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AGRO TERRORISM

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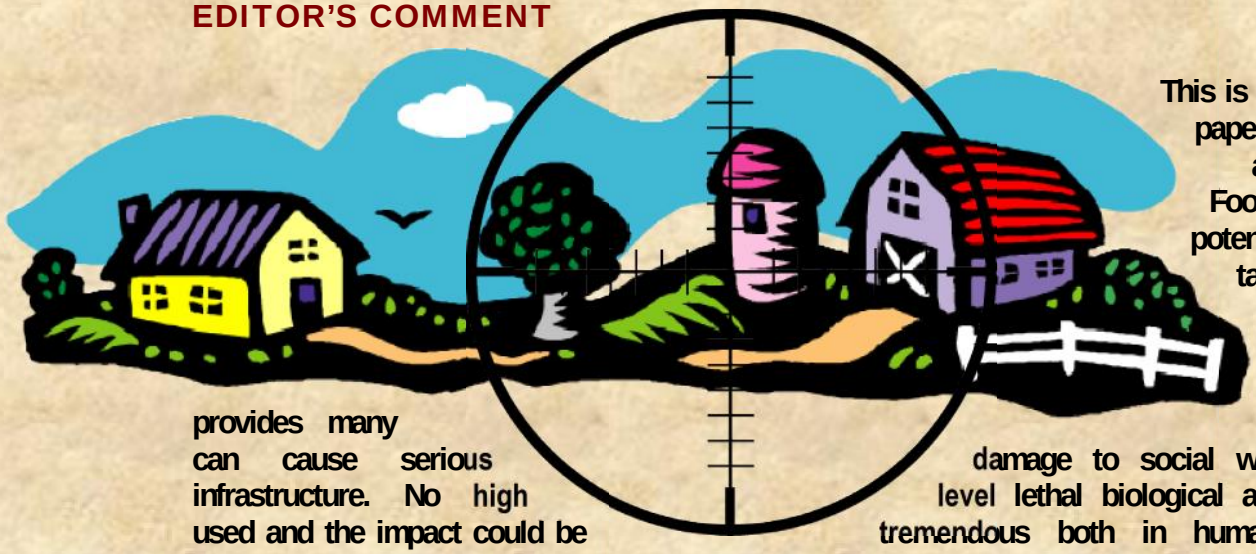
EDITOR'S COMMENT



This is a collection of papers focusing on agro-terrorism. Food chain is a potential terrorist target and the long way from farm to spoon provides many gaps that can cause serious damage to social web and state infrastructure. No high level lethal biological agents can be used and the impact could be tremendous both in human lives and livestock and in national economy.

Agroterrorism

Agroterrorism, also known as **Agriterrorism**, is a malicious attempt to disrupt or destroy the agricultural industry and/or food supply system of a population through "the malicious use of plant or animal pathogens to cause devastating disease in the agricultural sectors". It is closely related to the concepts of biological warfare and entomological warfare, except carried out by non-state parties (although this might happen as well). It may also take the form of hoaxes and threats intended to create public fear of such events.

Insects: tougher than anthrax

Source:http://www.boston.com/news/globe/ideas/articles/2007/10/21/insects_tougher_than_anthrax/

Microscopic agents such as smallpox, ebola, and anthrax have become synonymous with bioterrorism. But insects can be more practical and effective.

Producing sufficient quantities of viruses or bacteria can be technically challenging, the process is extremely hazardous, and it is difficult to find a way to disperse the product effectively. Getting particles of the right size to stay aloft as an aerosol is not simple, and if the winds shift an otherwise effective attack is neutralized.

The ruins of the yellow-rat breeding room at Japan's notorious germ warfare center, Unit 731, in China. (Corbis)

Anthrax, for example, is easy to isolate and can be milled into a light powder, but it doesn't replicate quickly and it doesn't pass readily between people. In the anthrax attacks via the US mail system in 2001,

seven letters with up to a gram of highly refined, nearly pure spores yielded five deaths, and none of the infected people passed the disease on to others. The attack caused enormous disruption, but the mail bombs sent by Ted Kaczynski were nearly as lethal.

Insects, on the other hand, often can be gathered in sufficient numbers to seed an outbreak. Their eggs are environmentally robust and small enough to carry by the thousands without risk of detection. A single Medfly female in a survey trap is enough to immediately shut down an agricultural exporter, and finding two flies within a 1-mile radius triggers an eradication program.

Microscopic agents are typically highly vulnerable to ultraviolet radiation, desiccation, and heat, and lack the ability to seek out hosts. But insects can withstand adverse conditions and have evolved elegant sensory systems and incredible flight mechanisms that allow them to locate their hosts.

A decent representative of the technological level of today's terrorist is the Japanese biological warfare program in World War II. After seven years of work with microbes, the only people killed in the first attack with bacterial weapons were 40 Japanese who launched the assault and became accidentally infected with typhoid. So the Japanese turned to insect-borne diseases. A year later they killed 50,000 of their enemy in the first attack with plague-infected fleas.

Agroterrorism - Threats to America's Economy and Food Supply

By Dean Olson, M.A.

Source: http://www.fbi.gov/stats-services/publications/law-enforcement-bulletin/february-2012/agroterrorism

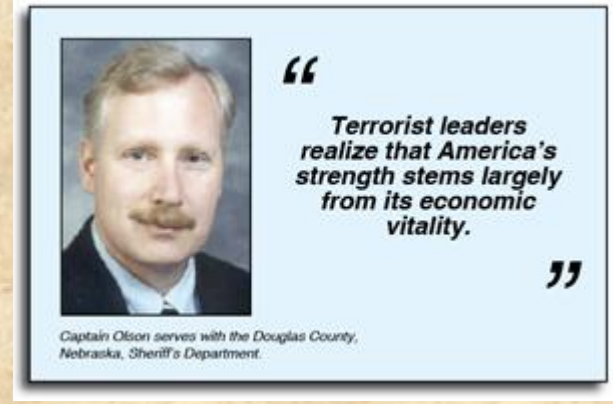
The United States enjoys a safe, plentiful, and inexpensive food supply. Americans spend only 11 percent of their income on food compared with the global average of 20 to 30 percent.[1] The nation's agricultural abundance helps drive its economic prosperity. As many as 1 of 6 jobs are linked to agriculture, a trillion-dollar industry. Agriculture-related products comprise nearly 10 percent of all U.S. exports, amounting to nearly $68 billion in 2006.[2]

Terrorists consider America's agriculture and food production tempting targets. They have noticed that its food supply is among the most vulnerable and least protected of all potential targets of attack. When American and allied forces overran al Qaeda sanctuaries in the caves of eastern Afghanistan in 2002, among the thousands of documents they discovered were U.S. agricultural documents and al Qaeda training manuals targeting agriculture.

