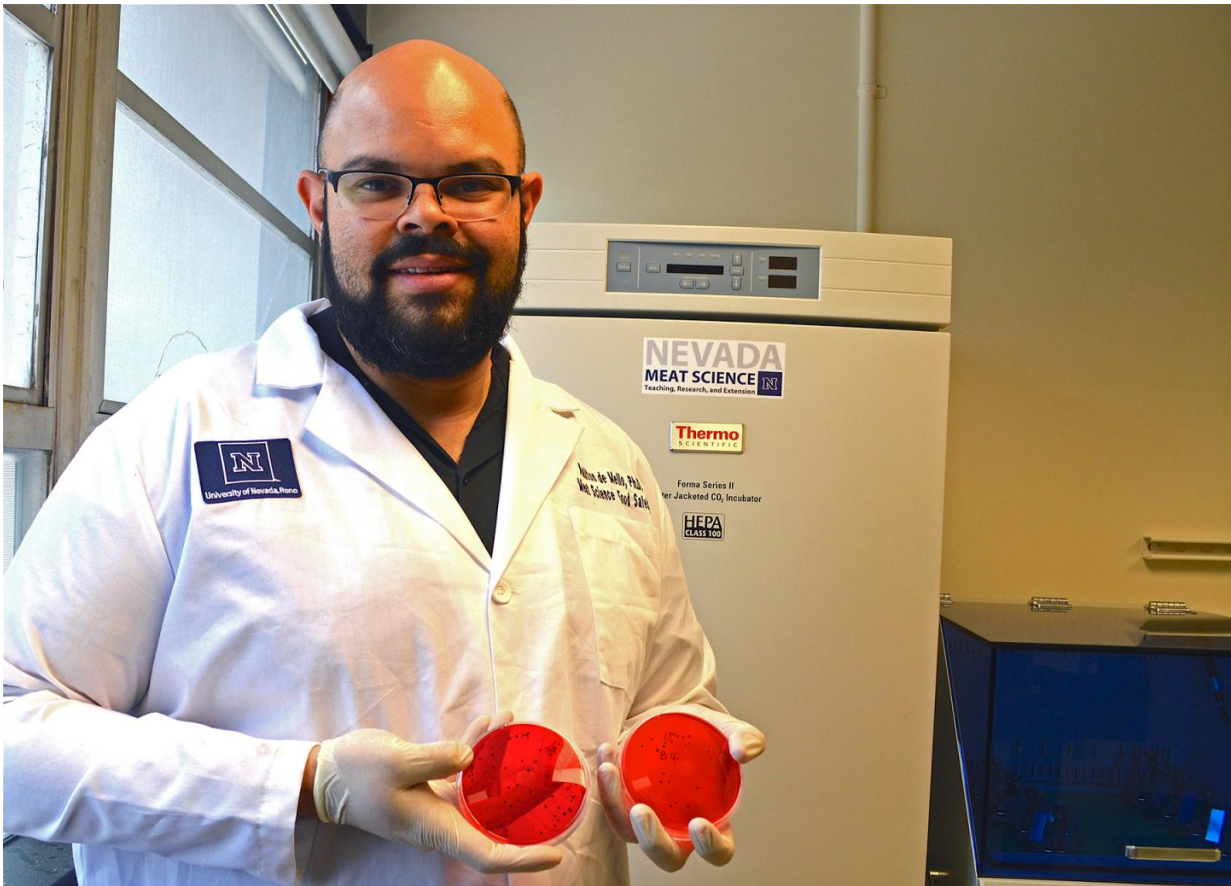


Salmonella in meat products reduced by 90 percent in new research

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An old technology that uses natural bacteria predators, called bacteriophages, is the focus of new research at the University of Nevada, Reno. The technique reduced salmonella bacteria in meat products by as much as 90 percent. Assistant Professor Amilton de Mello, from the College of Agriculture, Biotechnology and Natural Resources at the University of Nevada, Reno, presented his research at the international American Meat Science Association's conference June 20-22 in Texas. Credit: University of Nevada, Reno

An old technology that uses natural bacteria predators, called bacteriophages, is the focus of new research at the University of Nevada, Reno. The technique is being used to reduce salmonella bacteria in meat products.

Assistant Professor Amilton de Mello, from the College of Agriculture, Biotechnology and Natural Resources at the University of Nevada, Reno, presented his research at the international American Meat Science Association's conference that ends today in Texas.

"We were able to reduce salmonella by as much as 90 percent in ground poultry, ground pork and ground beef," de Mello reported. "We're excited to be able to show such good results, [food safety](#) is an important part of our work and salmonella is one of the most prevalent bacteria in the nation's food supply."

Salmonella is one of the most common causes of food borne illnesses in the United States. The bacteria can cause diarrhea, fever, vomiting and abdominal cramps. In people with weaker immune systems, or in young children and the elderly, it can be fatal. It is estimated to cause one million foodborne illnesses in the United States every year, with 19,000 hospitalizations and 380 deaths, according to the Centers for Disease Control and Prevention.

De Mello's research treated [meat](#) products infected with four types of salmonella by applying Myoviridae bacteriophages during mixing. Bacteriophages are commonly found in our environment. They are viruses that can only harm specific bacterial cells and are harmless to humans, animals and plants.

In the experiments, the salmonella bacteria was inoculated on

refrigerated meat and poultry trim, then the treatment was applied to the meat before grinding. The bacteriophages invaded the cells of the bacteria and destroyed them.

"On the final ground meat products, there was a 10-fold decrease of salmonella," de Mello said. "The results are very encouraging and we're hoping this can be adopted by the meat industry to increase food safety."

De Mello was invited to speak about his research at the 69th Annual AMSA Reciprocal Meat Conference in San Angelo, Texas. Overall, his research focuses on positively impacting meat industry operations, production costs, meat quality attributes and animal welfare.

His broad research program approaches important "from farm-to-table" steps such as animal welfare, meat quality and food safety. His current research is related to pre-slaughter physical conditions, value-added products, pre- and post-harvest food safety interventions, effects of physiologic parameters on muscle-to-meat transformation, beef nutritional values and control of [salmonella](#) and E. coli during processing.

The meat science program at the University was invigorated with the hiring of de Mello in December 2015 and the opening of his new meat research lab. In addition to his research, he teaches about the meat industry, food safety and quality systems and advanced meat science in the University's Department of Agriculture, Nutrition, and Veterinary Sciences.

"We are creating a very broad meat science program," he said. "We have meat-quality projects. We have experiments involving animal welfare and food safety. We offer students research and teaching experiences by using our main meat lab and three collaborating ones here on campus. Students can go to our Nevada Agriculture Experiment Station in the

morning, follow animal harvest activities in our USDA-inspected meat processing plant, learn about animal welfare practices and spend the afternoon in the lab developing research."

The University's experiment station houses the meat processing plant, feedlot facilities, cattle working areas and 650 acres of irrigated pasture, all just 15 minutes from the main campus in downtown Reno.

"Amilton brings an abundance of energy and expertise to the program," Bill Payne, dean of the College of Agriculture, Biotechnology and Natural Resources, said. "He's one of 10 new faculty in the College who will allow us to better connect with and support agricultural producers in ways that have not been possible for many years."

Provided by University of Nevada, Reno

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