CONTROL OF ANTIMICROBIAL RESISTANCE BY THE INTEGRATED FARM SYSTEM WITHIN "FARM TO FORK" STRATEGY

21/02/2025 – 20/08/2026

Visegrad Grant No. 22430046

Visegrad Fund project team meeting
22/06/2026 – 23/06/2026

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Implementation and participating countries

Project start: 02/2025
Project end: 08/2026

The general mission of the Visegrad Fund is to advance ideas for sustainable regional cooperation in Central Europe

Slovakia

Czech Republic

Poland

Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

Organizations

Main applicant: University of Veterinary Medicine and Pharmacy in Košice, Slovakia
Coordinator of the project: Ivana Regecová, assoc. prof. DVM., PhD.

Partner 1: Mendel University in Brno, Czech Republic
co-researcher: Petr Sláma, assoc. prof., Ing., PhD.

Partner 2: Warsaw University of Life Sciences, Poland
co-researcher: Andrzej Łozicki, dr. hab., prof. SGGW

Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

1816 SGGW

Website



The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Website

https://v4amrcontrol2025.uvlf.sk/



Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

Objectives of the project

1. Detection of antimicrobial resistant bacteria.
2. Creation of a database of antimicrobial resistance and virulence factors.
3. Development of an algorithmic module for AMR data integration and analysis.

Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

1816 SGGW

1. Detection of antimicrobial resistant bacteria

Project research overview:

- 8 farms (6 farms SK, 1 farm PL, 1 farm CZ)
- 2 slaughterhouses (SK)
- More than 1200 cattle monitored
- More than 400 bacterial isolates
- Characterized AMR, MDR and virulence factor profiling
- Data integrated from Slovakia, Czech Republic and Poland

Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

1816 SGGW

1. Detection of antimicrobial resistant bacteria

Methodological Approach

- ✓ **Sample collection** – raw milk, meat and environmental swabs from dairy farms and slaughterhouses
- ✓ **Microbiological cultivation and isolation** – according to **ISO standards** (ISO 6887, ISO 6888-1, ISO 21528-2, ISO 16649-2)
- ✓ **Species identification** – **biochemical tests kits** (MIKRO-LA-TEST®ID, Erba Lachema, Brno, Czech Republic), **16S rRNA sequencing** (*Frank et al., 2008*) and **MALDI-TOF MS** (*Ozbey et al., 2022*)
- ✓ **Antimicrobial susceptibility testing** – microdilution and disk diffusion methods according to **CLSI** and **EUCAST** guidelines.
- ✓ **Virulence factor detection** – biofilm formation (Kalpesh et al., 2022), hemolytic activity and nuclease activity (Moravej et al., 2014).
- ✓ **Data integration and analysis** – creation of an database and development of an algorithmic module for future integration into the Integrated Farm System

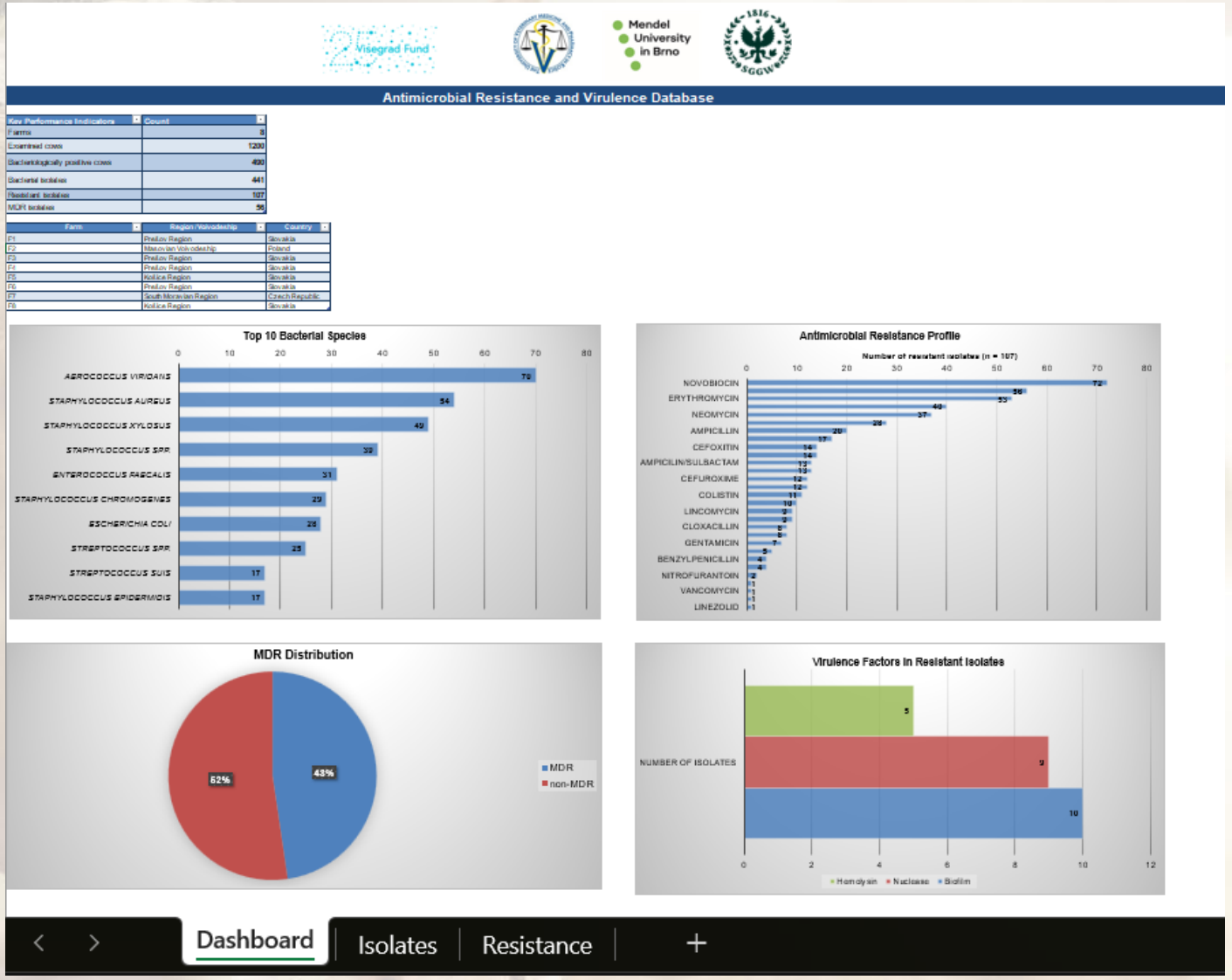
Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

