



EURL PROFICIENCY TEST 2024 AVIAN INFLUENZA AND NEWCASTLE DISEASE

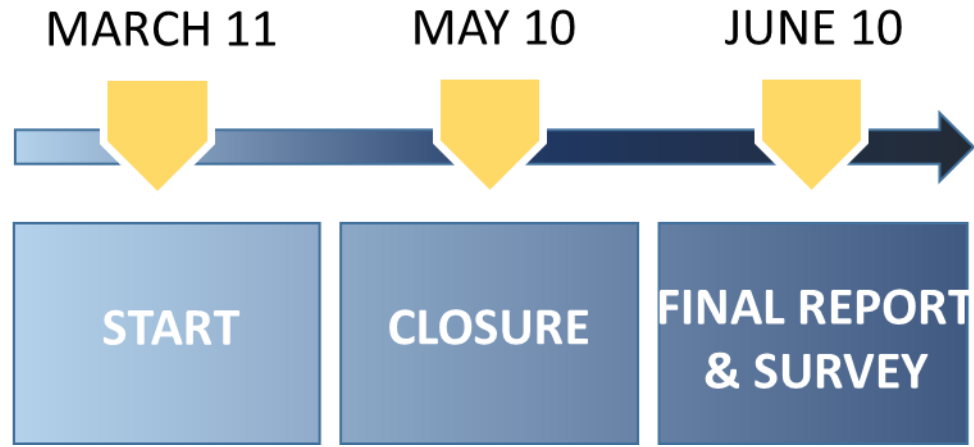
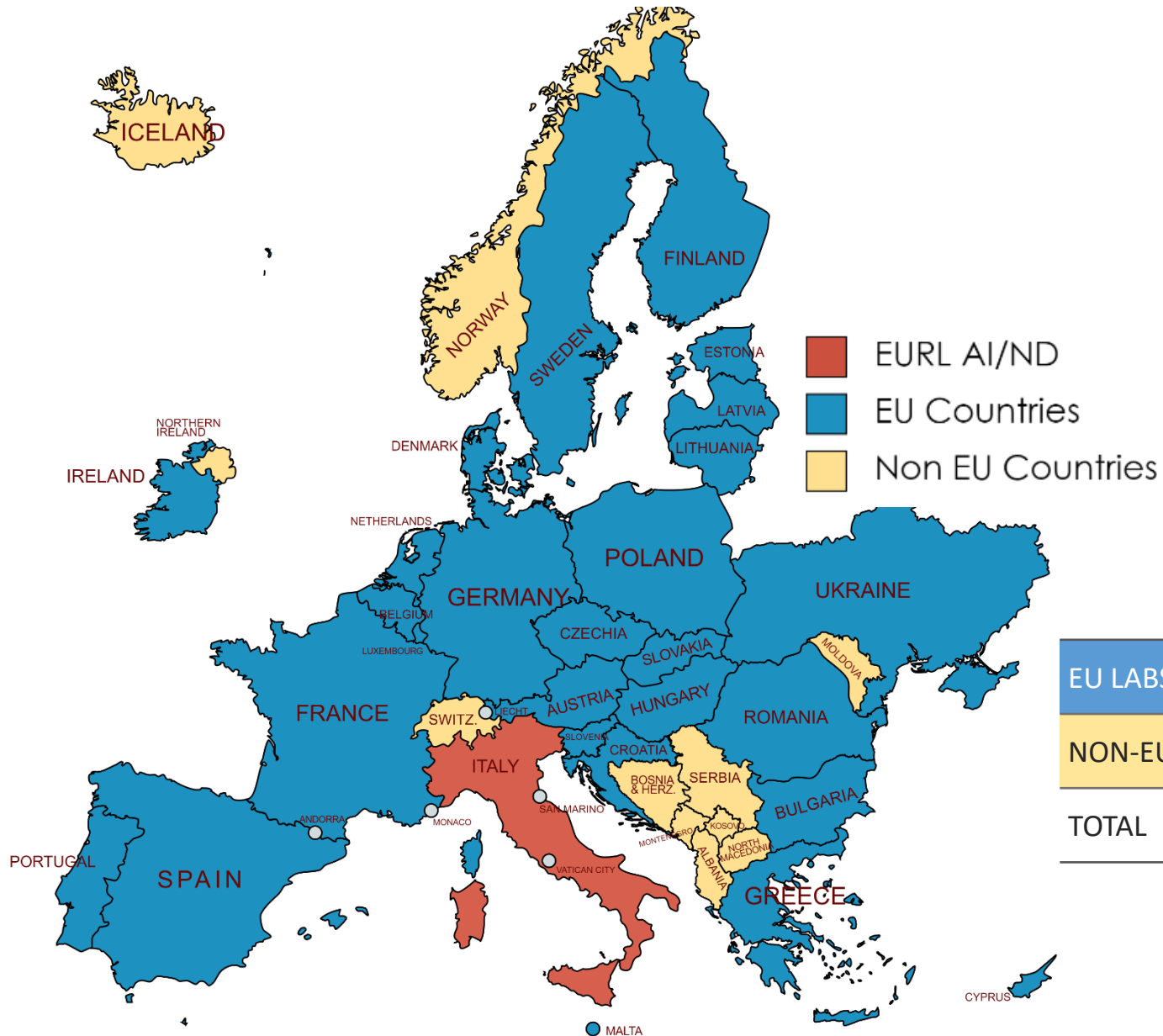


