



The Connecticut Agricultural Experiment Station

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CAES Announces Field Trials Showing Impact of a Variety of Delivery Mechanisms for Zoonotic Disease Control

New Haven, CT - The Connecticut Agricultural Experiment Station (CAES) and US Biologic, Inc. announce today the publication of field trials showing the impact of delivery mechanisms to enhance future animal-borne (aka: zoonotic) disease control programs.

The journal article, "Administration of an orally delivered substrate targeting a mammalian zoonotic pathogen reservoir population: Novel application and biomarker analysis" has been recently published in the peer-reviewed scientific publication, *Vector-Borne and Zoonotic Diseases*.

Zoonotic diseases are a leading healthcare threat. [According to the CDC](#), "Scientists estimate that more than 6 out of every 10 known infectious diseases in people can be spread from animals, and 3 out of every 4 new or emerging infectious diseases in people come from animals."

In the current study, three methods were tested for delivering an experimental bait pellet formulation coated with a food-grade dye to determine what percentage of the rodent reservoir made contact, and each showed heavy consumption (open bait boxes: 91%, hand-broadcast: 89%, time-released stations: 80%). More importantly, though, is the data show clear repeat behavior. "It's not surprising to us that mice found the pellets," says Scott C. Williams, Ph.D., Agricultural Scientist in the Center for Vector Biology & Zoonotic Diseases at CAES. "Our question was whether the majority of the rodent reservoir population that found pellets initially would continue to find new pellets in later distributions. This is critical behavior for a vaccine to function successfully against pathogens that can cause infections in humans that may require a prime dose and a later boost dose."

"Vaccines are important, but they are only half of the story," says US Biologic's Chief Science Officer, Jolieke G. van Oosterwijk, M.Sc., Ph.D. "When working with a targeted native rodent population, we must ensure the animals are actually consuming pellets. These data give us strong confidence in moving forward with a variety of reservoir-targeted vaccines for multiple pathogens using this pellet formulation as a delivery vehicle."

Earlier this year, the team published a paper focused on the impact of one such intervention, an [anti-Lyme disease vaccine targeting white-footed mice](#). On residential properties where the vaccine was applied, significantly fewer

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infected mice and ticks were found. The vaccine was applied by spray-coating the same type of pellets used in the current biomarker study.

This proof of impact of the methodology has much wider applications. “These animals are responsible for the spread of multiple dangerous tick-borne disease-causing pathogens,” says Kirby C. Stafford, III, Ph.D., Connecticut State Entomologist and a Chief Scientist in the Center for Vector Biology & Zoonotic Diseases at CAES. “Now that we understand the delivery method for reservoir-targeted vaccines is reliable, development can be accelerated on a range of preventative options.”

About The Connecticut Agricultural Experiment Station

The Connecticut Agricultural Experiment Station, established in 1875, is the first agricultural experiment station in the United States. The main mission of the CAES is research. Programs also exist to educate the public and to transfer new findings to people trying to solve agricultural, public health, and environmental problems. The CAES is also a member of the [Northeast Regional Center for Excellence in Vector-Borne Diseases](#) supported by the Centers for Disease Control and Prevention (CDC). (portal.ct.gov/caes)

About US Biologic

US Biologic is a social innovation company that "Delivers Disease Prevention."® The company's proprietary oral-delivery system is changing global disease prevention, allowing safe, effective, and cost-efficient delivery of a variety of preventative therapeutics (vaccine and medicine) to wildlife, companion animals, and food animals. US Biologic works with world-renowned experts, placing their proven technologies into its oral-delivery system and then commercializes those new products by providing necessary funding, regulatory support, manufacturing, and distribution expertise. (usbiologic.com)

Journal Reference

Williams, S. C., J. G. van Oosterwijk, M. A. Linske, S. Zatechka, L. M. Richer, C. Przybyszewski, S. K. Wikel, and K. C. Stafford III. 2020. Administration of an orally delivered substrate targeting a mammalian zoonotic pathogen reservoir population: Novel application and biomarker analysis. *Vector-Borne and Zoonotic Diseases*. Published online ahead of print. <https://doi.org/10.1089/vbz.2019.2612>.

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