

Lead Institution – Texas A&M University

Core members – The University of California, Davis; The University of Southern California; The University of Texas Medical Branch

As a Department of Homeland Security National Center of Excellence, the National Center for Foreign Animal and Zoonotic Disease Defense is focused upon the development and application of integrated transcending methods and capabilities that specifically address priority areas set by the Department of Homeland Security. It is a key and active participant in the evolution of the national network of collaborating and cooperating universities, national and federal assets, and private sector partners.

What is the FAZD Center’s contribution to the mission of U.S. homeland security?

The FAZD Center develops integrated working teams across disciplines and institutions to create methodological platforms that provide excellence in methods with flexibility to address new needs. Its scope covers the range of foreign zoonoses and animal diseases of economic significance.

What is the structure and scope of the FAZD Center’s plan?

The FAZD Center generates a stream of products that are useful and usable by recognized users and stakeholders. These products are organized along three themes:

- **Biological Systems** products are aligned to satisfy DHS goals of detection, diagnosis, prevention and recovery.
- **Informatics, Modeling, Analysis** products are designed to better inform decision making at multiple levels of scale.

- **Education and Outreach** products provide the next generation of science power for homeland security and a more informed industry-government relationship for animal agriculture.

In addition, all FAZD Center products come with a dual benefit.

Each provides a defense against both naturally occurring and intentionally introduced foreign animal and zoonotic disease, and contributes explicitly to preparation for the national goal of an all-emergencies response.

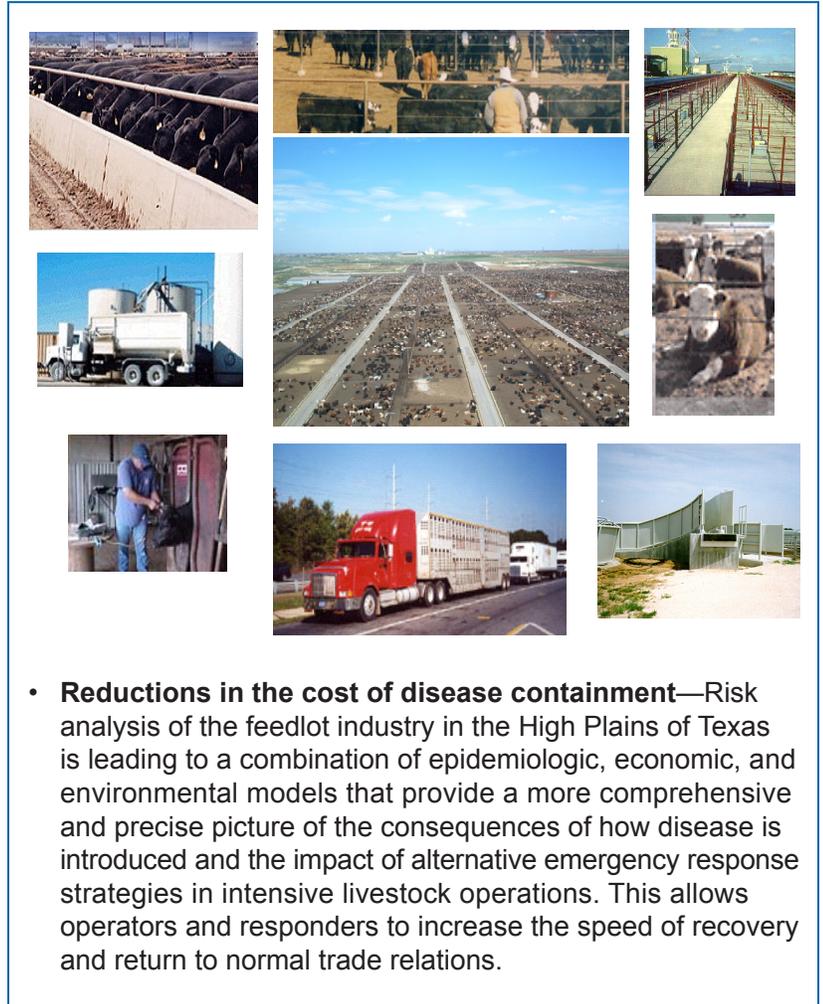
What is the FAZD Center’s strategy for investing its resources?

