World Organisation for Animal Health

Salvatore Catania - -

WOAH Reference Laboratory Reports Activities 2025

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LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	Avian mycoplasmosis (Mycoplasma gallisepticum, Mycoplasma synoviae)
***Address of laboratory:**	Via Bovolino, 1c, 37060 Buttapietra (VR), Italy
***Tel:**	+39045500285
***E-mail address:**	scatania@izsvenezie.it
Website:	www.izsvenezie.com
***Name (including Title) of Head of Laboratory (Responsible Official):**	Dr. Salvatore Catania, head of the diagnostic facility SCT1-Verona of the Istituto Zooprofilattico Sperimentale delle Venezie.
***Name (including Title and Position) of WOAH Reference Expert:**	Dr. Salvatore Catania, head of the diagnostic facility SCT1-Verona of the Istituto Zooprofilattico Sperimentale delle Venezie.
***Which of the following defines your laboratory? Check all that apply:**	Governmental

TOR1: DIAGNOSTIC METHODS

1. Did your laboratory perform diagnostic tests for the specified disease/topic for purposes such as disease diagnosis, screening of animals for export, surveillance, etc.? (Not for quality control, proficiency testing or staff training)

Yes

Diagnostic Test	Indicated in WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
Indirect ELISA for Mycoplasma gallisepticum	Yes	20216	0
Indirect ELISA for Mycoplasma synoviae	Yes	4168	0
Direct diagnostic tests		Nationally	Internationally
Real-time PCR for Mycoplasma gallisepticum	Yes	2439	0
Real-time PCR for Mycoplasma synoviae	Yes	2214	6
Avian mycoplasma culturing	Yes	349	24
16s-rDNA PCR + Denaturing Gradient Gel Electrophoresis (DGGE)	Yes	127	13
Mgc2 gene sequencing	Yes	29	0
vlhA gene sequencing	Yes	106	0
Multi Locus Sequence Typing for Mycoplasma gallisepticum	Yes	31	0
Multi Locus Sequence Typing for Mycoplasma synoviae	Yes	37	7
Multi Locus Variable number tandem repeats Analysis for Mycoplasma synoviae	Yes	47	0

PCR for Mycoplasma gallisepticum		0	12

TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOAH?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAH Members?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient WOAH Member Countries	Country of recipients
Genomic DNA of Mycoplasma gallisepticum	PCR M. gallisepticum and M. synoviae (test validation)	0,2/0,1 ml	0	0,1 ml	1	SWITZERLAND,
Genomic DNA of Mycoplasma synoviae	PCR M. gallisepticum and M. synoviae (test validation)	0,2/0,1 ml	0	0,1 ml	1	SWITZERLAND,
Genomic DNA of Mycoplasma iowae	PCR M. gallisepticum and M. synoviae (test validation)	0,2/0,1 ml	0	0,1 ml	1	SWITZERLAND,
Genomic DNA of Mycoplasma meleagridis	PCR M. gallisepticum and M. synoviae (test validation)	0,2/0,1 ml	0	0,1 ml	1	SWITZERLAND,
Genomic DNA of Mycoplasma gallinarum	PCR M. gallisepticum and M. synoviae (test validation)	0,2/0,1 ml	0	0,1 ml	1	SWITZERLAND,
Genomic DNA of Mycoplasma gallinaceum	PCR M. gallisepticum and M. synoviae (test validation)	0,2/0,1 ml	0	0,1 ml	1	SWITZERLAND,
Genomic DNA of Mycoplasma gallopavonis	PCR M. gallisepticum and M. synoviae (test validation)	0,2/0,1 ml	0	0,1 ml	1	SWITZERLAND,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAH Members?

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

No

7. Did your laboratory validate diagnostic methods according to WOAH Standards for the designated pathogen or disease?

No

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

9. Did your laboratory validate vaccines according to WOAH Standards for the designated pathogen or disease?

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAH Members?

