

WOAH Collaborative Centre Reports Activities 2022

Activities in 2022

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Centre Information

Title of WOA Collaborating Centre	Good Beekeeping Management Practices and Biosecurity Measures in the Apiculture Sector
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Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):	Dr. Giovanni Formato
Name of the writer:	Dr. Marco Pietropaoli

TOR1 AND 2: SERVICES PROVIDED

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by WOA

Disease control	
Title of activity	Scope
	Title: "Emerging pathogens in beekeeping: Lotmaria passim and

National Research project IZS LT 07/18 RC	Crithidia mellificae - Study on diffusion in the Italian territory and evaluation of the impact on hives mortality". Analysis report and field trial planning
Disease control	
Title of activity	Scope
National Research project IZS LT 14/16 RC	Title: "Antibiotics in beekeeping: state of the art, use and potential risks". Field trial and publishing of results
Disease control	
Title of activity	Scope
National Research project IZS ME 15/20 RC	Title: "Development of innovative diagnostic technologies to support field control activities of Aethina tumida (SHB) in Italy"
Disease control	
Title of activity	Scope
International Research project mySNF	Title: "Evolution of mating and reproduction underlying invasions of a beetle pest". Collaboration with IZSME for field trials and samplings
Disease control	
Title of activity	Scope
Prevention of foulbroods	Pietropaoli, M., Carpana, E., Milito, M., Palazzetti, M., Guarducci, M., Croppi, S., & Formato, G. (2022). Use of Lactobacillus plantarum in preventing clinical cases of American and European foulbrood in central Italy. Applied Sciences, 12(3), 1388
Training, capacity building	
Title of activity	Scope
International Research project B-THENET	Title: "Best Practices and Innovations for a Sustainable Beekeeping". Project Coordination
Training, capacity building	
Title of activity	Scope
	Title: "Network for improvement and integration of beekeeping

International COST-Action Bee-Extend	extension, using extension science principles". Proposal submission
Training, capacity building	
Title of activity	Scope
International FAO Training	Good Practices and Biosecurity Measures. FAO and GHG OMAN. 23 March 2022 at Ibra (Sultanate of Oman)
Training, capacity building	
Title of activity	Scope
International FAO Training	Good Practices and Biosecurity Measures. FAO and GHG OMAN. 30 March 2022 at Nizwa (Sultanate of Oman)
Training, capacity building	
Title of activity	Scope
Online Webinar	International WOA and FAO International Symposium on biosecurity measures in beekeeping. WOA and FAO. 10 June 2022
Training, capacity building	
Title of activity	Scope
International FAO Webinar	Progressive Management Pathway for Antimicrobial Resistance (PMP-AMR). Panel discussion on Apiculture. FAO. 22 November 2022
Training, capacity building	
Title of activity	Scope
International FAO Expert consultation meeting	Progressive Management Pathway for Antimicrobial Resistance (PMP-AMR) In Apiculture. FAO. 28-29 November 2022
Diagnosis, biotechnology and laboratory	
Title of activity	Scope
	The following laboratory analysis ACCORDING TO OIE MANUAL of Diagnostic Tests and Vaccines for Terrestrial Animals have