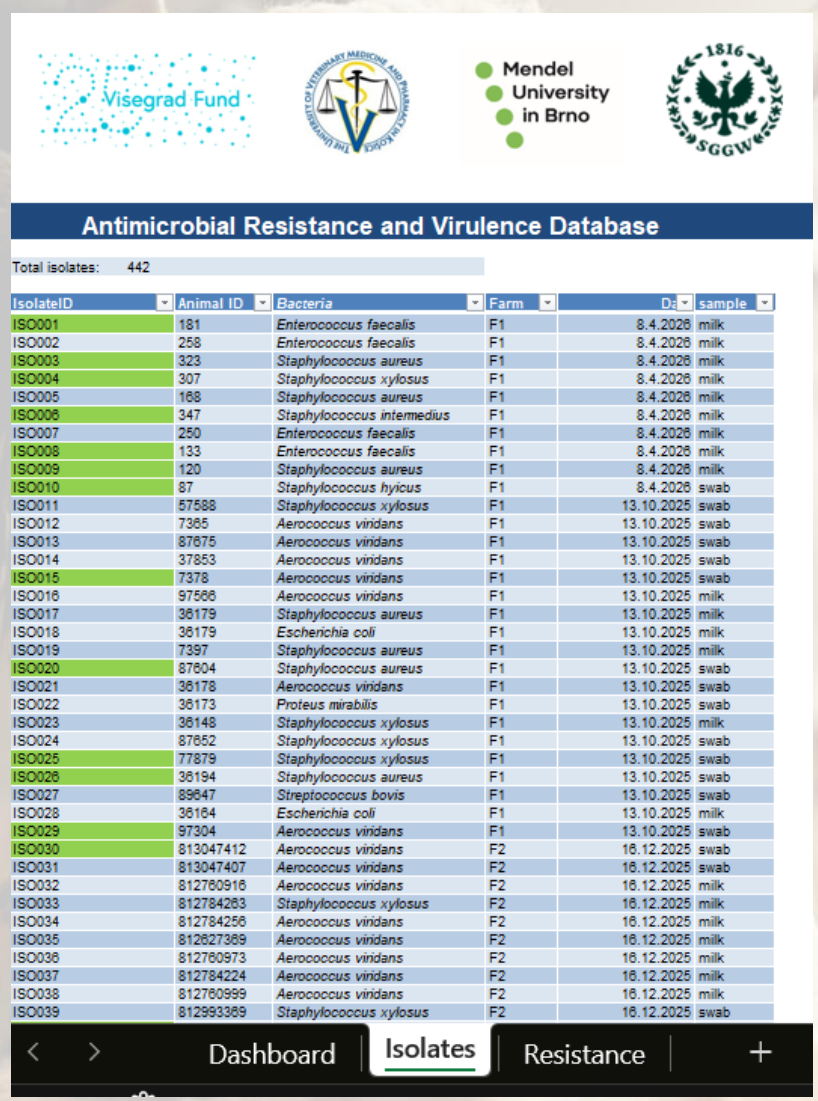
1816 SGGW

2. Creation of a database of antimicrobial resistance and virulence factors



The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

2. Creation of a database of antimicrobial resistance and virulence factors

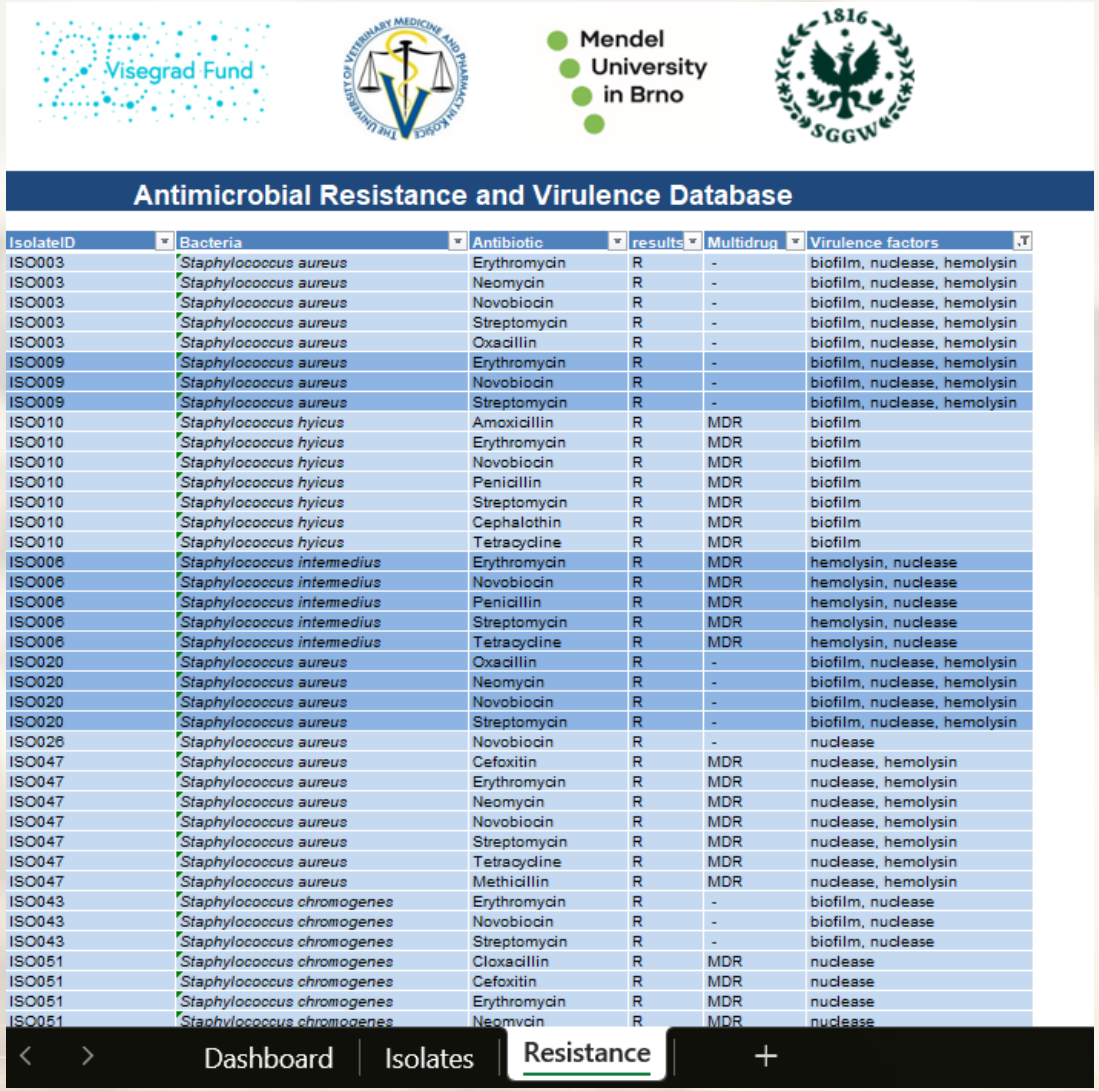


Antimicrobial Resistance and Virulence Database

Total isolates: 442

IsolateID	Animal ID	Bacteria	Farm	Da	sample
ISO001	181	*Enterococcus faecalis*	F1	8.4.2026	milk
ISO002	258	*Enterococcus faecalis*	F1	8.4.2026	milk
ISO003	323	*Staphylococcus aureus*	F1	8.4.2026	milk
ISO004	307	*Staphylococcus xylosus*	F1	8.4.2026	milk
ISO005	168	*Staphylococcus aureus*	F1	8.4.2026	milk
ISO006	347	*Staphylococcus intermedius*	F1	8.4.2026	milk
ISO007	250	*Enterococcus faecalis*	F1	8.4.2026	milk
ISO008	133	*Enterococcus faecalis*	F1	8.4.2026	milk
ISO009	120	*Staphylococcus aureus*	F1	8.4.2026	milk
ISO010	87	*Staphylococcus hyicus*	F1	8.4.2026	swab
ISO011	57588	*Staphylococcus xylosus*	F1	13.10.2025	swab
ISO012	7365	*Aerococcus viridans*	F1	13.10.2025	swab
ISO013	87675	*Aerococcus viridans*	F1	13.10.2025	swab
ISO014	37853	*Aerococcus viridans*	F1	13.10.2025	swab
ISO015	7378	*Aerococcus viridans*	F1	13.10.2025	swab
ISO016	97566	*Aerococcus viridans*	F1	13.10.2025	milk
ISO017	36179	*Staphylococcus aureus*	F1	13.10.2025	milk
