

NRL *Salmonella*, Slovenia

National Veterinary Institute, Ljubljana

Institute of Microbiology and Parasitology

Institute for Food Safety, Feed and Environment

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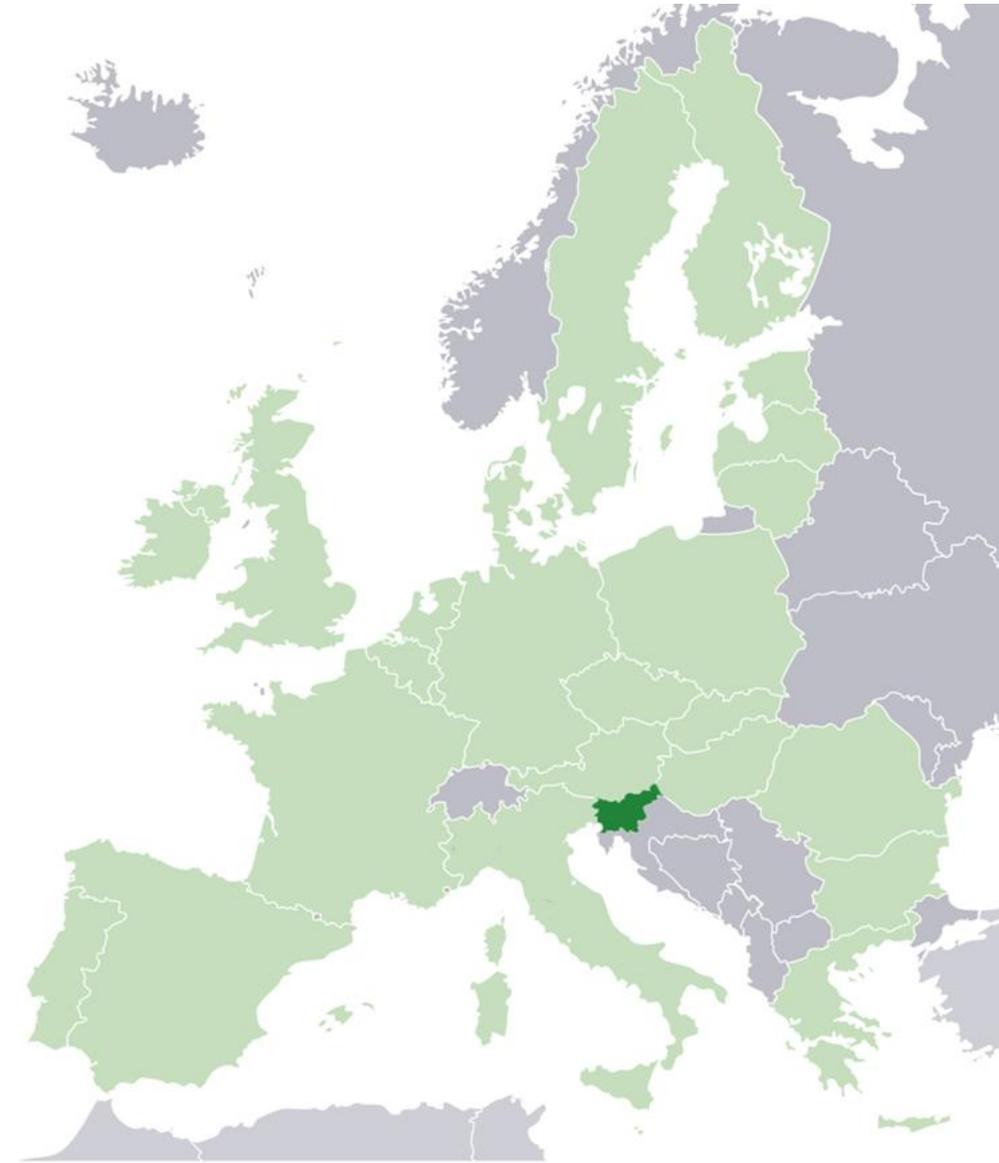
University of Ljubljana
Veterinary Faculty

National Veterinary Institute (NVI)

