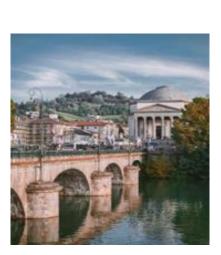
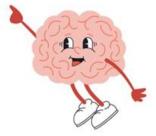
22nd Annual Meeting of the TSE EURL

Turin 12th – 13th May 2025





RAPID TESTS AND CONFIRMATORY IMMUNOBLOT 2024 EQA ROUNDS: RESULTS AND FORTHCOMING 2025 ROUNDS



Maria Mazza IZSPLVA - Turin







PLANNING

Elena Bozzetta - Coordinator

RB24 - RS24

WB24 - WS24

Maria Mazza - Tech. supervisor

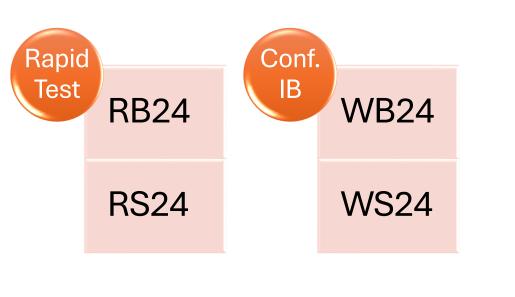
Daniela Loprevite - Technician

Maria Cavarretta - Technician

Francesco Ingravalle - Statistician



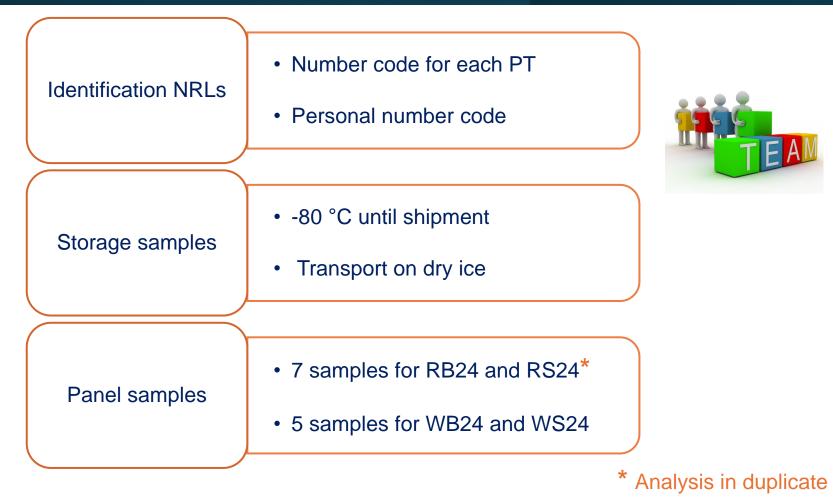
PLANNING







PLANNING







EURL EQA round 2024



Samples preparation

Homogenates of brainstem material from a panel of natural cases confirmed positive and negative for BSE and Scrapie

> The tissue has been homogenised using a 50/50 mix of tissue and distilled water

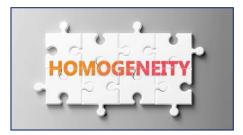


TSE EURL

EURL EQA round 2024 Quality Control





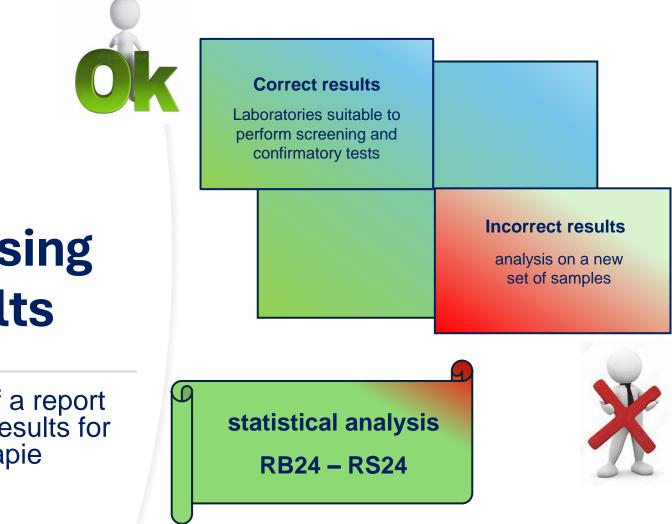


ISO/IEC 17043 Conformity assessment – General requirements for proficiency testing





TSE EURL



Processing of results

Elaboration of a report with the PTs results for BSE and Scrapie round

TSE EURL Istituto Zoop Istituto Supe

2024 round of TSE EURL EQAs: Results feedback



BSE SCREENING TEST RB24





NRLs participating in Proficiency Testing 2024

BSE SCREENING TEST SCHEME RB24

Austria Belgium Bulgaria Croatia Cyprus Czech Republic Estonia Finland



France Germany Greece Hungary Italy Latvia Lithuania Malta Netherlands North Macedonia* Norway Poland

Portugal Romania Slovakia Slovenia Spain Sweden Switzerland United Kingdom*

28 NRLs

*Countries extra UE



Results Tabulation for BSE Screening Test Scheme: RB24

Primary Tests	No. NRLs
TeSeE SAP COMBI (Bio-Rad)	10
HerdChek BSE/Scrapie Ag - short protocol (IDEXX)	9
HerdChek BSE/Scrapie Ag – ultrashort protocol (IDEXX)	8