ISO018	36179	*Escherichia coli*	F1	13.10.2025	milk
ISO019	7397	*Staphylococcus aureus*	F1	13.10.2025	milk
ISO020	87604	*Staphylococcus aureus*	F1	13.10.2025	swab
ISO021	36178	*Aerococcus viridans*	F1	13.10.2025	swab
ISO022	36173	*Proteus mirabilis*	F1	13.10.2025	swab
ISO023	36148	*Staphylococcus xylosus*	F1	13.10.2025	milk
ISO024	87652	*Staphylococcus xylosus*	F1	13.10.2025	swab
ISO025	77879	*Staphylococcus xylosus*	F1	13.10.2025	swab
ISO026	36194	*Staphylococcus aureus*	F1	13.10.2025	swab
ISO027	89647	*Streptococcus bovis*	F1	13.10.2025	swab
ISO028	36164	*Escherichia coli*	F1	13.10.2025	milk
ISO029	97304	*Aerococcus viridans*	F1	13.10.2025	swab
ISO030	813047412	*Aerococcus viridans*	F2	16.12.2025	swab
ISO031	813047407	*Aerococcus viridans*	F2	16.12.2025	swab
ISO032	812760916	*Aerococcus viridans*	F2	16.12.2025	milk
ISO033	812784283	*Staphylococcus xylosus*	F2	16.12.2025	milk
ISO034	812784256	*Aerococcus viridans*	F2	16.12.2025	milk
ISO035	812627389	*Aerococcus viridans*	F2	16.12.2025	milk
ISO036	812760973	*Aerococcus viridans*	F2	16.12.2025	milk
ISO037	812784224	*Aerococcus viridans*	F2	16.12.2025	milk
ISO038	812760999	*Aerococcus viridans*	F2	16.12.2025	milk
ISO039	812993389	*Staphylococcus xylosus*	F2	16.12.2025	swab

Dashboard | Isolates | Resistance | +



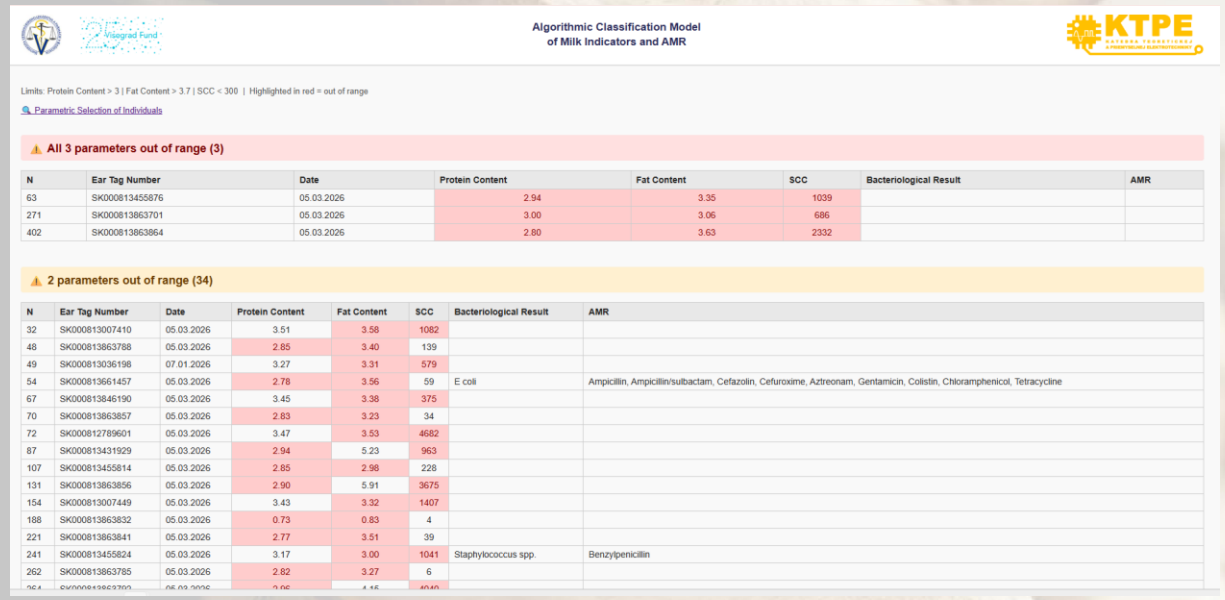
Antimicrobial Resistance and Virulence Database