30th Annual Meeting

of the National Reference Laboratories for Avian Influenza
and Newcastle Disease of European Union Member States

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IZSVe-EURL for AI/ND

TIMELINE AND PARTICIPATING LABORATORIES



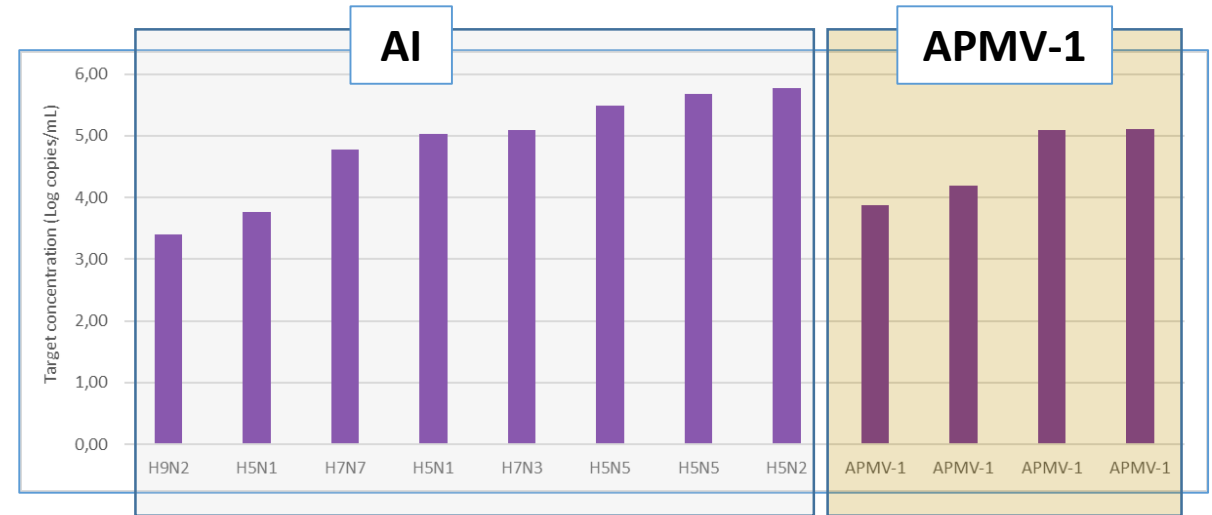
	PT SCHEME		
	VIRUS GENOME DETECTION AI/ND	VIRUS ANTIGEN DETECTION AI/ND	ANTIBODIES DETECTION AI/ND
EU LABS	25	24	25
NON-EU LABS*	13	8	10
TOTAL	38	32	35