The FAZD Center was launched with a competitive award based on an inter-institutional and interdisciplinary proposal that addressed its responsiveness, relevance and its demonstrated capacity to meet the needs of the nation. The center is currently funded with an \$18 million, three year award with presumed likelihood of renewal based on demonstrated performance. Core funds are leveraged by a factor of two with other funding to address the Center’s mission. The FAZD Center provides an enduring institutional capacity to address each DHS priority area, as illustrated in the chart below, and meet the future needs of the department. It applies these methods to current DHS priority areas to provide a stream of ongoing meaningful products to address priority needs.

Thematic Categories	DHS Priorities				
	Prevention	Detection	Response	Recovery	Risk Communications/ Education
<i>Biological Systems</i>	<ul style="list-style-type: none"> • Vaccines and immunomodulators • Natural resistance • Management practices • Border security 	<ul style="list-style-type: none"> • ELISA test • PCR test • Novel detection systems—host response and organism 	<ul style="list-style-type: none"> • Modern methods and alternatives to slaughter and burn 	<ul style="list-style-type: none"> • Tests to distinguish vaccinated from infected animals and application of immunogens 	<ul style="list-style-type: none"> • Undergraduate and graduate education programs through sponsored thesis research • Masters and Ph.D. programs
<i>Informatics, Modeling, and Analysis</i>	<ul style="list-style-type: none"> • Planning • Table top exercises • Training • Gap analysis • Integrated assessment 	<ul style="list-style-type: none"> • Evaluation of options for detection • Surveillance • Border/port monitoring 	<ul style="list-style-type: none"> • Operational tools for incident command function • Options for managing outbreaks 	<ul style="list-style-type: none"> • Impact of mitigation options • Methods for risk assessment for resumption of trade after clean up 	<ul style="list-style-type: none"> • Quantitative risk analysis, aversion and mitigation • Use of table top exercises • Create knowledgeable next generation
<i>Education and Outreach</i>	<ul style="list-style-type: none"> • Train surveillance and first responders • Develop ongoing communications systems 	<ul style="list-style-type: none"> • Undergraduate and graduate students trained to use modern detection and diagnostic systems 	<ul style="list-style-type: none"> • New cadre of first responders trained to use modern decision tools in an incident command setting 	<ul style="list-style-type: none"> • Training international trading partners in modern risk assessment using new tools 	<ul style="list-style-type: none"> • Graduate and undergraduate • Scholarships and short courses • Add material to curriculum in food and agriculture

Examples of the FAZD Center's research

- **Responding to the threat of highly pathogenic avian influenza and the possibility of bird-to-human infection**—FAZD Center studies have defined the potential for transmission of avian influenza virus in live bird markets in the U.S. The FAZD Center also conducts surveillance of wild migratory birds in the Gulf Coast region of the Central Flyway for avian influenza. New methods for rapid field detection of infected birds are being developed using the tools of modern biotechnology.
- **Development of rapid regional and chute side tests for foot-and-mouth disease**—The FAZD Center validated new real time PCR diagnostic tests for FMD that can be used in regional labs to produce results in 45 minutes rather than three days as now required when samples are sent off shore. A hand held field test is in development. A FAZD Center model predicts the cost of delay in detection in one scenario to be \$2.3 million per hour.
- **Developing and validating training modules for domestic and international first responders and industry for avian influenza in cooperation with USAID**—The FAZD Center published a handbook, CD and web-based curriculum for group and auto-tutorial training, provided training to 350 Country Extension Agents and 28 Extension Livestock and Communications Specialists, and recruited and identified key participants to serve as trainers at regional outreach centers.



- **Reductions in the cost of disease containment**—Risk analysis of the feedlot industry in the High Plains of Texas is leading to a combination of epidemiologic, economic, and environmental models that provide a more comprehensive and precise picture of the consequences of how disease is introduced and the impact of alternative emergency response strategies in intensive livestock operations. This allows operators and responders to increase the speed of recovery and return to normal trade relations.

