The Polish trichinellosis surveillance system

Weronika Korpysa-Dzirba
Ewa Bilska-Zając
Aneta Bełcik



PIWet-PIB Puławy

Structure of Laboratories Testing Meat for *Trichinella* in Poland

ALL TRICHINELLA TESTING LABORATORIES IN POLAND

Laboratories designated by Chief Veterinary Inspector

✓ Testing: meat intended for commercial distribution & own private consumption

Accredited laboratories

Compliant with PN-EN ISO/IEC 17025 standard requirements

ISO/IEC 17025

Non-accredited laboratories

Operates with an equivalent quality management system

Equivalent QMS

Laboratories not designated by Chief Veterinary Inspector

△ Testing: meat intended ONLY for own private consumption

Non-accredited laboratories

With management system limited strictly to the necessary minimum required for private testing.

Minimum Quality Management System

PIWet–PIB NRL

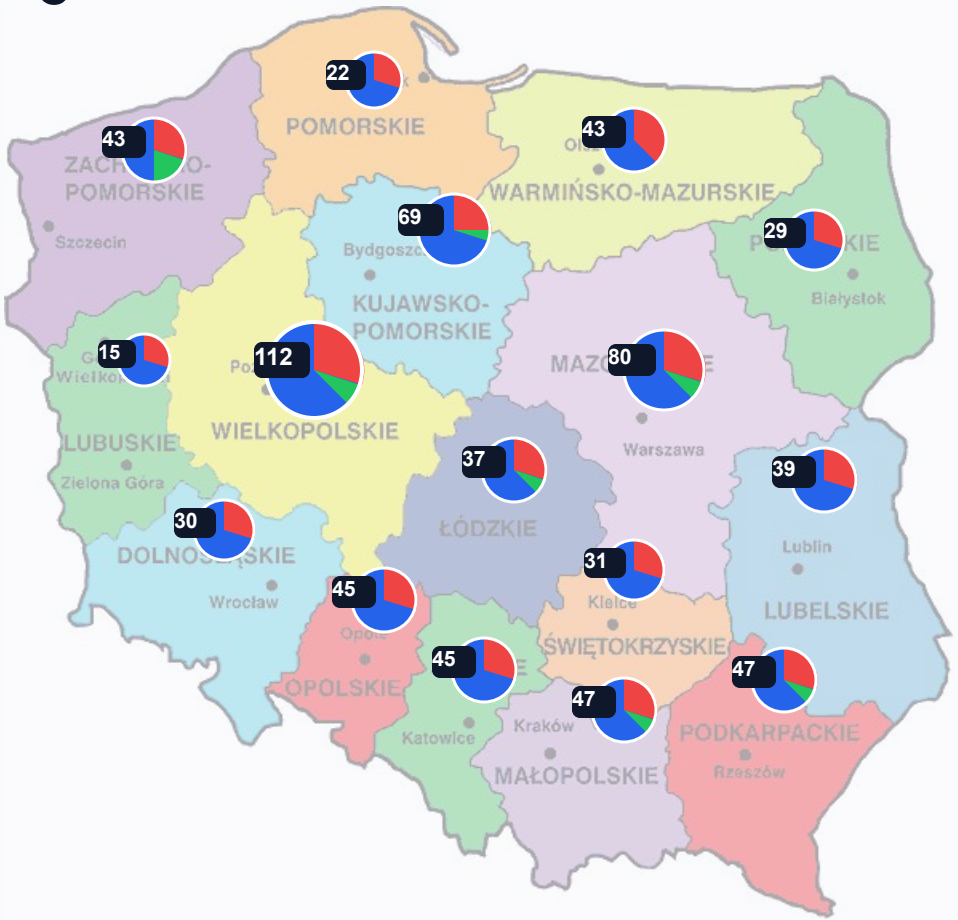
Number of Laboratories Testing Meat for *Trichinella* in Poland

NRL for *Trichinella* Tasks

- Organization of PT testing (~700 laboratories)
- Laboratory inspections
- Training for veterinarians
- Cooperation with EURL, CVI and Min. of Agriculture

Laboratory Status Legend

- accredited
- not accredited (tests under ZHW supervision)
- laboratories not designated by CVI
- (empty) – no laboratories



16 regional coordinators

over 700 laboratories

approx. 3,000 trained veterinarians

approx. 20 million pigs tested annually

200–300 thousand wild boar tested annually

PIWet–PIB PT TESTS

Organization of Proficiency Testing (PT) by NRL in Poland

Standard & Regulatory Framework

Interlaboratory Proficiency Testing organized by NRL is based on guidelines in standard **PN-EN ISO/IEC 17043** (Conformity assessment – General requirements for proficiency testing).

Regional Coordination Structure

In each voivodeship, a designated **REGIONAL COORDINATOR** appointed by the Voivodeship Veterinary Officer operates, collaborating directly with the National Reference Laboratory (NRL).

Annual Participant Registration:

At the beginning of each year, **REGIONAL COORDINATORS** submit the number of participating laboratories from their voivodeship to take part in PT rounds.