* Including EFTA laboratories

PANEL COMPOSITION AND ASSESSABLE PARAMETERS

- **13 Samples including:**
8 AI POSITIVES
4 APMV-1 POSITIVES
1 AI/APMV-1 NEGATIVE

Parameter
[01] AIV (M/NP)
[02] AIV-H5
[05] AIV-H7
[15] AIV-H9
[17] AIV-N5
[12] APMV-1



ID	Strain	Type	Pathotype	Lineage/Clade/Genotype	GC/mL
M01	A/pheasant/Italy/22VIR1741-97/2022	H5N2	LPAI	Eurasian	10 ^{5.77}
M13	A/common teal/Italy/20VIR7439-190/2020	H5N5	HPAI	Eurasian, clade 2.3.4.4b	10 ^{5.68}
M06	A/sea eagle/Norway/2022-07-198_22VIR3866-12/2022	H5N5	HPAI	Eurasian, clade 2.3.4.4b	10 ^{5.49}
M10	A/common teal/Italy/21VIR49-88/2021	H7N3	LPAI	Eurasian	10 ^{5.10}
M03	A/chicken/Niger/40-23_23VIR3551-48/2023	H5N1	HPAI	Eurasian, clade 2.3.4.4b	10 ^{5.03}
M02	A/Anas platyrhynchos/Belgium/2988_0002/2021	H7N7	LPAI	Eurasian	10 ^{4.77}
M05	A/turkey/Italy/23VIR1964-19/2023	H5N1	HPAI	Eurasian, clade 2.3.4.4b	10 ^{3.77}
M08	A/teal/Italy/22VIR4622-10/2022	H9N2	LPAI	Y439	10 ^{3.40}
M11	APMV-1/chicken/Poland/H313_23VIR6501-3/2023	APMV-1	Virulent	VII.1.1*	10 ^{5.82}
M07	APMV-1/chicken/Nigeria/HDJ-CK-7-9C_23VIR1455-5/2022	APMV-1	Virulent	XIV.2*	10 ^{5.11}
M12	APMV-1/turtle dove/Spain/763-2/2022	APMV-1	Virulent	XX*	10 ^{4.20}
M09	PPMV-1/pigeon/Italy/22VIR12923-2/2022	APMV-1	Virulent	VI.2.1.1.2.2*	10 ^{3.87}
M04	Negative				

* According to Dimitrov et al., 2019

PANEL COMPOSITION AND ASSESSABLE PARAMETERS

➤ **12 samples including:**
8 AI positives
2 APMV-1 positives
2 AI/APMV-1 negatives

Parameter
◆ [20] Haemagglutinating viruses (HAVs)
■ [21] Avian influenza viruses of H5 subtype
▲ [22] Avian influenza viruses of H7 subtype
✦ [24] Avian influenza viruses of H9 subtype
✧ [23] Avian paramyxoviruses type 1

	ID	Strain	Pathotype	Lineage/Clade/Genotype	EURL HA Titer [^]	Labs HA Titer
H5	V03	H5N3 A/duck/Italy/16VIR123/2016	LPAI	Eurasian	1:128	1:256
	V04	H5N2 A/pheasant/Italy/22VIR1741-97/2022	LPAI	Eurasian	1:64	1:64
	V09	H5N1 A/turkey/Italy/21VIR9117-15/2021	LPAI	Eurasian	1:64	1:64
	V10	H5N1 A/turkey/Italy/21VIR9520-3/2021	HPAI	Eurasian, 2.3.4.4b	1:64	1:128
H7	V05	H7N3 A/chicken/Italy/19VIR5895-30/2019	LPAI	Eurasian	1:128	1:256
	V08	H7N1 A/turkey/Italy/20VIR1969-22/2020	LPAI	Eurasian	1:256	1:512
H9	V02	H9N2 A/duck/Italy/21VIR8691-13/2021	LPAI	Y439	1:128	1:128
APMV-1	V11	AOAV-1/chicken/Spain/2278-54_22VIR7253-24/2022	Virulent	VII.2	1:128	1:128
	V12	PPMV-1/pigeon/Italy/22VIR12923-2/2022	Virulent	VI.2.1.1.2.2	1:128	1:256
OTHER	V01	H6N8 A/mallard/Italy/19VIR6649-35/2019	LPAI		1:128	1:128
AI/APMV-1 Negative	V06	-				
	V07	-				