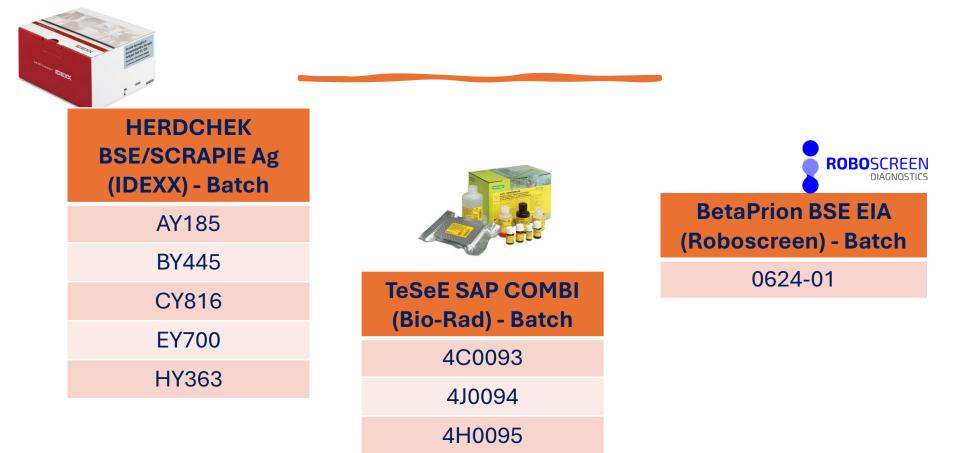
Results Tabulation for BSE Screening Test Scheme: RB24

First alternative Tests	No. NRLs
TeSeE SAP COMBI (Bio-Rad)	3
HerdChek BSE/Scrapie Ag - short protocol (IDEXX)	1

Second alternative Tests	No. NRLs
BetaPrion BSE EIA (Roboscreen)	1
HerdChek BSE/Scrapie Ag - ultrashort protocol (IDEXX)	1



Results Tabulation for BSE Screening Test Scheme: RB24





Sample No	Result
RB2401	TSE negative bovine tissue homogenate
RB2402	Classical positive bovine tissue homogenate (Dilution 1:4)
RB2403	TSE negative bovine tissue homogenate
RB2404	TSE negative bovine tissue homogenate
RB2405	TSE negative bovine tissue homogenate
RB2406	TSE negative bovine tissue homogenate
RB2407	TSE negative bovine tissue homogenate



BSE Screening Test Scheme RB24

ALL THE LABS PASSED THIS PROFICIENCY TESTING AT THE FIRST ROUND





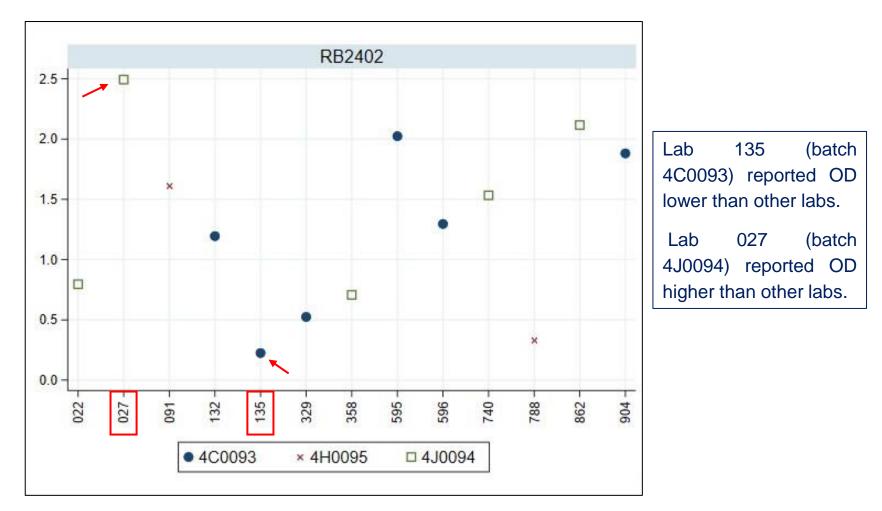
CONGRATULATIONS

Statistical analysis

BSE Screening Test Scheme RB24

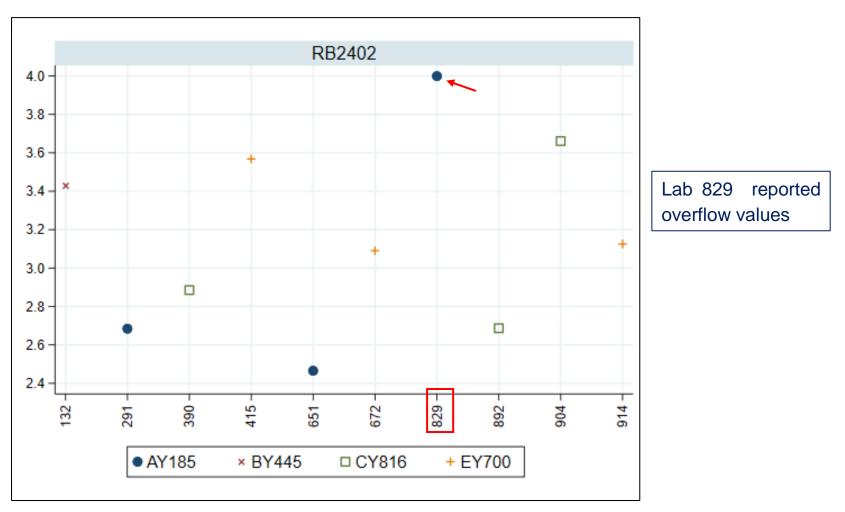


TeSeE SAP COMBI: average ODs of 1st and 2nd run reported from the Labs for each batch applied and positive sample