Regional Coordination Coverage (Poland)



1 PARTICIPANT = 1 LABORATORY

PIWet–PIB PT TESTS

Organization of Proficiency Testing (PT) by NRL in Poland

Mandatory Participation Cycle

Due to the high number of laboratories testing meat for *Trichinella* (over 700), participation in Proficiency Testing (PT) is required **once every two years**. The NRL organizes PT schemes annually, covering **50% of Polish voivodeships** per year.

YEAR 1 (e.g., 2025)

Group A Voivodeships

8

Voivodeships Participating

~350 Laboratories (50%)

YEAR 2 (e.g., 2026)

Group B Voivodeships

8

Remaining Voivodeships

~350 Laboratories (50%)

100% REGIONAL COVERAGE ACHIEVED EVERY 2-YEAR CYCLE

PIWet–PIB PT TESTS

PT Schedule in 2026

MAIN ROUNDS	**I**	**II**	**II**	**III**	**III**	**IV**	**V**	**V**	**Additional/repeat round* and PT for HORSE MEAT**
Voivodeship	dolnośląskie	lubelskie	wielkopolskie	lubuskie	opolskie	łódzkie	podlaskie	pomorskie	New laboratories
Submission of registrations by Voivodeship Coordinators	by 30.01.2026								by 24.04.2026
Update of registrations by Voivodeship Coordinators	by 06.02.2026	by 06.02.2026	by 20.02.2026	by 06.03.2026	by 06.03.2026	by 13.03.2026	by 10.04.2026	by 10.04.2026	by 30.04.2026
Dispatch of samples to Voivodeship Coordinators	10.02.2026	10.02.2026	21.04.2026	10.03.2026	10.03.2026	17.03.2026	14.04.2026	14.04.2026	12.05.2026
Delivery of samples to PT Participants	by 12.02.2026	by 12.02.2026	by 23.04.2026	by 12.03.2026	by 12.03.2026	by 19.03.2026	by 16.04.2026	by 16.04.2026	by 14.05.2026
Testing by Participants and reporting of PT results	**by 26.02.2026**	**by 20.02.2026**	**by 04.05.2026**	**by 20.03.2026**	**by 20.03.2026**	**by 27.03.2026**	**by 24.04.2026**	**by 24.04.2026**	**by 22.05.2026**
Date of receipt of partial report	Generated automatically after entering and approving proficiency test results – THE REPORT MUST BE PRINTED AND DELIVERED TO THE DISTRICT VETERINARY OFFICER								
Date of sending PT Report prepared by KLR	by 03.04. 2026	by 03.04.2026	by 17.07. 2026	by 08.05.2026	by 08.05.2026	by 15.05.2026	by 26.06.2026	by 26.06.2026	by 17.07.2026

PIWet–PIB PT TESTS

Organization of Proficiency Testing (PT) by NRL in Poland

01 Sample Matrix Preparation

The matrix used for sample preparation distributed to laboratories is **minced pork meat** cleaned of membranes and fat.

This cleaning process is conducted to **minimize residue** remaining on the sieve following the digestion procedure.

02 Sample Portioning & Spiking Process

Minced meat is accurately portioned into **50 g sample units**.

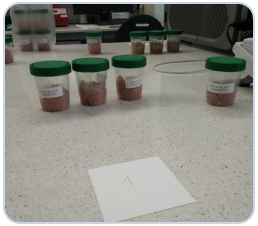
A **gelatin capsule** is inserted into each 50 g meat portion.

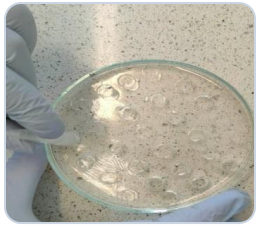
Each capsule contained a precise, predetermined number of embedded **Trichinella** larvae.

Laboratory Sample Preparation Visuals



Minced Pork Matrix (50 g Spiked Portions)







Control & Spiking Verification

Larvae count and capsule integrity are thoroughly inspected prior to insertion into PT sample sets.

PIWet-PIB PT TESTS

Organization of Proficiency Testing (PT) by NRL in Poland

01 1. Blank Sample Controls

Each sample set sent to participating laboratories included a **blank sample** containing no *Trichinella* larvae.

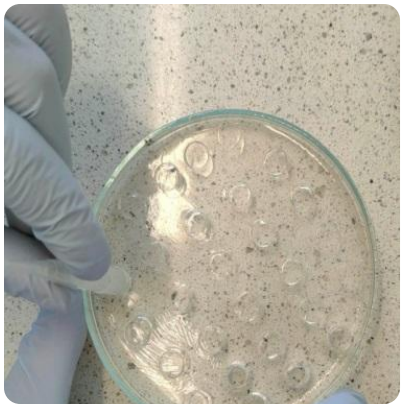
The blank sample also contained **gelatin capsule**.

