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Risk factor analyses associated with the presence of *Salmonella* spp. on broiler farms in the Autonomous Province of Vojvodina, R. Serbia

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ABSTRACT

One of the main zoonotic diseases affecting public health is foodborne salmonellosis. It is caused by bacteria of the genus *Salmonella*, which are gram-negative, facultative anaerobic rods. The infection primarily spreads via the fecal-oral route, with humans most commonly infected through the consumption of contaminated food products, especially undercooked poultry meat and eggs. The continued global prevalence of *Salmonella* raises concerns about the effectiveness of existing preventive strategies. More than 2,500 serotypes of *Salmonella enterica* have been identified, with the serovars *Enteritidis* and *Typhimurium* being the most commonly associated with human and animal infections. These serotypes are widespread and have been regularly reported in Serbia. Key sources of infection include infected poultry, contaminated feed or water, inadequate hygiene, and poor farm biosecurity. In response, national and international control programs have been developed to reduce contamination risks throughout the food chain — from farm to table. Despite the annual collection of thousands of samples from poultry farms in Serbia, little research has focused on the practical implementation of control measures, particularly in broiler production. The aim of this study was to evaluate the prevalence of *Salmonella* spp. on broiler farms in selected districts of Serbia, and to identify specific risk factors contributing to its presence.

Key words: broiler farms; chicken; risk factors; *Salmonella* spp.

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Introduction

One of the most important zoonotic diseases affecting public health worldwide is salmonellosis (MUHAMMAD et al., 2010; RAUFU et al., 2013; TARIQ et al., 2022). The main route of infection for humans is the consumption of contaminated food, especially undercooked egg products (PIRES et al., 2014; CARDOSO et al., 2021; EFSA 2022). Contaminated broiler meat is believed to be the most significant source of foodborne *Salmonella* (NEWTON et al., 2021). Among the most commonly found serotypes are *Salmonella enterica* serotype *Enteritidis* and *Salmonella enterica* serotype *Typhimurium* (EHUWA et al., 2021). The prevalence of these serotypes worldwide, including in Serbia, has led to the development of *Salmonella* spp. control programs aimed at reducing the risk of contamination in poultry meat and eggs at all stages of consumption (FAGBAMILA et al., 2018).

The measures currently available to prevent the appearance of *Salmonella* spp. are of essential importance. National control programs exist in Serbia for monitoring the presence of the bacteria that can be found in animal reservoirs, most often in poultry, and every year thousands of samples are collected from poultry farms. Modern poultry production in AP (Autonomous Province) Vojvodina consists of farms of varying capacities (large, medium, and small), each with different levels of biosecurity measures. Poultry meat and eggs are daily staples in human consumption, and are important sources of animal-derived protein, whose biological integrity and microbiological safety directly impact public health (HENDRIKSEN et al., 2009; LETTINI et al., 2014; HENDRIKSEN et al., 2015; KARACAN SEVER et al., 2025). Therefore, it is crucial to maintain biosecurity measures at a very high level on farms. Data on the implementation of these measures are scarce, and monitoring their impact on poultry health and the occurrence of infectious diseases is not conducted. A thorough analysis of the survey revealed that in the territory of AP Vojvodina, biosecurity measures should be enhanced, and corrective actions should be taken to improve them and achieve the most effective protection of poultry (SOUILLARD et al., 2024).

In its most recent report, the European Food Safety Authority (EFSA) (2023) highlighted that, despite ongoing efforts, *Salmonella* remains a significant concern in poultry production across Europe. The report emphasizes that while control programs have been successful in reducing contamination levels, there is still room for improvement, particularly in the areas of biosecurity, surveillance, and the implementation of measures at the farm level. The EFSA recommends that member states, including Serbia, intensify their efforts in monitoring and controlling *Salmonella* through enhanced surveillance and stricter enforcement of biosecurity protocols, particularly in the context of broiler farms. These measures are expected to reduce contamination risks and contribute to the overall safety of poultry products for human consumption.