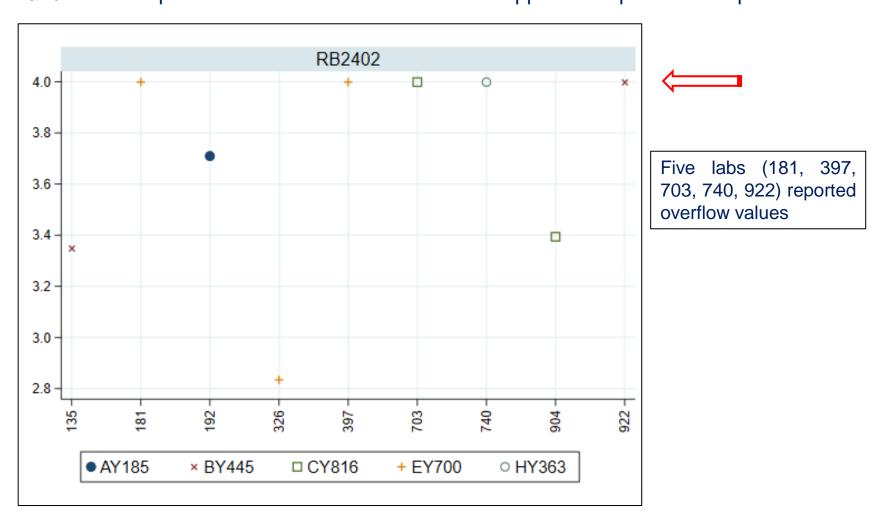


HerdChek BSE-Scrapie Antigen Test-SHORT PROTOCOL: average ODs of 1st and 2nd run reported from the Labs for each batch applied and positive sample





HerdChek BSE-Scrapie Antigen Test-ULTRASHORT PROTOCOL: average ODs of 1st and 2nd run reported from the Labs for each batch applied and positive sample





IN CONCLUSION



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TESEE SAP COMBI

It was the most used test in routine: 37% (10/27) of the laboratories applied TeSeE SAP COMBI test in routine.

Three labs applied this test as alternative test.

No statistically significant differences in ODs between participants or batches for sample RB2402.





IN CONCLUSION

IDEXX HerdChek BSE-Scrapie Antigen Test- SHORT PROTOCOL

- It was the second most used test in routine: 33% (9/27) of the laboratories applied IDEXX HerdChek BSE-Scrapie Antigen Test- SHORT PROTOCOL test in routine.
- One lab applied this test as alternative test.
- No statistically significant differences between participants for the positive sample.
- No statistically significant differences between batches for the positive sample.





IN CONCLUSION

IDEXX HerdChek BSE-Scrapie Antigen Test- ULTRASHORT PROTOCOL

- It was the last test used in routine: 30% (8/27) of the laboratories applied IDEXX HerdChek BSE-Scrapie Antigen Test- ULTRASHORT PROTOCOL test in routine.
- Only one lab applied this test as alternative test.
- No statistically significant differences between participants for the positive sample.
- No statistically significant differences between batches for the positive sample.



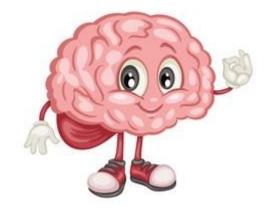
IN CONCLUSION

BETAPRION BSE EIA TEST KIT

Only one participant used this test as alternative test.

No statistical evaluation can be performed.





IN CONCLUSION

Qualitative results (-, +, ++, +++)

- The **general reproducibility** (inter-rater agreement) of the dichotomous results (negative/positive) obtained by laboratories with routine tests is perfect: Cohen's kappa is 1.
- The reproducibility for categorical results (-, +, ++, +++) is very good, excellent: Cohen's kappa is 0.9121 (95%CI: 0.8794 0.9448).



2024 round of TSE EURL EQAs: Results feedback

SCRAPIE SCREENING TEST SCHEME RS24





NRLs participating in Proficiency Testing 2024

SCRAPIE SCREENING TEST SCHEME RS24

Austria Belgium Bulgaria Croatia Cyprus Czech Republic Estonia Finland



France Li Germany M Greece No Hungary No Iceland No Italy Po Latvia

Lithuania Malta Netherlands North Macedonia* Norway Poland Portugal Romania Slovakia Slovenia Spain Sweden Switzerland United Kingdom*

29 NRLs

*Countries extra UE



Sample No	Result
RS2401	TSE negative ovine tissue homogenate
RS2402	TSE negative ovine tissue homogenate
RS2403	TSE negative ovine tissue homogenate
RS2404	Classical Scrapie ovine tissue homogenate (Dilution 1:10)
RS2405	TSE negative ovine tissue homogenate
RS2406	Classical Scrapie caprine tissue homogenate (Dilution 1:4)
RS2407	TSE negative ovine tissue homogenate