Yes

Name of WOAH Member Country seeking assistance	Date	Which diagnostic test used	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
		Avian mycoplasma culturing; 16s-rDNA PCR + Denaturing Gradient Gel Electrophoresis		

SPAIN	2025-02-12	(DGGE); Realtime PCR for Mycoplasma synoviae; Multi Locus Sequence Typing for Mycoplasma synoviae; Minimum Inhibitory Concentration test;	8	0
SPAIN	2025-03-11	Avian mycoplasma culturing; Multi Locus Sequence Typing for Mycoplasma synoviae;	1	0
SPAIN	2025-05-08	Avian mycoplasma culturing;	4	0
SPAIN	2025-09-10	Avian mycoplasma culturing; Realtime PCR for Mycoplasma synoviae;	3	0
SPAIN	2025-12-03	Avian mycoplasma culturing; 16s-rDNA PCR + Denaturing Gradient Gel Electrophoresis (DGGE); Realtime PCR for Mycoplasma synoviae; Multi Locus Sequence Typing for Mycoplasma synoviae; Minimum Inhibitory Concentration test;	24	0
IRAN	2025-10-27	Conventional PCR for Mycoplasma gallisepticum	0	12

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOAH Member?

Yes

Name of the WOAH Member Country receiving a technical consultancy	Purpose	How the advice was provided
SRI LANKA	Seeking scientific and technical support to build laboratory capacity for the diagnosis of Mycoplasma gallisepticum and Mycoplasma synoviae in poultry using PCR, including guidance on access to appropriate reference materials (inactivated organisms or DNA controls) and their procurement.	Remotely (through email)
PHILIPPINES	Seeking scientific and technical support to build laboratory capacity for the diagnosis of Mycoplasma gallisepticum and Mycoplasma synoviae in poultry using real-time PCR, including guidance on access to appropriate reference materials (inactivated organisms or DNA controls) and their procurement.	Remotely (through email)
PHILIPPINES	Seeking scientific and technical support to build laboratory capacity for the diagnosis of Mycoplasma gallisepticum and Mycoplasma synoviae in poultry using ELISA, including guidance on access to appropriate reference materials (blood serum) and their procurement.	Remotely (through email)
PAKISTAN	Seeking scientific and technical support for optimizing culturing of Mycoplasma gallisepticum and Mycoplasma synoviae.	Remotely (through email)
JORDAN	Seeking scientific and diagnostic support for genetic typing of both vaccine and field strains of Mycoplasma gallisepticum.	Remotely (through email)
SPAIN	Seeking scientific and diagnostic support for genetic typing Mycoplasma	Remotely (through email)

	gallisepticum vaccine strains.	
SPAIN	Seeking scientific and technical support for collecting samples destined to mycoplasma culturing and how to increase chances of obtaining live strains.	Remotely (through email)

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAH Members other than the own?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	WOAH Member Countries involved other than your country
MyMIC: Standardization of diagnostics and antimicrobial susceptibility testing and clinical interpretation in animal mycoplasmas.	2022-2025	This project aims to set up a network of laboratories working on mycoplasma diagnostics and their susceptibility to ATBs to compare the different methods used and the results of minimum inhibitory concentrations.	Universidad de Las Palmas de Gran Canaria. (Spain) – National Veterinary Institute (Sweden) - University of Melbourne (Australia) - University of Maiduguri (Nigeria) – University of Agriculture Peshawar (Pakistan) - Anses (France) - CIRAD (France) - PIWET (Poland) - University of Giessen (Germany) - University of Bern (Switzerland) - University of Veterinary Medicine, Vienna (Austria) - Veterinary Medical Research Institute (Hungary) – Kimron Veterinary Institute (Israel) - Finnish Food Authority (Finland) - GD Animal Health (The Netherlands) - Centro Nacional de Sanidad Agropecuaria (CENSA).	AUSTRALIA AUSTRIA BELGIUM CUBA FINLAND FRANCE GERMANY HUNGARY ISRAEL NIGERIA PAKISTAN POLAND SPAIN SWEDEN SWITZERLAND THE NETHERLANDS UNITED KINGDOM

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

Yes

Research need : 1

Please type the Research need: Data consolidation (databases) enabling discrimination between vaccine and wild strains in positive animal groups with a high degree of specificity.