In 2023/24, a surveillance study of *Salmo- nella* spp. on broiler poultry farms was conducted to assess whether all the measures suggested by national programs were being properly implemented. This surveillance was funded and supported by the Provincial Secretariat for Higher Education and Scientific Research in AP Vojvodina, with the goal of generating baseline data on the situation in farms and implementing the proposed *Salmonella* spp. control programs.

Materials and methods

In the territories of the Sremski and Južnobački districts, there are a total of 247 broiler farms. The data used in the analysis were collected from 75 farms with broilers of different ages, and separate poultry facilities. The number of broiler production units included in the questionnaire was 152. These farms were divided into three different groups: the first group consisted of small farms with fewer than 5,000 broilers; the second group included farms with 5,000 to 15,000 broilers; and the third group comprised farms with 15,000 or more broilers. All flocks on the farms were included in the survey. Some farms consisted of a single facility with one flock, while others had up to five facilities, each with five flocks of different ages. The survey primarily included the questions recommended as a checklist

by the EFSA (2022, 2024). Before administering the questionnaire, consent was obtained from the farm managers.

The questionnaire included questions about basic farm-level information (e.g. the number of buildings on the farm, the origin of the animals), housing characteristics (e.g. whether poultry houses are made of solid materials), the breed and source of day-old chicks (e.g. were the chicks sourced from monitored parent flocks), management of all-in, all-out systems (e.g. is the "all-in/all-out" system applied at flock and farm level), handling of sick birds (e.g. whether any sick birds are isolated), rodent control methods (e.g. the presence of rodent control programs and who conducts DDD services), the number and age of the birds (e.g. current flock size and age at inspection), and the administration of vaccines and medicines (e.g. vaccination against Newcastle disease and *Salmonella*), as well as cleaning and disinfection procedures (e.g. cleaning and disinfection of facilities and equipment). It also contained questions about *Salmonella* monitoring (e.g. whether a farm has its own *Salmonella* control plan and sampling schedule) and any positive or negative test results from the past year.

Farms were recruited on the basis of voluntary participation by broiler farms located in the Sremski and Južnobački districts. Farms had to have been active in broiler production during the previous production cycle to be included. The questionnaires were distributed and collected between April and September 2023. Of the 85 farms contacted, 75 completed the questionnaire, resulting in a response rate of 88.2%.

For statistical processing of the collected data, univariate analysis was initially used to assess each individual categorical variable and its association with positive *Salmonella* spp. findings on the farm. The analysis was performed using the chi-square test. Different variable categories represented various modalities, and for each modality, the presence of *Salmonella* spp. and its exact 95% confidence interval were determined

To simultaneously evaluate the effect of different variables on the presence of *Salmonella* spp. on farms, a multivariate logistic regression model was applied. This model is characterized by a dichotomous dependent variable; in this case, the dependent variable was coded as 0 for the absence of *Salmonella* spp. and 1 for its presence. Variables with a p-value of less than 0.25 in the chi-square test were included in the logistic regression model as independent variables (FAGBAMILA et al., 2018). To control for potential confounding factors, a multivariate logistic regression model was applied. Prior to the multivariate analysis, multicollinearity among the variables was assessed, and variables causing multicollinearity issues were excluded. This approach ensured that the effects of the evaluated variables were independently estimated, minimizing the risk of confounding. The maximum likelihood method was used to estimate the parameters of the logistic regression model, allowing for calculation of the odds ratio.

The precision of the model was assessed using the Hosmer-Lemeshow test, while the ROC curve was created to visualize the model's ability to classify the data correctly. A p-value of less than 0.10 was considered significant to account for any potential evidence of association or the importance of the variables evaluated in the analysis.

R version 3.6.4 software was used for statistical data processing, enabling detailed analysis and interpretation of the results, and providing a basis for drawing relevant conclusions about the presence of *Salmonella* spp. on farms.