Established on the basis of the Law on the
Veterinary Service

Part of Veterinary faculty

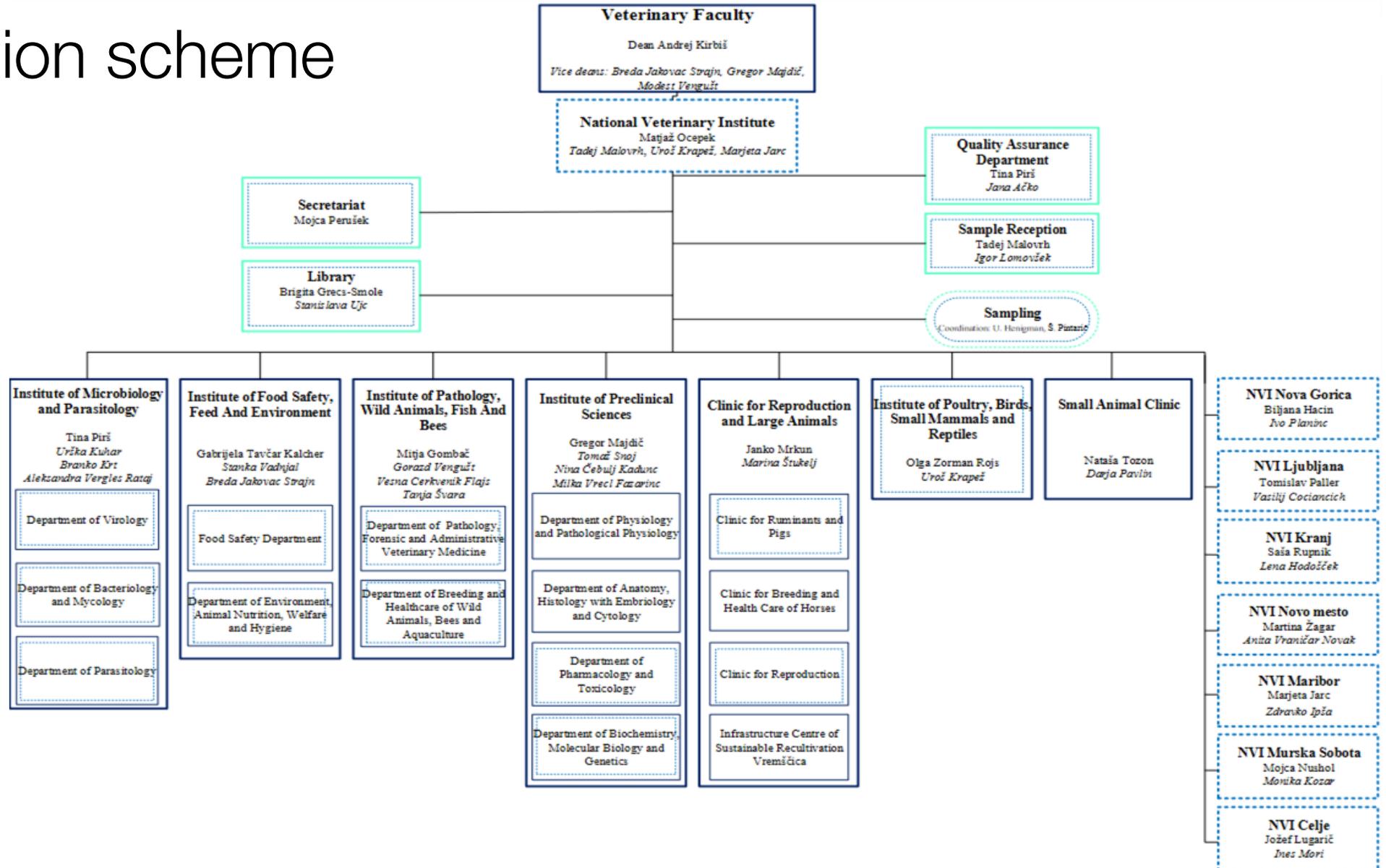
The optimal way of using finances, equipment,
human resources of a small profession in a small
country



