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Agroterrorism

What Is the Threat and What Can Be Done About It?

Since the 9/11 terrorist attacks, potential vulnerabilities in the nation’s critical infrastructure have come under increasing scrutiny. However, compared with the attention focused on such vital “nodes” as transportation and telecommunications, relatively little consideration has been paid to threats to the agriculture and food industries.

A study by RAND researcher Peter Chalk focuses attention on the issue of agroterrorism—the deliberate introduction of a disease agent, either against livestock or into the food chain, to undermine socioeconomic stability and/or generate fear. He lays out the consequences of such an attack, examines key weaknesses inherent in the agricultural sector and the food chain, assesses the capabilities needed to exploit those vulnerabilities, and discusses potential ways to improve agricultural emergency response and management.

An Attack Would Have Huge Impact

A major agroterrorist attack would have substantial economic repercussions, especially when allied industries and services—suppliers, transporters, distributors, and restaurant chains—are taken into account. The fiscal downstream effect of a deliberate act of sabotage would be multidimensional, reverberating through other sectors of the economy and ultimately impacting the consumer.

Aside from economic considerations, a successful bio-assault against the agricultural sector could also undermine the public’s confidence in, and support for, the government. The mechanics of dealing with an attack—especially the potential need for mass animal slaughter to contain a major disease outbreak—could certainly generate public criticism (as it did during the 2001 foot and mouth epidemic in the United Kingdom).

Beyond the immediate economic and political impact, such attacks could also elicit fear and anxiety among the public. This would be particularly true in the event of a public health scare resulting

Abstract

Although the consequences of an agroterrorism attack are substantial, relatively little attention has been focused on the threat. Unfortunately, the agricultural and food industries are vulnerable to disruption, and the capabilities that terrorists would need for such an attack are not considerable. In the short term and medium term, a series of targeted initiatives could improve the current situation; over the longer term, efforts should be directed toward standardizing and streamlining food-supply and agricultural safety measures within the framework of a single, integrated strategy.

from foodborne outbreaks or the spread of animal pathogens contagious to humans.

Significant Vulnerabilities Exist

Key vulnerabilities in the agricultural sector stem from:

- **Concentrated and intensive contemporary farming practices.** Highly crowded breeding and rearing conditions mean an outbreak of a contagious disease would be very difficult to contain, especially if it is airborne, and could require the destruction of all exposed livestock.
- **Increased susceptibility of livestock to disease.** This has occurred because of changes in husbandry practices—from sterilization programs to dehorning, branding, and hormone injections—and from the overuse and misuse of antibiotics.
- **Insufficient farm/food-related security and surveillance.** Farms seldom incorporate vigorous means to prevent unauthorized access; most animal auctions and barn sales are devoid of organized on-site surveillance; and food processing and packing plants tend to lack uniform security and safety preparedness measures, particularly

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the small- and medium-scale facilities that have proliferated in recent years.

- **An inefficient passive disease-reporting system.** Responsibility for reporting unusual occurrences of animal disease lies with livestock producers, who may have disincentives for doing so because of the lack of a consistent program for agricultural indemnity.
- **Inappropriate veterinarian and diagnostic training.** The number of veterinarians able to recognize and treat foreign livestock diseases is declining, reflecting a relatively poorly paid profession that suffers from a lack of appropriate training in exotic animal epidemiology.
- **A focus on aggregate rather than individual livestock statistics.** The movement toward larger herds and breeding operations largely precludes the option of attending to animals individually, making it more likely that emerging diseases will be overlooked.

Capabilities to Exploit Vulnerabilities in Agriculture Are Not Considerable

Terrorists can choose from a large menu of bio-agents, most of which are environmentally hardy, are not the focus of concerted livestock vaccination programs, and can be easily smuggled into the country. The food chain offers a low-tech mechanism for achieving human deaths. Many animal pathogens cannot be transmitted to humans, which makes them easier for terrorists to work with. Finally, because livestock are the primary vector for pathogenic transmission, there is no weaponization obstacle to overcome.

Despite the ease and implications of a successful attack, agro-terrorism is unlikely to constitute a primary form of terrorist aggression because it lacks a single, highly visible point of focus for the media (a primary consideration in any terrorist attack). However, disrupting the food sector could well emerge as a viable secondary modus operandi to further destabilize an already disoriented society after a conventional terrorist campaign. Being able to use cheap and unsophisticated means to undermine a state's economic base gives this form of aggression a high cost/benefit payoff that would be very useful to groups faced with overcoming significant power asymmetries.

Recommendations

Short- to medium-term recommendations include the following:

1. Conducting a comprehensive needs analysis to determine appropriate investment requirements for the federal emergency management infrastructure.
2. Increasing the number of state and local personnel with the skills to identify and treat exotic foreign animal diseases.
3. Assessing how to foster more coordinated and standardized links between the U.S. agricultural and intelligence communities.

4. Focusing attention on issues of law enforcement and the use of forensic investigations to determine whether disease outbreaks are deliberate or naturally occurring.
5. Revisiting the effectiveness of the passive (voluntary) disease reporting system, especially in providing more consistency with indemnity payments to compensate farmers for destroyed livestock.
6. Evaluating surveillance, internal quality control, and emergency response at food processing and packing plants to weigh the immediate costs of improving biosecurity against the long-term benefits of instituting those upgrades.

Over the longer term, additional effort should be directed toward standardizing and streamlining food-supply and agricultural safety measures within the framework of a single, integrated strategy that cuts across the missions and capabilities of federal, state, and local agencies. (See the table.)

An effort such as this would help to unify the patchwork of largely uncoordinated bio-emergency preparedness and response initiatives that now exist. Integrating agriculture and food safety measures would also reduce jurisdictional conflicts and eliminate unnecessary duplication of effort. ■

Preventive Measures	Response Measures
Intelligence measures (identify potential threats; understand motivations; predict behavior)	Early detection of exotic/foreign pathogenic agents
Monitoring programs (detect/track specific pathogens/diseases)	Early prediction of disease dispersion patterns
Establishment of laboratories to research the most-virulent diseases	Early containment procedures
International counterproliferation treaties, protocols, and agreements	Epidemiology and treatment
Creation of agent-specific resistance in livestock	Depopulation and carcass disposal
Specific vaccination against the most-threatening animal disease agents	Diplomatic/legal/economic/political responses
Modification (where possible) of vulnerable food/agriculture practices	Compensation and indemnity
Biosecurity and surveillance	Education and training
Education and training (federal, state, and local)	Public awareness and outreach programs
	Vaccine and pharmaceutical stockpiling

SOURCE: Most of the above items are from Henry Parker, *Agricultural Bioterrorism: A Federal Strategy to Meet the Threat*, McNair Paper 65, Washington, D.C.: Institute for National Strategic Studies, National Defense University, March 2000, pp. 40–41.

This research brief describes work done for the RAND National Security Research Division documented in *Hitting America's Soft Underbelly: The Potential Threat of Deliberate Biological Attacks Against the U.S. Agricultural and Food Industry*, by Peter Chalk, MG-135-OSD, 2004, 66 pages, \$18, ISBN: 0-8330-3522-3, available from RAND Distribution Services (phone: 310-451-7002; toll free: 877-584-8642; or email: order@rand.org). The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.