Results

The data used in the analysis were collected from 75 farms located in the Južnobački and Sremski districts. Information on the possible occurrence of *Salmonella* spp. was obtained through interviews with farm managers, who were asked whether they recalled any detection of Salmonella on their farms and, if applicable, which serovar had been identified. According to their statements, *Salmonella* spp. had been previously detected on 26 farms (34.7%), while 49 farms (65.3%) reported no known occurrence. These self-reported data were collected solely for descriptive purposes and did not influence the statistical analysis presented in this study. The results of the univariate analysis

Table 1. Results of univariate analysis of variables associated with the presence of *Salmonella* spp. on farms

VARIABLE (FULL NAME)	MODALITY	NO. OF FARMS PER MODALITY	NO. OF POSITIVE FARMS (N (%))	95% CI FOR % POSITIVE FARMS	P-VALUE
FARM LOCATION (DISTRICT)	Južnobački district	51	14 (27.45%)	4.91–49.99	0.080
	Sremski district	24	11 (45.83%)	43.87–47.79	
NUMBER OF ANIMALS ON FARM	<5,000	25	15 (60.0%)	55.10–64.89	0.004
	5,000–14,999	25	7 (28.0%)	17.22–38.78	
	≥15,000	25	3 (12.0%)	6.61–30.62	
ALL-IN/ALL-OUT AT FLOCK LEVEL	YES	49	11 (22.45%)	4.01–48.91	0.020
	NO	26	14 (53.85%)	51.88–55.81	
ALL-IN/ALL-OUT AT FARM LEVEL	YES	46	10 (21.74%)	3.74–47.22	0.023
	NO	29	15 (51.72%)	50.74–52.70	
PRESENCE OF DISINFECTION BARRIERS	YES	29	14 (48.27%)	47.29–49.25	0.032
	NO	46	11 (23.91%)	0.39–47.43	
DISINFECTION OF VEHICLE WHEELS	YES	22	10 (45.45%)	43.49–47.41	0.086
	NO	53	15 (28.30%)	5.76–50.84	
PRESENCE OF ON-FARM SALMONELLA CONTROL PLAN	YES	20	9 (45.0%)	43.04–46.95	0.089
	NO	55	16 (29.09%)	6.55–51.63	
SAMPLING SCHEDULE DEFINED ON FARM	YES	19	9 (47.37%)	46.39–48.35	0.058
	NO	56	16 (28.57%)	5.05–52.09	
SEROTYPE ISOLATED	NONE	50	0 (0%)	-48.99–48.99	0.000
	Infantis	10	10 (100%)	90.20–109.79	
	Enteritidis	15	15 (100%)	85.30–114.69	
RECORD-KEEPING OF FARM VISITS	YES	16	9 (56.25%)	54.29–58.21	
	NO	59	16 (27.12%)	0.65–53.58	
STAFF TRAINED IN BIOSECURITY MEASURES	YES	9	3 (33.33%)	30.39–36.27	0.024
	NO	66	22 (33.33%)	11.77–54.89	
NUMBER OF STRUCTURES ON FARM	1	38	10 (26.32%)	8.67–43.95	0.124
	2	21	5 (23.81%)	13.03–34.59	
	3	3	1 (33.33%)	32.35–34.31	
	4	2	2 (100%)	98.04–101.95	
	5 and more	11	7 (63.64%)	60.69–66.58	
NUMBER OF PRODUCTION CYCLES PER YEAR	1	3	0 (0%)	-2.93–2.93	0.153
	2	3	0 (0%)	-2.93–2.93	
	3	8	0 (0%)	-7.83–7.83	
	4	12	2 (16.67%)	8.83–24.51	
	5	17	8 (47.06%)	46.08–48.04	
	6	32	15 (46.87%)	44.91–48.83	
WHO CONDUCTS DDD	Owner	54	16 (29.63%)	8.07–51.19	0.129
	DDD service	21	9 (42.86%)	39.92–45.79	
FEEDING	By hand	14	1 (7.14%)	-4.62–18.90	0.106
	Semi-automatically	29	10 (34.48%)	25.66–43.30	
	Automatically	32	14 (43.75%)	39.83–47.67	
PLAN OF MEASURES IN THE CASE OF POSITIVE RESULTS	YES	17	9 (52.94%)	51.96–53.92	0.139
	NO	58	16 (27.59%)	2.11–53.07	
RECORDS OF THE SAMPLES TAKEN	YES	65	24 (36.92%)	20.26–53.58	0.211
	NO	10	1 (10.0%)	2.16–17.84	
REGULAR BACTERIOLOGICAL WATER CONTROL	YES	8	5 (62.5%)	60.54–64.46	0.177
	NO	67	20 (29.85%)	3.39–56.31	

