FOOD AND AGRICULTURE PROCESS DIAGRAMS

OVERVIEW
The National Infrastructure Simulation and Analysis Center (NISAC) has developed capabilities to identify vulnerabilities and the potential for consequences to infrastructure in the Nation’s Food and Agriculture Sector. Application of these capabilities is designed to assist in the development of effective cross-cutting adaptation and mitigation strategies to minimize the public health and economic impacts of high-risk natural and adversarial events in the Food and Agriculture Sector.

CHARACTERISTICS
- Captures key supply chain network structure and associated product stocks and flows.
- Uses a simple generating kernel to build context-appropriate models of food and agricultural commodity supply systems amenable to risk-based analyses of threat, vulnerability, and consequence.
- Identifies critical inter- and intra-infrastructure inputs and outputs.
- Identifies potential for cascading consequences.
- Provides basis for analysis of the topology of food and agricultural commodity flows.

APPLICATIONS
- Vulnerability and potential for consequence to:
  - Soybean production following the detection of soybean rust in domestic crops.
  - Crop production following detection of the kudzu bug.
  - Liquid milk contamination in California.
- Vulnerability of:
  - Domestic food production and marketing system to labor shortages during a pandemic.
  - Fresh cut produce to adversarial contamination.

QUESTIONS ADDRESSED
Using data from multiple USDA, FDA, industry, and academic sources, NISAC can answer the following types of risk-based questions:
- What and where are the potential vulnerabilities in the Food and Agriculture Sector?
- At what points in the system are investments and action most likely to reduce the potential for negative consequences?
- What are the dependencies between the Food and Agriculture Sector and other infrastructure sectors?

ABOUT OCIA
The Department of Homeland Security, National Protection and Programs Directorate’s (NPPD) Office of Cyber and Infrastructure Analysis (OCIA) manages NISAC, which is a Congressionally mandated center of excellence in modeling, simulation, and analysis of critical infrastructure.

CONTACTS
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