Results Tabulation for Scrapie Screening Test Scheme: RS24

Primary Tests	No. NRLs
TeSeE SAP COMBI (Bio-Rad)	11
HerdChek BSE/Scrapie Ag - short protocol (IDEXX)	11
HerdChek BSE/Scrapie Ag – ultrashort protocol (IDEXX)	6



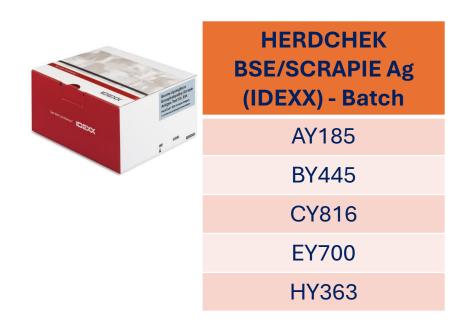
Results Tabulation for Scrapie Screening Test Scheme: RS24

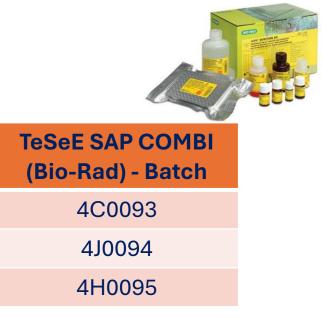
First alternative Tests	No. NRLs
TeSeE SAP COMBI (Bio-Rad)	3
HerdChek BSE/Scrapie Ag - short protocol (IDEXX)	1

Second alternative Tests	No. NRLs
HerdChek BSE/Scrapie Ag - ultrashort protocol (IDEXX)	1

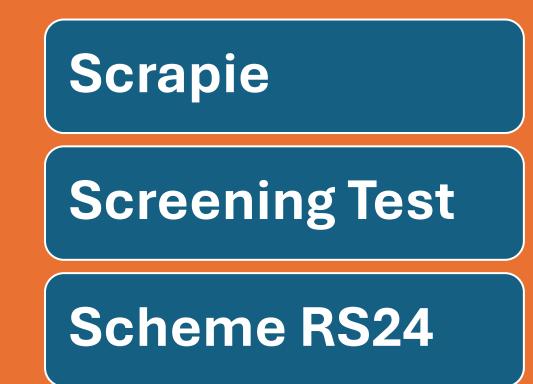


Results Tabulation for Scrapie Screening Test Scheme: RS24









ALL THE LABS PASSED THIS PROFICIENCY TESTING AT THE FIRST ROUND

Well done!!!