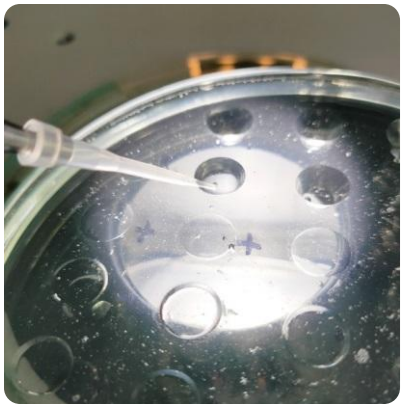
02 2. Capsule Quality Assurance

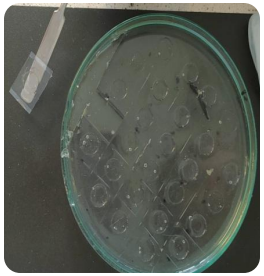
Each gelatin capsule was **inspected multiple times** prior to insertion into the meat sample matrix to guarantee exact spiking accuracy.

The gelatin capsule preparation procedure is **patented**.

Inspection & Verification Procedures











inspection of blank samples and gelatin capsules

Annals of Agricultural and Environmental Medicine 2023, Vol 30, No 4, 634–639
www.aaem.pl

ORIGINAL ARTICLE

CC BY-NC

Gelatin medium for preserving of *Trichinella* spp. for quality control in laboratories – estimation of larvae viability

Ewa Bilska-Zając[1,A-F], Mirosław Różycki[2,C,E], Weronika Korpysa-Dzirba[3,B-D], Aneta Bełcik[3,B-D], Jacek Karamon[3,C-E], Jacek Sroka[3,4,C-E], Małgorzata Samorek-Pieróg[3,C,E], Jolanta Zdybel[3,C,E], Angelina Wójcik-Fatla[4,E], Tomasz Cencek[3,A,E-F]

PIWet-PIB PT TESTS

Organization of Proficiency Testing (PT) by NRL in Poland

01 1. Sample Labeling

Each container was labeled with an **individual sample number**.

02 2. Sample Set Packaging

Sets of **four samples** with different levels of Trichinella larvae contamination:

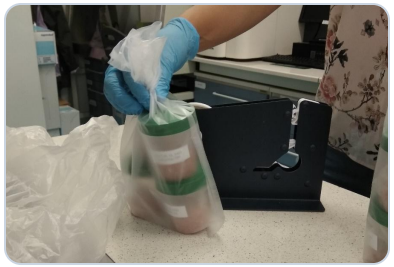
- Placed into sealed plastic bags
- Secured and sealed prior to shipment

Photographs taken at the NRL for Trichinella during PT sample preparation









Organization of Proficiency Testing (PT) by NRL in Poland







Organization of Proficiency Testing (PT) by NRL in Poland

01

1. Sample Testing (Scheduled Period)



Participating laboratories were required to test received meat samples **by the time indicated in the schedule** using the **magnetic stirrer** with artificial digestion method for *Trichinella*.

02

2. Larvae Counting



Quantify and count *Trichinella* larvae in the examined preparations following standard laboratory protocols.

03

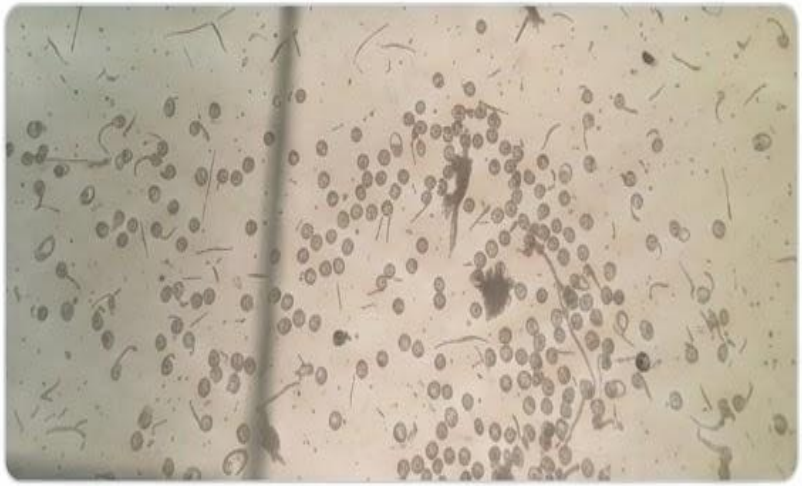
3. Reporting & Submission



Log into the system portal and **submit test results** directly to the National Reference Laboratory (NRL).

Digestion Method Setup & Microscopic Larval Examination





PIWet-PIB PT TESTS

Online Portal for Entering PT Test Results

Portal URL: https://pt-wlosnie.piwet.pulawy.pl/

01 1. Enter Sample Results (Primary Area)

Sample Code & Result: Input qualitative / quantitative results for each sample.

* Enter numerical values only without text!

02 2. Digestion & Method Parameters

Pepsin details: Producer & batch series.
Digestion Time: Duration in minutes.
Temp & Sedimentation: Temp range (°C) & min. settling time.

03 3. Declarations & Final Submission

Check mandatory compliance boxes (*Oświadczam).
Complete short survey & click **"Zatwierdź" (Submit)**.

* Warning: Data cannot be edited after saving!

Portal Form View & Key Data Fields



Zalogowany:
Laboratorium 10

Kod laboratorium: uud_0590
Wynik badania na poziomie kontaminacji 1 larwy nie służy do oceny laboratorium tylko do oceny systemu.

Uwaga 1. Wpisujemy tylko liczby bez opisu słownego !!!
Uwaga 2. Po zapisaniu korekta danych nie będzie możliwa.