HAV = Haemagglutinating virus; [^] Mode value of the HA titers obtained during the quality assessment tests and determined as the highest dilution of antigen causing complete agglutination of the RBCs

CROSS HI RESULTS

SERUM	SAMPLE	
	V01 H6N8	V10 H5N1
H5N1 A/chicken/Scotland/1/59	1:4	1:128
H5N3 A/teal/England/7394-2805/06	N	1:32
H5N5 A/wigeon/Italy/16VIR9616-3/2016	N	
H5N6 A/mute swan/England/AVP-18-1986/17	1:8	
H5N8 A/turkey/Italy/7898/2014	1:8	
H7N1 A/African starling/England/983/79	N	N
H7N7 A/turkey/England/647/77	N	N
H6N8 A/turkey/Italy/4776-60/2015	1:32	
H6N2 A/turkey/Canada/65	1:128	

PANEL COMPOSITION AND ASSESSABLE PARAMETERS

- **12 SERA** including:
- 6 AI positive sera
- 3 /APMV-1 positive sera
- 3 AI/APMV-1 negative sera

Parameter
—◆ [30] Antibodies to type A avian influenza viruses
—■ [31] Antibodies to H5 subtype of avian influenza viruses
—▲ [32] Antibodies to H7 subtype of avian influenza viruses
—✦ [34] Antibodies to H9 subtype of avian influenza viruses
—✱ [33] Antibodies to avian paramyxoviruses type 1

	ID	Immunizing antigen	Pathotype	Lineage/Clade/Genotype	HI titer [^]
H5	S03§	H5N1 A/mallard/Italy/22VIR9219-6/2022	HPAI	Eurasian, clade 2.3.4.4b*	1:1024
	S05§				1:128
	S04	H5N1 A/turkey/Italy/21VIR9117-15/2021	LPAI	Eurasian	1:128
H7	S09§	H7N8 A/ <i>Anas platyrhynchos</i> /Belgium/8777_003_22VIR1107-26/2021	LPAI	Eurasian	1:128
	S11§				1:64
H9	S06	H9N2 A/duck/Italy/21VIR8691-13/2021	LPAI	Y439	1:256
APMV-1	S08	NDV VG/GA	Avirulent	I.1.1**	1:256
	S12	AOAV-1/chicken/Spain/2278-54_22VIR7253-24/2022	Virulent	VII.2**	1:256
OTHER	S07	H4N6 A/mallard/Italy/19VIR7018-9/2019	LPAI		1:256
AI/APMV-1 Negative	S01	-			
	S02	-			
	S10	-			

§ Sample pairs S03 and S05 as well as S09 and S11 represent different dilution steps performed with the same stock serum; ^ Against homologous antigen

CROSS HI RESULTS

Haemagglutinating Antigen	EURL HI TITER TO TEST SAMPLE	
	S03 H5N1 (HP)	S05 H5N1 (HP)
H5N1 A/chicken/Scotland/1/59 (HP)	1:32	1:8
H5N3 A/teal/England/7394-2805/06 (LP)	1:16	1:4
H5N1 A/turkey/Italy/21VIR9520-3/2021 (HP)	1:128	1:32
MODE (Participants)	1:64	1:8



HIGHLIGHTS

- Recommended molecular methods were recognized fit for purpose
- The adoption of more than one molecular method in some cases may help to improve the identification of the currently circulating H5 and H7 strains
- For the antigen detection scheme, it is recommended to use more than one H5/H7 serum with different NA subtypes to avoid interpretative errors due to unspecific reactivity for H5/H7 subtypes
- As regard the serological scheme, we recommended the inclusion of recent HPAI H5 antigens in the cross HI tests to possibly avoid failure in the detection of antibodies against such viruses when present in low or relatively low titer serum samples

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**NEXT EDITION
on MARCH
2025**

THANK YOU!