A subset of bioterrorism, *agroterrorism* is defined as "the deliberate introduction of an animal or plant disease for the purpose of generating fear, causing economic losses, or undermining social stability."[3] It represents a tactic to attack the economic stability of the United States. Killing livestock and plants or contaminating food can help terrorists cause economic crises in the agriculture and food industries. Secondary goals include social unrest and loss of confidence in government.

Serious Concern

Agroterrorism is not new. The Assyrians poisoned enemy wells with rye ergot during the 6th century B.C. During World War I, German agents in the United States infected horses and cattle in transit across the Atlantic to France. In 1994, in The Dalles, Oregon, a religious cult intentionally contaminated 10 restaurant salad bars with salmonella, sickening more than 750 people in an attempt to influence the outcome of a local election. Since 1912, 12 documented cases have involved the substate use of pathogenic agents to infect livestock or contaminate food.[4]



The agroterrorism threat emanates from four categories of perpetrators. The foremost threat is posed by transnational groups, like al Qaeda—widely believed to present the most probable threat of inflicting economic harm on the United States.

The second group is comprised of economic opportunists tempted to manipulate markets. They understand that a foot and mouth

disease (FMD) outbreak, for example, would have a dramatic impact on markets. By introducing the virus, they could exploit the markets for personal economic gain.
The third category includes domestic terrorists who may view the introduction of FMD as a blow against the federal government. As an outlier of this category, the unbalanced individual or disgruntled employee may perpetrate an attack for a variety of idiosyncratic or narcissistic motivations.
Finally, militant animal rights or environmental activists pose a threat because they consider immoral the use of animals for food. Groups, such as the Animal Liberation Front and its sister organization, the Earth Liberation Front, could view an attack on the animal food industry a positive event.[5]

Threat Environment
Because it lacks the drama and spectacle of more common terrorist violence, such as bombings and murders, agroterrorism has remained a secondary consideration, and no documented attacks in the homeland have occurred since 9/11. Several recent factors may have made agroterrorism a more attractive tactic.
First, the threat environment has changed dramatically. America has had recent successes against al Qaeda's leadership. These victories have forced the group to morph in both structure and tactics. The increasingly dangerous environment it now must operate in has prevented it from mounting catastrophic terrorist attacks on the scale of 9/11. Now, al Qaeda places its emphasis on smaller, independent attacks following a "death by a thousand cuts" strategy to exhaust, overwhelm, and distract U.S. Department of Homeland Security forces. The group seeks to flood America's already information overloaded intelligence systems with myriad threats and "background noise."[6] Agroterrorism also may serve as a way to magnify the social upheaval caused by smaller, independent attacks, like bombings.
Second, Usama Bin Ladin consistently had argued that attacking the U.S. economy represented the best way to destroy America's ability to project military power abroad. Underpinning this view is al Qaeda's historical narrative that jihad against the Soviets following the invasion of Afghanistan led not only to the defeat of the Red Army but, ultimately, to the demise of the U.S.S.R.[7] As divorced from reality as this view seems, economic harm remains one of the pillars of al Qaeda's terror strategy against the United States. In a video broadcast before the 2004 U.S. presidential elections, Usama Bin Ladin bragged that his organization "…bled Russia for 10 years until it went bankrupt and was forced to withdraw in defeat…. We are continuing in the same policy to make America bleed profusely to the point of bankruptcy…." He boasted that the 9/11 attacks had cost al Qaeda $500,000 while inflicting a staggering $500 billion in economic losses to America.[8] According to Bin Ladin, "every dollar of al Qaeda defeated a million dollars [of America]...besides the loss of a huge number of jobs."

The same factors that yield inexpensive and plentiful food by promoting maximum production efficiency also make American agricultural systems inherently vulnerable.

Analysts believe that al Qaeda's evolving tactics increasingly will "focus on targets that will yield the most economic damage."[9] Terrorist leaders realize that America's strength stems largely from its economic vitality. They pursue an overarching strategy that all attacks should focus on weakening America's economic strength, especially through protracted guerilla warfare. In their view, as the United States loses its standing in the Middle East, groups, like al Qaeda, can gain ground and remove from power regimes they view as corrupt and illegitimate.[10]
Terrorists know that a successful agroterrorism incident threatens America's economic welfare and its standing as a leading exporter of agricultural products to the world. A significant disruption in agricultural exports caused by such an attack would have ripple effects in the United States' and global economies. This economic disruption would occur on three levels.
The first involves direct losses due to containment measures, such as stop-movement orders (SMOs) or quarantines of suspected stock. Additional costs would arise from the culling and destruction of disease-ridden livestock.[11] Second, indirect multiplier effects, such as compensation to farmers for destruction of agricultural commodities and losses suffered by directly and indirectly related industries, would arise.[12] And, third, international costs would result from protective trade embargoes. Less measurable

consequences would include the undermining of confidence in and support of government, creation of social panic, and threat to public health on the national and global levels.

Given its ease of execution and low cost to high benefit ratio, agroterrorism fits the evolving strategy of al Qaeda that focuses on inexpensive but highly disruptive attacks in lieu of monumental ones. Agroterrorism could exacerbate the social upheaval caused by random bombings. The ability to employ cheap and unsophisticated means to undermine America's economic base, combined with the added payoff to potentially overwhelm its counterterrorism resources, makes livestock- and food-related attacks increasingly attractive.[13]

Foot and Mouth Disease

Attacks directed against the cattle, swine, or poultry industries or via the food chain pose the most serious danger for latent, ongoing effects and general socioeconomic and political disruption. Experts agree that FMD presents the most ominous threat.[14] Eradicated in the United States in 1929, FMD remains endemic in South America, Africa, and Asia.[15] An especially contagious virus 20 times more infectious than smallpox, FMD causes painful blisters on the tongues, hooves, and teats of cloven-hoofed animals, including cattle, hogs, sheep, goats, and deer, rendering them unable to walk, give milk, eat, or drink. Although people generally cannot contract the disease, they can carry the virus in their lungs for up to 48 hours and transmit it to animals. The animal-to-animal airborne transmission range is 50 miles.[16] An infected animal can shred the virus in large quantities from its upper respiratory tract via drooling, coughing, and discharging mucus. Extremely stable, FMD can survive in straw or clothing for 1 month and spread up to 100 kilometers via the wind. Because herds exist as highly crowded populations bred and reared in extremely close proximity to one another, a significant risk exists that such pathogenic agents as FMD will spread well beyond the locus of a specific outbreak before health officials become aware of a problem. An FMD outbreak could spread to as many as 25 states in as little as 5 days simply through the regulated movement of animals from farm to market.[17]

...the food production and distribution chain offers a low-tech but effective mechanism for disseminating toxins and bacteria....

