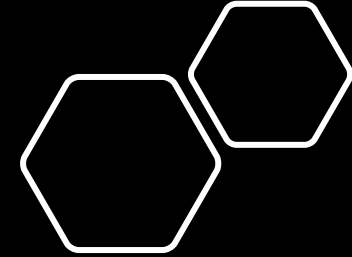


20th Workshop of National Reference Laboratories for Parasites
Istituto Superiore di Sanità
28-29 October 2025

Activities of the National Reference Laboratory for Trichinella

Dr. Gianluca Marucci



National Reference Laboratory for *Trichinella*



Appointed by the Ministry of Health
in 2006

Collaborates with the European Union
Reference Laboratory (EURLP)

Coordinates and supports the activities of the
official laboratories responsible for the
detection of *Trichinella* in meat

Organizes comparative tests (PT) involving
official national laboratories

Provides scientific and technical assistance to
the competent authority

Responsible for species-level identification of
Trichinella isolates

Proficiency testing organization



NRL started organizing PT involving Italian labs in 2007

5 PT rounds organized per year

3 samples per participant (0 to 2 negative samples, 1 to 3 positive samples)

No. of spiked larvae ranges from 3 to 5

Qualitative evaluation (but participants receive info about the no. of larvae present in each sample)

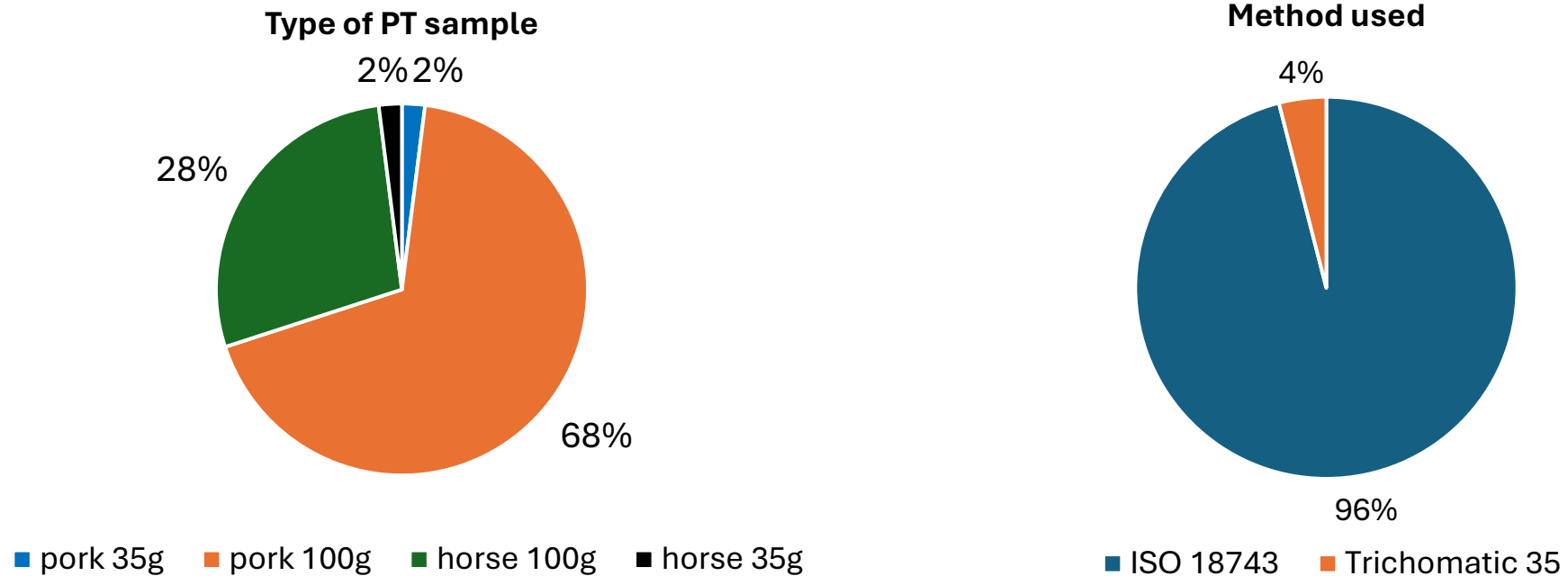
Final PT evaluation performed at the laboratory level (PT report addressed to lab responsible)



