



**National Veterinary Research Institute**

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## **2022 NRL Workshop for Parasites**

### **Activity of NRL in Poland**

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# NRL ACTIVITIES

## 1. Organization national PTs

- artificial digestion to detect *Trichinella* larvae in meat samples according to ISO 18743:2015-11
- detection of Anisakidae L3 larvae in fish fillets (accredited scheme)
- detection of *Echinococcus* sp. worms in the intestinal mucosa of the definitive host (accredited scheme)
- detection of *Toxoplasma gondii* antibodies in animal sera using LAT

## 2. The provision of reference material (Trichinella larvae, serum)

## 3. The dissemination of scientific information

## 4. Training courses

## 5. Opinions



# NRL for Trichinella

## PT 2021 (artificial digestion method) in Poland - 386 participants

Accredited Laboratories			
Voivodeship	Number of laboratories	Satisfactory results	Unsatisfactory
małopolskie	32	26	6
West Pomerania	2	2	0
podkarpackie*	39	31	7
Silesia	31	23	5
Kuyavia-Pomerania*	19	14	4
warmińsko-mazurskie	14	10	4
świętokrzyskie	21	20	1
Masovia*	23	20	3
<b>SUMMARY</b>	<b>181</b>	<b>146</b>	<b>30 (17%)</b>

Not Accredited Laboratories		
Number of laboratories	Satisfactory results	Unsatisfactory
11	7	4
35	21	11
12	4	7
40	23	16
27	19	5
28	18	10
15	13	2
37	23	10
<b>205</b>	<b>128</b>	<b>65 (32%)</b>

\* 17 laboratory did not send the results (5 accredited and 12 non-accredited)



# NRL for Trichinella

## 2nd round PT (artificial digestion method) in Poland – 101 participants

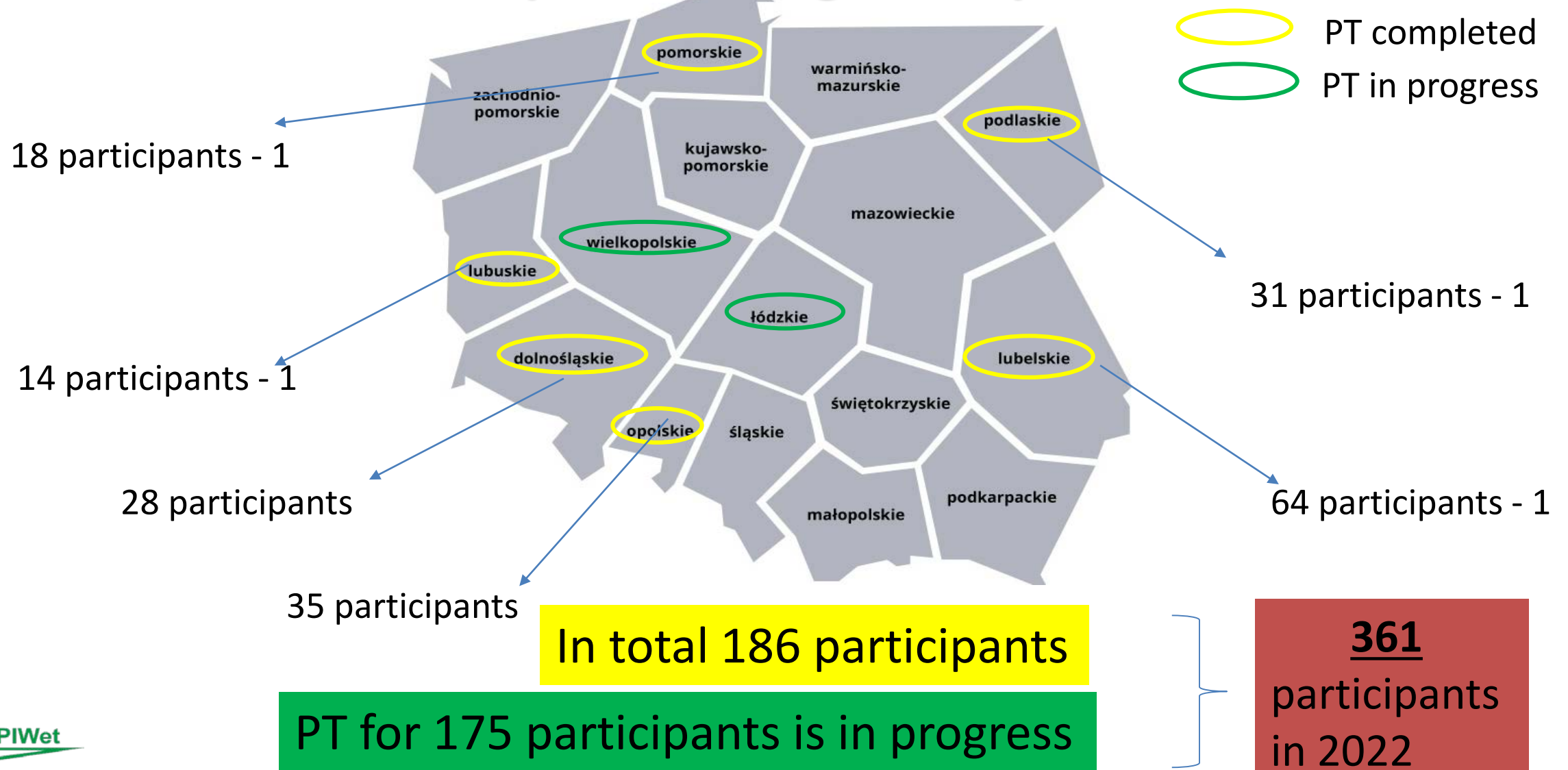
Accredited Laboratories				Not Accredited Laboratories		
Voivodeship	Number of laboratories	Satisfactory results	Unsatisfactory	Number of laboratories	Satisfactory results	Unsatisfactory
małopolskie	7	7	0	6	5	1
West Pomerania	-	-	-	8	6	2
podkarpackie*	7	5	1	7	7	0
Silesia	6	6	0	18	12	6
Kuyavia-Pomerania*	5	5	0	7	3	3
warmińsko-mazurskie	3	1	2	8	7	1
świętokrzyskie	1	1	0	2	1	1
Masovia*	3	3	0	13	11	1
<b>SUMMARY</b>	<b>32</b>	<b>28</b>	<b>3 (9%)</b>	<b>69</b>	<b>52</b>	<b>15 (22%)</b>