Relevance for WOAH Disease Control,

Relevance for the Code or Manual Code, Manual,

Field Epidemiology and Surveillance, Diagnostics, Vaccines,

Animal Category Terrestrial,

Disease:

Avian mycoplasmosis (Mycoplasma gallisepticum, Mycoplasma synoviae)

Kind of disease (Zoonosis, Transboundary diseases)

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer:

Notes:

Answer:

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

No

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

Yes

If the answer is yes, please provide details of the data collected:

Our laboratory disseminated epidemiological data derived from molecular analyses. Specifically, genotyping of mycoplasma strains collected from the field was performed using molecular techniques (mentioned in the WOAH terrestrial manual), generating molecular epidemiological information that supports the characterization and differentiation of circulating strains.

16. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category and list the details in the box)

a) Articles published in peer-reviewed journals:

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Jaÿ M, Klose SM, Bottinelli M, Autio T, Becker CAM, Bokma J, Boland C, Boyen F, Catania S, Dudek K, Hurri E, Feberwee A, Gyuranecz M, Lysnyansky I, Manso-Silván L, Palau-Ribes FM, Ramirez AS, Ridley A, Spergser J, Vaz PK, Wawegama N, Wiegel J, Heuvelink AE, Overesch G, Gautier-Bouchardon AV, Tardy F. Advancing standardization of diagnostics and antimicrobial susceptibility testing for pathogenic mycoplasmas of livestock origin: insights from the MyMIC network. BMC Vet Res. 2025 Dec 29;21(1):712. doi: 10.1186/s12917-025-05154-4. PMID: 41462247; PMCID: PMC12751987.

Sulyok K, Kreizinger Z, Földi D, Botond Kovács A, Grózner D, Manso-Silván L, Bokma J, Heuvelink AE, M. Klose S, Feberwee A, Catania S, Ramirez Corbera AS, Vaz PK, Boland C, Ganapathy K, Gautier-Bouchardon A V, M. Becker CA, Tardy F, Lysnyansky I, Gyuranecz M. Molecular detection of antimicrobial resistance in livestock mycoplasmas: current status and future prospects. 2025 Front. Vet Sci. 12:1699077 doi: 10.3389/fvets.2025.1699077.

Boccardo A, Ossola M, Pavesi LF, Raineri S, Gazzola A, Sala L, Magistrali CF, Sala G, Catania S, Cornaggia M, Pravettoni D, Maisano AM. An on-farm observational study on the prevalence and associated factors of bacteremia in preweaned dairy calves diagnosed with bronchopneumonia by thoracic ultrasonography. BMC Vet Res. 2025 Apr 9;21(1):258. doi: 10.1186/s12917-025-04707-x. PMID: 40205395; PMCID: PMC11984053.

Feberwee A, Ferguson-Noel N, Catania S, Bottinelli M, Wawagema N, Gyuranecz M, Gautier-Bouchardon AV, Lysnyansky I, Wiegel J, Möller Palau-Ribes F, Ramirez AS. Mycoplasma gallisepticum and Mycoplasma synoviae in commercial poultry: current control strategies and future challenges. Avian Pathol. 2025 Apr;54(2):168-174. doi: 10.1080/03079457.2024.2419037. Epub 2024 Nov 25. PMID: 39471302.

Klein U, Földi D, Nagy EZ, Tóth L, Belecz N, Költő K, Wehmann E, Marton S, Merenda M, Gastaldelli M, Catania S, Spergser J, Siesenop U, Vyt P, Bányai K, Kreizinger Z, Depondt W, Gyuranecz M. Antimicrobial susceptibility profiles of Mycoplasma hyosynoviae strains isolated from five European countries between 2018 and 2023. Sci Rep. 2025 Jan 7;15(1):1243. doi: 10.1038/s41598-024-85052-1. PMID: 39774192; PMCID: PMC11707295.

b) International conferences:

3

Detection of Chlamydia psittaci from atypical nasal gland lesions in commercial turkeys in Italy. M. Giacomelli, E. Rinaldi, D. Prataviera, A.Y. Morales-Arce, M. Pirotta, M. Zago, C. Zanardello, M. Bottinelli, S. Catania. XXIII World Veterinary Poultry Association Congress – 6-10/10/2025 – Malaysia

Emerging adaptive responses to antibiotic pressure in Mycoplasma iowae: efflux mediated resistance and implications for disease ecology. Z. Kreizinger, D. Buni, Á. Botond Kovacs, E. Wehmann, D. Grozner, K. Sulyok, K. Banyai, J. Bradbury, M. Bottinelli, S. Catania, I. Lysnyansky, L. Kovacs, M. Gyuranecz. XXIII World Veterinary Poultry Association Congress – 6-10/10/2025 – Malaysia

The invasive african sacred ibis as a new vector of HPAI for commercial poultry in densely populated poultry areas of Italy. M. Giacomelli, E. Rinaldi, C. Zanardello, L. Mari, E. Stefani, A. Bortolami, M. Merenda, C. Terregino. XXIII World Veterinary Poultry Association Congress – 6-10/10/2025 – Malaysia

c) National conferences:

11

Resistant or just persistent? evaluating the potential for phenotypic reversion in antibiotic-free environments. Annalucia Tondo, Micaela Picchi, Beatrice Colo', Davide Prataviera, Ana Y. Morales Arce, Giorgia Nai, Elisabetta Stefani, Salvatore Catania. 53° Congresso Nazionale della Società Italiana di Microbiologia (SIM) – 19-22/09/2025 Catania

MLST di ceppi di Mycoplasma synoviae isolati in allevamenti industriali e rurali in italia: 14 anni di osservazioni. E. Stefani, A.Y. Morales-Arce, G. Nai, V. Righetti, M. Gastaldelli, B. Colò, D. Prataviera, M. Giacomelli, S. Catania. XXIII Congresso Nazionale SIDiLV – 15-17/10/2025 Palermo

Gestione delle patologie articolari da Mycoplasma hyorhinis e Mycoplasma hyosynoviae nel suino: un approccio basato sui vaccini stabulogeni per ridurre l'uso di farmaci. M. Merenda, D. Prataviera, B. Colò, M. Gastaldelli, A.M. Maisano, G. Santucci, C. Tonelli, D. Vio, S. Catania. XXIII Congresso Nazionale SIDiLV – 15-17/10/2025 Palermo

Influenza degli antimicrobici sulla formazione del biofilm in batteri del genere Mycoplasma. B. Colò, M. Picchi, D. Prataviera, A. Tondo, A. Barberio, A. Morales - Arce, G. Nai, V. Righetti, M. Bottinelli., S. Catania. XXIII Congresso Nazionale SIDiLV – 15-17/10/2025 Palermo

Utilizzo di Multi-Locus Sequence Typing (MLST) per lo studio della diffusione e della variabilità genetica di Mycoplasma hyopneumoniae. V. Righetti, G. Nai, A.Y. Morales Arce, E. Stefani, M. Gastaldelli, B. Colò, D. Prataviera, M. Merenda. XXIII Congresso Nazionale SIDiLV – 15-17/10/2025 Palermo

Multiplex real time pcr per la ricerca di Mycoplasma hyorhinis e Mycoplasma hyosinoviae in campioni diagnostici. C. Targhetta, C. Zanon, L. Ferino, E. Floreani, G. Nai, V. Righetti, M. Merenda, M. Ustulin, D. Vio. XXIII Congresso Nazionale SIDiLV – 15-17/10/2025 Palermo

Studio di agenti inattivanti alternativi alla formalina per la produzione dei vaccini stabulogeni. A. Cacciamali, M. Tenuzzo, S. Rota Nodari, G. Severi, M. Bottinelli, M. Picchi, B. Colò, D. Prataviera, C. Grattarola, M.L. Scatassa, R. Re, D. Galante, G. Ragionieri, A. Cerrone, S. Ulisse, A. Manfrin. XXIII Congresso Nazionale SIDiLV – 15-17/10/2025 Palermo

Micoplasmosi avicole: dieci anni di isolamenti per indagare persistenza e trasmissione nei diversi sistemi produttivi. E. Rinaldi, M. Gastaldelli, A. Tondo, M. Picchi, B. Colò, D. Prataviera, M. Giacomelli, S. Catania. 64° CONVEGNO NAZIONALE SIPA – 12-13/09/2025 Napoli

Analisi MLST di Mycoplasma synoviae in allevamenti italiani: dinamiche di diffusione e trasmissione in 14 anni di osservazioni. E. Stefani, A.Y. Morales-Arce, G. Nai, V. Righetti, M. Gastaldelli, B. Colò, D. Prataviera, M. Giacomelli, S. Catania. – 12-13/09/2025 Napoli

Micoplasmosi del suino: studio longitudinale per la rilevazione in vivo di Mycoplasma hyopneumoniae e Mycoplasma hyorhinis attraverso un sistema di campionamento non invasivo (easy collection sampling). E. Rinaldi, M. Gastaldelli, A. Morales, D. Prataviera, C. Targhetta, C. Zanon, M. Ustulin, D. Vio, M. Merenda. 50° Meeting Annuale SIPAS – 17-18/04/2025 Lazise.

