

## UNIVERSITY OF MINNESOTA

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*Sponsored Projects Administration*

200 Oak Street SE  
450 McNamara Alumni Center  
Minneapolis, MN 55455  
612-624-5599

November 18, 2025

Legislative-Citizen Commission on Minnesota Resources

RE: Proposal Title: "Emergency response plan for livestock mortality management"  
University of Minnesota PI: Veluchamy Chitraichamy  
Proposed dates: 07/01/2026 – 06/30/2028  
Funding Requested: \$371,000

Hello,

The above referenced proposal is hereby endorsed, and submitted, on behalf of the Board of Regents of the University of Minnesota.

The University of Minnesota is registered in the FDP FCOI Clearinghouse certifying it has an active and enforced Conflict of Interest policy that is consistent with the provisions of 42 CFR part 50, Subpart F, and 42 CFR part 94.

The University of Minnesota's frequently requested institutional information, including EIN, DUNS, and SAM information can be found on our website at <https://research.umn.edu/units/spa/proposals/proposal-development/frequently-requested-institutional-information>. The current negotiated F&A rate agreement can be found on our website at <https://research.umn.edu/units/oca/fa-costs/fa-rate-agreements>.

Information regarding the University of Minnesota's Annual Audits and Financial Reports can be found here: <https://controller.umn.edu/annual-reports>

Questions concerning programmatic aspects of the project should be directed to the Principal Investigator. Those having to do with contract and budgetary matters should be directed to me by e-mail at [fletc070@umn.edu](mailto:fletc070@umn.edu) in the Office of Sponsored Projects Administration.

Sincerely,

*Riana Fletcher*

Riana Fletcher  
Principal Grant and Contract Officer  
Authorized Organizational Representative  
Sponsored Projects Administration

## **Emergency response plan for livestock mortality management**

**Project budget: 371,000**

**Duration: July 1, 2026, to June 30, 2028**

### **1. Issues or threats to State:**

Minnesota has repeatedly faced large-scale livestock mortality events from **highly pathogenic avian influenza (HPAI)** and related diseases, with over **185 infected sites in 51 counties** between 2022 and 2025, resulting in losses exceeding **9.8 million birds**. The threat of large-scale livestock disease outbreaks remains high, during such outbreaks, immediate, biosecure, and environmentally sound carcass disposal is essential to prevent the spread of pathogens and protect the state's **air, water, soil, and wildlife**. Currently, available disposal methods including composting, burial, incineration, and landfilling are limited by land availability, co-substrate needs, biosecurity risks, greenhouse gas emissions, and potential surface and groundwater contamination. The recurrence and expanding geographic distribution of outbreaks have overwhelmed existing capacity and exposed major gaps in emergency mortality management.

### **2. Why This Issue Is Unexpected:**

Although HPAI has appeared before, the frequency, severity, and geographic scope of the most recent events could not have been reasonably foreseen. Moreover, climate variability, migratory bird movements, and evolving viral strains have intensified the risk, creating an **urgent need for scalable, on-farm disposal technologies** that minimize environmental impact and disease spread. As a new researcher at the UMN West Central Research and Outreach Center, Morris, I observed the severity of the problem for the first time in 2025.

### **3. Proposed Solution:**

We propose to evaluate **Ambient Alkaline Hydrolysis (AAH)** at multiple temperatures using different molarities of alkaline medium, as a rapid, low-cost, and low-temperature mortality management strategy. Unlike conventional alkaline hydrolysis systems that require high temperature and pressure with specialized equipment, AAH operates at ambient conditions, fully solubilizing carcasses within sealed, biosecure containers. The process destroys pathogens and produces a nutrient-rich, sterile but highly caustic hydrolysate, which limits its direct use for land application, fermentation and anaerobic digestion, because these processes are pH sensitivity. So, we propose to test multiple strategies for partial neutralization of hydrolysate, including incubation with corn silage and inorganic acid addition and reused through fermentation or anaerobic digestion to generate biofuels, and other bioproducts. This approach simultaneously addresses disease containment, waste reduction, and renewable-energy recovery protecting both agriculture and the environment.

### **4. Consequences of Delaying Implementation:**

If immediate funding is unavailable, Minnesota risks entering another migration and outbreak season without a validated, deployable disposal option. Delayed response will increase

environmental contamination risks (leachate, nutrient runoff, methane and ammonia emissions), prolong disease transmission, and burden local landfills and compost sites.