of variables, specifically the chi-square tests, indicated that a total of 11 variables listed in Table 1 were significantly associated with the presence of Salmonella spp. ($P < 0.10$). In addition, seven other variables in Table 2. had p-values between 0.10 and 0.25, and they were also considered as independent variables in the logistic regression model.

Before applying the logistic regression model, variables that caused multicollinearity issues had to be removed, specifically: All-in/ all-out in flocks, All-in/all-out on the farm, On-farm *Salmonella* control plan, Sampling schedule, and Serotype. After applying the logistic regression method, it was determined that the following variables had a statistically significant effect ($P<0.10$) on the presence of *Salmonella* spp. on the farm: the location of the farm, the number of visits to the farm, the number of structures on the farm, the number of cycles per year, the feeding method, the plan for measures in the case of positive results, the owner's record of samples taken, and regular bacteriological control of water. The area under the ROC curve (AUC) was 0.815 (Fig. 1), and the P-value of the Hosmer-Lemeshow test ($P=0.821$) indicated that the model fit the data well. It is also important to note that most variables from the univariate analysis with $P<0.10$ did not retain their significance in the multivariate model.

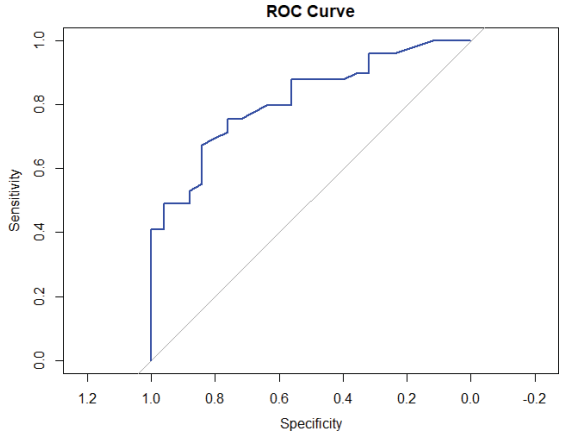

Fig 1. ROC curve

Observing the results shown in Table 3, it can be seen that only 9 variables were statistically significantly associated with the presence of *Salmonella* spp.

It was found that location was one of these factors, specifically farms in the Sremski district had a 0.4 times higher chance of *Salmonella* spp. presence.

The number of animals on the farm was identified as an important variable. It may be noted that farms with between 5,000 and 15,000 animals had lower odds of being infected with *Salmonella* spp. compared to farms with over 15,000 animals. Similarly, farms with up to 5,000 animals also had lower odds of *Salmonella* spp. infection relative to farms with more than 15,000 animals. Farm visit records emerged as a significant variable; the results indicate that farms that do not maintain records had lower odds of having *Salmonella* present. Additionally, the number of buildings on the farm significantly impacts the presence of *Salmonella* spp., where farms with more buildings had higher odds of the presence of Salmonella. The number of cycles per year was another significant variable affecting *Salmonella* spp. occurrence, but the results indicate that this was only significant for farms with more than four cycles per year, and even these farms had low odds of having *Salmonella* spp.. The method of feeding also significantly affected the presence of *Salmonella* spp. According to the results, farms using semi-automatic and automatic feeding methods had higher odds of having *Salmonella* spp.. Regarding the plan of measures in the case of positive results, the analysis showed a statistically significant impact on the presence of *Salmonella* spp.. If this plan was not defined on the farm, the odds of the presence of *Salmonella* spp. were 3.7 times higher Furthermore, the results indicate that if the owner did not keep records, the odds of the presence of *Salmonella spp.* were 0.47 times lower. In contrast, the absence of regular bacteriological water control on the farm increased the odds of *Salmonella spp.* presence. This opposite trend suggests that while inadequate documentation may reflect smaller-scale or less frequently inspected farms (possibly underreporting positive findings), the lack of water control clearly contributes to a higher risk of contamination.

