Economic Consideration of Mitigation of Foreign Animal Disease Introduction [*]

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The economic implications of foreign animal and zoonotic diseases and their mitigation options has become a more pertinent issue as the fears of agricultural terrorism have grown. From an economic perspective, agricultural terrorism would cause damages by disrupting agricultural commodity and related markets either because of the events themselves or because of potentially expensive and intrusive mitigation actions. It has been documented that even unintentional outbreaks of diseases such as Foot and Mouth Disease (FMD) can cause substantial economic damages. The total expected cost of a disease outbreak is composed of post outbreak economic losses brought by the outbreak weighted by the event probability plus the cost of any pre outbreak actions. This, in most cases, inherently implies a tradeoff between pre outbreak prevention and detection related costs and ex post losses from the outbreak management plus any associated recovery costs.

In this paper we present the results of a study using an economic model to examine the tradeoffs between pre and post outbreak FAZDD related strategies as they are affected by outbreak characteristics such as outbreak probability, speed of disease spread, magnitude of disease introduced damages, relative effectiveness and costs of mitigation strategies. Specifically, we examine under what circumstances is it beneficial to incur pre outbreak investments in programs that lower post event costs but incur costs whether or not an outbreak occurs versus relying only on post outbreak response measures, which would be activated only if the outbreak occurs. Both the analytical method and the results will be presented.

About the Presenting Author

Dr. Elbakidze is a Research Associate in the department of Agricultural Economics and an economist at the National Center for Foreign Animal and Zoonotic Disease Defense at Texas A&M University. His primary research interests include application of mathematical programming and economic modeling for addressing topics ranging from mitigation of foreign animal disease introduction to water resource management. His current research with the Department of Homeland Security focuses on economic investigation of prevention, detection, response and recovery actions for inclusion in

optimal mitigation policy against deliberate and/or unintentional introduction of harmful non-indigenous animal and zoonotic species and diseases.