



UW College of Agriculture and Natural Resources
Global Perspectives Grant Program
Project Report Instructions

A brief written report must be submitted electronically to the AES office **within one month of returning from your trip**. Photographs supplementing the report are encouraged and are appreciated by the donor. Failure to submit a report may jeopardize future funding from AES.

In addition to forwarding these reports to our benefactor, reports will also be published on the AES website—do not include any photos that require permission to post to our webpage. Reports must be written in a style **understandable by the lay person** and may be edited for readability before being published to the AES website or the University of Wyoming Foundation report.

Format: Use 12 point type, single line spacing, and one inch margins. Submit your report to aes@uwyo.edu as a single PDF file.

Include the following information:

1. COVER PAGE

Award Period (e.g. Spring 2012): Fall 2019

Principle Investigator(s) Bledar Bisha **Department:** Animal Science

Email: bbisha@uwyo.edu

Project Title from Application: Antibiotic Resistance Surveillance in Retail Meats in Albania and Kosovo

Amount spent: \$8,000 (supplemented with additional funding through a Center for Global Studies (CGS) Faculty and Staff International Research Grant

Non-technical summary (max 1500 characters plus spaces): Provide a one paragraph non-technical summary that most people can understand.

Antimicrobial resistance (AMR) in bacteria has increasingly become a domestic and global threat to agricultural and human health. Because of their ability to transfer genetic material, once benign bacterial strains can become problematic if they acquire characteristics conferring antimicrobial resistance. An essential component of effective AMR-mitigating programs is enhanced surveillance; however, comprehensive surveillance programs are largely lacking in the countries of Kosovo and Albania. This project initiated surveillance efforts in these countries through a series of activities involving sampling, microbiological analyses, and characterization of indicator bacteria, organizing symposia, and sharing perspectives with academic institutions and regulatory agencies in the host countries.

2. REPORT: Maximum of two pages of text; in addition, please also include **photos**. Must be written in a style understandable by a general audience.

Include:

1. Main results of activities planned in the proposal.

In the U.S., the threat of antimicrobial resistance has been recognized as a national problem and a major public health concern, especially with respect to livestock production, and was recently acted upon through development of overarching strategic programs by the federal government. In the U.S. and much of the developed world, policies and surveillance systems regulating judicious use of antibiotics have been put in place to safeguard the AMR threat to public health. Currently, these safeguards do not currently exist in the countries of Albania and Kosovo which are situated in the Western Balkans, an area of the world undergoing major economic and social transformations. An essential component of effective AMR-mitigating programs is enhanced surveillance. Here in the U.S., the role of surveillance is clearly indicated in the U.S. National Action Plan for Combating Antibiotic-Resistant Bacteria (CARB) issued by the White House. Furthermore, the National Antimicrobial Resistance Monitoring System (NARMS) which is a joint program among the FDA, USDA and CDC (<http://www.cdc.gov/narms/>) has played a critical role in the surveillance of AMR in the animal production, the food chain, and human clinical settings in the United States. Dr. Bisha traveled to Kosovo and Albania to initiate a project focused on monitoring of AMR among four major foodborne bacteria (non-typhoidal *Salmonella*, *Campylobacter*, *E. coli*, and *Enterococcus*) in retail meats in Kosovo and Albania. In the initial stages of the project, standard methods and procedures established by the retail meat arm of the NARMS were presented and explained to more than a dozen veterinary and food science graduate students from the University of Pristina. Subsequently, hands-on training was performed using group activities as well as one-on-one instructional approaches. Faculty members from the local institution were heavily involved in all these activities, especially Drs. Afrim Hamidi and Arbenita Hasani. Students were then separated into groups of 3-4 individuals and instructed to focus on isolation and characterization of one of the target bacteria in several local retail meats over the life of the project. As of summer of 2022, work that was initiated by PI Bisha in the summer of 2021, is ongoing and expected to provide important information to inform mitigation of antimicrobial resistance in the country's food supply. These research efforts have already resulted in one submitted abstract (**Authors:** Erënesa Gorçaj, Arbenita Hasani, Senad Muqaku, Ermiona Ahmetaj, Karsten Giffey, Driton Sylejmani, **Bledar Bisha**, Afrim Hamidi. Title: *Prevalence of Listeria monocytogenes in a variety of meat products and the meat processing environment.* **Conference:** ECVPH Annual Scientific Conference, Athens, Greece, September 28-30, 2022), and are expected to provide foundational data for thesis projects of several graduate students at the University of Pristina, as well as 1-2 peer reviewed journal articles. Dr. Bisha, in collaboration with Drs. Hamidi and Karsten Giffey, organized the international symposium 'Contemporary regulatory and scientific issues in meat safety', which successfully took place in Pristina on July 2, 2021. The symposium attracted the participation of dozens of faculty, students, government officials, and industry representatives from Kosovo, Macedonia, and Albania and featured talks from multiple experts from several institutions in those countries. Dr. Bisha's talk '*U.S. perspectives on monitoring antimicrobial resistance in food animals, retail meats, and people*', set the tone for other presentations which focused on regulatory and public health updates, as well as a summary of relevant food safety research. In other activities, Dr. Bisha was invited to visit and share his perspectives at the Agency for Food and Veterinary Medicine, the main