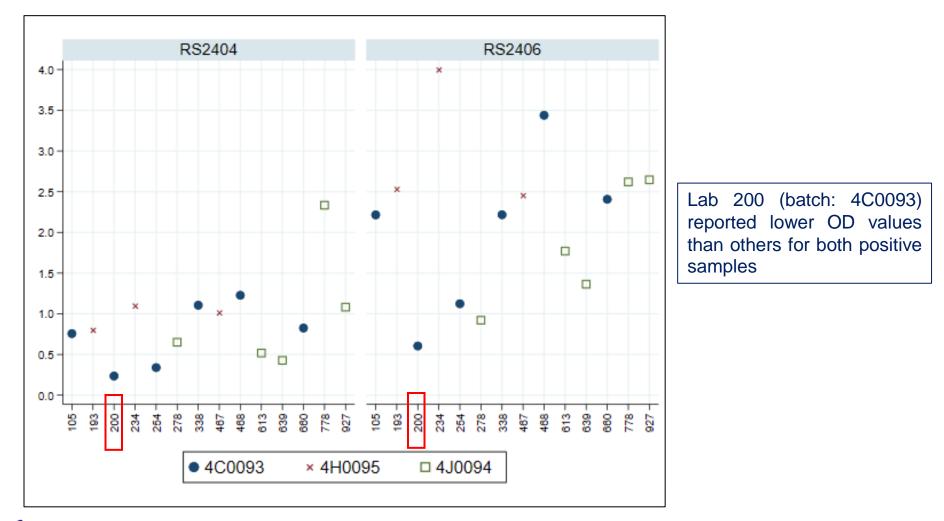


SCRAPIE Screening Test Scheme RS24

Statistical analysis

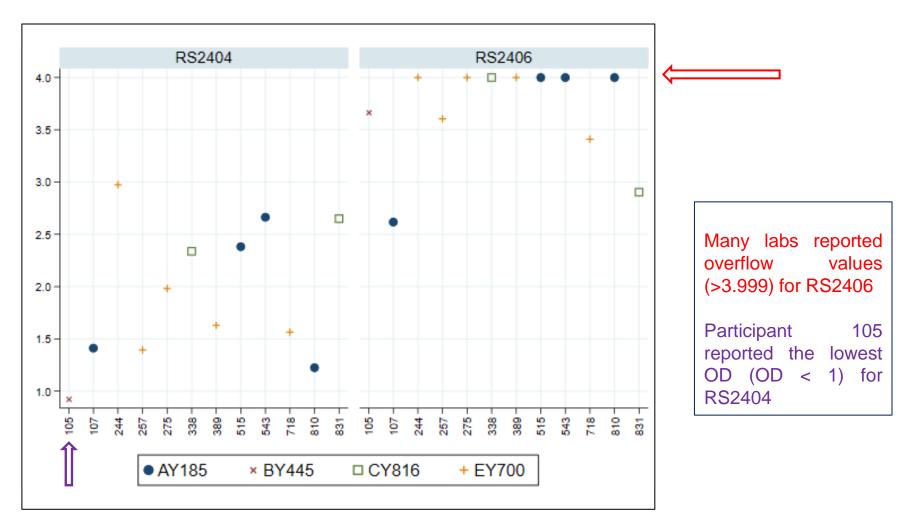


TeSeE SAP COMBI: average ODs of 1st and 2nd run reported from the Labs for each batch applied and positive sample



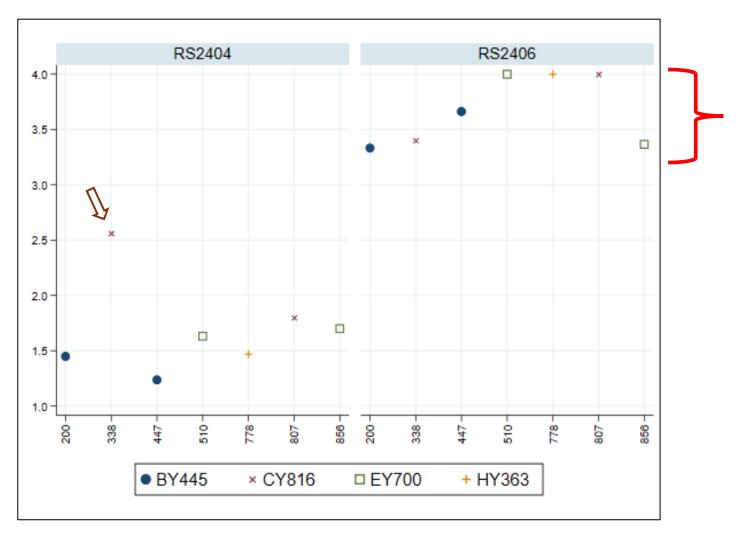


HerdChek BSE-Scrapie Antigen Test-SHORT PROTOCOL: average ODs of 1st and 2nd run reported from the Labs for each batch applied and positive sample





HerdChek BSE-Scrapie Antigen Test - ULTRASHORT PROTOCOL: average ODs of 1st and 2nd run reported from the Labs for each batch applied and positive sample





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IN CONCLUSION

TeSeE SAP COMBI

- It was the test first most used in routine: 39% (11/28) of the laboratories applied this test in routine.
- Three labs applied this test as alternative test.
- No statistically significant differences between participants and batches for both positive samples (RS2404, RS2406).



IN CONCLUSION

IDEXX HerdChek BSE-Scrapie Antigen Test- SHORT PROTOCOL

- It was the first test most used in routine: 39% (11/28) of the laboratories applied this test in routine.
- One lab applied this test as alternative test.
- No statistically significant differences between participants for both positive samples (RS2404, RS2406).
- No statistically significant differences between batches for RS2404 and RS2406 samples.



SCRAPIE SCREENING TEST - SCHEME RS24

IN CONCLUSION

IDEXX HERDCHEK BSE-SCRAPIE ANTIGEN TEST-ULTRASHORT PROTOCOL

• Six laboratories, 21% (6/28) of participants, applied it in routine.

• One lab applied this test as alternative test.

• No statistically significant differences between participants among participants (RS2404, RS2406).

 No statistically significant differences between batches for both positive samples (RS2404, RS2406).



SCRAPIE SCREENING TEST - SCHEME RS24

IN CONCLUSION

Qualitative results (-, +, ++, +++)

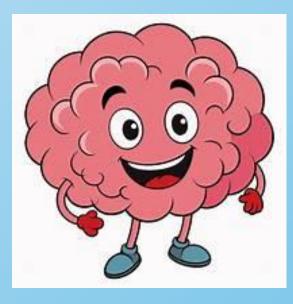
- The **general reproducibility** (inter-rater agreement) of the dichotomous results (negative/positive) obtained by laboratories with routine tests is perfect: **Cohen's kappa is 1**.
- The reproducibility for categorical results (-, +, ++, +++) is very good: Cohen's kappa is 0.9006 (95%CI: 0.8060 - 0.9952).
- A slight increase of the level of the reproducibility from the previous PT: in 2023 it was substantial, fair to good (Cohen's kappa was 0.8088 (95%CI: 0.6115 - 1.0000).