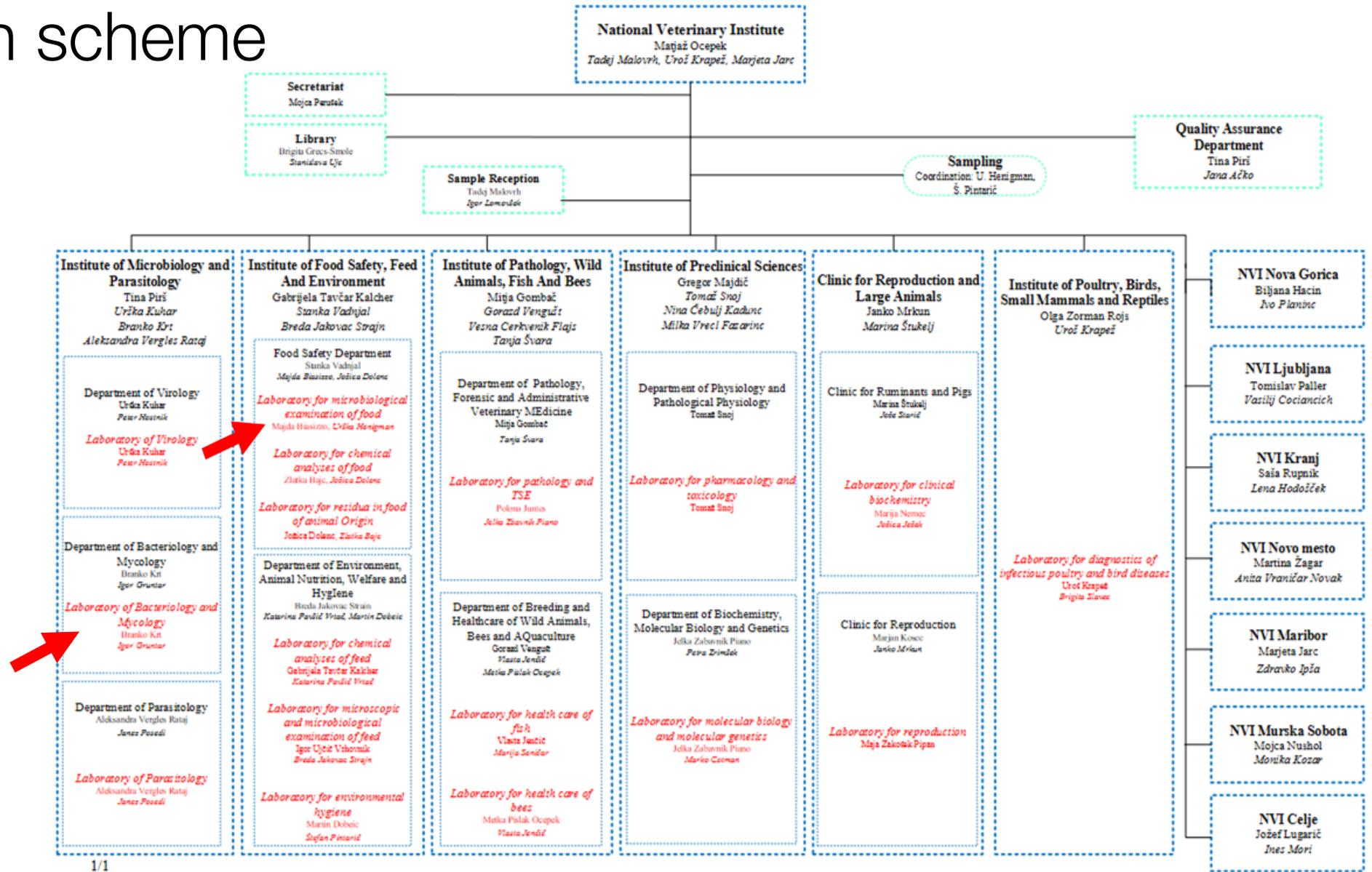
NVI: Activities of the official veterinary service



Organisation scheme



Organisation scheme



Quality Assurance at VF

SIST EN ISO/IEC 17025:2017

Accreditation of management and testing procedures: scope of accreditation

2002

RvA & SA accreditation certificate for microbiological examination and chemical analyses, and for some tests for control of feed.

2020

Adjustment to ISO 17025:2017

2021

VF/NVI has 155 procedures accredited

NRL - *Salmonella*

Accreditation - Slovenian Accreditation (SA)

ISO 17025

OIE Manual of Standards for
Diagnostic Tests and Vaccines for
Terrestrial Animals (mammals, birds and bees)
Examination of clinical and pathological samples of
animal origin (terrestrial animals) and samples of animal
environment for *Salmonella* spp.– isolation and
confirmation

ISO 6579 -1 Microbiology of the food
chain

Horizontal method for the detection, enumeration and
serotyping of *Salmonella* spp. Part 1: Detection of
Salmonella spp.

Kauffmann-White-Le Minor scheme
(WHO) Serotyping of *Salmonella*
enterica

NRL Activities

- 1 Cooperation with EURL for *Salmonella*

- 2 Participation in inter-laboratory trials (EURL, FEPAS, APHA..)