· Instrukcja wykonania badania PT w kierunku włośni

Kod laboratorium: uud_0590
Czy Laboratorium jest akredytowane* ?

Kod próbki	Wynik*	Płyn*	Pozostałość na sitku*
65		?	?
290		?	?
394		?	?
596		?	?

Badanie próbki wykonał/wykonali*
(zaleca się by badanie całego zestawu wykonała jedna osoba)

65	
290	
394	
596	

Kod próbki	Pepsyna (Producent, seria)*	Czas trawienia (minuty)*	Zakres temperatury trawienia (°C)*
65			
290			
394			
596			

Kod próbki	Czas sedymentacji w rozdzielaczu (min.)*	Liczba doczyszczań*	Czas oglądania preparatu pod trychinoskopem

PIWet-PIB PT TESTS

Instructions for Trichinella PT Testing (Results Portal)

01 Sample Panel & Preparation

Each participant receives **1 set containing 4 samples**.

Samples are already minced and weighed.

No additional processing is required (e.g., no re-weighing or blending).

02 Testing Execution

Prepared samples are **ready for immediate testing**.

Place samples **directly into the digestion fluid** without delay.

03 Schedule & Reporting Deadline

Testing must be conducted **within the timeframe** specified in the PT schedule (refer to PT Regulations).

After the deadline: Result reporting will be locked and samples will no longer be valid for testing.

04 Disposal & Documentation

Untested samples **must be disposed of** according to standard safety regulations.

A signed copy of the disposal protocol **must be retained** in the laboratory archives.

Organization of PT Tests – Partial Report & Evaluation

01 Mandatory Partial Report

Immediately upon entering and approving test results, participants **must print the partial report** which constitutes the official test evaluation.

REQUIREMENT NOTICE

*** Requirement to obtain official authorization for meat inspection!**

02 Qualitative & Quantitative Evaluation

Qualitative Evaluation: Magnet stirrer digestion method evaluated according to Reg. (EU) 2015/1375 & ISO/IEC 17043 / 18743 standards.

Quantitative Evaluation: 1 sample is subjected to quantitative evaluation.

Confidentiality: Partial reports are restricted exclusively to the testing laboratory.

Generated Report Document (Preview & Translation)

Interpretacja wyników:

Zgodnie z wymaganiami Rozporządzenia Wykonawczego Komisji (UE) 2015/1375 z dnia 10 sierpnia 2015 r. ustanawiającego szczególne przepisy dotyczące urzędowych kontroli w odniesieniu do włośni (Trichinella) w mięsie z późn. zm..; Normą PN-EN ISO/IEC 17043:2023-10/A11:2024-11 oraz Normą PN-EN ISO/IEC 18743:2015-11 + A1:2024-02, metoda wytrawiania wspomaganego mieszadłem magnetycznym jest oceniana jako metoda jakościowa. Oprócz oceny jakościowej w badaniach PT, KLR przeprowadza również ocenę ilościową dla jednego poziomu kontaminacji wg wytycznych EURL.

Matryca	Masa próbki	Kod próbki	Oczekiwana liczba larw w próbce	Liczba wykrytych larw	Wynik badania jakościowego	Wynik badania ilościowego
Mięso świńskie/ Mięso z dzika	50 g	494	0	0	Zgodny	nie dotyczy
Mięso świńskie/ Mięso z dzika	50 g	296	0	0	Ocena systemu	nie dotyczy
Mięso świńskie/ Mięso z dzika	50 g	19	4	4	Zgodny	nie dotyczy
Mięso świńskie/ Mięso z dzika	50 g	155	5	5	Zgodny	zadowalający

Report Table Summary (Translated):

- **Matrix:** Pork / Wild Boar meat (50g sample mass)
- **Sample Codes:** 494 (0 larv.), 296 (0 larv.), 19 (4 larv.), 155 (5 larv.)
- **Qualitative Result:** Compliant / System Evaluation
- **Quantitative Result:** Satisfactory (for code 155)

Organization of PT Tests – Qualitative Evaluation

02 Evaluation Criteria Breakdown

Evaluation Levels (0, 3, 5 larvae)
System classification based on detection accuracy:

a) Satisfactory Result
Trichinella larvae detected in contaminated samples AND no larvae detected in the blank sample.

b) Unsatisfactory Result
Failure to detect Trichinella larvae in contaminated samples.

c) Unsatisfactory Result
Detection of Trichinella larvae in the blank sample.

Organization of PT Tests – Quantitative Evaluation

01 Absolute Value Methodology

In quantitative evaluation, we use the **absolute value Delta |Δ|** to determine the accuracy of the laboratory result.

CALCULATION FORMULA

$$|\Delta| = X_{lab} - X_{ref}$$

Evaluation principle: The |Δ| value forms the basis for classification and evaluation of the analytical accuracy of the tested sample.

02 Formula Components and Designations

X lab

Result obtained by the laboratory participating in the proficiency testing (PT).

X ref

Reference value assigned to a given test sample.

|Δ| (Absolute Value Delta)

Absolute difference between the laboratory result and the reference value.