IsolateID	Bacteria	Antibiotic	results	Multidrug	Virulence factors
ISO003	*Staphylococcus aureus*	Erythromycin	R	-	biofilm, nuclease, hemolysin
ISO003	*Staphylococcus aureus*	Neomycin	R	-	biofilm, nuclease, hemolysin
ISO003	*Staphylococcus aureus*	Novobiocin	R	-	biofilm, nuclease, hemolysin
ISO003	*Staphylococcus aureus*	Streptomycin	R	-	biofilm, nuclease, hemolysin
ISO003	*Staphylococcus aureus*	Oxacillin	R	-	biofilm, nuclease, hemolysin
ISO009	*Staphylococcus aureus*	Erythromycin	R	-	biofilm, nuclease, hemolysin
ISO009	*Staphylococcus aureus*	Novobiocin	R	-	biofilm, nuclease, hemolysin
ISO009	*Staphylococcus aureus*	Streptomycin	R	-	biofilm, nuclease, hemolysin
ISO010	*Staphylococcus hyicus*	Amoxicillin	R	MDR	biofilm
ISO010	*Staphylococcus hyicus*	Erythromycin	R	MDR	biofilm
ISO010	*Staphylococcus hyicus*	Novobiocin	R	MDR	biofilm
ISO010	*Staphylococcus hyicus*	Penicillin	R	MDR	biofilm
ISO010	*Staphylococcus hyicus*	Streptomycin	R	MDR	biofilm
ISO010	*Staphylococcus hyicus*	Cephalothin	R	MDR	biofilm
ISO010	*Staphylococcus hyicus*	Tetracycline	R	MDR	biofilm
ISO006	*Staphylococcus intermedius*	Erythromycin	R	MDR	hemolysin, nuclease
ISO006	*Staphylococcus intermedius*	Novobiocin	R	MDR	hemolysin, nuclease
ISO006	*Staphylococcus intermedius*	Penicillin	R	MDR	hemolysin, nuclease
ISO006	*Staphylococcus intermedius*	Streptomycin	R	MDR	hemolysin, nuclease
ISO006	*Staphylococcus intermedius*	Tetracycline	R	MDR	hemolysin, nuclease
ISO020	*Staphylococcus aureus*	Oxacillin	R	-	biofilm, nuclease, hemolysin
ISO020	*Staphylococcus aureus*	Neomycin	R	-	biofilm, nuclease, hemolysin
ISO020	*Staphylococcus aureus*	Novobiocin	R	-	biofilm, nuclease, hemolysin
ISO020	*Staphylococcus aureus*	Streptomycin	R	-	biofilm, nuclease, hemolysin
ISO026	*Staphylococcus aureus*	Novobiocin	R	-	nuclease
ISO047	*Staphylococcus aureus*	Cefoxitin	R	MDR	nuclease, hemolysin
ISO047	*Staphylococcus aureus*	Erythromycin	R	MDR	nuclease, hemolysin
ISO047	*Staphylococcus aureus*	Neomycin	R	MDR	nuclease, hemolysin
ISO047	*Staphylococcus aureus*	Novobiocin	R	MDR	nuclease, hemolysin
ISO047	*Staphylococcus aureus*	Streptomycin	R	MDR	nuclease, hemolysin
ISO047	*Staphylococcus aureus*	Tetracycline	R	MDR	nuclease, hemolysin
ISO047	*Staphylococcus aureus*	Methicillin	R	MDR	nuclease, hemolysin
ISO043	*Staphylococcus chromogenes*	Erythromycin	R	-	biofilm, nuclease
ISO043	*Staphylococcus chromogenes*	Novobiocin	R	-	biofilm, nuclease
ISO043	*Staphylococcus chromogenes*	Streptomycin	R	-	biofilm, nuclease
ISO051	*Staphylococcus chromogenes*	Cloxacillin	R	MDR	nuclease
ISO051	*Staphylococcus chromogenes*	Cefoxitin	R	MDR	nuclease
ISO051	*Staphylococcus chromogenes*	Erythromycin	R	MDR	nuclease
ISO051	*Staphylococcus chromogenes*	Neomycin	R	MDR	nuclease

Dashboard | Isolates | Resistance | +

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

3. Development of an algorithmic module for AMR data integration and analysis



Algorithmic Classification Model of Milk Indicators and AMR

Limits: Protein Content > 3 | Fat Content > 3.7 | SCC < 300 | Highlighted in red = out of range