22nd Annual Meeting of the TSE EURL Turin 12th – 13th May 2025

BSE CONFIRMATORY IMMUNOBLOT SCHEME WB24





NRLs participating in Proficiency Testing 2024

BSE CONFIRMATORY IMMUNOBLOT SCHEME WB24

Austria Belgium Bulgaria Croatia Czech Republic Finland



Romania Slovakia Spain Sweden Switzerland United Kingdom

France Germany Greece Hungary Ireland Italy Netherlands Norway Poland Portugal

22 NRLs including United Kingdom



BSE CONFIRMATORY IMMUNOBLOT SCHEME WB24

Sample No	Result
WB2401	negative bovine tissue homogenate
WB2402	negative bovine tissue homogenate
WB2403	C-positive bovine tissue homogenate
WB2404	negative bovine tissue homogenate



Results Tabulation for BSE Confirmatory Immunoblotting Scheme WB24

Primary Tests	No. NRLs
TeSeE Western Blot - Bio-Rad	20
In house SAF method	1
OIE SAF immunoblot	1

Lab 792 used 1st alternative test – TeSeE WB (Bio-Rad)



Results Tabulation for BSE Confirmatory Immunoblotting Scheme WB24

TeSeE Western Blot Bio-Rad used four bachtes3J0053 (7 labs)4J0055 (6 labs)3M0054 (4 labs)3G0129 (1 lab)

No information from 092 and 748 labs

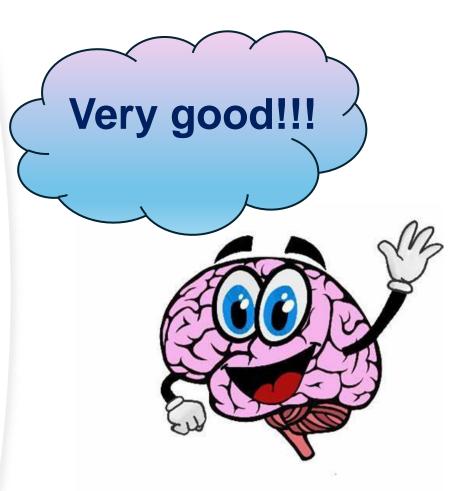




BSE Confirmatory Immunoblotting Scheme WB24

ALL THE LABS PASSED THIS PROFICIENCY TESTING AT THE FIRST ROUND



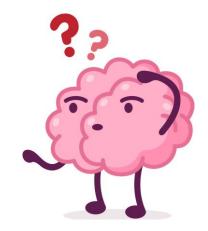




BSE Confirmatory

Immunoblotting –

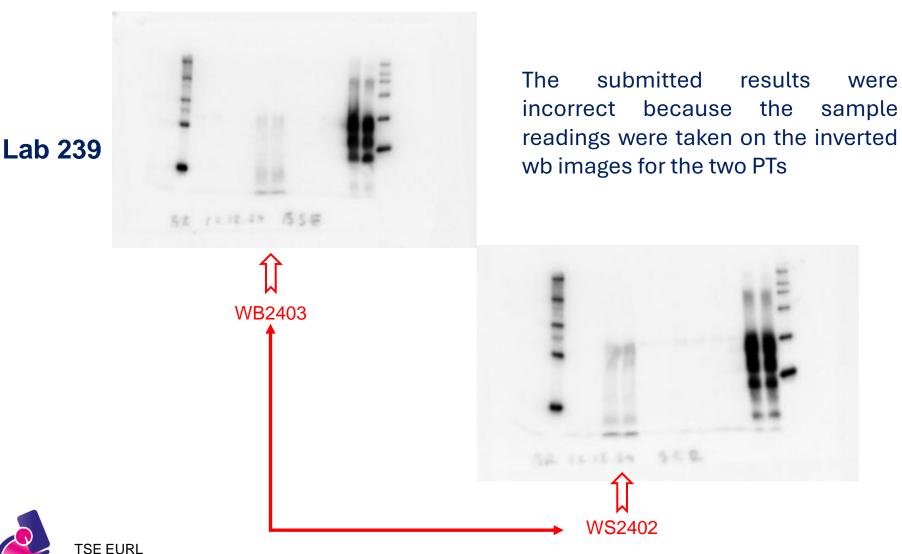
Scheme WB24



Sample No	Result	Lab 239	Lab 633
WB2401	negative bovine tissue homogenate	negative	positive
WB2402	negative bovine tissue homogenate	positive	negative
WB2403	C-positive bovine tissue homogenate	negative	positive
WB2404	negative bovine tissue homogenate	negative	negative
WB2405	negative bovine tissue homogenate	negative	negative



BSE Confirmatory Immunoblotting – Scheme WB24



BSE Confirmatory Immunoblotting – Scheme WB24



Lab 633

PrP^{Sc} weak signals for sample WB2403 but no signals present in this image for sample WB2401