PIWet–PIB PT TESTS

Quantitative Evaluation Summary – Sample with 5 Larvae

Lab result	Absolute value |Δ|	Qualitative evaluation	Quantitative evaluation	Final result
5	1	satisfactory	satisfactory	satisfactory
4	2	satisfactory	satisfactory	satisfactory
3	3	satisfactory	satisfactory	satisfactory
2	4	satisfactory	doubtful	satisfactory
1	5	satisfactory	unsatisfactory	unsatisfactory

PIWet-PIB PT TESTS

Organization of PT Tests – 1–Larva Level

01 Purpose of 1–Larva Samples

Samples containing **1 larva** were specifically designated to evaluate the overall quality of the testing system across voivodeships.

EXCLUSION NOTICE

System Level Only

These samples were **not taken into account** when evaluating individual laboratory performance.

02 System Evaluation & Method Validation

75% **Detection Threshold**

Minimum performance requirement for voivodeship system validity.

Method validation assumptions established that testing in a voivodeship is considered **correct and valid** when:

- **≥ 75% of laboratories** in the voivodeship successfully detect Trichinella larvae.

PIWet-PIB PT TESTS

Final PT Report

01 Report Distribution Procedure

Results & Evaluation Flow

Test results, accompanied by detailed written and graphical evaluations, are compiled into official reports and transmitted directly to regional (voivodeship) coordinators.

DISTRIBUTION WORKFLOW

Official Reporting Channel

Ensures seamless communication, standardized record-keeping, and rapid dissemination of PT evaluation results to all regional authorities across all voivodeships.

02 Evaluation Scope

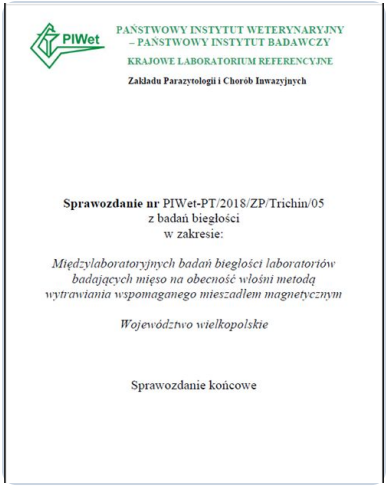
EVALUATION SCOPE

Full PT Evaluation

Quantitative & qualitative assessment for the entire proficiency testing round.

Assessment Parameters:

- **Quantitative:** Precision in larva count.
- **Qualitative:** Accurate detection threshold.
- **Regional:** National overview metrics.



PIWet

PAŃSTWOWY INSTYTUT WETERYNARYJNY – PAŃSTWOWY INSTYTUT BADAWCZY

KRAJOWE LABORATORIUM REFERENCYJNE

Zakładu Parazytologii i Chorób Inwazyjnych

Sprawozdanie nr PIWet-PT/2018/ZP/Trichin/05
z badań biegłości
w zakresie:

Międzylaboratoryjnych badań biegłości laboratoriów badających mięso na obecność włośni metodą wytrawiania wspomaganego mieszadłem magnetycznym