Parametric Selection of Individuals

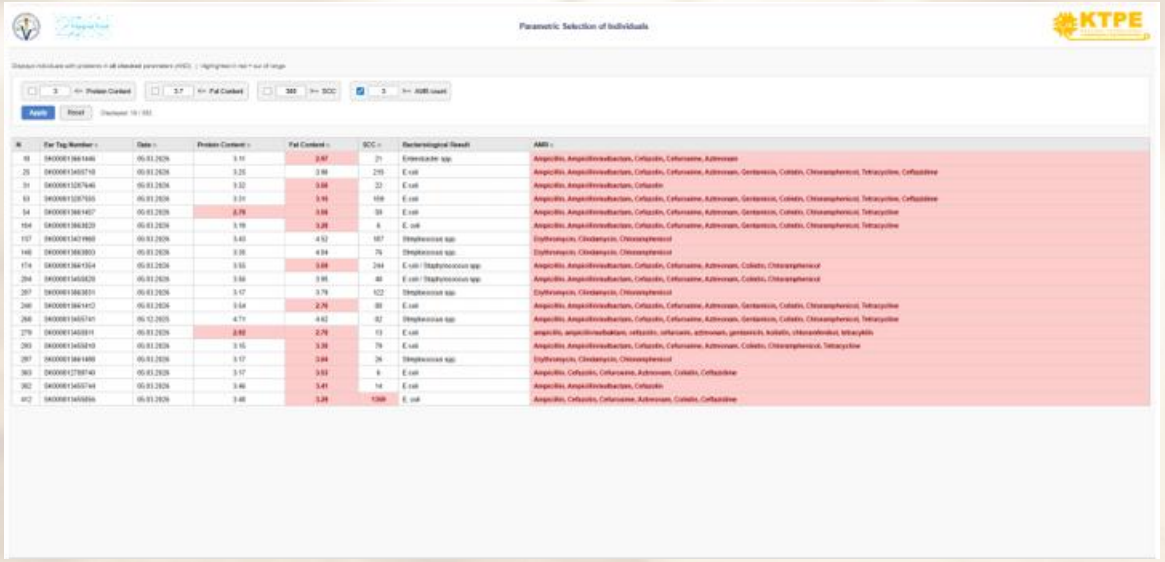
All 3 parameters out of range (3)

N	Ear Tag Number	Date	Protein Content	Fat Content	SCC	Bacteriological Result	AMR
63	SK000813455876	05.03.2026	2.94	3.35	1039		
271	SK000813863701	05.03.2026	3.00	3.06	686		
402	SK000813863864	05.03.2026	2.80	3.63	2332		

2 parameters out of range (34)

N	Ear Tag Number	Date	Protein Content	Fat Content	SCC	Bacteriological Result	AMR
32	SK000813007410	05.03.2026	3.51	3.58	1082		
48	SK000813863788	05.03.2026	2.85	3.40	139		
49	SK000813036198	07.01.2026	3.27	3.31	579		
54	SK000813661457	05.03.2026	2.78	3.56	59	E coli	Ampicillin, Ampicillin/sulbactam, Cefazolin, Cefuroxime, Aztreonam, Gentamicin, Colistin, Chloramphenicol, Tetracycline
67	SK000813846190	05.03.2026	3.45	3.38	375		
70	SK000813863857	05.03.2026	2.83	3.23	34		
72	SK000812789601	05.03.2026	3.47	3.53	4682		
87	SK000813431929	05.03.2026	2.94	5.23	963		
107	SK000813455814	05.03.2026	2.85	2.98	228		
131	SK000813863856	05.03.2026	2.90	5.91	3675		
154	SK000813007449	05.03.2026	3.43	3.32	1407		
188	SK000813863832	05.03.2026	0.73	0.83	4		
221	SK000813863841	05.03.2026	2.77	3.51	39		
241	SK000813455824	05.03.2026	3.17	3.00	1041	Staphylococcus spp.	Benzylpenicillin
262	SK000813863785	05.03.2026	2.82	3.27	6		

Parameter	Threshold
Protein content	> 3.0 %
Fat content	> 3.7 %
SCC	< 300 × 10^3 cells/ml
AMR profile	< 3 antimicrobial classes



Parametric Selection of Individuals

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Project event

- **Kick-off meeting of project research teams (online)**
  In 21.02.2025 UVMP Košice, Slovakia

- **Workshop on Integrated Farm System**
  In 5 September 2025 UVMP Košice, Slovakia

- **Research visit to Warsaw University of Life Sciences**
  From 6.10.2025 to 8.10.2025 Warsaw, Poland

- **Participation in conference - Lenfeldovy a Höklovy dny**
  From 21.10.2025 to 23.10.2025 Brno, Czechia

Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

Project event

- **Research visit to Mendel University in Brno**
  From 03.02.2026 to 05.02.2026 Brno, Czechia

- **Participation in conference - Food safety**
  From 25.03.2026 to 27.03.2026 Piešťany, Slovakia

- **Final meeting of project partners**
  From 22.06.2026 to 23.06.2026 Košice, Slovakia

Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

1816 SGGW

Outputs

1 x Monograph

- ✓ *Algorithmic Module in Integrated Farm Systems for Reducing Antimicrobial Resistance in Livestock Production*

3 x Scientific Articles

- ✓ 1 accepted (*Journal of Advanced Veterinary and Animal Research*)
- ✓ 1 under review (*Open Veterinary Journal*)
- ✓ 1 additional manuscript (*Journal of Dairy, Veterinary & Animal Research*)

2 x International Conferences

- ✓ *LIV. Lenfeldovy a Höklovy dny* (Brno, Czech Republic)
- ✓ *Food safety and quality* (Piešťany, Slovakia)

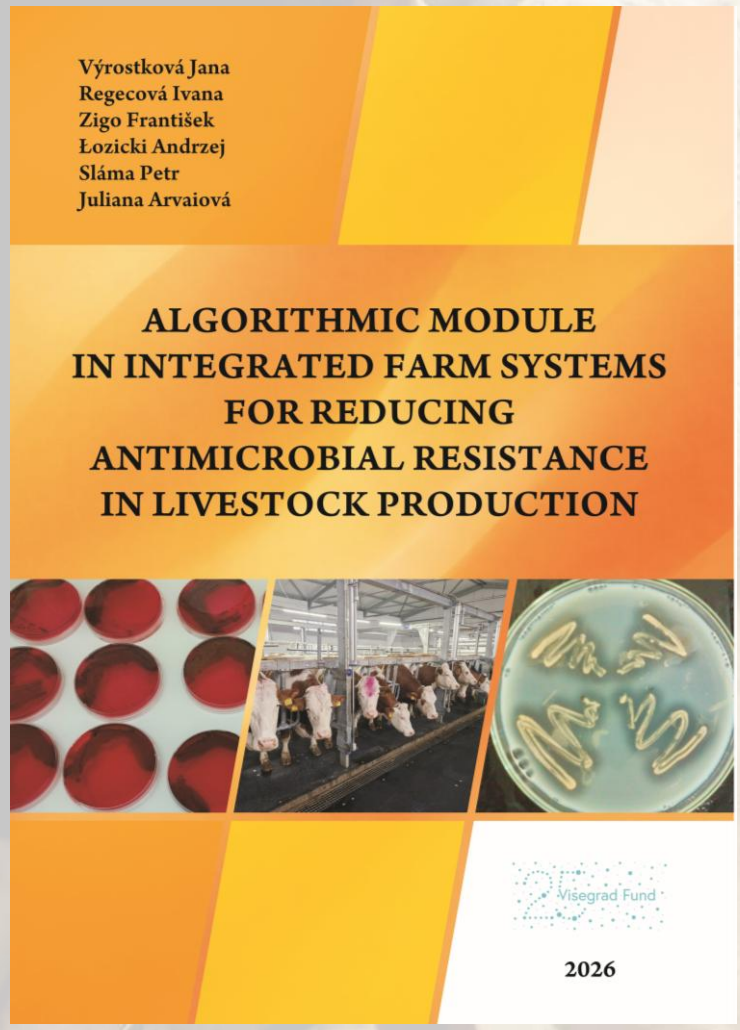
Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

Monograph

(114 pp.)