institution regulating food safety in the Republic of Kosovo and had a very informational and cordial visit with public health officials at that agency. Dr. Bisha was also invited to talk at the International Summer University of Pristina during this time, and he took this opportunity to talk to students representing several regions of the Balkans about advancements in food safety and issues pertaining antimicrobial resistance. Dr. Bisha also took some initial planning steps to expand the project in Albania and visited extensively about such prospects with officials of the Agricultural University of Tirana, the Dean of the Faculty of Veterinary Medicine Dr. Rezart Postoli and the Dean of the Faculty of Food Technology, Dr. Kapllan Sulaj.

2. Describe any future plans

The PI Bisha worked closely with his collaborators at the University of Pristina and the Agricultural University of Tirama, which will lead to ample opportunities for future collaboration between the PI Bisha and his counterparts at the two universities abroad. The research conducted has already led to abstract submissions and will also lead to peer-reviewed publications. Dr. Bisha plans to continue sampling efforts in Kosovo, involving the expansion of research projects for graduate and veterinary students, as well as extension of the project to involve regions of interest in Albania. This project has attracted curiosity about the University of Wyoming from the students in the host universities, and Dr. Bisha plans to provide additional information to those students and their home institutions to potentially recruit more students at the University of Wyoming. Plans are under way to develop an official relationship between these institutions and the University of Wyoming.

3. Outline potential impacts to a) the College of Agriculture and Natural Resources, b) the University of Wyoming, and c) the State of Wyoming

The proposed project is consistent with the college's mission (to improve the quality of life for people in Wyoming and the global community) and goals stated in the current academic strategic plan (provide solutions to contemporary issues affecting Wyoming and the region through high-quality research and creative scholarship). Furthermore, through collaborative research efforts and experiential learning for students, meaningful cooperation addressing common issues affecting Wyoming and its global partners were fostered and the understanding of global issues was enhanced. This project provided excellent exposure for the University of Wyoming in those regions of southeastern Europe and helped shine a positive light on the ability of our institution to conduct international research and serve as worldwide leader in contemporary food safety and antimicrobial resistance research. Without a doubt, the project is likely to lead in an increase of international applicants to the University of Wyoming as well as enhanced capacity to apply for joint funding to conduct public health research in collaboration with the host universities.

4. Photos

Photos attached.



Figure 1. Dr. Bledar Bisha conducting project planning with Drs. Afrim Hamidi and Arbenita Hasani, as well as graduate and veterinary students, University of Pristina.



Figure 2. Dr. Bledar Bisha in the laboratory with graduate and veterinary students at the University of Pristina.



Figure 3. Dr. Bledar Bisha demonstrating laboratory procedures to graduate and veterinary students at the University of Pristina.



Figure 4. Dr. Bledar Bisha and the organizing committee for the international symposium ‘Contemporary regulatory and scientific issues in meat safety’ which took place in Pristina, Kosovo, July 2, 2021.



Figure 5. Dr. Bledar Bisha was instrumental in organizing and presented on U.S. perspectives on monitoring antimicrobial resistance in food animals, retail meats, and people at the international symposium ‘Contemporary regulatory and scientific issues in meat safety’ which took place in Pristina, Kosovo, July 2, 2021.



Fig 6. Dr. Bledar Bisha visiting the Agency for Food and Veterinary Medicine, the main entity tasked with ensuring the wholesomeness of the food supply in the Republic of Kosovo.



Fig 7. Dr. Kapllan Sulaj (left), Dean of the Faculty of Food Technology, Agricultural University of Tirana, Dr. Bledar Bisha (middle), Associate Professor and Head, Department of Animal Science, University of Wyoming, and Dr. Rezart Postoli (right), Dean of the Faculty of Veterinary Medicine, Agricultural University of Tirana.

QUESTIONS? Contact Joanne Newcomb in the Agricultural Experiment Station office at aes@uwyo.edu or (307) 766-3667.

QUESTIONS? Contact Joanne Newcomb in the Agricultural Experiment Station office at aes@uwyo.edu or (307) 766-3667.