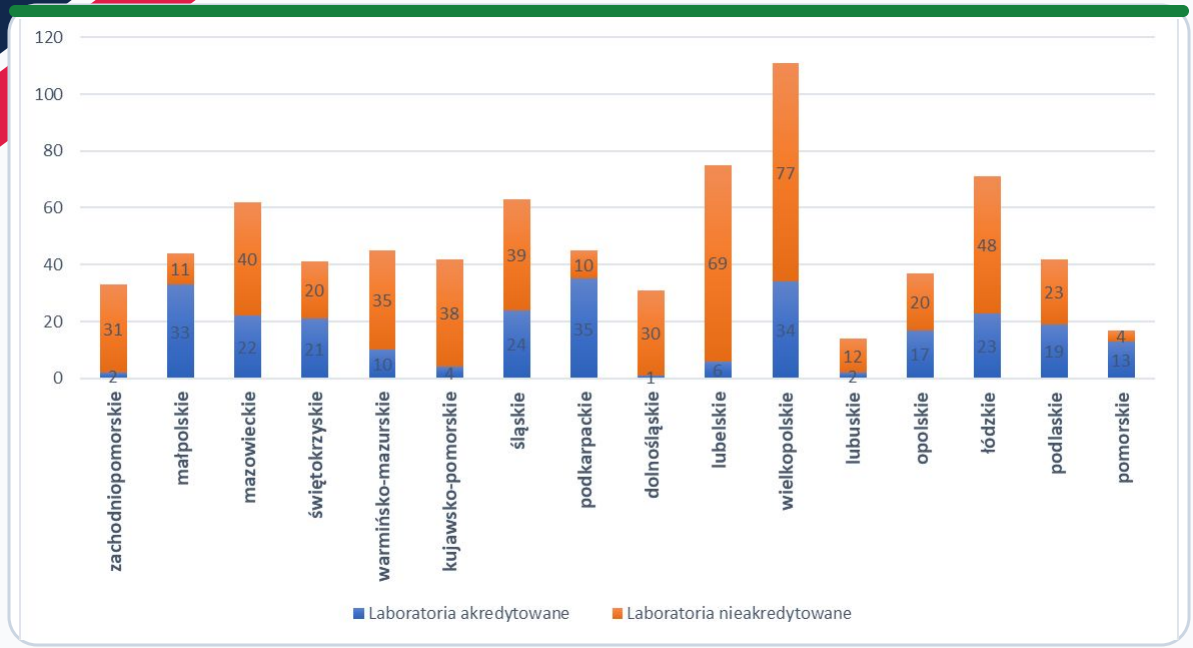
Województwo wielkopolskie

Sprawozdanie końcowe

Participation Overview

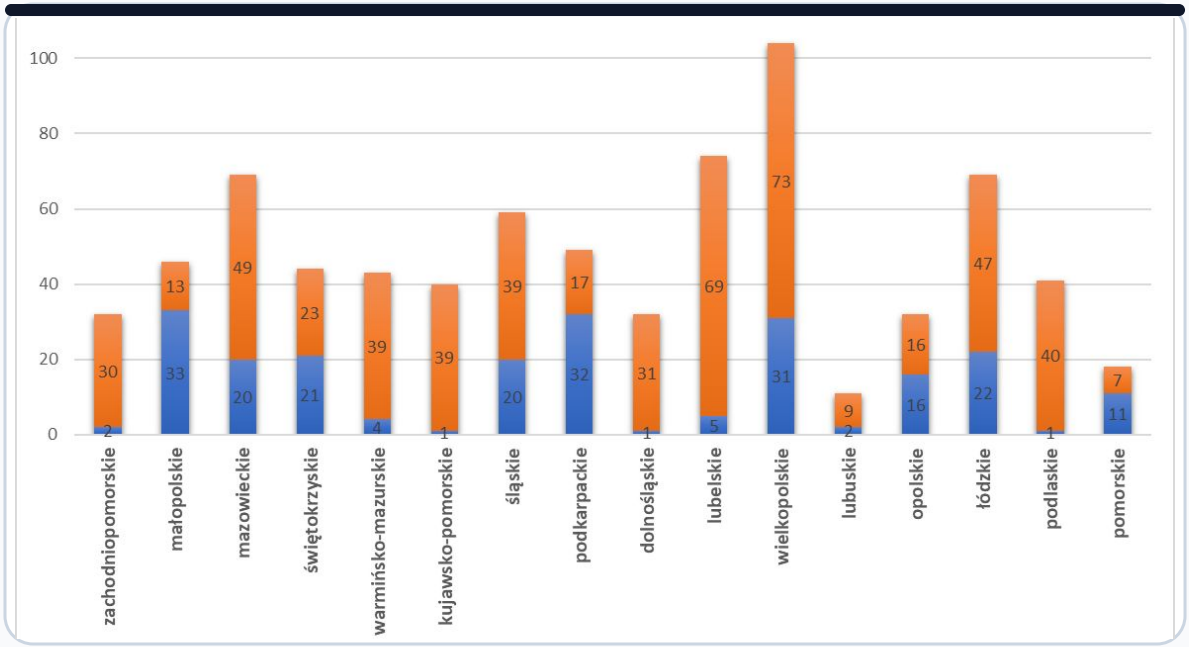
2023–2024

Number of laboratories participating in PT in 2023 and 2024



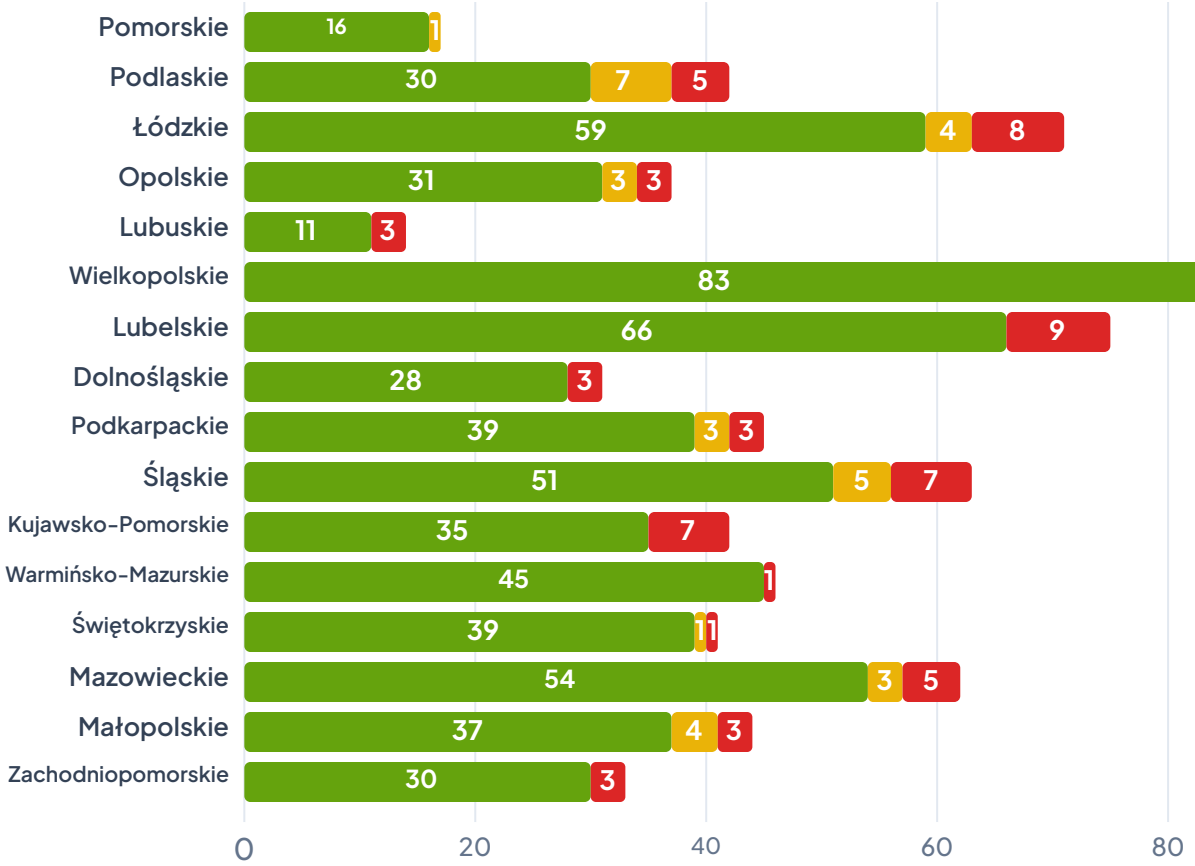