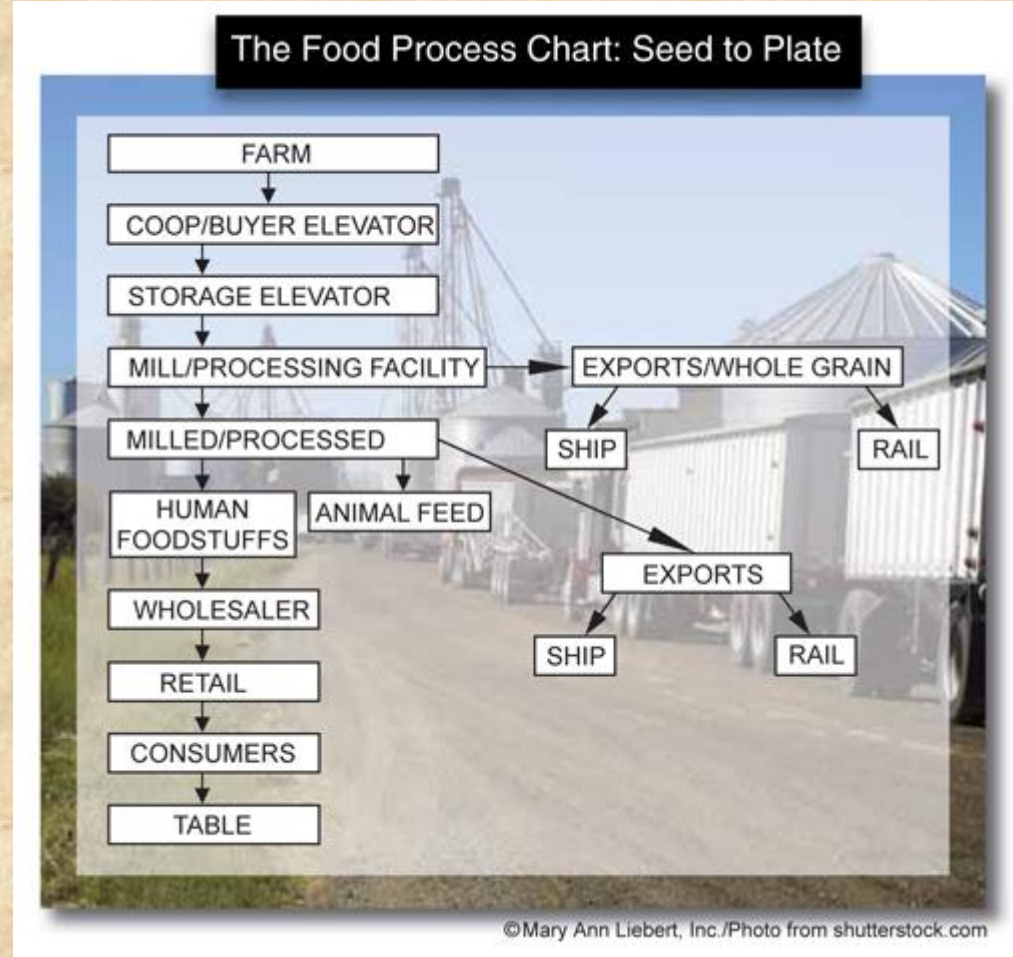
From a tactical perspective, an FMD attack holds appeal for several reasons. First, unlike biological warfare directed against humans, no issue of weaponization exists. In an FMD attack, the animals themselves serve as the primary medium for pathogenic transmission, and countries as close as those in South America offer a ready source of the virus. As one analyst described it, the virus "can be spread by simply wiping the mucus from an infected animal on a handkerchief and then transferring the virus to healthy animals by wiping their noses…by stopping on a highway in rural America and releasing the virus among curious livestock an outbreak could be initiated."[18]

Second, FMD is nonzoonotic, presenting no risk of accidental human infection. There exists no need for elaborate personal protective equipment or an advanced understanding of animal disease science. In a biowarfare attack targeting people, the deadly pathogen poses a threat to the perpetrators, as well as their intended victims. Preparing the pathogen so that terrorists can handle it safely yet disseminate it effectively to intended victims can prove difficult. For instance, the Aum Shinrikyo sarin gas attacks on the Tokyo subway in 1994 largely failed to kill the number of people intended due to the crude method of dissemination.

Third, terrorists could introduce and subsequently disperse the virus throughout the American food production system through multiple carriers, including animals carrying and introducing it into susceptible herds; animals exposed to contraband materials, such as contaminated food, hay, feedstuffs, hides, or biologics; people wearing clothing or using equipment, including tractors and trucks, to transmit the virus to uninfected animals; and contaminated facilities, such as feed yards, sale barns, and trucks that commonly hold or transport susceptible animals.[19]

The same factors that yield inexpensive and plentiful food by promoting maximum production efficiency also make American agricultural systems inherently vulnerable. The highly concentrated and intensive nature of livestock production encourages the rapid spread of contagious pathogens.[20] Most dairies house at least 1,500 cows, with the largest facilities containing 10,000. Animals often are born on breeding farms and then transported to another state for slaughtering and processing. Otherwise isolated and widely dispersed farms often share equipment, vehicles, and veterinary instruments. Feedlots and auctions routinely

intermingle animals from a wide geographic area. On average, a pound of meat travels 1,000 miles before it reaches the consumer's table.[21]



The introduction of FMD would require the mass slaughter and disposal of infected animals. An outbreak could halt the domestic and international sale of meat and meat products for years. In this regard, in 2001, FMD in the United Kingdom affected 9,000 farms and required the destruction of more than 4,000,000 animals. Researchers believe that a similar outbreak in the United States would cost taxpayers up to $60 billion.[22] An FMD attack could result in massive herd culling, the need to destroy processed goods, and extensive decontamination efforts of production and livestock-containment facilities. Most Americans have not witnessed the intense media coverage of high-volume culling operations involving the destruction and disposal of tens of thousands of animals. Large-scale eradication and disposal of livestock likely would be especially controversial as it affects farmers and ranchers and offends the sensibilities of animal rights activists and environmental organizations.