- 3 Spreading informations received from EURL

- 4 Coordinates and performs national inter-laboratory comparison assays (ILC)

- 5 Expert support on request of AFSVPP
(The Administration of The Republic of Slovenia for Food Safety, Veterinary Sector and Plant Protection)
Participation in assessment of certain laboratories, support in preparing legislation and monitoring programmes

- 6 Testing of official samples

NRL Activities

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| 7 | Maintaining the collection of <i>Salmonella</i> isolates and the data base |
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| 8 | Performing confirmatory testing and serotyping of <i>Salmonella</i> strains (aprox. 350 isolates/year) |
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| 9 | Testing for differentiation of vaccine and wild strain |
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| 10 | Monitoring <i>Salmonella</i> antimicrobial resistance together with NRL-AR |
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| 11 | Participation in preparation of yearly zoonosis reports (published by EFSA) |
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| 12 | Daily support to laboratories participating in <i>Salmonella</i> National Control program |
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| 13 | Coordination of official laboratories activities |
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NRL Activities

14 Multiplex PCR for determination of monophasic ST (in routine serotyping)

15 Real-time PCR for *S. Infantis* (to confirm variant e.g. 6,7:-, 1,5 or 6,7:r:-)

16 WGS – mainly for research projects

S. Choleraesuis (outbreak investigation and comparison of the isolates of different origin)

S. Infantis (retrospective and prospective comparison of the isolates from broilers, human and food)

Proficiency testing schemes

EURL
Salmonella

APHA,
(VETQAS), UK

WHO
(EQAS)

FAPAS
(Food Analysis
Performance
Assessment
Scheme)

FEPAS
(Food
Examination
Performance
Assessment
Scheme)

NRL Interlaboratory comparison testing (ILC)

Organisation of comparative tests (ILC) for all nominated laboratories and other laboratories on request (since 2003)

Isolation and identification to sero-group 3 to 4 matrices annually

- 1 Food: meat or milk with products (*2-3 samples*)
- 2 Feeding-stuffs (*2 samples*)
- 3 Primary production: poultry faeces or bootswabs (*3 samples*)
- 4 Environmental samples: sponges (*2 samples*)



PARTICIPATION

8 to 12 laboratories
(depending on matrix)

ILC

SAMPLES

Salmonella negative matrix

Serovars: Enteritidis,
Typhimurium, other serovars of
public health importance or
frequently isolated serovars

3 contamination levels (blank,
high and low - close to limit of detection)

EXAMINATION AND REPORTING

Samples should be processed within
24h after preparation

Reports are sent to NRL

NRL reports on:

- 1 Results of each ILC by laboratory codes
- 2 Report for all the participating laboratories and all matrices

EVALUATION AND RESULTS

Criteria are determined in internal
guide on ILC

ILC - Actions in case of deviating results

1

Laboratory evaluates its performance

2

Follow up samples for labs with „not good performance“

3

Additional training on laboratory request

4

Evaluating sample preparation if $> 1/3$ laboratories fail

The results of the ILC (MLPT 50) - December 2020

MLPT 50			Laboratory											
matrix			A	B	C	D	E	F	G	H	I	K	L	NRL
minced meat	A	O:8 S. Hadar (4 CFU)	2 pozitivno O:8	2 pozitivno O:8	1 pozitivno O:8	2 pozitivno O:8	2 pozitivno O:8	1 pozitivno O:8	1 pozitivno O:8	1 pozitivno O:8	1 pozitivno O:8	2 pozitivno O:8		1 pozitivno O:8
		negativno	1 negativno	1 negativno	2 negativno	1 negativno	1 negativno	2 negativno	2 negativno	2 negativno	2 negativno	2 negativno	1 negativno	
hygiene swab - sponge	B	O:7 S. Virchow (18 CFU)	2 pozitivno O:7	1 pozitivno O:7	1 pozitivno O:7	2 pozitivno O:7	1 pozitivno O:7	1 pozitivno O:7	1 pozitivno O:7	1 pozitivno O:7	1 pozitivno O:7	1 pozitivno O:7		1 pozitivno O:7
		Hafnia alvei (30 cfu) E. coli (7 cfu)	1 negativno	2 negativno	2 negativno	1 negativno	2 negativno							
chichen feed	C	O:7 S. Virchow (28 CFU)	1 pozitivno O:7	2 pozitivno O:7	1 pozitivno O:7	2 pozitivno O:7	2 pozitivno O:7		1 pozitivno O:7	1 pozitivno O:7			2 pozitivno O:7	1 pozitivno O:7
		negativno Hafnia alvei (76 cfu)	2 negativno	1 negativno	2 negativno	1 negativno	1 negativno		2 negativno	2 negativno			1 negativno	2 negativno
boot socks - laying hens	D	O:8 S. Hadar (8 CFU)	3 pozitivno O:8	2 pozitivno O:8	1 pozitivno O:8	3 pozitivno O:8	2 pozitivno O:8	3 pozitivno O:8	1 pozitivno O:8	1 pozitivno O:8			3 pozitivno O:8	1 pozitivno O:8
		O:8 S. Hadar (15 CFU)	2 pozitivno O:8	3 pozitivno O:8	2 pozitivno O:8	2 pozitivno O:8	1 pozitivno O:8	2 pozitivno O:8	2 pozitivno O:8	2 pozitivno O:8			2 pozitivno O:8	2 pozitivno O:8
boot socks - laying hens	D	negativno	1 negativno	1 negativno	3 negativno	1 negativno	3 negativno	1 negativno	3 negativno	3 negativno			1 negativno	3 negativno
		detection	9/9	9/9	9/9	9/9	9/9	7/7	9/9	9/9	4/4	4/4	5/5	9/9
Evaluation		serotyping O group	5/5	5/5	5/5	5/5	5/5	4/4	5/5	5/5	2/2	2/2	3/3	5/5
Evaluation for all labs: Good Performance														