2025–2026

Number of laboratories participating in PT in 2025 and 2026



PIWet-PIB PT TESTS

Results Obtained by Laboratories in 2023 and 2024





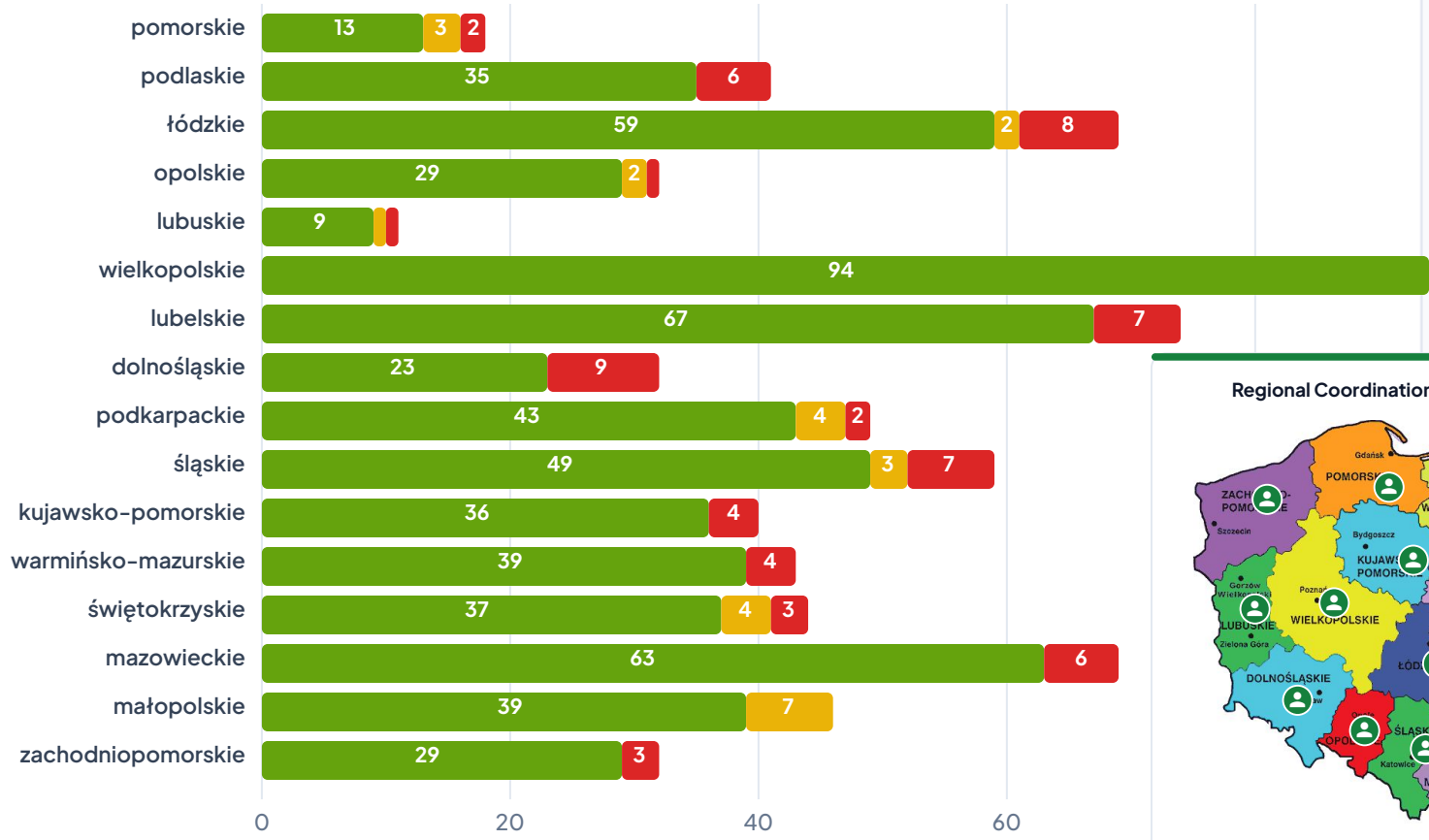
Satisfactory results

Unsatisfactory (accredited labs)