Food Production and Distribution

If terrorists strive for human deaths, the food production and distribution chain offers a low-tech but effective mechanism for disseminating toxins and bacteria, such as botulism, E. coli, and salmonella. Developments in the farm-to-table continuum greatly have increased the number of entry points for these agents. Many food processing and packing plants employ large, unscreened seasonal workforces. They commonly operate uneven standards of internal quality and inadequate biosurveillance control to detect adulteration.[23] These vulnerabilities, combined with the lack of security at many processing and packing plants, contribute to the ease of perpetrating a food-borne attack.

Beyond the economic and political impact, low-tech bioterrorist assaults against the food chain have the potential to create social panic as people lose confidence in the safety of the food supply. A large-scale attack potentially could undermine the public's confidence in its government. Because most processed food travels to distribution centers within a matter of hours, a single case of chemical or biological adulteration could have significant latent ongoing effects, particularly if the source of the

contamination is not immediately apparent and there are acute ailments or deaths.[24] Supermarkets in major American cities stock only a 7-day supply of food; therefore, any significant and continuing disruption in supply quickly will lead to severe shortages.

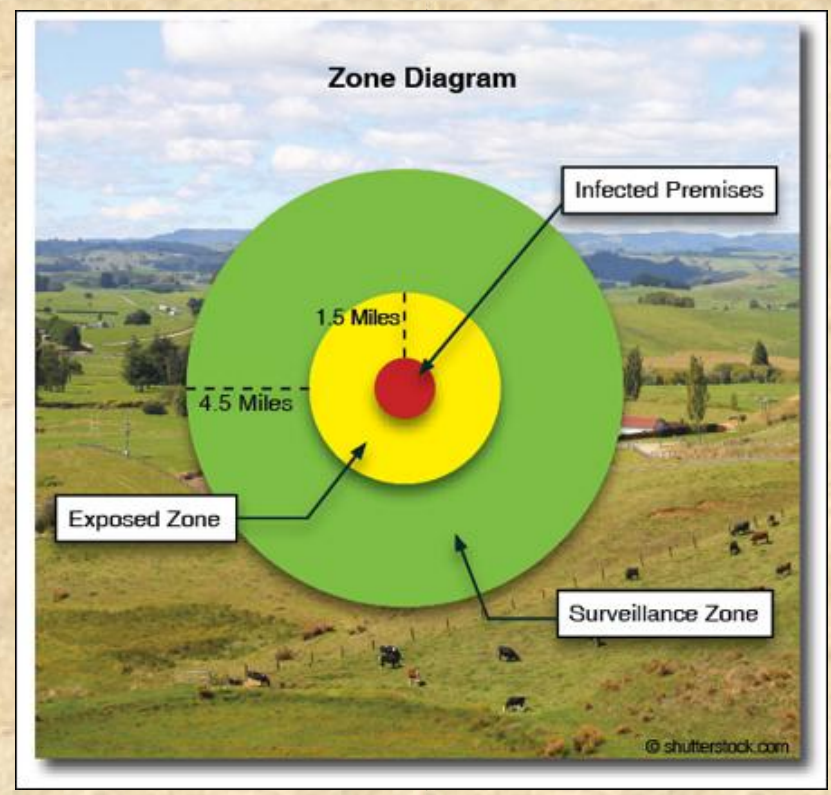
Experts believe that fruit- and vegetable-packing plants are among the most vulnerable venues for food-borne attacks. Many represent small-scale manufacturers that specialize in ready-to-eat meats or aggregated foodstuffs. They do not practice uniform biosecurity methods, and they do not use heat, an effective front-end barrier against pathogens, in food processing. Also, because they deal in already-prepared produce that does not require cooking—a good back-end defense against microbial introduction—they provide a viable portal to introduce pathogens.

> Attacks directed against the cattle, swine, or poultry industries or via the food chain pose the most serious danger for latent, ongoing effects and general socioeconomic and political disruption.

Law Enforcement Preparedness

Farms, ranches, and feedlots in America are dispersed, open, and generally unprotected. The majority of state and local law enforcement agencies face financial and strategic challenges when responding to agroterrorism, yet the laws of many states treat agroterrorism as a crime investigation, giving local law enforcement agencies primary responsibility.

An outbreak of FMD would exhaust law enforcement resources quickly. After recognition of the disease by state agriculture authorities, subsequent steps in the emergency response involve containment and eradication, often involving multiple herds and a large quarantine area that may encompass multiple counties. State agriculture authorities working with the U.S. Department of Agriculture's Animal and Plant Health Inspection Service have responsibility and authority for animal disease.[25] Specially trained animal health officials make decisions on disease control, such as livestock quarantine and the timing and method of livestock depopulation—culling, destroying, and disposing of diseased animals from infected herds by burning or burial.



Following strict biosecurity measures can prevent the spread of disease. Local and state law enforcement would play a pivotal role in this effort by adhering to three primary responsibilities.

First, police officials would enforce quarantine orders given by state agriculture authorities. This involves isolating and containing infected stock to prevent the spread of disease. A quarantine area would comprise a 6-mile radius, approximately 113 square miles, surrounding the point of origin; numerous roadblocks would prevent vehicles, equipment, or persons from entering or leaving without detailed decontamination measures and authorization.[26] Inside the quarantine area, officials would establish an "exposed zone" in which all cloven-hoofed animals would be destroyed. For effectiveness, quarantine of infected premises and SMOs would have to remain in effect for a minimum of 30 days.[27]

The second responsibility occurs in conjunction with quarantine. Officers would enforce SMOs issued by the state governor to prevent the spread of the disease.[28] Initial biosecurity efforts could require placement of all animals under an SMO. Law enforcement may be empowered to restrict human and animal movement in and out of the quarantine zone. This authority would include all animals in transit within a wide geographic area until the investigation clarified the extent of the infection and determined which animals can move safely. Although FMD affects only cloven-hoofed animals, humans, horses, and other animals may carry the virus.

Enforcing an SMO would require care and shelter for animals in transit that must be temporarily unloaded and housed at local sites providing feed and water.[29] During the SMO, law enforcement would interview drivers to determine points of origin and destinations of animals. Research indicates that officers would stop and evaluate an average of nearly 50 vehicles per hour in the first day of an SMO.

An outbreak of FMD would exhaust law enforcement resources quickly.

Third, the criminal investigation of the outbreak further would tax already strained law enforcement resources. The investigation would focus on identifying the source of the virus and the mechanism used to infect susceptible animals. The danger of additional infections by the perpetrators would make the criminal investigation time sensitive.

Many law enforcement agencies lack the sufficient resources and procedures to simultaneously cope with quarantines, SMOs, and criminal investigations while also staffing widely dispersed checkpoints around the clock for the duration of the emergency. When combined with the need also to deliver routine law enforcement services, most agencies would struggle to meet these demands, especially during the protracted nature of an FMD outbreak.