Testing of the official samples

Environmental samples taken within *Salmonella* national control programmes (breeding flocks, broilers, laying hens, turkey)

Food samples taken within the Annual Programme of Monitoring of Zoonoses and Zoonotic Agents

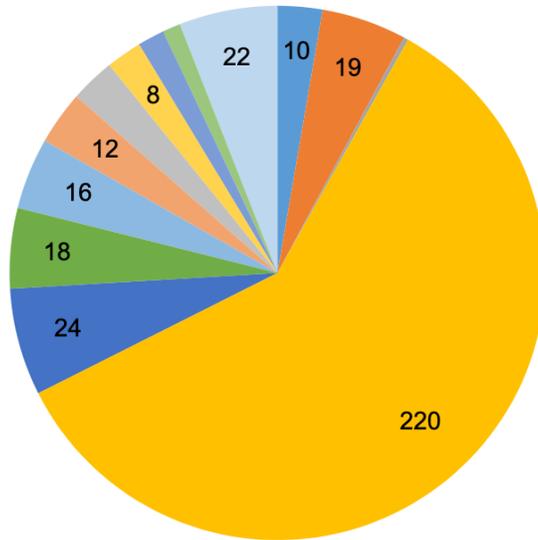
Feed samples taken within Official feed sampling programme

Caecum samples taken within AMR monitoring program

Salmonella serovars in 2019 and 2020

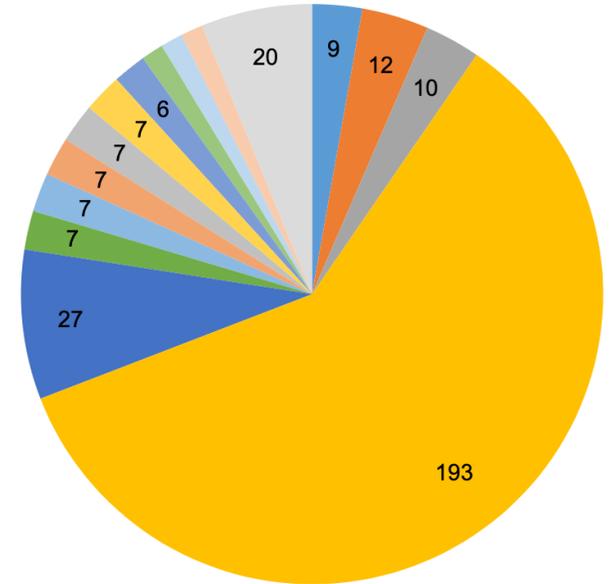
2019

- Enteritidis
- Typhimurium
- 1,4,5,12:i- (monofazna S. Typhimurium)
- Infantis
- Derby
- Agona
- Coeln
- Stanley
- 6,7:-:1,5
- Stanleyville
- Paratyphi B
- Senftenberg
- Others (< 3)



2020

- Enteritidis
- Typhimurium
- 1,4,5,12:i- (monofazna S. Typhimurium)
- Infantis
- Coeln
- Derby
- Paratyphi B
- Saintpaul
- Stanley
- -:r:1,5
- Agona
- Kentucky
- Ohio
- -:r:-
- Others (≤ 3)



Source

Animals: cat, dog, exotic bird, horse, pig, rabbit, reptile, rodent, small animal, turkey, wild animal, wild bird, zoo animal, Meat and meat products, Feed

Thank you