problems linked to the image analyzer

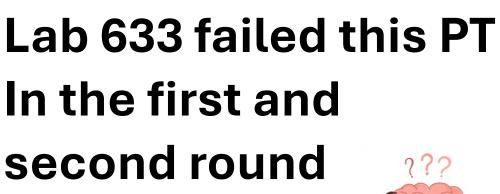




BSE Confirmatory Immunoblotting – Scheme WB24



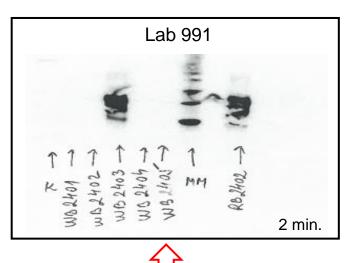
Lab 239 passed the second round

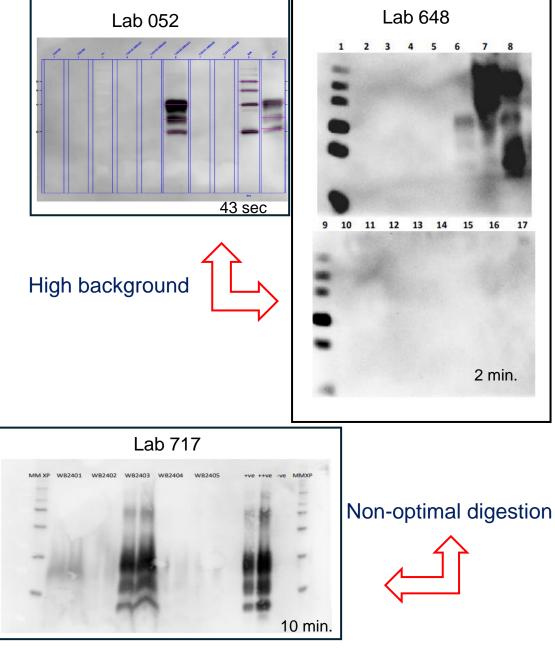




BSE Confirmatory Immunoblotting – Scheme WB24

Blot quality





- Non-optimal blotting

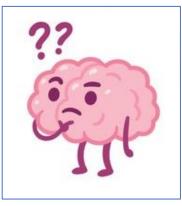
- Non-optimal blot coverage with antibodies or chem. sub



- Lab 450 submitted the results after the deadline and so it is not included in this report.
- Lab 605 entered the incorrect ID code instead of the correct code 196.
- Lab 052 did not provide information on the gel used for this PT.
- Labs 092 and 748 did not report any information on the kit and gel used for this PT.
- Lab 117 did not use any control sample for the analysis.

BSE Confirmatory Immunoblotting Scheme WB24

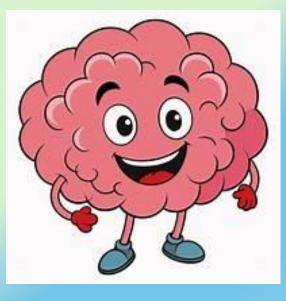






22nd Annual Meeting of the TSE EURL Turin 12th – 13th May 2025

SCRAPIE CONFIRMATORY IMMUNOBLOT SCHEME WS24





NRLs participating in Proficiency Testing 2024

SCRAPIE CONFIRMATORY IMMUNOBLOT SCHEME WS24

Austria Belgium Bulgaria Croatia Czech Republic Finland



France Germany Greece Hungary Iceland Ireland Italy Netherlands Norway Poland Portugal Romania Slovakia Spain Sweden Switzerland United Kingdom

23 NRLs including United Kingdom





SCRAPIE CONFIRMATORY IMMUNOBLOTTING SCHEME WS24

Sample No	Result
WS2401	negative ovine tissue homogenate
WS2402	C-Scrapie ovine tissue homogenate
WS2403	negative ovine tissue homogenate
WS2404	negative ovine tissue homogenate
WS2405	negative ovine tissue homogenate



Results Tabulation for Scrapie Confirmatory Immunoblotting Scheme: WS24

Primary Tests	No. NRLs
TeSeE Western Blot - Bio-Rad	20
In house SAF method	1
OIE SAF immunoblot	1
APHA Bio-Rad TeSeE-based Hybrid Western Blot Method	1

Lab 274 used 1st alternative test – TeSeE WB (Bio-Rad)



Results Tabulation for Scrapie Confirmatory Immunoblotting Scheme WS24

TeSeE Western Blot Bio-Rad used four bachtes3J0053 (7 labs)4J0055 (7 labs)3M0054 (3 labs)2K0047 (1 lab)

No information from 454 and 674 labs



Scrapie Confirmatory Immunoblotting Scheme WS24



ALL THE LABS PASSED THIS PROFICIENCY TESTING AT THE FIRST ROUND

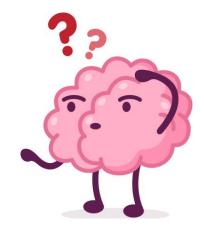


EXCEPT.....