Conclusion

Agriculture may not represent terrorists' first choice of targets because it lacks the shock factor of more traditional attacks; however, it comprises the largest single sector in the U.S. economy, making agroterrorism a viable primary aspiration. Such terrorist groups as al Qaeda have made economic and trade disruption key goals. They believe that by imposing economic hardship on America, its citizens will tire of the struggle and force their elected leaders to withdraw from commitments abroad.

Every level of the food chain, including farms, feedlots, chemical storage facilities, meatpacking plants, and distribution operations, remains vulnerable to agroterrorism. Because terrorists rely on a lack of preparedness, law enforcement agencies should develop a plan to prevent agroterrorism and minimize the results of an attack. Officers must investigate from an agroterrorism perspective thefts of livestock; a criminal organization may steal animals with the intent of infecting them and placing them back into the population. Thefts of vaccines, medicines, and livestock-related equipment should be of concern and carefully investigated. It also is vital that law enforcement officials forward reports of such incidents to their states' intelligence-fusion centers, threat-integration centers, or law enforcement intelligence units or networks.

► **References are available at source's URL**

Agroterrorism in the U.S.: An Overview

By R. Goodrich Schneider, K.R. Schneider, C.D. Webb, M. Hubbard, and D.L. Archer

Source: http://edis.ifas.ufl.edu/fs126

Since the attacks of 9/11, vulnerabilities of the nation's infrastructure have been analyzed and discussed. The United States (U.S.) has identified the protection of national systems and infrastructure, such as the transportation, communication, water supply, and agriculture networks, as priorities to defend against terrorism.

Terrorism is widely defined as the unlawful use of force, violence, or implied harm against persons and property to intimidate or coerce a government, the civilian population, or any element of either, to further political, religious, or ideological aims. Agroterrorism is the deliberate introduction of detrimental agents, biological and otherwise, into the agricultural and food processing system with

the intent of causing actual or perceived harm. The broad areas of agriculture that could provide targets in an agroterrorism event are farm animals and livestock, plant crops, and the food processing, distribution, and retailing system.
The term bioterrorism will be widely used in this discussion, and in fact is closely related to agroterrorism. Bioterrorism is defined as the use of biological agents in a deliberate, harmful attack, or terrorism using the weapons of biological warfare such as anthrax, smallpox, or other pathogens. Bioterrorism attacks can be directed not only at agricultural targets, but also at the general public and key domestic infrastructure systems and personnel. The anthrax incidents involving tainted mail that occurred shortly after the 9/11 events can be classified as bioterrorism. In the discussion herein, biological agents can be considered the most probable weapon used to launch an agroterrorism event.

Consequences of a U.S. Agroterrorism Event
Agriculture and the food industry are important to the U.S. economy. The USDA's Agricultural Research Service (USDA-ARS) estimates one person in eight works in some part of the agriculture/food sector. Cattle and dairy farmers alone earned over $95 billion a year in meat and milk sales in 2007. Domestically, a significant portion of the U.S. Gross Domestic Product (GDP) is related to agriculture and food production.
Even without agroterrorism, livestock and crop diseases cost the U.S. economy billions of dolars annually. These are the baseline losses to which the financial impact of an actual agroterrorism event would be added.
If an agroterrorism event occurred in the U.S., the potential for disruption of our export market would be immense. International trade is crucial, as it provides a market for a major part of our crop production, and a growing share of meat output. Overall, 12.7% of the U.S. GDP was due to international trade in 2008. For comparison, close to 30% of U.S. farm products were exported in 2008, while nonagricultural exports were about 12% of the GDP. Proportionately, the U.S. agriculture industries rely on export markets more heavily than other sectors of U.S. industry. An agroterrorism event that instigated fear or even uncertainty in our international customers could be financially devastating to U.S. agricultural interests.

Vulnerability of the U.S. Agriculture System
Various factors lead to the heightened state of vulnerability of the U.S. to an agroterrorism event. As previously discussed, agriculture, food processing and food retailing contribute significantly to the U.S. economy, despite the perception of the ceaseless encroachment of urban growth into rural areas. As urban growth has occurred, agricultural operations, including farms, packinghouses, and processing plants have become larger, more centralized, and more intensive. It is this type of industrial concentration that perhaps increases the vulnerability of the U.S. agriculture system; as almost all agricultural sectors consolidate, their overall size generally increases. Thus, the impact of a targeted agroterrorism event affecting just one entity could still have a serious, adverse impact. For example, foot-and-mouth disease (FMD) confined to a very small geographically distinct herd is a vastly different situation than FMD occurring through intentional spread of the disease in a large cattle operation. Although large operations typically have greater economies-of-scale, they also lead to these types of vulnerabilities.
There are other reasons to be aware of the need to better security in agricultural operations. It is difficult and expensive to secure large areas of farm land with fences, gates and monitoring devices. Yet, it is incumbent upon producers to provide security in these areas. Packinghouses and processing plants are more easily controlled from a physical perimeter standpoint, but conversely have more personnel that need to be screened and then trained in specifics of plant security. More and more auditors focus on specific areas where their clients can improve their procedures and practices. Defense against terrorism must become ingrained in the normal operations of all agricultural operations before the U.S. can expect an improvement in the current state of readiness against an attack.

The Bioterrorism Act of 2002
The events of 9/11 reinforced the need to enhance the security of the United States. One broad area of vulnerability, as discussed, is the area of agriculture and specifically food production. The term food security, which traditionally meant the stability and supply of sufficient food for a given population, suddenly took on a different meaning. On June 12, 2002, the Public Health Security and

Bioterrorism Preparedness and Response Act of 2002 (the Act) was signed into law by the U.S. Congress. The FDA is responsible for developing and implementing regulations on the following major provisions of the Act: Registration of Food Facilities, Prior Notice of Imported Food, Establishment and Maintenance of Records, and Administrative Detention. The definition of food used in these regulations includes food and beverages for human and animal consumption, including dietary supplements, infant formula, and food additives. It does not, however, cover food products such as meat and poultry that are regulated by the USDA-FSIS. The Act was designed to improve the ability of the U.S. to prevent, prepare for, and respond to bioterrorism and other public health emergencies.

Prevention, Detection, and Mitigation

Ideally, terrorism aimed at the food supply would be 100% preventable. In the aftermath of 9/11, many resources were shifted from food safety to food biosecurity, with the intent to try to install sufficient deterrents that would lead to an improved condition of readiness within the agriculture and food sector. State and federal agencies, along with trade organizations and third-party auditors, developed better and more thorough auditing tools and checklists that focused on security aspects for processing plants, their products and their personnel.

