

Title: Reduction of Economic Impact**Principal Investigator:** William Nganje**Center of Excellence:** Food Protection and Defense Institute (FPDI) (Emeritus)**COE Lead/Co-Lead Institution:** University of Minnesota**Project Start Date:** 06/2004**Project Completion Date:** 09/2007**Project Status:** Complete**Research Theme:** Event Modeling**Participating State(s):** Minnesota, North Dakota**Amount Awarded to Date:** \$198,766**Award Number:** N-00014-04-1-0659

Abstract: This study provides a framework to value investments to mitigate possible agro-terrorism occurrences in the food supply chain and to determine where these investments would reduce the most risk. This framework is applied to the milk industry, which is a sector of the food industry that could be at risk. Stochastic optimization method is used to determine the costs and risk premiums of alternative investments with real time tracking possibilities. The real options method along with a portfolio of options, also referred to as the "tomato garden" framework, is used to determine where and when alternative intervention strategies should be implemented to reduce the most risk.

End User Engagement:

- Academic Community
- Food and Agriculture Industries
- Food and Drug Administration
- State and Local Transportation
- U.S. Department of Agriculture

Peer-reviewed journal articles produced from this project

Citation
Nganje, William E., Bruce Dahl, William W. Wilson, Mounir Siaplay, and Andrew Lewis. "Valuing Private Sector Incentives to Invest in Food Security Measures: Quantifying the Risk Premium for Alternative Tracking System." <i>Journal of International Agricultural Trade and Development</i> 3, no. 2 (2007): 199-216.
Lyonga, Agnes, William Nganje, Timothy Sellnow, Simeon Kaitibie and Steven Venette. "Human Factor Risk in Turkey Processing and High Reliability Culture." <i>Food Protection Trends</i> , Vol. 26, No. 7(August, 2006):593-600.
Nganje, William, William W. Wilson, and James Nolan. "Agr-Terrorism and the Grain Handling Systems in Canada and the United States." <i>Current A Journal of the Canadian Agricultural Economics Society</i> , no. 4 (November 2004): 148-59.
Novak, Julie, Timothy Sellnow, Steven Venette, and William Nganje. "Perceptions of Risk Communication Messages: Applications in a Food Processing Environment." <i>Food Protection Trends</i> , 26, no. 4 (April, 2006):236-243.

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