PT data from 2024

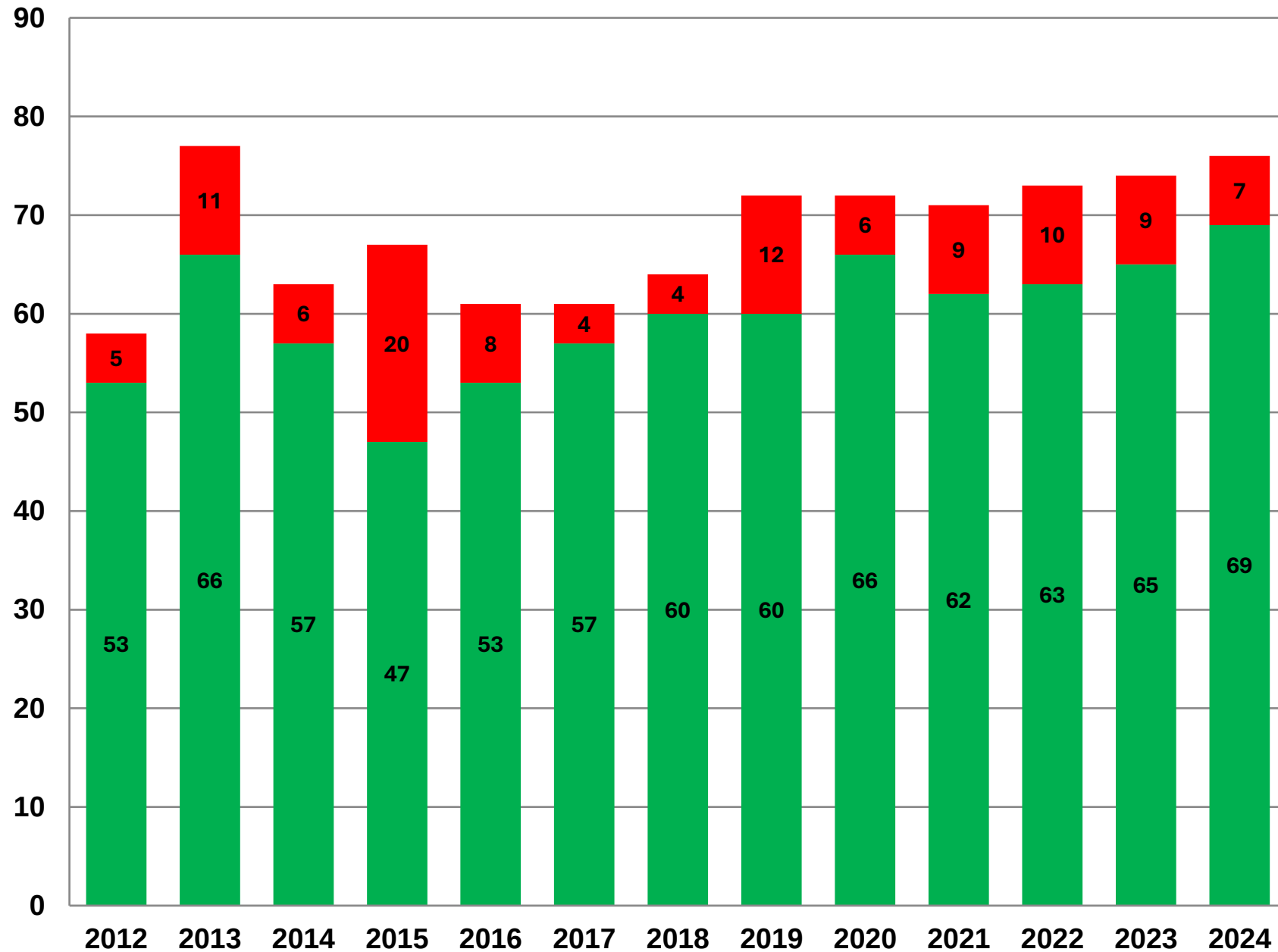
76 official laboratories (50 public and 26 private)

97 PT panels produced (including PT repetitions)



7 laboratory failed the PT, only 3 of them repeated it and passed the next session

