

Fort Bend County Health and Human Services, Environmental Health

*Improving strategies  
for controlling  
Culicoides spp. with  
available ready to  
use adulticides*

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Fort Bend County Environmental Health (Mosquito Control) is submitting this pre-proposal for the upcoming research initiative aimed at evaluating and improving strategies for controlling *Culicoides* species, specifically focusing on adulticidal treatments and application methods and time. This project intends to provide practical and science-based recommendations to local vector control professionals to help reduce the transmission of diseases associated with biting midges, ultimately protecting public health.

The key objective of this project is to strategize the current efficacy of specific control products and proper techniques to apply them. This would lead to a sustainable effort for incorporating this into our program moving forward when dealing with *Culicoides*. This would be done by doing the following:

1. **Evaluation of currently available adulticidal applications:** We will be conducting field cage tests (FCTs), designed to simulate real-world conditions and assess the effectiveness of two ready to use insecticides- Fyfanon ULV EPA#279-3539 (A.I. malathion) and Evergreen 5-25 EPA # 1021-1803 (A.I. pyrethrins and piperonyl butoxide). This test will allow us to measure the mortality rates of *Culicoides* after exposure to different adulticides. For these tests we will be utilizing a ULV sprayer mounted on a Utility Terrain Vehicle (UTV). This evaluation is important because *Culicoides* spp. habitats often include hard-to-reach areas such as tree holes and semi-aquatic zones, which a conventional truck-mounted sprayer may not effectively cover. The use of the UTV will allow the us to provide a more precise droplet distribution in these challenging environments, ultimately helping to refine pest control strategies.
2. **Time of peak activity:** Through the collection of live samples to run FCTs, Fort Bend County's Mosquito Control Team will utilize programmable traps modified similar to those outlined in *Response to Oropouche Virus Disease Cases in the U.S. states and territories in the Americas 2024*. The use of these traps for collection will allow more detailed insights into temporal activity of *Culicoides* and allow more appropriate timing of control efforts.

This project will be conducted by the Fort Bend County Mosquito Control entomologists and a consultant- all with extensive experience in vector control, entomology, and public health. They will utilize accessible local *Culicoides* populations for field trials. The research design will be based on the previous successes in vector control studies and aims to adapt those findings to meet the unique challenges posed by *Culicoides* species in the specific geographic regions of interest.

By focusing on adulticide applications, this project intends to offer valuable insights and guidelines for vector control professionals, ensuring that these strategies are both effective and operationally feasible. Our approach will help to minimize public health risks associated with these vectors while considering the ecological and logistical challenges of control in field settings.

## Budget Overview

<b>Category</b>	<b>Amount</b>
Equipment	\$82,600.00
Supplies	\$ 7,200.00
Contractor	\$32,500.00
<b>Total Amount Requested</b>	<b>\$122,300.00</b>