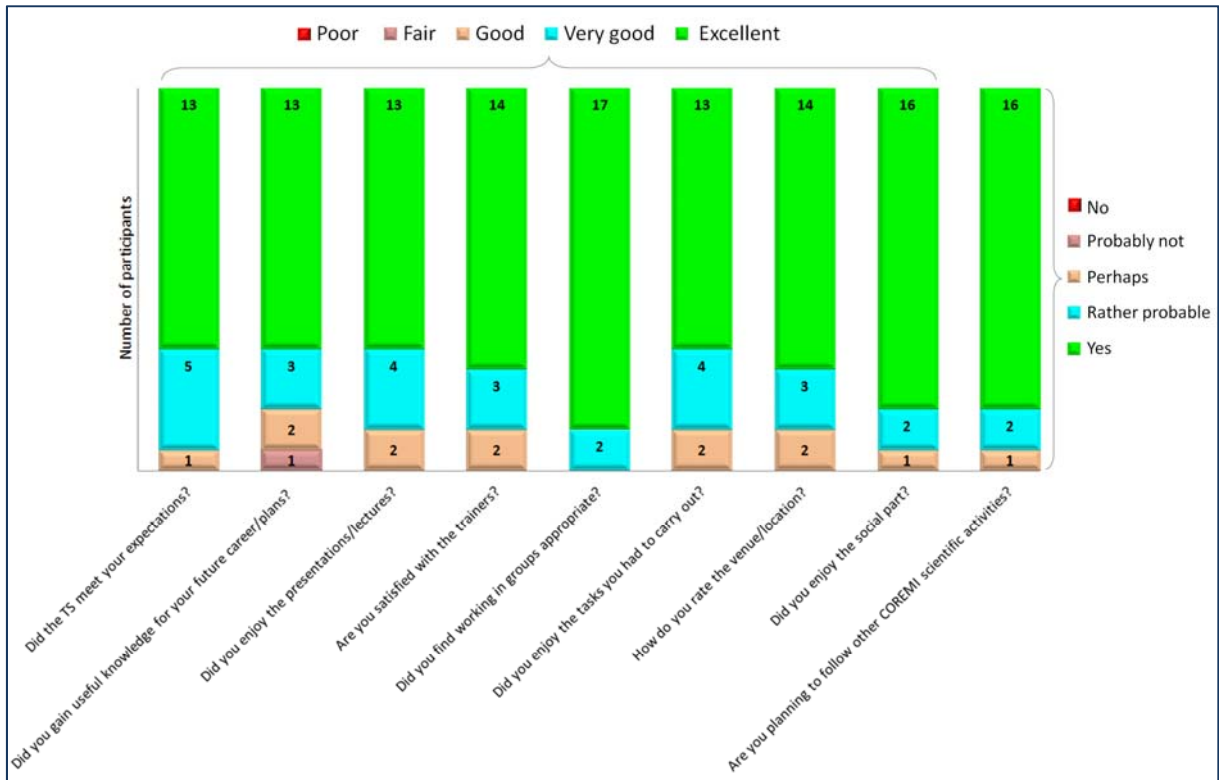
Kyriakopouleio Cultural Center

City Hall

Itea, Greece



Annex IV: Evaluation Questionnaire



Response to the question 'What did you enjoy most?'

No of responses

- ✓ Group work/activities – Collaboration – Networking 10
- ✓ All in the same hotel/friendly environment/small city 3
- ✓ Opportunity for new collaborations 3
- ✓ Excursion/Social part 3
- ✓ Availability of trainers & staff 2
- ✓ Discussion after the lectures 2
- ✓ Skype lectures/ Interactive lecture 2
- ✓ Flexible program 1
- ✓ Location/social activities 1
- ✓ Advice given by the Delphi Oracle (!) 1

Indicative Comments

- ✓ Great experience 1
- ✓ Well organized TS 1

Indicative Recommendations

- ✓ The WiFi signal could be stronger 2
- ✓ Clearer aim provided beforehand 1
- ✓ More relevant lectures 1
- ✓ Longer timeframe to work 1
- ✓ Better questionnaire 1
- ✓ Better A/C control in bedrooms 1