PT Results from 2012-2024



PT follow-up

Laboratories that fail the PT are invited to investigate the possible causes of the negative result and to implement appropriate corrective actions

The NRL staff is available to assist the laboratory in identifying possible sources of error in the method and in suggesting improvements

Once ready, the participant may register for a subsequent PT session

The NRL has no authority to enforce annual participation in the PT by official laboratories, nor to oblige participants who fail to repeat the PT

Provides the Ministry of Health with an annual report that includes a list of official laboratories that participated in the PT, and their results



Trichinella
larvae
identification

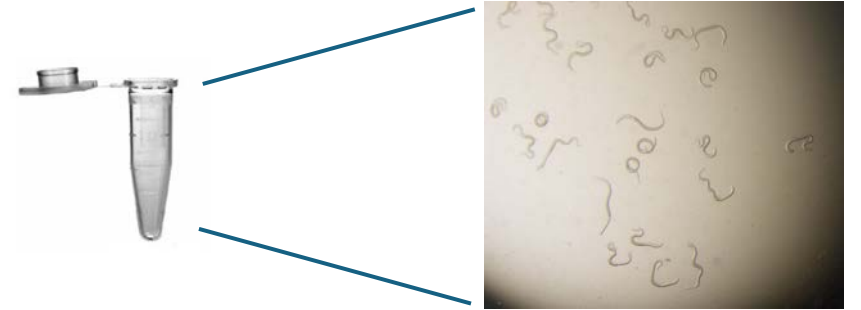


IZS

Experimental Institutes
for Animal Disease Prevention



Analyze animal carcasses for
the presence of *Trichinella*
larvae



National Reference
Laboratory for
Trichinella



Identify the *Trichinella*
species involved in the
infection

Trichinella larvae identification

NRL receive, almost exclusively, *Trichinella* larvae collected from wild animals

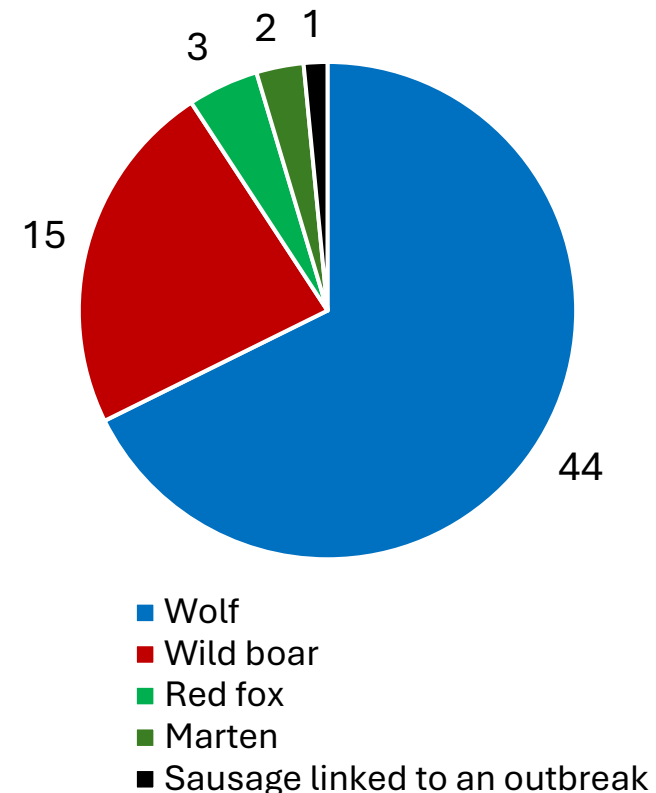
Each isolate is identified by DNA purification and multiplex PCR on 5 single larvae