However, experience with naturally occurring outbreaks of foodborne disease has demonstrated that no existing preventive system is 100% effective. To some degree, improved speed of detection of a bioterrorism event can help mimize impact of a particular event. After 9/11, agencies increased their inspection and analytical capabilities in response to increased needs to respond quickly to a bioterrorism threat. The anthrax incidents that occurred after 9/11, although not specifically agroterrorism, highlighted to the authorities the need for a networked system of laboratories with pathogen and toxin detection capabilities.

Mitigation is one means of dealing with an actual or threatened agroterrorism event. The FDA, through the Bioterrorism Act of 2002, is requiring all food plants to register with the agency. They are also requiring prior notice for imported food shipments, as well as better record-keeping on the part of food processors and handlers. Should prevention fail, public safety falls to mitigation and containment strategies. One of the reasons the FDA is requesting this information is to enhance traceability of food products and the efficacy of product recalls. Recalls involve removing product from the commerce stream after they have left the distributor. Product may be in-transit, at the retail level, or even in the individual consumer's home. Retrieving the potentially contaminated product before it can be consumed is an effective way to limit the public health impact of contaminated food. Most biosecurity audits within food processing, handling, and retailing facilities now identify product recalls, and the ability to quickly and effectively execute them, as an important approach to their overall anti-terrorism strategy.

Summary

The U.S. has not been the victim of a large-scale, successful agroterrorism attack. However, there are serious vulnerabilities within our agricultural and food processing systems that must be addressed. Through an iterative process of risk assessment, risk control, and verification of implemented deterrents, all pertinent agricultural interests, regulators, scientists, and public health officials can improve the defensive position of this key industry and strive to reduce the threat of agroterrorism as much as possible.

► **References are available at source's URL**

R. Goodrich Schneider, associate professor; K.R. Schneider, associate professor; C.D. Webb, student; M. Hubbard, laboratory technician; and D.L. Archer, professor and associate dean for research; Food Science and Human Nutrition Department; Florida Cooperative Extension; Insititute of Food and Agricultural Sciences; University of Florida; Gainesville, FL 32611.

RAND NATIONAL DEFENSE RESEARCH INSTITUTE

RESEARCH BRIEF

Agroterrorism

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

RAND RESEARCH AREAS
CHILDREN AND ADOLESCENTS
CIVIL JUSTICE
EDUCATION
ENERGY AND ENVIRONMENT
HEALTH AND HEALTH CARE
INTERNATIONAL AFFAIRS
U.S. NATIONAL SECURITY
POPULATION AND AGING
PUBLIC SAFETY
SCIENCE AND TECHNOLOGY
SUBSTANCE ABUSE
TERRORISM AND HOMELAND SECURITY
TRANSPORTATION AND INFRASTRUCTURE

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.

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.

Source: http://www.rand.org/content/dam/rand/pubs/research_briefs/2005/RB7565.pdf

Agroterrorism

By Carlton Gyles

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2839819/

The backside bomber and his predecessor, the shoe bomber, remind us that terrorists are constantly looking for new ways to cause destruction to people and property, generate fear among the masses, and undermine the economy. In response to this threat the "war on terror" is being waged at enormous cost through pitched battles, intelligence gathering, and covert operations all over the world. The overall objective of these activities is to prevent or minimize the capability of terrorists to take or threaten the lives of civilians and damage property.

One of the many ways in which terror might be created is through the deliberate infection of animals with pathogenic microorganisms or contamination of foods of animal origin with toxic chemicals that could be introduced in the feed (agroterrorism). The effects of an act of agroterrorism might include, animal suffering, loss of valuable animals, cost of containment of outbreaks and disposal of carcasses, lost trade, and other economic effects involving suppliers, transporters, distributors, and restaurants (1). The $1 billion price tag on the dioxin contaminated animal feed in the Netherlands in 2006 and the $21 billion cost of the UK foot-and-mouth disease (FMD) outbreak in 2001 illustrate the potential economic impact of chemical contamination or infectious disease affecting animals. It has been suggested that strategic

contamination or infection could create damage far more severe than that which occurs in accidental contamination or natural outbreaks.
There are several features of agroterrorism that are considered attractive for terrorists. Many of the infectious agents can be obtained quite easily and require little expertise to infect animals. Concentrated and intensive contemporary farming practices may facilitate the rapid spread of contagious agents. It has also been suggested that an emphasis on large herds at the expense of individual animals may delay recognition of signs of illness. Agroterrorism may be a means of using low-tech inexpensive methods to create havoc. It is estimated that a strong biological weapons arsenal could be developed at a cost of about $10 million, compared with $1 billion for a nuclear weapon (2). Although genetically altered insects that spread pathogens to infest crops is considered a more likely approach, use of infectious agents that attack animals is also a real possibility (2).
Agents that have been used in threats or reported to have been deployed include *Bacillus anthracis* (anthrax), *Burkholderia (Pseudomonas) mallei* (glanders), fleas infected with the plague bacillus *(Yersinia pestis)*, Newcastle disease virus, African swine fever virus, FMD virus (3). A number of the viral agents cause diseases that are foreign to North America.
We need to be prepared for the possibility of an attack. Indications are that Defence Research and Development Canada and the CFIA have taken many steps to ensure that Canada is in a good position to deal with the most important foreign animal diseases — FMD, highly pathogenic avian influenza, classical swine fever, and Nipah virus (4). Their preparedness includes having tests for screening and rapidly identifying infected animals, continuing research on and development of rapid tests, ensuring that there is coordination among federal and provincial laboratories that are equipped to conduct the tests, establishing communication links and collaboration with our US colleagues. Other critical elements in preparation are surveillance and having vaccines available in the event of an outbreak. Having in place a well publicized and effective program for agricultural indemnity would encourage livestock producers to quickly report unusual signs of disease.
Prevention is the best approach to being prepared; biosecurity is a major part of a good prevention strategy and has benefits that extend well beyond agroterrorism. Veterinarians are a central part of preparedness and it is well recognized that there is a need for an adequate number of veterinarians who can recognize and respond to foreign livestock diseases, educate producers, and promote adoption of biosecurity measures (5).