<p>Diagnostic activity (laboratory analysis)</p>	<p>been performed: 297 Varroa destructor infestation level assessment 129 Nosema spp. microscopy 118 American and European foulbrood cultural method 77 American foulbrood PCR end-point analyses 73 European foulbrood PCR end-point analyses 6 Aethina tumida identification 1 Aethina tumida PCR end-point analyses 58 Nosema apis PCR end-point analyses 58 Nosema ceranae PCR end-point analyses. Moreover, the following laboratory analysis have been performed: 68 inspections of affected samples 79 morphometrical identification of Apis species 55 Acarapis woodi PCR end-point analyses 182 Lotmaria passim PCR end-point analyses 182 Crithidia spp. PCR end-point analyses 129 Deformed Wing Virus PCR end-point analyses 17 Israeli Acute Paralysis Virus PCR end-point analyses 17 Kashmir Bee Virus PCR end-point analyses 78 Chronic Bee Paralysis Virus PCR end-point analyses 78 Acute Bee Paralysis Virus PCR end-point analyses 79 Black Queen Cell Virus PCR end-point analyses 17 Sac Brood Virus PCR end-point analyses 61 Lake Sinai Virus PCR end-point analyses 544 Slow Paralysis Virus PCR end-point analyses 67 analysis on honey and pollen (melissopalynological, palynological and humidity) 3000 Antibiotic susceptibility testing was performed according to the current legislation, and the relevant International Standards, and the protocols developed by the EURL-AR. Results are interpreted according to the Annex A of the Dec. 2020/1729/EU and to the "Manual for reporting 2021 antimicrobial resistance data within the framework of Directive 2003/99/EC and Decision 2020/1729/EU".</p>
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Diagnosis, biotechnology and laboratory

Title of activity	Scope
<p>Development of innovative methods for Acarapis woodi diagnosis</p>	<p>Pietropaoli, M., Tofani, S., Formato, G., Rubino, R. C., Pietrella, G., Di Ruggiero, C., ... & Cersini, A. (2022). Molecular Detection of Acarapis woodi Using Hive Debris as Innovative and Non-Invasive Matrix. Applied Sciences, 12(6), 2837.</p>

Diagnosis, biotechnology and laboratory

Title of activity	Scope
<p>Participation in validation programs for diagnostics</p>	<p>Aethina tumida ring test (Real Time PCR) AMR - External Quality Assurance System (EQAS) Danish Food Institute, DTU. EU Reference Laboratory for Antimicrobial Resistance Aethina tumida ring test (morphological identification)</p>

Veterinary medicinal products

Title of activity	Scope
<p>National Research Project Bee-O-Gel</p>	<p>Title: "Biopolymers and thymol derivatives: development of sustainable hydrogels for bee care"</p>

Feed safety	
Title of activity	Scope
Lysozyme Feed additive Test	Field trials according to EFSA Guidelines on additives for use in animal nutrition

TOR3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main focus area for which you were designated

Proposal title	Scope/Content	Applicable area
Progressive Management Pathway For AMR (PMP-AMR) In Beekeeping	Development And Dissemination Of Progressive Management Pathway For AMR (PMP-AMR) In Beekeeping And Launching AMR/AMU/GBPS/BMBS Survey Among Beekeepers	Training and education health management
Services related to Strengthening SME's capacities	Services related to Strengthening SME's capacities for sustainable and economic apiculture in the Sultanate of Oman	Laboratory expertise Training and education health management

4. Did your Collaborating Centre maintain a network with other WOAHA Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

TOR4 AND 5: NETWORKING AND COLLABORATION

5. Did your Collaborating Centre maintain a network with other WOAHA Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

TOR6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOAHA?

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

No

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOAAH, to personnel from WOAAH Members?

Yes

a) Technical visit : 40

b) Seminars : 40

c) Hands-on training courses:

d) Internships (>1 month) : 50

TYPE OF TECHNICAL TRAINING PROVIDED (A, B, C OR D)	CONTENT	COUNTRY OF ORIGIN OF THE EXPERT(S) PROVIDED WITH TRAINING	NO. PARTICIPANTS FROM THE CORRESPONDING COUNTRY
A	Training on honey bee management, Good Beekeeping Practices and Biosecurity measures in beekeeping	Oman	40
B	Training on honey bee management, Good Beekeeping Practices and Biosecurity measures in beekeeping	Saudi Arabia	40
D	Training on honey bee management, Good Beekeeping Practices and Biosecurity measures in beekeeping	Kingdom of Saudi Arabia	50

TOR8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOAAH?