Table 2. Results of univariate analysis of variables associated with the presence of *Salmonella* spp. on farms (variables with a P-value of 0.10-0.25 Chi-square test)

VARIABLE (FULL NAME)	MODALITY	NO. OF FARMS PER MODALITY	NO. OF POSITIVE FARMS (N (%))	95% CI FOR % POSITIVE FARMS	P-VALUE
FARM LOCATION (DISTRICT)	Južnobački district	51	14 (27.45%)	4.91–49.99	0.080
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	NO	29	15 (51.72%)	50.74–52.70	
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SAMPLING SCHEDULE DEFINED ON FARM	YES	19	9 (47.37%)	46.39–48.35	0.058
	NO	56	16 (28.57%)	5.05–52.09	
SEROTYPE ISOLATED	NONE	50	0 (0%)	-48.99–48.99	0.000
	Infantis	10	10 (100%)	90.20–109.79	
	Enteritidis	15	15 (100%)	85.30–114.69	
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	NO	59	16 (27.12%)	0.65–53.58	
STAFF TRAINED IN BIOSECURITY MEASURES	YES	9	3 (33.33%)	30.39–36.27	0.024
	NO	66	22 (33.33%)	11.77–54.89	
NUMBER OF STRUCTURES ON FARM	1	38	10 (26.32%)	8.67–43.95	0.124
	2	21	5 (23.81%)	13.03–34.59	
	3	3	1 (33.33%)	32.35–34.31	
	4	2	2 (100%)	98.04–101.95	
	5 and more	11	7 (63.64%)	60.69–66.58	
NUMBER OF PRODUCTION CYCLES PER YEAR	1	3	0 (0%)	-2.93–2.93	0.153
	2	3	0 (0%)	-2.93–2.93	
	3	8	0 (0%)	-7.83–7.83	
	4	12	2 (16.67%)	8.83–24.51	
	5	17	8 (47.06%)	46.08–48.04	
	6	32	15 (46.87%)	44.91–48.83	
WHO CONDUCTS DDD	Owner	54	16 (29.63%)	8.07–51.19	0.129
	DDD service	21	9 (42.86%)	39.92–45.79	
FEEDING	By hand	14	1 (7.14%)	-4.62–18.90	0.106
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	Automatically	32	14 (43.75%)	39.83–47.67	
PLAN OF MEASURES IN THE CASE OF POSITIVE RESULTS	YES	17	9 (52.94%)	51.96–53.92	0.139
	NO	58	16 (27.59%)	2.11–53.07	
RECORDS OF THE SAMPLES TAKEN	YES	65	24 (36.92%)	20.26–53.58	0.211
	NO	10	1 (10.0%)	2.16–17.84	
REGULAR BACTERIOLOGICAL WATER CONTROL	YES	8	5 (62.5%)	60.54–64.46	0.177
	NO	67	20 (29.85%)	3.39–56.31	

Discussion

This investigation represents a pioneering effort to identify potential risk factors for *Salmonella* spp. on broiler poultry farms in AP Vojvodina, R. Serbia, providing valuable insights into the prevalence of *Salmonella* spp. contamination and highlighting areas for effective control measures. The significant presence of *Salmonella* spp. on broiler farms within the Sremski and Južnobački districts of AP Vojvodina, with a prevalence rate of 34.7%, underscores the ongoing challenges of managing this zoonotic pathogen in poultry production. This finding aligns with previous studies (EFSA, 2022; 2023) and emphasizes the urgent need for enhanced surveillance and biosecurity protocols.