Unsatisfactory results (not accredited labs)

PIWet-PIB PT TESTS

Results Obtained by Laboratories in 2025 and 2026



Regional Coordination Coverage (Poland)

Satisfactory results

Unsatisfactory (accredited labs)

Unsatisfactory results (not accredited labs)

NRL TRICHINELLA POLAND

Annual Sample Preparation

Main Rounds Primary annual proficiency testing rounds	350 labs × 4 samples	**1,400** samples
Correction Rounds Follow-up testing rounds for laboratories	~60 labs × 4 samples	**240** samples
Additional Rounds Extraordinary or supplementary testing sessions	~20 labs × 4 samples	**80** samples
TOTAL SAMPLES PREPARED EACH YEAR National Reference Laboratory proficiency testing program		**1,720** samples / year

NRL T

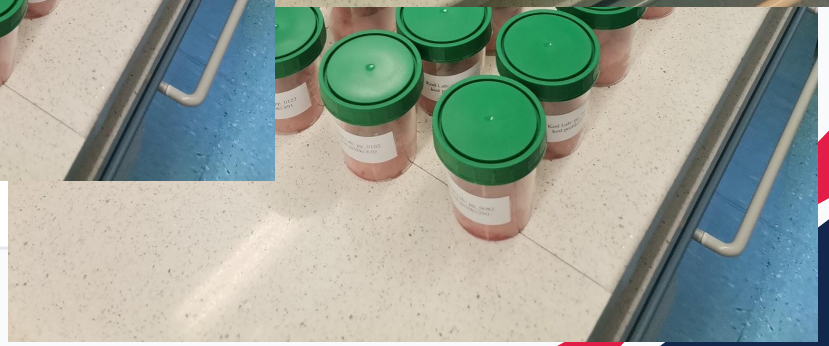
An n





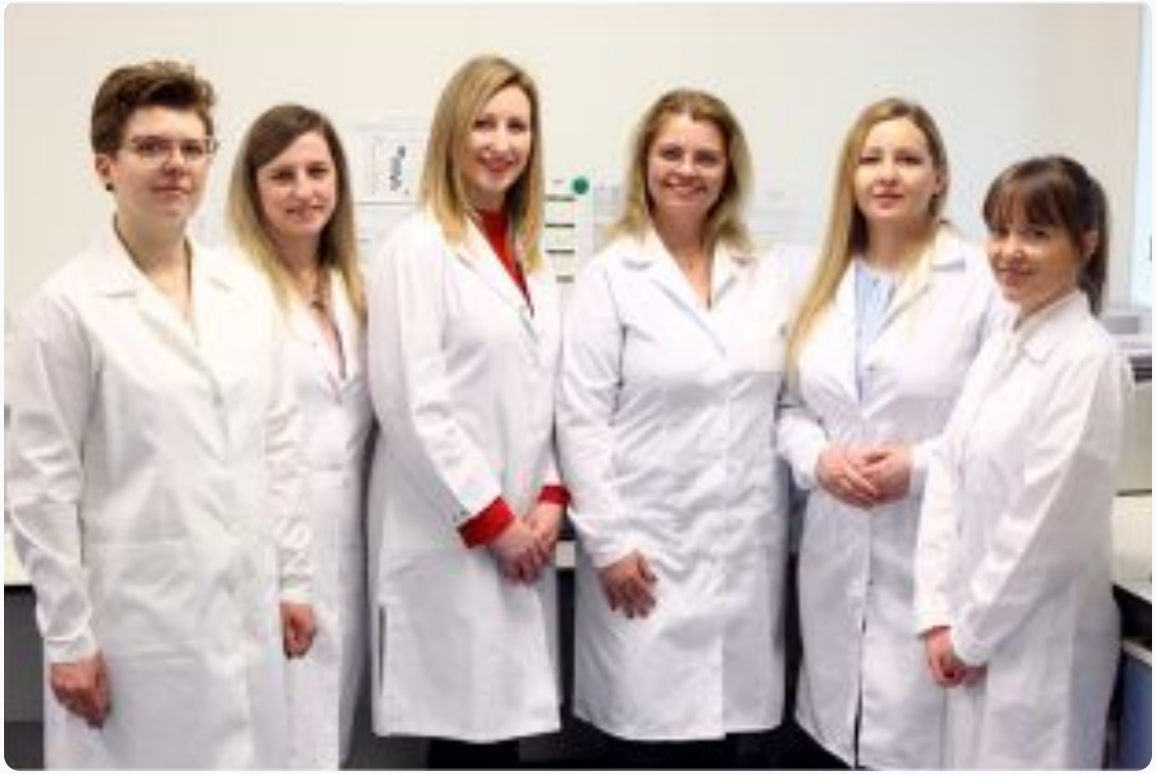






NRL TRICHINELLA POLAND

Team of Polish National Reference Laboratory for Trichinellosis



Thank you for your attention