References

1. Agroterrorism. What is The Threat and What Can Be Done About It? Rand National Defense Research Institute; [Last accessed February 3, 2010]. Available at http://www.rand.org/pubs/research_briefs/RB7565/RB7565.pdf.
2. Agro-terrorism threat is real. [Last accessed February 4, 2010]. Available at http://homelandsecuritynewswire.com/agro-terrorism-threat-real
3. Chronology of CBW Incidents Targeting Agriculture 1915–2008. James Martin Center for Nonproliferation Studies (CNS); [Last accessed February 3, 2010]. Available at http://cns.miis.edu/cbw/agchron.htm.
4. Research Team Develops Rapid, Highly Sensitive Tests to Detect Agroterrorism Threats. [Last accessed February 3, 2010]. Available at http://www.css.drdc-rddc.gc.ca/crti/invest/stories-exemplaires/0196ta-eng.asp.
5. Biosecurity Guidelines for the Farmer or Producer. [Last accessed February 3, 2010]. Available at http://www.agrosecurity.uga.edu/annexes/Annex03_Procedures.pdf.

Agroterrorism: where are we in the ongoing war on terrorism?

By Crutchley TM, Rodgers JB, Whiteside HP Jr, Vanier M, Terndrup TE.
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Source: http://www.ncbi.nlm.nih.gov/pubmed/17388078

Abstract

The U.S. agricultural infrastructure is one of the most productive and efficient food-producing systems in the world. Many of the characteristics that contribute to its high productivity and

efficiency also make this infrastructure extremely vulnerable to a terrorist attack by a biological weapon. Several experts have repeatedly stated that taking advantage of these vulnerabilities would not require a significant undertaking and that the nation's agricultural infrastructure remains highly vulnerable. As a result of continuing criticism, many initiatives at all levels of government and within the private sector have been undertaken to improve our ability to detect and respond to an agroterrorist attack. However, outbreaks, such as the 1999 West Nile outbreak, the 2001 anthrax attacks, the 2003 monkeypox outbreak, and the 2004 Escherichia coli O157:H7 outbreak, have demonstrated the need for improvements in the areas of communication, emergency response and surveillance efforts, and education for all levels of government, the agricultural community, and the private sector. We recommend establishing an interdisciplinary advisory group that consists of experts from public health, human health, and animal health communities to prioritize improvement efforts in these areas. The primary objective of this group would include establishing communication, surveillance, and education benchmarks to determine current weaknesses in preparedness and activities designed to mitigate weaknesses. We also recommend broader utilization of current food and agricultural preparedness guidelines, such as those developed by the U.S. Department of Agriculture and the U.S. Food and Drug Administration.

J Food Prot. 2007 Mar;70(3):791-804.

Agroterrorism: Threats and Preparedness

By Jim Monke (Analyst in Agricultural Policy Resources, Science, and Industry Division)
Source: http://www.cnmihomelandsecurity.gov.mp/downloads/agroterrorism-threat-and-preparedness.pdf

Summary

The potential of terrorist attacks against agricultural targets (agroterrorism) is increasingly recognized as a national security threat, especially after the events of September 11, 2001. Agroterrorism is a subset of bioterrorism, and is defined as the deliberate introduction of an animal or plant disease with the goal of generating fear, causing economic losses, and/or undermining stability. Attacks against agriculture are not new, and have been conducted or considered by both nation-states and substate organizations throughout history.

The results of an agroterrorist attack may include major economic crises in the agricultural and food industries, loss of confidence in government, and possibly human casualties. Humans could be at risk in terms of food safety or public health, especially if the chosen disease is transmissible to humans (zoonotic). Public opinion may be particularly sensitive to a deliberate outbreak of disease affecting the food supply. Public confidence in government could be eroded if authorities appear unable to prevent such an attack or to protect the population's food supply. Agriculture has several characteristics that pose unique problems for managing the threat. Agricultural production is geographically disbursed in unsecured environments. Livestock are frequently concentrated in confined locations, and then transported and commingled with other herds. Pest and disease outbreaks can quickly halt economically important exports. Many veterinarians lack experience with foreign animal diseases that are resilient and endemic in foreign countries.

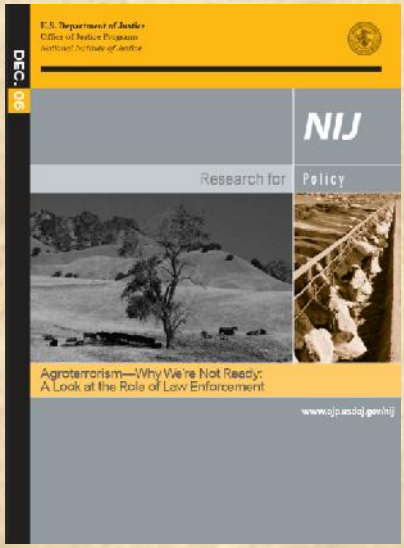
Agriculture and food production generally have received less attention in counter-terrorism and homeland security efforts. But more recently, agriculture has garnered more attention in the expanding field of terrorism studies. Laboratory and response systems are being upgraded to address the reality of agroterrorism.

Congress has held hearings on agroterrorism and enacted laws and appropriations with agroterrorism-related provisions. The executive branch has responded by implementing the new laws, issuing several presidential directives, and creating liaison and coordination offices. The Government Accountability Office (GAO) has studied several issues related to agroterrorism.

Appropriations and user fees for USDA homeland security activities have about doubled from a $156 million "pre-September 11" baseline in FY2002 to $325 million in FY2004. Two supplemental appropriations acts added nearly $110 million in both FY2002 and FY2003. For FY2005, the department is requesting $651 million in appropriations and user fees. On July 13, 2004, the House passed the FY2005 agriculture appropriations bill (H.R. 4766), including several agroterrorism items.

In addition to appropriations activity for agroterrorism preparedness, two bills addressing groterrorism preparedness have been introduced in the 108th Congress,
S. 427 (the Agriculture Security Assistance Act) and S. 430 (the Agriculture Security Preparedness Act). This report will be updated as events warrant.

► **Read full report at source's URL**



Agroterrorism -- Why we're Not Ready: A Look at the Role of Law Enforcement (Research for Policy)

Source: https://www.ncjrs.gov/pdffiles1/nij/214752.pdf
An agroterrorism attack would dramatically impact many aspects of American life, including law enforcement, which—especially in rural areas—is financially and strategically unprepared to respond. This *Research for Policy* considers the effect of the introduction of foot-and-mouth disease to the American cattle industry, including the mandatory slaughter of millions of animals and an impact of up to $60 billion on the U.S. economy. The publication outlines why law enforcement is not currently ready for such a terrorist attack and offers guidance for preventing and preparing to respond to an act of agroterrorism.

► Read full report at source's URL

Vulnerability Assessment Software

Source: http://www.fda.gov/Food/FoodDefense/ToolsEducationalMaterials/ucm295900.htm

FDA's Vulnerability Assessment Software tool is a prioritization tool that can be used to assess the vulnerabilities within a system or infrastructure in the food industry. The software program takes companies through questions about their facilities and processes to help them identify vulnerable areas. Companies consider what type of attack is the greatest threat and whether a biological or chemical agent might be used in an attack. The questions center around the flow chart developed by the user for the specific food system to be evaluated. By conducting a vulnerability assessment of a food production facility or process, the user can then focus resources on protecting the most susceptible points in their system.