\* 1 laboratory did not send the results (1 accredited and 2 non-accredited)

# NRL for Trichinella

## PT for Trichinella (artificial digestion) in Poland - 2022



# NRL for Trichinella

## PT for Trichinella (artificial digestion) in Poland - 2022

### Accredited Laboratories

Voivodeship	Number of laboratories	Satisfactory results	Unsatisfactory
Lower Silesia	1	1	0
Pomeranian	15	12	3
Lubuskie	2	2	0
Lubelskie	6	6	0
Opolskie	18	14	4
Podlaskie	20	17	3
łódzkie	} PT in progress		
Greater Poland			
<b>RAZEM</b>	<b>62</b>	<b>52</b>	<b>10 (16.1%)</b>

### Not Accredited Laboratories

Number of laboratories	Satisfactory results	Unsatisfactory
27	21	6
2	2	0
11	9	2
57	48	9
17	11	6
10	2	8
} PT in progress		
<b>124</b>	<b>93</b>	<b>31 (25%)</b>

# Results of Proficiency Testing for *Anisakis simplex* in Poland - 2020

Lab no.	Method	Level of enrichment: 0 larvae of <i>A. simplex</i>		Evaluation (qualitative)	Level of enrichment: 5 larvae of <i>A. simplex</i>		Evaluation (qualitative)	Level of enrichment: 10 larvae of <i>A. simplex</i>		Evaluation (qualitative)	Final evaluation
		Observed result			Observed result			Observed result			
		Qualitative	Quantitative	Qualitative	Quantitative	Qualitative	Quantitative				
1	Artificial digestion	Neagtive	0	Correct	Positive	5	Correct	Positive	10	Correct	Pass
2	Artificial digestion	Neagtive	0	Correct	Positive	4	Correct	Positive	9	Correct	Pass
3	Artificial digestion	Neagtive	0	Correct	Positive	5	Correct	Positive	10	Correct	Pass

The (qualitative) result of the examination of the sample was considered as follows:

- “correct” if *A. simplex* larvae/antigen were found in contaminated samples and if larvae/antigen were not found in the blank sample.
- “incorrect” if *A. simplex* larvae/antigen were not detected in contaminated samples or if larvae/antigen were detected in the blank sample

# Results of Proficiency Testing for *Anisakis simplex* in Poland - 2021

Lab no.	Method		Level of enrichment: 0 larvae of <i>A. simplex</i>				Level of enrichment: 4 larvae of <i>A. simplex</i>				Level of enrichment: 7 larvae of <i>A. simplex</i>				Final evaluation
			Observed result		Evaluation		Observed result		Evaluation		Observed result		Evaluation		
	Name	Detection	Qualitative	Quantitative	Qualitative	Quantitative	Qualitative	Quantitative	Qualitative	Quantitative	Qualitative	Quantitative	Qualitative	Quantitative	
1	Artificial digestion	Quantitative	Neagtive	0	Correct	Satisfactory	Positive	3	Correct	Satisfactory	Positive	7	Correct	Satisfactory	Pass
2	Artificial digestion	Quantitative	Neagtive	0	Correct	Satisfactory	Positive	4	Correct	Satisfactory	Positive	5	Correct	Satisfactory	Pass
3	Artificial digestion	Quantitative	Neagtive	0	Correct	Satisfactory	Positive	3	Correct	Satisfactory	Positive	6	Correct	Satisfactory	Pass
4	Artificial digestion	Quantitative	Neagtive	0	Correct	Satisfactory	Positive	4	Correct	Satisfactory	Positive	7	Correct	Satisfactory	Pass
5	Artificial digestion	Quantitative	Neagtive	0	Correct	Satisfactory	Positive	3	Correct	Satisfactory	Positive	6	Correct	Satisfactory	Pass
6	Artificial digestion	Quantitative	Neagtive	0	Correct	Satisfactory	Positive	3	Correct	Satisfactory	Positive	7	Correct	Satisfactory	Pass
7	Chemiluminescence sandwich ELISA (according to Kochanowski et al. (Pathogens. 2020, 23, 9, 777))	Qualitative	Neagtive	N/A	Correct	N/A	Positive	N/A	Correct	N/A	Positive	N/A	Correct	N/A	Pass