Yes

NATIONAL/INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
International	FAO Training on Good Practices and Biosecurity Measures	FAO and GHG OMAN	2022-03-23	Ibra (Sultanate of Oman)	20
International	FAO Training on Good Practices and Biosecurity Measures	FAO and GHG OMAN	2022-03-30	Nizwa (Sultanate of Oman)	20
International	WOAH and FAO International Symposium on biosecurity measures in beekeeping	WOAH and FAO	2022-06-10	Online	306

International	FAO Webinar on Progressive Management Pathway for Antimicrobial Resistance (PMP-AMR). Panel discussion on Apiculture	FAO	2022-11-22	Online	10
International	FAO Expert consultation meeting on Progressive Management Pathway for Antimicrobial Resistance (PMP-AMR) In Apiculture	FAO	2022-11-28	Online	10

TOR9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOAHA that may be useful to Members of WOAHA

a) Articles published in peer-reviewed journals:

6

- De Carolis, A., Newmark, A. J., Kim, J., Cazier, J., Hassler, E., Pietropaoli, M., ... & Song, J. (2022). Results of an International Survey for Risk Assessment of Honey Bee Health Concerning Varroa Management. *Applied Sciences*, 13(1), 62.
- Mosca, M., Giannetti, L., Franco, A., Iurescia, M., Milito, M., Pietropaoli, M., ... & Formato, G. (2022). Impact of Oxytetracycline on Colonies: Preliminary Results on Residues and Antibiotic Resistance. *Journal of Apicultural Science*, 66(2), 159-170.
- Pietropaoli, M., Tofani, S., Formato, G., Rubino, R. C., Pietrella, G., Di Ruggiero, C., ... & Cersini, A. (2022). Molecular Detection of *Acarapis woodi* Using Hive Debris as Innovative and Non-Invasive Matrix. *Applied Sciences*, 12(6), 2837.
- Pietropaoli, M., Carpana, E., Milito, M., Palazzetti, M., Guarducci, M., Croppi, S., & Formato, G. (2022). Use of *Lactobacillus plantarum* in preventing clinical cases of American and European foulbrood in central Italy. *Applied Sciences*, 12(3), 1388.
- Rauw, W. M., Gomez-Raya, L., Star, L., Øverland, M., Delezie, E., Grivins, M., ... & Formato, G. (2022). Sustainable development in circular agriculture: An illustrative bee & legume & poultry example. *Sustainable Development*.
- Kleckner, K., De Carolis, A., Jack, C., Stuhl, C., Formato, G., & Ellis, J. D. (2022). A Novel Acute Toxicity Bioassay and Field Trial to Evaluate Compounds for Small Hive Beetle Control. *Applied Sciences*, 12(19), 9905.

b) International conferences:

3

Consultation meeting on 28-29 November 2022 to discuss the Progressive Management Pathway (PMP) on AMR in apiculture.

Apimondia 2022, Istanbul, Turkey.

FAO World Food Forum, 17-21 October 2022, Rome.

c) National conferences:

3

Annual Meeting of the Scientific Veterinary Society in Apiculture, 25-27 November 2022.

Honey bee health – Webinar organized by the National Reference Laboratory for Apiculture (IZSve), 15 December 2022

Teaching to beekeepers associations: participation to a total of 9 events at Beekeepers' Associations as speakers (Giovanni Formato, Marco Pietropaoli)

d) Other (Provide website address or link to appropriate information):

Chinese version of the FAO Document on the Responsible Use of Veterinary Medicine in Beekeeping

• 粮农组织与拉齐奥和托斯卡纳区域动物预防研究所。2021年。在养蜂业中负责任地使用抗微生物药物 粮农组织动物生产和健康准则第26号。罗马。 <https://doi.org/10.4060/cb6918en> (FAO and Regional Institute for Animal Prevention in Lazio and Tuscany. 2021. Responsible use of antimicrobials in beekeeping FAO Animal Production and Health Guidelines No. 26. Rome. [HTTPS://DOI.ORG/10.4060/CB6918EN](https://doi.org/10.4060/cb6918en))

11. What have you done in the past year to advance your area of focus, e.g. updated technology?

Visit foreign countries like Oman, KSA, to see how bees and the main honey bee diseases are there managed.

12. Additional comments regarding your report: