World Organisation for Animal Health

Isabella Monne - - ITALY

WOAH Reference Laboratory Reports Activities 2025

This report has been submitted: 30 janvier 2026 15:16

LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	Newcastle disease
***Address of laboratory:**	WOAH Reference Laboratory for Newcastle disease Istituto Zooprofilattico Sperimentale delle Venezie (IZSVe) Viale dell'Università 10 – 35020 Legnaro (PD) - Italy
***Tel:**	+39-049 808 4381
***E-mail address:**	imonne@izsvenezie.it
Website:	www.izsvenezie.it
***Name (including Title) of Head of Laboratory (Responsible Official):**	Calogero Terregino, Director of the Specialized Virology and Experimental Research Unit/Director of the Research and Development Department (IZSVe)
***Name (including Title and Position) of WOAH Reference Expert:**	Isabella Monne, DVM PhD, Head of the Viral genomics and transcriptomics Laboratory, Division of Research and Innovation
***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
Haemoagglutination inhibition (HI)	Yes	528	0
ELISA	Yes	150	0
Direct diagnostic tests		Nationally	Internationally
Isolation	Yes	0	3
RRT/RT-PCR	Yes	721	430
Sequencing (cleavage site)	Yes	269	39
ICPI - Intracerebral Pathogenicity Index	Yes	0	1
NGS (next generation sequencing)	Yes	8	31

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			Amount supplied	Amount supplied	No. of recipient WOAH	

available	Related diagnostic test	Produced/ provide	nationally (ml, mg)	internationally (ml, mg)	Member Countries	Country of recipients
Virus antigen (inactivated	HA, HI, AGID	4755 mL/1900 mL	20 mL	1880 mL	15	ALGERIA, BURKINA FASO, CZECH REPUBLIC, ETHIOPIA, FINLAND, FRANCE, GERMANY, IRELAND, JORDAN, LATVIA, LIBERIA, MALI, ROMANIA, SIERRA LEONE, TURKEY,
Serum	HI, AGID, ELISA, SN	1243,5 mL/183 mL	29 mL	154 mL	20	ALGERIA, AUSTRIA, BURKINA FASO, CZECH REPUBLIC, ETHIOPIA, FRANCE, GREECE, IRELAND, ITALY, JORDAN, LATVIA, MALI, MOLDOVA, ROMANIA, SERBIA, SIERRA LEONE, THE NETHERLANDS, TURKEY, UKRAINE, ZIMBABWE,
Virus antigen (inactivated)	RT-qPCR, RT-PCR	16 mL/18 mL	5 mL	13 mL	2	GERMANY, ITALY,
Virus isolate (live)	Various	8 mL/4 mL	4 mL	0	1	ITALY,
Viral RNA	RT-qPCR, RT-PCR	0/0,06	0	0,06 mL	1	FRANCE,

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?

Yes

Name of the new test or diagnostic method developed	Description and References (Publication, website, etc.)
Molecular pathotyping of Orthoavulavirus javaense (OAV-J) by real-time RT-PCR and Sanger sequencing (Fortin et al., 2023) - SOP VIR 1006	The diagnostic protocol, initially validated in 2023 underwent further refinement of the diagnostic sensitivity parameters in 2024 and 2025. An updated version of the procedure is available online. https://www.izsvenezie.com/reference-laboratories/avian-influenza-newcastle-disease/diagnostic-protocols/

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
BULGARIA	2025-08-14	Real Time PCR RT PCR Sequencing	0	1

CYPRUS	2025-09-17	Real Time PCR RT PCR Sequencing	0	8
HUNGARY	2025-02-20	Real Time PCR	0	2
GHANA	2025-12-17	Real Time PCR	0	4
IRELAND	2025-06-13	Real Time PCR RT PCR	0	4
LIBERIA	2025-01-07	Real Time PCR RT PCR Sequencing	0	19
LIBYA	2025-02-21	Real Time PCR RT PCR Sequencing	0	4
NORTH MACEDONIA (REP. OF)	2025-08-07	Real Time PCR RT PCR Sequencing	0	16
MALTA	2025-06-25	Real Time PCR	0	12
MALTA	2025-09-23	Real Time PCR RT PCR	0	30
NIGERIA	2025-08-21	Sequencing	0	3
ROMANIA	2025-04-17	Real Time PCR RT PCR Sequencing	0	2
SENEGAL	2025-05-29	Real Time PCR RT PCR Sequencing	0	11
SLOVENIA	2025-05-29	Real Time PCR RT PCR Sequencing Isolation	0	1
SLOVENIA	2025-03-18	Real Time PCR	0	1
TOGO	2025-06-06	Real Time PCR RT PCR Sequencing	0	17
MALTA	2025-10-08	Real Time PCR RT PCR Sequencing	0	15

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
AZERBAIJAN	Documented the diagnostic methods available for the detection of Newcastle Disease and Avian Influenza in vaccinated poultry (December)	Remote assistance (email)
BRAZIL	Provided an opinion on the similarity of the shared NDV sequence to the RL reference NDV sequences database (January)	Remote assistance (email)
CYPRUS	Provided diagnostic support for the detection of ND during a ND outbreak in wild pigeons (September)	Remote assistance (email)
IRELAND	Compared the performance of diagnostic protocols for detecting APMV-1 (January, February)	Remote assistance (email)
LUXEMBOURG	Advised on selection and performance of RNA extraction kits for AI and ND diagnostics (October)	Remote assistance (email)
POLAND	Responded to the question regarding the diagnostic methods required for ND and AI official pathotype recognition (February and December)	Remote assistance (Mattermost and email)
SWEDEN	Provided overview of the national vaccination programmes against NDV in Italy (February) Addressed questions on MinION applications for AIV and NDV whole-genome sequencing.(March)	Remote assistance (email)
SERBIA	Explained ND and AI pathotype recognition under EU regulations and	Remote assistance (email)

	diagnostic approaches for NDV surveillance (June)	
SWITZERLAND	Provided information on outbreaks of ND in commercial chickens in other European Union countries (February)	Remote assistance (email)
BULGARIA GHANA KOSOVO LIBERIA MALTA NORTH MACEDONIA (REP. OF) POLAND SLOVENIA TOGO	Provided diagnostic support and genetic reports	Remote assistance (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
Memorandum of Understanding	2022-2027	Collaborative studies and implementation of projects on animal health, zoonotic diseases and food safety	The National Research Center for Tropical and Transboundary Diseases - Libya	LIBYA
LIDISKI Project: Improving the livelihoods of smallholder livestock farmers in Nigeria https://www.lidiski.org/ https://www.cirad.fr/en/cirad-news/news/2025/animal-health-nigeria-lidiski-recognized-by-fao	Duration of the project (2020-2024)	Improving surveillance and control of Peste des petits ruminants (PPR) and Newcastle Disease (ND), the two main diseases affecting the livestock of smallholder farmers in North of Nigeria	1. Centre de coopération Internationale en Recherche Agronomique pour le Développement – CIRAD (France), 2. Istituto Zooprofilattico Sperimentale delle Venezie (IZSVe) (Italy), 3. Ikore (Nigeria) 4. National Veterinary Institute (Nigeria), National Agricultural Extension and Research Liaison Services -NAERLS (Nigeria), 5. The Federal Ministry of Agriculture and Rural Development – FMARD (Nigeria), 6. International Livestock Research Institute – ILRI (Kenya), 7. WOAH-World Organisation for Animal Health	FRANCE ITALY KENYA NIGERIA
EVA-AISBL. Association Internationale Sans But Lucratif, a structural asset of European and international virological res earch https://www.european-virus-archive.com/	from 2025	Research infrastructure worldwide dedicated to the collection, characterization, production and distribution of reference viral resources to support virology research	CSIRO (Australia); ANSES, CIRAD and the Institute Pasteur (France); the Friedrich-Loeffler-Institute (Germany); Erasmus MC (The Netherlands)	AUSTRALIA FRANCE GERMANY THE NETHERLANDS
FAO – IZSVE Letter of Agreement PO 377056	2025-2026	Laboratory Services on AI and ND, including training, proficiency testing, support of regional networks, provision of expertise, confirmatory diagnosis in support of beneficiary countries	FAO - The Food and Agriculture Organization of the United Nations	BURKINA FASO ETHIOPIA GHANA KAZAKHSTAN SIERRA LEONE TANZANIA ZAMBIA

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

No

TOR6: EPIZOOLOGICAL DATA

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

Yes

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

1. Collection and analysis of the information generated by surveillance in domestic and wild birds in Italy
2. Collection and analysis of the information generated by surveillance in rural poultry in Nigeria
3. Collection and analysis of the information generated by genetic surveillance in poultry in the EU

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:

National Information Systems: regular reporting of epidemiological data to the Ministry of Health and the European Commission.
Reporting results of molecular, epidemiological and diagnostic analyses to EU NRLs by email and/or through Mattermost, a flexible, open source platform that enables secure team collaboration and enhances an active collaboration between veterinary/public health laboratories and scientists from the EU. This allows rapid dissemination of Newcastle disease updates when possible.

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:

1

1. Franzo G, Fusaro A, Snoeck CJ, Dodovski A, Van Borm S, Steensels M, Christodoulou V, Onita I, Burlacu R, Sánchez AS, Chvala IA, Torchetti MK, Shittu I, Olabode M, Pastori A, Schivo A, Salomoni A, Maniero S, Zambon I, Bonfante F, Monne I, Cecchinato M, Bortolami A. (2025) Evaluation of Different Machine Learning Approaches to Predict Antigenic Distance Among Newcastle Disease Virus (NDV) Strains. Viruses. 2025 Apr 14;17(4):567. doi: 10.3390/v17040567. PMID: 40285009; PMCID: PMC12031050.

b) International conferences:

1

1. Fortin, A., Bortolami, A., Puggioni, G., Varotto, M., Terregino, C., & Panzarin, V. (2025). Restoration of the inclusivity of an APMV-1 screening qRT-PCR assay upon the first detection of a pigeon strain of genotype VI 1.2.1.2 in Italy. Poster Section, pag. 174. SVV2025 – 13th International Congress for Veterinary Virology, Portorož, Slovenia, 2–5 September 2025.

c) National conferences:

0

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

9

EURL team at IZSVe (n° 2 presentations on ND): Presentations from the "31st Annual Meeting of the National Reference Laboratories for Avian Influenza and Newcastle Disease of European Union Member States" (16-17 October 2025) organised by the EURL for Avian influenza and Newcastle disease
https://www.izsvenezie.com/reference-laboratories/avian-influenza-newcastle-disease/workshops/

Participation as invited speaker (1):
1. Meeting of the European Commission: EU VETERINARY EMERGENCY TEAM (EUVET) MISSION on Newcastle disease. 10-13/02/2025 Warsaw, Poland

National Training courses organised by IZSVe (2 courses, 2 presentations on ND)
1. Updates on avian influenza addressed to the diagnostic laboratories of the national surveillance network (19/12/2025)
https://www.izsvenezie.it/webinar-aggiornamenti-influenza-aviaria-malattia-newcastle/

2. IZSVE's research Activities funded by the Ministry of Health: Projects concluded in 2023 (25/06/2024 - 24/06/2025)

https://www.izsvenezie.it/documenti//formazione/corsi-convegni/2024/2024-FAD-ricerca-corrente-izsve/programma.pdf

Links from IZSVe's website (n°4):
WOAH & FAO activities
https://www.izsvenezie.com/reference-laboratories/avian-influenza-newcastle-disease/woah-fao-activities/

European Union Reference Laboratory (EURL) for Avian Influenza and Newcastle Disease
http://www.izsvenezie.com/reference-laboratories/avian-influenza-and-newcastle-disease/

Diagnostic protocols
https://www.izsvenezie.com/reference-laboratories/avian-influenza-newcastle-disease/diagnostic-protocols/

The European Virus Archive becomes an international association (EVA-AISBL). IZSVe among the partners
https://www.izsvenezie.com/european-virus-archive-international-association/
https://www.european-virus-archive.com/

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 : 0

b) Seminars : 0

c) Hands-on training courses: 1

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
C	SERBIA	1

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
UNI CEI EN ISO/IEC 17025:2018	Accreditation certificate 17025	17025.pdf
UNI CEI EN ISO/IEC 17043:2010	Accreditation certificate 17043	17043.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Detection of antibodies to Newcastle disease virus (NDV) by haemagglutination inhibition test	ACCREDIA – Italian Accreditation System
Isolation and characterization of Newcastle disease viruses using SPF embryonated chicken eggs and haemagglutination inhibition test	ACCREDIA – Italian Accreditation System
APMV-1 virus (Avian Paramyxovirus Type 1) sequence analysis	ACCREDIA – Italian Accreditation System
Detection of APMV-1 virus (Avian Paramyxovirus Type 1) by RT-PCR	ACCREDIA – Italian Accreditation System
Detection of APMV-1 virus (Avian Paramyxovirus Type 1) by real time RT-PCR	ACCREDIA – Italian Accreditation System
Proficiency testing provider	ACCREDIA – Italian Accreditation System

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

Yes

The RL implements biorisk management measures to prevent disease among personnel and safeguard the community from potentially infectious pathogens. Special emphasis is placed on the safe transport of infectious substances in accordance with IATA guidelines and the UN classification system.Agents (pathogenic or infectious organisms, including Newcastle disease viruses) posing moderate hazards to personnel and the environment are handled under BSL-2 conditions. Since 2013, IZSVe has

maintained a Biosafety Committee, with the Head of the RL as a permanent member, responsible for: - Assessing safety risks for personnel and the environment associated with BSL-3 activities involving microorganisms, animals, and Genetically Modified Microorganisms (GMOs); - Evaluating emergency procedures; Reviewing all management and operational procedures within BSL-3 laboratories and animal facilities, including potential biosecurity concerns. All Standard Operative Procedures (SOPs) and handling of pathogens are pathogen handling are conducted in accordance with the WHO Laboratory Biosafety Manual (4th Ed.). BSL-3 laboratory and animal facility operations follow the WHO Laboratory Biosafety Manual (4th Ed.). Biocontainment is ensured through regular maintenance, annual activity suspension for equipment and premises decontamination, and strict access control via self-closing, lockable doors positioned away from general corridors, as part of internal biosecurity protocols.

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?

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS
Newcastle disease Alert/ Newcastle disease Diagnostic support	Regular exchange of results of molecular, epidemiological and diagnostic analyses by email and/or through Mattermost, a flexible, open source platform that enables active collaboration with the other European Laboratories	27	1. Friedrich Loeffler Institute, Federal Research Institute for Animal Health (Germany)

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?

Yes

Purpose of the proficiency test:	Role of your Reference Laboratory (organiser/ participant)	No. participating Laboratories	Participating WOAH Ref. Labs/ organising WOAH Ref Lab
European Proficiency Test on Avian influenza and Newcastle disease Serological, Virological and Molecular tests (2025) https://www.izsvenezie.com/reference-laboratories/avianinfluenza- newcastle-disease/proficiency-testing/	Organiser	Forty (40) laboratories: twenty-six (26) EU National reference Laboratories (NRLs) and twelve (14) Non-EU NRLs (including four (4) from EFTA countries)	• Friedrich Loeffler Institute, Federal Research Institute for Animal Health Institute of Diagnostic Virology (Germany); • Animal and Plant Health Agency Weybridge (UK) • (detailed Information and Final coded report available at the IZSVe)
European Proficiency Test on Avian influenza and Newcastle disease Serological, Virological and Molecular tests (2024) https://www.izsvenezie.com/reference-laboratories/avianinfluenza-newcastle-disease/proficiency-testing/	Organiser	Thirty-nine (39) laboratories : twenty-six (26) EU National reference Laboratories (NRLs) and twelve (13) Non-EU NRLs (including four (3) from EFTA countries)	• Friedrich Loeffler Institute, Federal Research Institute for Animal Health Institute of Diagnostic Virology (Germany); • Animal and Plant Health Agency Weybridge (UK) (Detailed Information and Final coded report available at the IZSVe)
APHA Proficiency Test on Newcastle disease: Molecular, Serological and Virological tests (2025)	Participant	Information provided by the organiser	The Animal and Plant Health Agency (APHA) Surrey, UK;

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?

Yes

Title of the project or contract	Scope	Name(s) of relevant WOAH Reference Laboratories
Franzo G, Fusaro A, Snoeck CJ, Dodovski A, Van Borm S, Steensels M, Christodoulou V, Onita I, Burlacu R, Sánchez AS, Chvala IA, Torchetti MK, Shittu I, Olabode M, Pastori A, Schivo A, Salomoni A, Maniero S, Zambon I, Bonfante F, Monne I, Cecchinato M, Bortolami A. (2025) Evaluation of Different Machine Learning Approaches to Predict Antigenic Distance Among Newcastle Disease Virus (NDV) Strains. Viruses. 2025 Apr 14;17(4):567. doi: 10.3390/v17040567. PMID: 40285009; PMCID: PMC12031050.	This study explores and compares several machine learning (ML) methods to predict the antigenic distance between NDV strains as determined by hemagglutination-inhibition (HI) assays	1 National Reference Laboratory for Avian Influenza and Newcastle Disease, Federal Centre for Animal Health (FGBI "ARRIAH"), Vladimir 600901, Russia 2 National Veterinary Services Laboratory, USDA, APHIS, Ames, Iowa -usa

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
National Proficiency test for "Virology, serology and molecular biology diagnosis of avian influenza and Newcastle disease" 2025	(organiser)	24	AQUA IN 2025 https://www.izsvenezie.com/activities-services/interlaboratory-proficiency-testing/	ITALY,
National Proficiency test for "Virology, serology and molecular biology diagnosis of avian influenza and Newcastle disease" 2024	(organiser)	21	AQUA IN 2024 https://www.izsvenezie.com/activities-services/interlaboratory-proficiency-testing	ITALY,
Royal GD Animal Health (The Netherlands) 2025	Participant	0	Serological test (Information on participants available from the organiser	

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No