Algorithmic Module in Integrated Farm Systems for Reducing Antimicrobial Resistance in Livestock Production

Výrostková Jana, Regecová Ivana, Zigo František, Łozicki Andrzej, Sláma Petr, Arvaiová Juliana,

Košice 2026

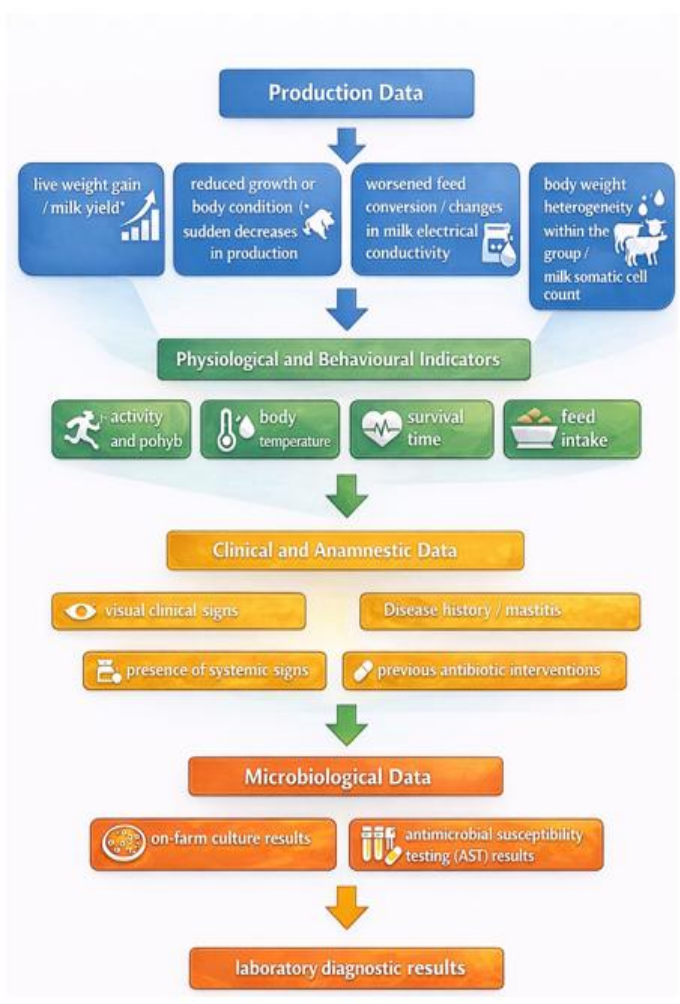
The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Monograph

This publication focuses on antimicrobial resistance in cattle production and the possibilities for its control through Integrated Farm Systems.

It includes:

- ✓ an overview of current knowledge on AMR in milk and meat production,
- ✓ the use of digital technologies and artificial intelligence in livestock farming,
- ✓ the development of an algorithmic module for AMR monitoring,
- ✓ a methodology for implementing the algorithmic module within the Integrated Farm System, including data collection, processing, and evaluation.



The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Research article

Antimicrobial resistance and multidrug resistance in raw milk from dairy farms in V4 countries

Ivana Regecová, Jana Výrostková, František Zigo, Łozicki Andrej, Petr Sláma, Pavlík Aleš, Bendowski Wiktor, Schilling-Tóth Boglárka Mária, Marlena Zielińska-Górska

Journal of Advanced Veterinary and Animal Research (IF 1.5; Q2)

Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

Antimicrobial resistance and multidrug resistance in raw milk from dairy farms in V4 countries

- ✓ **400 clinically healthy dairy cows** from dairy farms in V4 countries were included in the study.
- ✓ ***Staphylococcus* spp.** represented the dominant bacterial group (**52%** of identified isolates).
- ✓ Antimicrobial resistance was detected in **15.2% of Gram-positive** and **22.2% of Gram-negative bacteria**.
- ✓ The highest resistance among Gram-positive bacteria was observed against **tetracyclines and macrolides (8.6%)**, while Gram-negative isolates showed the highest resistance to **ampicillin (16.7%)**.
- ✓ Multidrug-resistant isolates were identified in several clinically important bacterial species, including ***Escherichia coli*, *Staphylococcus aureus* and *Enterococcus faecalis***.

Country	Species	Resistant isolates (n/N, %)	Resistance profile	MDR
Czech Republic	*Streptococcus uberis*	1/4 (25.0%)	LIN	–
Czech Republic	*Streptococcus dysgalactiae*	1/7 (14.3%)	TET	–
Czech Republic	*Staphylococcus aureus*	1/2 (50.0%)	AMP, LIN	–
Czech Republic	*Staphylococcus aureus*	1/2 (50.0%)	PEN, TET	–
Czech Republic	*Enterobacter cloacae*	1/1 (100%)	CAZ, AMP, CFZ, CXM, ATM, COL, TET	+
Poland	*Staphylococcus aureus*	1/7 (14.3%)	SXT	–
Poland	*Staphylococcus aureus*	1/7 (14.3%)	ERY	–
Poland	*Staphylococcus chromogenes*	1/9 (11.1%)	AMP	–
Poland	*Staphylococcus chromogenes*	1/9 (11.1%)	ERY	–
Poland	*Staphylococcus xylosus*	1/3 (33.3%)	LIN	–
Slovakia	*Escherichia coli*	1/3 (33.3%)	CAZ, AMP, CFZ, CXM, ATM, COL, TGC	+
Slovakia	*Escherichia coli*	2/3 (66.7%)	AMP, CFZ, CXM, ATM, GEN, COL, TET	+
Slovakia	*Staphylococcus xylosus*	1/1 (100%)	ERY	–
Slovakia	*Staphylococcus epidermidis*	1/2 (50.0%)	ERY	–

n – number of resistant isolates with a given antimicrobial resistance profile; N – total number of isolates of the same bacterial species recovered in the respective country. ERY – erythromycin; PEN – penicillin; TET – tetracycline; GEN – gentamicin; NOV – novobiocin; AMP – ampicillin; LIN – linezolid; CAZ – ceftazidime; CFZ – cefazolin; CXM – cefuroxime; ATM – aztreonam; COL – colistin; TGC – tigecycline; SXT – trimethoprim/sulfamethoxazole; MDR – multidrug resistance. MDR definition: resistance to ≥3 antimicrobial classes.

Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

Research article

Investigation of the Carriage in Staphylococcal Species within the Dairy Farming Conditions

Mária Vargová, Ivana Regecová, František Zigo, Jana Výrostková, Zuzana Lacková, Zuzana Farkašová, Marlena Zielińska-Górska, Andrej Łozicki, Petr Sláma, Ladislav Takáč, Ibrahim F. Rehan

Open Veterinary Journal (IF 1.6; Q2)

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Investigation of the Carriage in Staphylococcal Species within the Dairy Farming Conditions

- ✓ The study evaluated the occurrence of bacterial pathogens in mastitic milk and dairy farm environments within the One Health framework.
- ✓ The study included **600 dairy cows** and **84 swabs** collected from dairy farm environments. **Coagulase-negative staphylococci (46.0%)**, ***Escherichia coli* (19.4%)**, and ***Staphylococcus aureus* (16.7%)** were the most frequently isolated pathogens.
- ✓ Many staphylococcal isolates exhibited biofilm-forming ability, virulence factors, and antimicrobial resistance, including multidrug-resistant strains.

Table 2. Results of identification of bacterial isolates from samples.

Pathogen	Total isolates n (%)	Mastitic samples n (%)	Swabs n (%)
CoNS*	116 (46.0)	105 (41.7)	11 (4.4)
Escherichia coli	49 (19.4)	18 (7.1)	31 (12.3)
Staphylococcus aureus	42 (16.7)	28 (11.1)	14 (5.6)
Enterococcus spp.	19 (7.5)	6 (2.4)	13 (5.2)
Streptococcus spp.	15 (5.9)	15 (5.9)	0
Bacillus spp.	6 (2.4)	6 (2.4)	0
Aerococcus viridans	5 (2.0)	5 (2.0)	0
Total	252 (100)	183 (72.6)	69 (27.4)

Note: CoNS – coagulase-negative staphylococci (*S. chromogenes*, *S. xylosus*, *S. simulans*, *S.* 377 *warneri*, *S. haemolyticus* a *S. epidermidis*).

Table 3. Virulence factors in isolated staphylococci.

Staphylococcus spp.	Category n	Hemolysis (%)	Biofilm n (%)	Resistance R1 n (%)	R2 n (%)	R3 n (%)	MDR n (%)
S. aureus (n=42)	Cows (28)	16 (57.1)	15 (53.6)	13 (46.4)	9 (32.1)	3 (10.7)	2 (7.1)
	Swabs (14)	5 (35.7)	9 (64.2)	7 (50.0)	3 (21.4)	2 (14.3)	1 (7.1)
CoNS (n=116)	Cows (105)	27 (25.7)	38 (36.2)	27 (25.7)	15 (14.3)	5 (4.8)	2 (1.9)
	Swabs (11)	4 (36.4)	6 (54.5)	5 (45.5)	4 (36.4)	2 (18.2)	0

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Research article

Factors influencing mastitis occurrence and milk quality in ewes: the role of seasonality and age

T. Hoppejová, Z. Kubišová, F. Zigo, J. Záhumenská, Z. Lacková, Z. Farkašová, J. Výrostková, A. Récky, I. F. Rehan, E. P. Kielb, A. Łozicki, A. Pavlík

Journal of Dairy, Veterinary & Animal Research

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Factors influencing mastitis occurrence and milk quality in ewes: the role of seasonality and age

- ✓ **200 dairy ewes** were monitored throughout one grazing season to evaluate mammary gland health, milk quality and mastitis occurrence.
- ✓ Mastitis prevalence ranged from **7.7% to 11.0%**, with both clinical and subclinical forms identified during the production season.
- ✓ **Staphylococci represented the dominant mastitis pathogens**, accounting for more than 60% of positive samples.
- ✓ The study identified key risk factors associated with udder health, milk quality and somatic cell count in dairy sheep.





Visegrad Fund

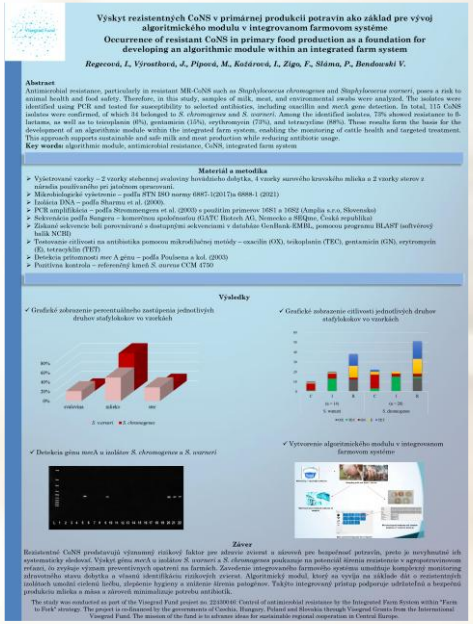
The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