Table 3. Results of the multivariable logistic regression model

VARIABLE	OR	S.E.	Z-VALUE	P-VALUE
SREMSKI DISTRICT	1.401	0.001	337.186	0.045
NUMBER				
5,000-14,999	0.297	1.541	-0.788	0.039
<5,000	0.010	8.667	-0.531	0.024
DISINFECTION BARRIERS				
NO	2.052	2.078	0.346	0.723
DISINFECTION OF WHEELS				
NO	0.662	1.989	-0.207	0.842
FARM VISIT RECORDS				
NO	0.767	1.697	-0.156	0.027
STAFF TRAINED IN BIOSECURITY MEASUREMENTS				
NO	1.558	2.282	0.193	0.649
NUMBER OF STRUCTURES ON FARM				
2				
3	1.822	8.669	6.444	0.645
4	5.839	7.257	4.965	0.048
5 AND MORE	1.127	1.837	-11.156	0.028
	2.378	8.678	6.202	0.029
CYCLES PER YEAR				
2				
3	1.341	2.321	0.126	0.991
4	0.633	1.879	-0.243	0.991
5	0.001	1.644	-12.029	0.028
6	0.001	1.644	-13.03	0.028
	0.001	1.644	-12.541	0.028
WHO CONDUCTS DDD				
DDD SERVICE	3.669	6.662	5.725	0.835
FEEDING				
SEMI AUTOMATICALLY	1.405	1.799	0.188	0.015
AUTOMATICALLY	1.069	1.921	0.035	0017
PLAN OF MEASURES IN THE CASE OF POSITIVE RESULTS NO	3.704	6.662	5.381	0.011
RECORDS OF THE SAMPLES TAKEN				
NO	0.475	1.639	-0.454	0.039
REGULAR BACTERIOLOGICAL WATER CONTROL				
NO	0.513	3.017	-0.221	0.053

Our analysis revealed the complex interplay of various factors influencing the presence of *Salmonella* spp.. Notably, the location of the farms emerged as a critical determinant, with those in the Sremski district exhibiting a higher likelihood of contamination. This geographical disparity may be linked to differences in farm management practices, biosecurity measures, or unique environmental factors (CARDOSO et al., 2021). Further investigation into these local variations could yield insights leading to action and tailored intervention strategies. Understanding local agricultural practices, environmental conditions, and regional regulations could help inform more effective biosecurity protocols tailored to specific contexts.

The multivariate logistic regression model highlightedkeyvariablesassociatedwiththepresence of *Salmonella* spp.. Farms with larger populations of broilers (over 15,000) had significantly higher odds of contamination. This suggests that increased farm size may complicate the management of biosecurity measures, potentially leading to lapses that facilitate *Salmonella* transmission (EHUWA et al., 2021). Larger operations often face logistical challenges in maintaining consistent hygiene practices across multiple buildings or flocks. As a result, the implementation of stringent biosecurity measures, regular training for staff, and robust monitoring systems become even more critical for larger operations to effectively mitigate outbreak risks.

Additionally, the significance of record-keeping and monitoring practices was underscored. Farms that lacked visitor records demonstrated lower odds of having *Salmonella spp.*; however, this counterintuitive result may reflect underreporting or less frequent monitoring on smaller farms, rather than a true protective effect (PIRES et al., 2014). Encouraging comprehensive monitoring and documentation practices among farmers could enhance *Salmonella* spp. management. This also reflects the importance of a culture of

accountability within poultry operations, where staff are encouraged to maintain detailed records to support management decisions.

Interestingly, the method of feeding was also identified as a significant factor, with semi-automatic and automatic feeding systems correlating with higher odds of having *Salmonella* spp.. This observation raises important questions about the role of feeding practices in pathogen transmission, warranting further investigation into the underlying mechanisms (HENDRIKSEN et al., 2015). Feeding systems may influence not only the distribution of feed, but also the potential for feed contamination. It may be worthwhile to explore the cleaning and maintenance practices associated with these feeding systems to identify potential improvements.