SCRAPIE Confirmatory

Immunoblotting – Scheme WS24

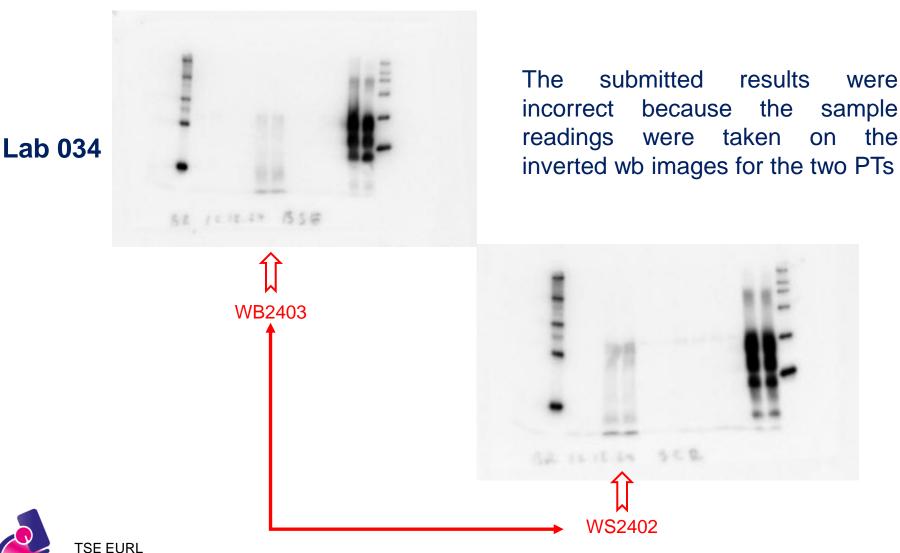


Labs 034 and 509 – incorrect results

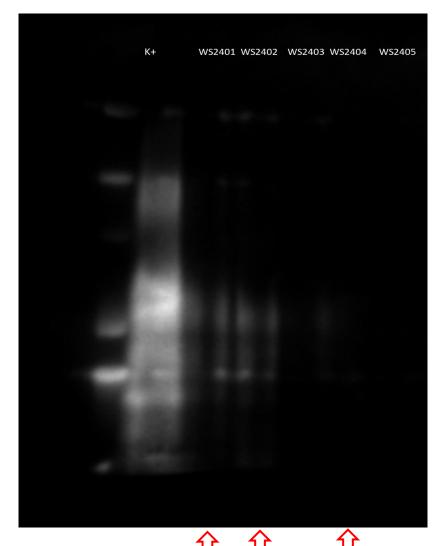
Sample No	Result	Lab 034	Lab 509
WS2401	negative ovine tissue homogenate	negative	positive
WS2402	C-Scrapie ovine tissue homogenate	negative	positive
WS2403	negative ovine tissue homogenate	positive	negative
WS2404	negative bovine tissue homogenate	negative	positive
WS2405	negative bovine tissue homogenate	negative	negative



Scrapie Confirmatory Immunoblotting – Scheme WS24



Scrapie Confirmatory Immunoblotting – Scheme WS24



Lab 509

Possible diffusion of the positive control into the two neighbouring wells corresponding to samples WS2401 and WS2402.

No PrP^{Sc} signals are present in the WS2404 sample interpreted as positive.





Scrapie Confirmatory Immunoblotting – Scheme WS24



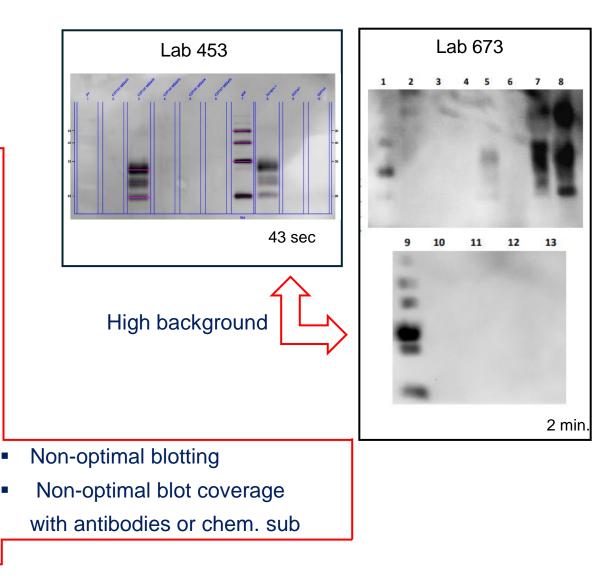
WELL DONE!!!

Labs 034 and 509 failed the first round but they passed the second round

BSE Confirmatory Immunoblotting – Scheme WS24

Blot quality







Critical issues



- Lab 414 submitted the results after the deadline, so they are not included in this report.
- Lab 164 entered the incorrect ID code instead of the correct code 251.
- Labs 674 and 454 did not provide any information on the kit and gel used for this PT.
- Lab 453 did not report any information on the gel used for this PT.
- Lab 504 did not use any control sample for the analysis.

Scrapie Confirmatory Immunoblotting – Scheme WS24



The forthcoming EQA 2025 rounds

Rapid tests and confirmatory immunoblotting for BSE and Scrapie



The shipment of the samples is scheduled by half July 2025



RB, RS, WB and WS will be sent all at once



The samples will be packed with dry-ice and the shipment will be scheduled at the beginning of the week



E-mail to communicate the shipment





PTs results

The results of the PTs round 2025 will be reported at the next TSE EURL Meeting





The forthcoming EQA 2025 rounds Rapid tests and confirmatory immunoblotting for BSE and Scrapie

- The results will be submitted by EURL web site
- Report the correct ID code associated with the laboratory reference person
- > The submission of results is expected by the deadline
- > The results submitted after the deadline will not be evaluated
- Please include in the submission the raw data (pictures of the blots, readings, time exposure of pictures) and all the information about the kit batches used for the analysis
- Report any information considered important for the correct interpretation of the results



TSF FURI



The forthcoming EQA 2025 rounds Rapid tests and confirmatory immunoblotting for BSE and Scrapie

SUBMISSION RESULTS ON WEB SITE

Upload results for each applied test to the Eurl website

➢ Fill in all fields correctly

Always indicate if the test used by the laboratory is the one

routinely applied or as a first or second alternative test



TSE EURI



Thank you!!!

- > Elena Bozzetta
 > Francesco Ingravalle
 > Maria Cavarretta
 > Deniale Legravite
- Daniela Loprevite



Grazie!!!

Thank you for your attention!!!

