PANTHR's Agricultural Threat Characterization Project

BACKGROUND

The Department of Homeland Security (DHS) Science and Technology Directorate's (S&T) [Probabilistic Analysis of National Threats, Hazards and Risks](#) (PANTHR) strategic program supports the national chemical, biological, radiological, nuclear, and explosive (CBRNE) defense mission. PANTHR provides accurate, useful, and defensible knowledge and tools to stakeholders to enable risk-informed decision making for defense against weapons of mass destruction threats to the homeland. PANTHR enables decision-makers to address CBRNE threats more effectively through three strategic capabilities: risk assessment, characterization, and knowledge management.

PANTHR's **Agricultural Threat Characterization** (AgTC) project improves national food and agricultural defense and preparedness by supporting scientific efforts to characterize traditional and emerging agricultural threats and hazards.

OVERVIEW OF ACTIVITIES

The AgTC project supports foundational research on recognized and emerging agricultural threats and biological agents. The knowledge products (technical reports) produced will support the development and validation of analytic methods on the fundamental properties of hazardous biological agents, materials, and related technologies. The advanced laboratory research will provide critical empirical data and insight on the properties of risk threats and the hazards to the agricultural sector. The scientific knowledge will serve DHS Components and the U.S. biodefense community, particularly those that defend food and agriculture, and operational elements.

Research will be conducted at national and government laboratories, or with academic and industry partners. The generated scientific data and information will inform internal and external stakeholders on risk assessments, policy development, hazard modeling for operational planning, scientific and veterinary medical countermeasures development, and tools for recovery and for the National Veterinary Stockpile.

STRATEGIC GOALS

1. Understand known and emerging agricultural threats and hazards, to prioritize requirements for detection (by DHS components, such as Customs and Border Protection, and others) and inform protection and response by federal, state, local, and tribal officials.
2. Recognize and exploit sensitive data gaps for further experimentation and analysis.
3. Establish a scientific, traceable rationale for implementation of DHS' strategic goals.

IMPACT FOR THE NATION

AgTC provides robust science-based data and knowledge to DHS and others that can be used for both strategic decisions and to improve planning and operational response. The generated data, knowledge products, and analysis will improve decisions, policies, and activities designed to prevent, protect, prepare, mitigate, respond to, and recover from CBRNE events targeting food and agriculture.

RECENT ACCOMPLISHMENTS

- Developed a strategic roadmap identifying research priorities for agricultural threats.
- Conducted three literature-based studies for Highly Pathogenic Avian Influenza (HPAI), Foot and Mouth Disease, and African Swine Fever (ASF). The studies produced gap assessments and helped identify laboratory research priorities.
- Identified and coordinated with new and existing partners, both within DHS and with the U.S. interagency.
- Maintained and built agricultural threat characterization expertise and capacity by identifying and funding new and existing performers in academia and industry.
- Planned and initiated three laboratory characterization research studies to fill critical knowledge gaps on ASF and HPAI. This was done in close cooperation with the [Plum Island Animal Disease Center](#) to maintain and transition unique expertise, in anticipation of closure of the physical facility.
- Initiated six studies with U.S. Department of Agriculture's Agricultural Research Services focused on plant threat characterization.

UPCOMING MILESTONES

- Support the development of expertise and laboratory threat characterization capacity through partnerships and collaborations within government and across sectors.
- Expand the research portfolio of AgTC through continued efforts to identify and fill gaps to combat emerging agricultural threats to li vestock and crops.