

Hitting America's Soft Underbelly

The Potential Threat of
Deliberate Biological Attacks
Against the U.S. Agricultural
and Food Industry

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Summary

The Importance of the U.S. Agricultural Industry and Its Vulnerability to Disruption

Agriculture¹ and the food industry in general are enormously important to the social, economic, and, arguably, political stability of the United States. Although farming directly employs less than 3 percent of the American population, one in eight people works in an occupation that is directly supported by food production. Agriculture's share of produce sold overseas is more than double that of other U.S. industries, which makes the sector a major component in the U.S. balance of trade.

Unfortunately, the agriculture and food industries are vulnerable to deliberate (and accidental) disruption. Critical concerns in this area include:

- The concentrated and intensive nature of contemporary U.S. farming practices
- The increased susceptibility of livestock to disease
- A general lack of farm/food-related security and surveillance
- An inefficient, passive disease-reporting system that is further hampered by a lack of trust between regulators and producers
- Veterinarian training that tends not to emphasize foreign animal diseases (FADs) or large-scale husbandry

¹ For the purposes of this report, *agriculture* refers to all activities included in the production cycle of the entire food industry. Wholesalers and restaurant chains are included as related entities that are directly dependent on the agriculture industry; they occupy the “supply” end of the farm-to-table continuum.

- A prevailing focus on aggregate, rather than individual, livestock statistics

Although vulnerability does not equate to risk, and there are few recorded instances of terrorists actually using disease against agriculture, a realistic potential for disruption exists. Indeed, what makes the vulnerabilities inherent in agriculture so worrying is that the capability requirements for exploiting those weaknesses are not significant and are certainly less considerable than those needed for a human-directed bio-attack.

Several factors account for this situation. First, there is a large menu of agents from which to choose, with no less than 15 “List A” pathogens identified by the Office International des Epizooties (OIE) as having the potential to severely effect agricultural populations and/or trade. Most of these diseases are environmentally hardy—being able to exist for extended periods of time on organic or inorganic matter—and typically are not the focus of concerted livestock vaccination programs in the United States.

Second, many FADs are *non-zoonotic*, meaning they cannot “jump” the animal-human species barrier; as such, there is no risk of latent or accidental (human) infection associated with these pathogens. Thus, the perpetrator is not required to have an advanced understanding of animal disease epidemiology and transmission modes, nor is there any need for elaborate containment procedures, personal protective equipment, and/or prophylaxis antibiotics in the preparation of the disease agent.

Third, animal diseases can be quickly spread to affect large numbers of herds over wide geographic areas. This factor reflects the intensive and concentrated nature of modern farming practices in the United States and the increased susceptibility of livestock to viral and bacterial infections. There is, in other words, no issue of weaponization that needs to be addressed in agricultural terrorism because the animals themselves are the primary vector for pathogenic transmission.

Fourth, if the objective is human deaths, the food chain offers a low-tech mechanism that is nevertheless conducive to disseminating

toxins and bacteria. Developments in the farm-to-table food continuum have greatly increased the number of entry points for these agents. These openings for contaminants combined with the lack of security and surveillance at many processing and packing plants, have helped to substantially augment the technical ease of orchestrating a food-borne attack.

The Impact of a Major Act of Agroterrorism

The impact of a major agricultural/food-related disaster in the United States would be significant and could easily extend beyond the agricultural community to affect other segments of society.

Perhaps one of the most immediate effects of a major act of biological agroterrorism² would be economic disruption, generating costs on at least three different levels. First, there would be direct losses resulting from containment measures and the destruction of disease-ridden livestock. Second, indirect multiplier effects would accrue from compensation costs paid to farmers for the destruction of agricultural commodities and losses suffered by both directly and indirectly related industries. Finally, international costs would accumulate in the form of protective trade embargoes imposed by major external trading partners.

A successful act of agroterrorism could also undermine the domestic confidence in and support of government. The release of contagious pathogens against livestock or the contamination of the farm-to-table continuum through the introduction of toxic or bacterial agents could cause the public to question the safety of the food supply and lead to speculation about the effectiveness of existing contingency planning against weapons of mass destruction in general.

² For the purposes of this report, *agroterrorism* is defined as the deliberate introduction of a disease agent, either against livestock or into the food chain, for purposes of undermining socioeconomic stability and/or generating fear. Depending on the disease agent and pathogenic vector chosen, agroterrorism is a tactic that can be used either to cause mass socioeconomic disruption or as a form of direct human aggression.

The mechanics of dealing with a major act of agroterrorism could trigger additional public criticism. Mass eradication and disposal of livestock in particular could be controversial, possibly eliciting protests from affected farmers and animal rights and environmental groups.

Beyond their immediate economic and political impact, bioterrorist assaults against agriculture and/or the food chain have the potential to create social panic. Attacks that have a direct impact on public health by causing human deaths and injuries could be expected to have particularly unsettling effects. Terrorists could use the resulting fear and alarm to their advantage to create an overall atmosphere of anxiety without actually having to carry out indiscriminate civilian-directed attacks.

Policy Recommendations

The United States, more by luck than by design, has not experienced the type of major agricultural or food-related disasters to which other countries and polities, such as the United Kingdom, Malaysia, and Taiwan, have been subjected in recent years. As a result, there is no widespread recognition of either the potential threat or the consequences of such an event taking place on American soil.

The United States ignores the continuing vulnerability of the agricultural sector at its own peril. Policy reforms can, and indeed should, be instituted to pursue a more aggressive and coordinated strategy to secure the industry against deliberate attack. Such measures would have the ancillary benefit of augmenting overall response and consequence-management efforts for dealing with naturally occurring outbreaks of food contamination or disease in livestock. These initiatives should (1) build on programs already under way; (2) leverage existing federal, state, and local capabilities; and (3) involve key customers, stakeholders, and partners.

At least six policy recommendations can be made for the short and medium term:

- First, a comprehensive needs analysis should be undertaken to ascertain appropriate investment requirements for the federal emergency management infrastructure.
- Second, a move must be made to increase the number of state and local personnel who have the requisite skills to identify and treat exotic FADs.
- Third, assessments of how to foster more-coordinated and standardized links between the U.S. agricultural and intelligence communities should be undertaken.
- Fourth, attention needs to be directed to issues of law enforcement and the use of forensic investigations to determine whether disease outbreaks have been deliberately orchestrated or are the result of naturally occurring phenomena.
- Fifth, the overall effectiveness of the passive (i.e., voluntary) disease reporting system needs to be revisited, especially in relation to providing more consistency with indemnity payments to compensate farmers for destroyed livestock and improving the effectiveness of communication channels between agricultural producers and regulators.
- Finally, surveillance, internal quality control, and emergency response at food processing and packing plants need to be addressed and evaluated 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. An effort such as this would help to unify the patchwork of largely uncoordinated bio-emergency preparedness and response initiatives that presently exists in the United States. Integration of agriculture and food safety measures would also serve to reduce jurisdictional conflicts and eliminate unnecessary duplication of effort.