Moreover, the absence of a defined plan for managing positive *Salmonella* spp. results was associated with significantly higher odds of contamination. This emphasizes the necessity of having contingency plans in place to address potential outbreaks swiftly and effectively, thereby safeguarding both animal health and public safety (MUHAMMAD et al., 2010; RAUFU et al., 2013). Developing standardized protocols for outbreak management can help reduce the response time, and minimize the impact of *Salmonella* spp. incidents on farm operations.

Furthermore, this study raises awareness about the potential for zoonotic transmission of *Salmonella* spp. through the consumption of poultry products. Given the increasing consumer demand for poultry and its products, the implications of this study extend beyond animal health to public health. Enhanced education and communication with farmers about the importance of biosecurity measures and record-keeping can play a pivotal role in improving food safety.

Overall, this study highlights critical areas for improvement in biosecurity and management practices on poultry farms in AP Vojvodina. The implications extend beyond the local context, offering valuable lessons for poultry producers worldwide. Future research should focus on developing targeted interventions based on the identified risk factors, promoting best practices in biosecurity, and enhancing the safety of poultry products for human consumption (TARIQ et al., 2022). Additionally, collaborative efforts among stakeholders, including farmers, veterinarians, and public health officials, could foster a more integrated approach to managing *Salmonella* spp. risks. By addressing these challenges, we can work towards reducing the prevalence of *Salmonella* spp. and its impact on public health.

Conclusions

In conclusion, this study provides a comprehensive assessment of the risk factors associated with *Salmonella* spp. contamination on broiler poultry farms in AP Vojvodina, Serbia. The findings underscore the need for better surveillance and improved biosecurity measures, particularly for larger farms where the challenges of management may increase contamination risks. The identification of key factors, such as farm size, feeding systems, record-keeping practices, and the absence of outbreak management plans, highlights critical areas for the assessment. These results not only emphasize the importance of biosecurity protocols and ongoing staff training, but also advocate for a more proactive and integrated approach to controlling *Salmonella* spp. risks. The study's implications extend beyond Serbia, offering valuable insights into global poultry production practices and their potential impact on public health. Moving forward, further research is needed to refine and implement effective interventions, ensuring the safety of both animal and public health in the context of an ever-growing demand for poultry products.

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SAŽETAK

Salmoneloza prenosiva hranom jedna je od glavnih zoonotskih bolesti koje utječu na javno zdravlje. Uzrokuju ju bakterije roda *Salmonella*, gram-negativni, fakultativno anaerobni štapići. Infekcija se ponajprije širi fekalno-oralnim putem, a ljudi se najčešće zaraze konzumacijom kontaminiranih prehrambenih proizvoda, osobito nedovoljno termički obrađenog mesa peradi i jaja. Stalna globalna raširenost *Salmonella* izaziva zabrinutost u vezi s učinkovitošću postojećih strategija prevencije. Do sada je identificirano više od 2500 serotipova *Salmonella enterica*, među kojima su serovarovi *Enteritidis* i *Typhimurium* najčešće povezani s infekcijama ljudi i životinja. Ti su serotipovi široko rasprostranjeni te se redovito prijavljuju i u Srbiji. Glavni izvori infekcije uključuju zaraženu perad, kontaminiranu hranu ili vodu, neadekvatnu higijenu i lošu biosigurnost na farmama. Kao odgovor, razvijeni su nacionalni i međunarodni programi kontrole s ciljem smanjenja rizika od kontaminacije duž cijelog lanca hrane – od farme do stola. Unatoč tome što se u Srbiji svake godine prikupljaju tisuće uzoraka s farmi peradi, malo je istraživanja usmjereno na praktičnu provedbu mjera kontrole, posebice u tovu brojlera. Cilj je istraživanja bio je procijeniti prevalenciju bakterije roda *Salmonella* spp. na farmama brojlera u odabranim okruzima Srbije te identificirati specifične čimbenike rizika koji pridonose njezinoj prisutnosti.

Ključne riječi: farme brojlera; pilići; čimbenici rizika; *Salmonella* spp.