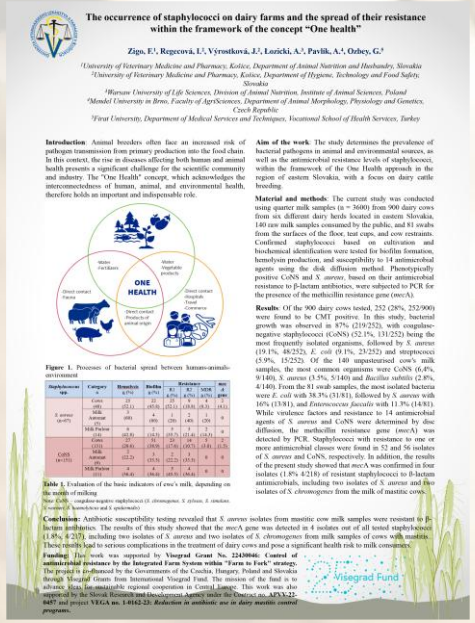
1816 SGGW

Conference – Lenfeldovy a Höklovy dny

1. Regecová, I., Výrostková, J., Pipová, M., Kožárová, I., Zigo, F., Sláma, P., Bendowski, W. *Occurrence of Resistant CoNS in Primary Food Production as a Foundation for Developing an Algorithmic Module Within an Integrated Farm System*. Zborník prednášok a posterov z medzinárodnej vedeckej konferencie Hygiena a technologie potravin - LIV. Lenfeldovy a Höklovy dny. 22.-23. október 2025, Česká republika. Brno: Veterinární univerzita Brno, 2025. ISBN: 978-80-7305-141-9. s. 366-373.


Výskyt rezistentných CoNS v primárnej produkcii potravín ako základ pre vývoj algoritmického modulu v integrovanom farmovom systéme
Occurrence of resistant CoNS in primary food production as a foundation for developing an algorithmic module within an integrated farm system
Regecová, I., Výrostková, J., Pipová, M., Kožárová, I., Zigo, F., Sláma, P., Bendowski V.
Abstract
Materiál a metodika
Výsledky
Záver

2. Zigo, F., Regecová, I., Výrostková, J., Łozicki, A., Pavlík, A., Ozbey, G. *The occurrence of staphylococci on dairy farms and the spread of their resistance within the framework of the concept "One health"*. Zborník prednášok a posterov z medzinárodnej vedeckej konferencie Hygiena a technologie potravin - LIV. Lenfeldovy a Höklovy dny. 22.-23. október 2025, Česká republika. Brno: Veterinární univerzita Brno, 2025. ISBN: 978-80-7305-141-9. s. 446-451.


The occurrence of staphylococci on dairy farms and the spread of their resistance within the framework of the concept "One health"
Zigo, F.[1], Regecová, I.[2], Výrostková, J.[2], Łozicki, A.[3], Pavlík, A.[4], Ozbey, G.[5]
Introduction
Aim of the work
Material and methods
Results
Figure 1. Processes of bacterial spread between humans-animals-environment
Table 1. Evaluation of the basic indicators of ewe's milk, depending on the season of milking
Conclusion:
Funding:

Visegrad Fund

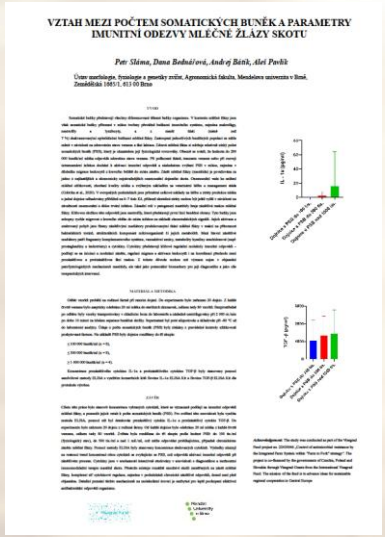
The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Conference – Food safety

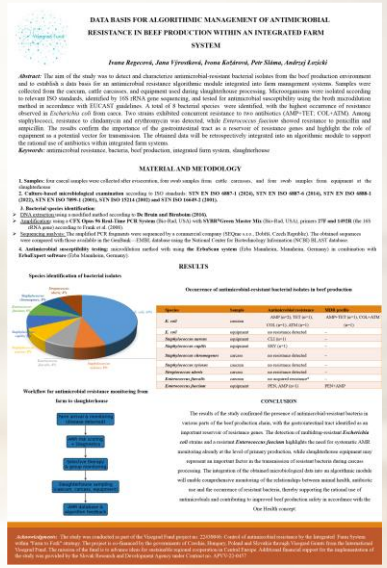
1. Ivana Regecová, Jana Výrostková, Ivona Kožárová, Petr Sláma, Andrzej Łozicki. *Data basis for algorithmic management of antimicrobial resistance in beef production within an integrated farm system.* Bezpečnosť a kvalita potravín. Zborník vedeckých prác. 25.-27.marec 2026, Slovenská republika. Nitra: Garmond, 2026. ISBN 978-80-8266-106-7. s. 262-267.

2. Ivona Kožárová, Ivana Regecová, Jana Výrostková, Aleš Pavlík, Marlena Zielińska-Górska. *Legislation and monitoring of antimicrobial resistance in beef and milk*. Bezpečnosť a kvalita potravín. Zborník vedeckých prác. 25.-27.marec 2026, Slovenská republika. Nitra: Garmond, 2026. ISBN 978-80-8266-106-7. s. 28-33.

3. Petr Sláma, Dana Bednářová, Andrej Bátik, Aleš Pavlík. *Relationship between somatic cell count and parameters of the immune response of the bovine mammary gland.* Bezpečnosť a kvalita potravín. Zborník vedeckých prác. 25.-27.marec 2026, Slovenská republika. Nitra: Garmond, 2026. ISBN 978-80-8266-106-7. s. 196-199.


VZTAH MEZI POČTEM SOMATICKÝCH BUNĚK A PARAMETRY IMUNITNÍ ODEZVY MLÉČNÉ ŽLÁZY SKOTU


LEGISLATION AND MONITORING OF ANTIMICROBIAL RESISTANCE IN BEEF AND MILK


DATA BASIS FOR ALGORITHMIC MANAGEMENT OF ANTIMICROBIAL RESISTANCE IN BEEF PRODUCTION WITHIN AN INTEGRATED FARM SYSTEM

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Planned future cooperation

❖ **VEGA 1/0325/26** – direct continuation of the Visegrad Fund project activities

❖ Further development of the **AMR & Virulence Database**

❖ Preparation of joint research proposals within **APVV**, **Horizon Europe** and **EUP OHAMR**

❖ Strengthening collaboration through **Erasmus+** staff and researcher mobility

Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno

1816 SGGW







Thank you for your attention and participation.







Visegrad Fund

The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund.
The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

Mendel University in Brno