Profili di di sensibilità agli antimicrobici in ceppi di Actinobacillus pleuropneumoniae e Pasteurella multocida isolati da suini affetti da PRDC nel periodo 2021-2024 in IZSVe. M. Ustulin, D. Tagliente, A. Ghiriti, B. Cordioli, M. Merenda, G. Alessandri, M. Cocchi, S. Deotto, D. Vio. 50° Meeting Annuale SIPAS – 17-18/04/2025 Lazise.

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

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Website:
- https://www.izsvenezie.com/reference-laboratories/avian-mycoplasmosis/
- https://www.izsvenezie.it/istituto/centri-di-referenza/micoplasmosi-aviarie/
- https://www.izsvenezie.it/servizi/servizi-specifici/genotipizzazione-micoplasmi/

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAH Members?

Yes

a) Technical visit : 1

b) Seminars : 0

c) Hands-on training courses: 0

d) Internships (>1 month) 0

Type of technical training provided (a, b, c or d)	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
A	AUSTRALIA	1

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO/IEC 17025:2017	Accreditation Certificate available at: https://www.izsvenezie.it/documenti/servizi/qualita-accreditamento/certificato-ISO-00139.pdf	certificato-ISO-00139.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Real-time PCR for Mycoplasma gallisepticum	ACCREDIA - Italian Accreditation System
Real-time PCR for Mycoplasma synoviae	ACCREDIA - Italian Accreditation System
Real-time PCR for Mycoplasma meleagridis	ACCREDIA - Italian Accreditation System
Indirect ELISA for Mycoplasma gallisepticum	ACCREDIA - Italian Accreditation System
Indirect ELISA for Mycoplasma synoviae	ACCREDIA - Italian Accreditation System
Indirect ELISA for Mycoplasma meleagridis	ACCREDIA - Italian Accreditation System

20. Does your laboratory maintain a “biorisk management system” for the pathogen and the disease concerned?

Yes

Use of MSC Class II biosafety cabinets.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOAH?

No

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOAH?

No

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

23. Did your laboratory exchange information with other WOAH Reference Laboratories designated for the same pathogen or disease?

Yes

24. Are you a member of a network of WOAH Reference Laboratories designated for the same pathogen?

No

25. Did you organise or participate in inter-laboratory proficiency tests with WOAH Reference Laboratories designated for the same pathogen during the past 2 years?

No

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26. Did your laboratory collaborate with other WOAH Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

No

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAH Reference Laboratories for the same pathogen during the past 2 years?

Yes

Purpose for inter-laboratory test comparisons1	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the test	WOAH Member Countries
Quality insurance - Ring trial	Participant	3	Mycoplasma culturing	UNITED KINGDOM,

Quality insurance - Ring trial	Participant	3	16S-rDNA PCR + Denaturing Gradient Gel Electrophoresis (DGGE)	UNITED KINGDOM,
Quality insurance - Ring trial	Participant	5	Indirect ELISA for Mycoplasma gallisepticum	UNITED KINGDOM,
Quality insurance - Ring trial	Participant	5	Indirect ELISA for Mycoplasma meleagridis	UNITED KINGDOM,
Quality insurance - Ring trial	Participant	2	Mycoplasma gallisepticum and M. melagridis isolation.	UNITED KINGDOM,
Quality insurance - Ring trial	Participant	92	Mycoplasma (Mg/Ms) antibody detection	THE NETHERLANDS,
Quality insurance - Ring trial	Participant	53	Mycoplasma (Mg/Ms) bacteria detection (PCR)	THE NETHERLANDS,

TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOAH?

Yes

Kind of consultancy	Location	Subject (facultative)
Revision of official scientific publication.	Remotely	Revision of WOAH Terrestrial Manual, Chapter 3.3.5.

29. Additional comments regarding your report:

No