### **5. Why Not Submitted Under the Regular RFP:**

This request was not included in the most recent LCCMR RFP because the renewed escalation of HPAI cases in 2025–2026 and the urgent demand for on-farm mortality solutions emerged after the standard proposal deadline. The situation meets the intent of the Emerging Issues Account to respond to sudden threats to Minnesota’s natural resources. Also, a new researcher, I observed the severity of the problem for the first time in 2025.

### **6. Steps Already Taken:**

The WCROC team has established research partnerships with the UMN Department bioproduct and biosystems Engineering and Department of Food Science and **Willmar poultry farm** and conducted **preliminary laboratory trials** demonstrating successful carcass breakdown and pathogen inactivation under ambient conditions. Analytical methods and containment designs are in place, and key collaborators are ready to scale up testing upon receipt of funding.

### **7. Next Steps, Expected Outcomes, and Completion Dates:**

Upon funding, we will immediately:

1. Conduct preliminary AAH laboratory trials to optimize hydrolysis and neutralization methods (0–6 months).
2. Perform pilot-scale AAH trials to validate the developed methodology (6–12 months).
3. Integrate neutralized hydrolysate into anaerobic digestion and fermentation systems to quantify renewable-energy yields (12–21 months).
4. Conduct an economic and logistical feasibility assessment for deployment (20–24 months).

### **Primary outcomes:**

- Validated, on-farm ambient hydrolysis technology for emergency use
- Reduction of environmental risks from mass mortality events
- Demonstrated conversion of waste to renewable energy and bio-fertilizer
- Actionable data to guide adoption by the Minnesota Board of Animal Health and related agencies.

**Proposed completion: June 30, 2028.**

### **Conclusion:**

Minnesota urgently needs a safe, scalable solution for livestock mortality management that safeguards both biosecurity and the environment. **Ambient Alkaline Hydrolysis** offers that solution, and timely support from the LCCMR Emerging Issues Account will allow immediate validation and development of methodology and deployment before the next disease outbreak season.

**Attachment A:**  
**Environment and Natural Resources Trust Fund Budget**  
**Emerging Issues Budget Addendum**

**Legal Citation:**

**Project Manager:** Veluchamy Chitraicmay  
**Project Title:** Emergency response plan for livestock mortality management

**Organization:** University of Minnesota

**Project Budget:** \$371,000

**Project Length and Completion Date:** 2 year and June 30, 2028

**Current Date:** November 11, 2025



BUDGET ITEM	Budget	Amount Spent	Balance	Justification for Generally Ineligible Expenses (if applicable)
<b>Personnel (Wages and Benefits)</b>	\$0	\$0	\$0	
2 Assistant Professor	\$40,735	-	-	3 weeks summer salary for each
2 Graduate Research Assistant (stipend and tuition)	\$238,236	-	-	
2 Undergraduate research Assistant	\$23,294	-	-	
	-	-	-	
	-	-	-	
<b>Services and Subawards</b>				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>Equipment/Tools/Supplies</b>				
Tools and Supplies	\$30,535	\$0	\$0	lab supplies and ppe for all lab work
sample analysis	\$10,000	\$0	\$0	billed by another department at U or external
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>Capital Expenditures Over \$5,000</b>				
Equipment	\$20,000	\$0	\$0	Equipment such as fermenter, anaerobic bioreactor are requested to carryout digestion on hydrolysate.

	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>Printing and Publication</b>				
Publication	\$4,000	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>Travel Expenses In Minnesota</b>				
	\$4,200	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>Travel Expenses Outside Minnesota</b>				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>Other</b>				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>COLUMN TOTAL</b>	<b>\$371,000</b>	<b>\$0</b>	<b>\$0</b>	

<b>SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT</b>	<b>Budget</b>	<b>Spent</b>	<b>Balance</b>	<b>Status (secured, pending, or potential)</b>
<b>Non-State:</b>	\$0	\$0	\$0	
<b>State:</b>	\$0	\$0	\$0	
<b>In kind:</b>	\$0	\$0	\$0	

<b>OTHER ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS</b>	<b>Budget</b>	<b>Spent</b>	<b>Balance</b>	<b>Amount legally obligated but not yet spent</b>
	\$0	\$0	\$0	