NATIONAL STRATEGIC RESEARCH INSTITUTE
at the University of Nebraska

NSRI IRAD 2022 SPECIAL CONSIDERATION BRIEF
AGRICULTURAL BIOSECURITY

NSRI IRAD 2022 has provided three areas of special consideration that proposers may incorporate into their projects to further refine toward NSRI mission objectives. This brief describes a focus on agricultural biosecurity.

Notifiable (foreign and other reportable) agricultural diseases can significantly impact agriculture operations, agribusiness, and a nations economy. They also create significant challenges for freedom of movement between farms and across county, state, and national borders. Certain diseases, such as African Swine Fever (ASF), can significantly constrain a US military Geographic Combatant Commander's ability to rapidly move equipment from an ASF positive to an ASF free country. NSRI seeks proposals for novel decontamination procedures for small and large equipment that can enhance confidence that fomite transmission potential has been minimized. These solutions can include permanent or temporary surface coatings that enhance removal of contaminated materials and infectious agents or kill the agent on contact.

A nation must be resilient to both natural and man-made crises and be able to feed its people adequately throughout a crisis. The recent COVID crisis demonstrated how logistics and supply chain disruptions can be impacted by a pandemic and availability of food can be negatively impacted even when there is no threat of contamination to the food at source or during processing. NSRI seeks proposals that will explore food and agriculture resiliency, identify critical nodes in the food supply chain, and explore resiliency factors to enhance availability during a crisis.

Emerging pathogens have multiple factors that influence their emergence and spillover from nature to man. Some have known reservoirs, suspect reservoirs, or unknown reservoirs and some are spread by insect vector transmission. Weather, changes in weather, and changes to the ecosystem have been discussed as potential significant contributing factors in pathogen emergence and expanding of geographic ranges for insect vectors. NSRI seeks proposals that will address weather and other factors that contribute to changes in the ecosystem as contributing factors to pathogen emergence/re-emergence and their potential to anticipate outbreaks in endemic areas.

Biosurveillance efforts continue to be hampered by a lack of awareness of disease spread and burden in wildlife populations that can spillover to human populations. The recent pandemic also emphasizes the need for local/regional/national risk determination of residual risk posed by potential disease reservoirs after a new disease has been introduced to naïve geographic regions. NSRI seeks proposals that will address feasible, suitable, and sustainable surveillance for wildlife diseases that can complement human and domestic animal disease surveillance and integrate with existing systems to enhance overall awareness of infectious disease threats.

All details regarding NSRI IRAD 2022 funding are available nsri.nebraska.edu/IRAD.