65 isolates tested in 2024

63 *T. britovi*

1 *T. britovi*–*T. spiralis* mixed infection

1 not determinable

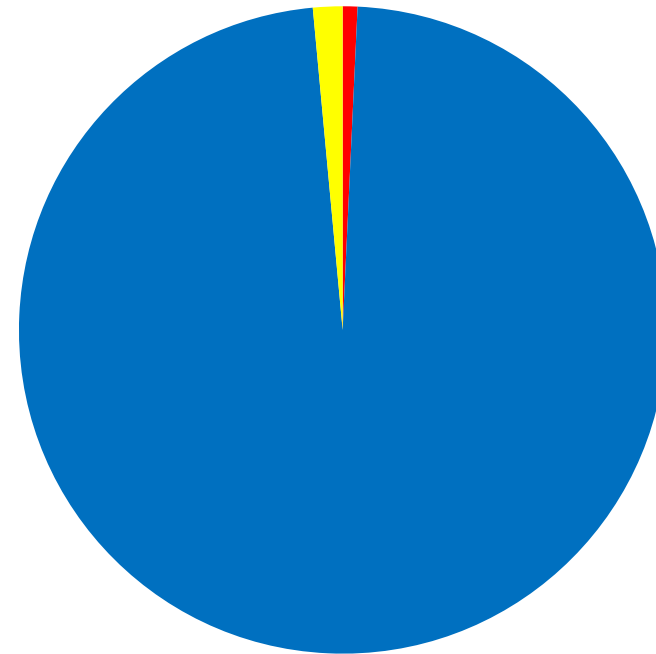


696 *Trichinella* isolates identified since 1982

681 *T. britovi* (97,8 %)

10 *T. pseudospiralis* (1,5 %)

5 *T. spiralis* (0,7 %)



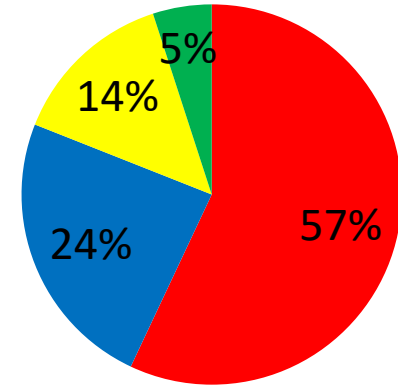
■ *T. spiralis*

■ *T. britovi*

■ *T. pseudospiralis*

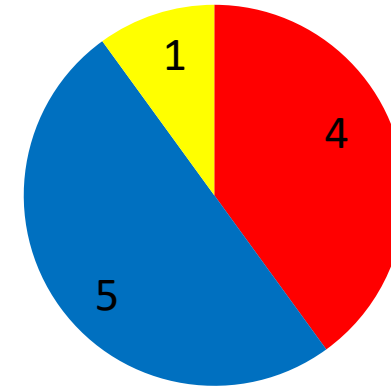
Trichinella species from different hosts

T. britovi



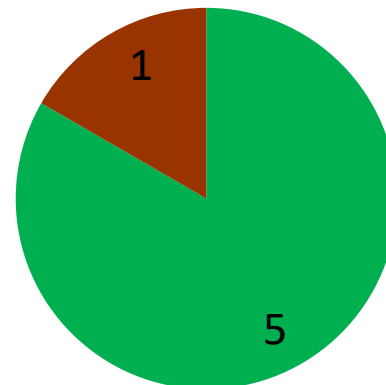
■ Wolf ■ Wild boar
■ Red fox ■ Other

T. pseudospiralis



■ Bird of prey ■ Wild boar ■ Red fox

T. spiralis



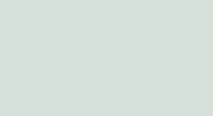
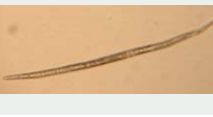
■ Red fox
■ Wolf

STRANGER THINGS

Nematodes living in different parts (gut lumen, liver, lungs, lymphatic or blood vessels) or migrating through the animal's body can occasionally be observed



What we identified

Nematode species		No. specimens	Host	Source
<i>Metastrongylus sp.</i>		2	Wild boar	Muscle tissue contamination with stomach/intestine content during slaughtering or caused by bullet penetration for hunted species
<i>Panagrolaimus sp.???</i> (free living nematode)		1	Domestic pig	
<i>Strongylus sp.</i>		1	Horse	
<i>Toxocara cati</i>		1	Domestic pig (free ranging)	Larvae migrate and settle in muscle tissue of paratenic hosts where they can survive and remain infective for a long time
<i>Toxocara cati</i>		1	Wild boar	
<i>Toxocara cati</i>		1	Badger	

Be aware!
Trichinella is not the sole actor!

*Thank you
for your attention*