The qualitative result of the examination of the sample was considered as follows:

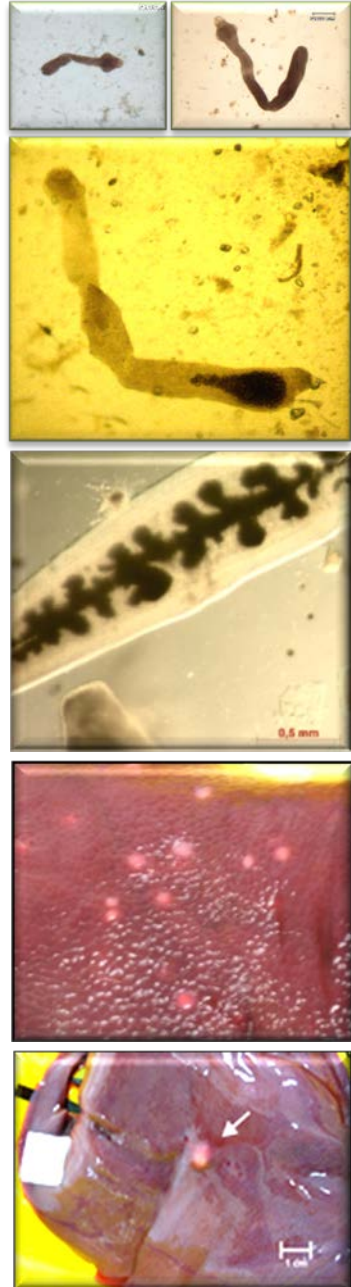
- “correct” if *A. simplex* larvae/antigen were found in contaminated samples and if larvae/antigen were not found in the blank sample.
- “incorrect” if *A. simplex* larvae/antigen were not detected in contaminated samples or if larvae/antigen were detected in the blank sample

The absolute value  $|\Delta|$  of the difference between the laboratory result and the reference value was used for the quantitative evaluation of the PT results. Depending on the value of the indicator  $|\Delta|$ , the quantitative results were considered as:  $|\Delta| \leq 2$  “satisfactory”,  $|\Delta| = 3$  “doubtful”,  $|\Delta| > 3$  “unsatisfactory”



# NRL for echinococcosis

- Analysis of monitoring:
  - in red foxes in two regions: highly endemic ( $\approx 50\%$ ) and with low prevalence [ $\approx 15\%$ ]
  - In dogs and cats in highly endemic area – *E. multilocularis* cases detected (1-3%)
  - In pigs: *E. multilocularis* and *E. granulosus* s.l. were identified
- Seraching for Echinococcus in different final hosts – detection of *E. ortleppi* in grey wolves
- Identifying (molecular) of questionable samples from the filed
- Genotyping of *Echinococcus* spp. positive samples isolated from animals



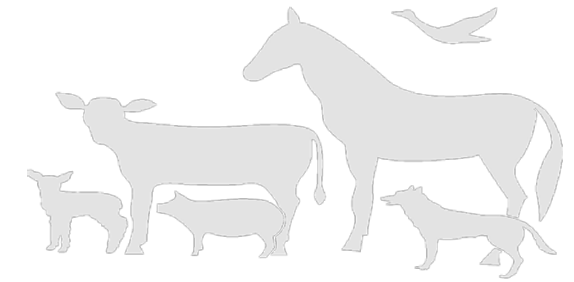
# REFERENCE LABORATORY FOR TOXOPLASMOSIS

## 1. Support for regional laboratories

- ⦿ training for laboratory staff
- ⦿ inspection of laboratories
- ⦿ organization of proficiency testing (annually)
- ⦿ implementation of new diagnostic techniques

## 2. Diagnostic service and scientific activities

- ⦿ diagnostic consultation
- ⦿ development of diagnostic techniques (serology, PCR, live parasites isolation)
- ⦿ annual participation in proficiency testing organized by APHA (Great Britain) and ISS (Italy) – serological methods: IFAT, LAT and ELISA
- ⦿ epidemiological studies on farm and wild animals: seroprevalence in pigs - 11% and cattle – 16%, *T. gondii* DNA detection in free-living rodents - 17% and birds - up to 43%.
- ⦿ detection of *T. gondii* DNA and live parasites in food matrices (meat products, vegetables, water)



**Thank you for your attention**

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