Download Manufacturing Software - **NEW Version 2.4**
Vulnerability Assessment Software Quick Start Guide (PDF - 852 KB)
Download Agriculture Software

What is the background methodology for the Vulnerability Assessment Software Tool?
The FDA's Vulnerability Assessment Software tool uses the CARVER + Shock methodology, a system originally developed by the U.S. Military to identify areas that may be vulnerable to an attacker. CARVER is an acronym for the following six attributes used to evaluate the attractiveness of a target for attack:

- *Criticality* - measure of public health and economic impacts of an attack
- *Accessibility* - ability to physically access and egress from target
- *Recuperability* - ability of system to recover from an attack
- *Vulnerability* - ease of accomplishing attack
- *Effect* - amount of direct loss from an attack as measured by loss in production

- *Recognizability* - ease of identifying target

A seventh attribute, **Shock**, has been added to the original six to assess the combined health, economic and psychological impacts of an attack within the food industry.

The attractiveness of a target can then be ranked on a scale from one to ten on the basis of scales that have been developed for each of the seven attributes. Conditions that are associated with lower attractiveness (or lower vulnerability) are assigned lower values (e.g., 1 or 2), whereas, conditions associated with higher attractiveness as a target (or higher vulnerability) are assigned higher values (e.g., 9 or 10). Evaluating or scoring the various elements of the food sector infrastructure of interest for each of the attributes can help identify where an attack is most likely to occur in that infrastructure. Federal agencies, such as FDA and the Food Safety and Inspection Service (FSIS) of the United States Department of Agriculture (USDA), have used this method to evaluate the potential vulnerabilities of farm-to-table supply chains of various food commodities when conducting face-to-face assessments. The method can also be used to assess the potential vulnerabilities of individual facilities or processes.

The FDA and the USDA adapted this face-to-face assessment methodology to a software tool that can be downloaded and used by any member of the food processing industry to conduct a vulnerability assessment of their facilities and processes. The Vulnerability Assessment Software tool specifically focuses on the Criticality, Accessibility, and Vulnerability attributes. These three attributes help food industry partners identify the vulnerabilities that exist in their specific firm that could potentially be targeted by an attacker who wants to intentionally contaminate the food product with the intent of harming consumers.

How Do Federal Agencies utilize vulnerability assessments in Food Defense?

Federal agencies, such as the Food Safety and Inspection Service (FSIS) and FDA have used the CARVER + Shock method to evaluate the potential vulnerabilities of farm-to-table supply chains of various food commodities, as well as individual facilities or processes. These evaluations are carried out during face-to-face meetings of representatives from a particular segment of the food processing industry and Federal and State food safety agencies, and generally take two to three days. Using a scale from one to ten for each of the attributes, the participants score the "target attractiveness" of each segment, or "node", on a process flow diagram of the commodity or facility being evaluated. Conditions that are associated with lower attractiveness (or lower vulnerability) are assigned lower values (e.g., 1 or 2), whereas conditions associated with higher attractiveness (or higher vulnerability) are assigned higher values (e.g., 9 or 10). The individual scores for each attribute are then added together to give a total score.

Why use the Vulnerability Assessment Software tool rather than do face-to-face evaluations?

Conducting face-to-face vulnerability assessment evaluations is resource-intensive and limiting in terms of the number of evaluations that can reasonably be conducted in any given time frame. Therefore, the FDA sponsored development of the Vulnerability Assessment Software tool that can be downloaded. Having on-line Vulnerability Assessment software that produces results equivalent to those of a face-to-face session allows any member of the food processing industry to conduct a vulnerability assessment of their facilities and processes in a confidential manner.

Who will benefit from using the Vulnerability Assessment Software tool?

The software tool is expected to be used by State and local food security agencies, industrial providers, and food processors with the goal of protecting the nation's food supply from intentional contamination by helping food firms identify possible vulnerabilities in their system and then mitigate the identified vulnerabilities. The tool is designed for use throughout the food industry and will aid companies in protecting their food products from an attack targeted at their product.

What Does The Vulnerability Assessment Software Do?

The Vulnerability Assessment Software tool mimics the thought processes in play during a face-to-face session by having the user:

1. Build a process flow diagram for the system to be evaluated.
2. Answer a series of questions for each process flow diagram node.

Each question has an associated score. Based on the answers given, the software calculates a score for each attribute and sums them to produce a total score for each node. Analogous to a face-to-face session, total scores range from one to ten for each attribute. The user may view the attribute scores and total for each node, the total scores for all nodes, and the attribute scores for all nodes (e.g., all the node Criticality scores, Accessibility scores, etc.)

System Requirements

CARVER software runs on hardware systems with the following minimum performance characteristics:

- Pentium I processor
- 256 MB RAM
- 120 MB available hard disk space
- CD ROM drive
- Video card displaying 1280 x 1024 desktop area.

The software is compatible with the following operating systems:

- Windows NT Service Pack 4
- Windows 98
- Windows 2000
- Windows XP

Agro-terrorism and bio-security, threat, response and industry communication

By Richard Byrne

Source:http://www.nuffieldinternational.org/rep_pdf/12565895572007_Richard_Byrne_Nuffield_Report.pdf

Forward

The Nuffield experience has been fascinating, testing and exciting. It has given me opportunities to engage in things I never thought I would have opportunity to do, and to visit places and meet people in the pursuit of my study. My ideas and understanding of the issues relating to agroterrorism have shifted since I began this study. At the start I saw it as an issue which could be met by a 'simple' process response. Now I now see a need not only to plan and prepare for such eventualities but a greater need and understanding for the requirement of rural emergency planning in general. In addition the need to educate and communicate is very much at the core of my thoughts on this difficult issue. I also saw it very much as an international issue but it is clear now the threat from perpetrators comes not just from overseas but from within our own borders and from many political, ideological and even criminal standpoints.

It is easy to get lost in the rhetoric of politicised musings regarding the threat of terrorism. However, at when considering protection of the at the most 'basic' level – the family and the family business it is clear it is incumbent on all of us to take a degree of responsibility for the protection of our own resources as well as government. Agroterrorism is an issue, which needs to be taken ownership of. Whilst governments can legislate, advise and plan at the national level, only the industry truly understands the complexity of the agricultural economic system and as such is best placed to provide the solutions and to a large degree the actions required. From my experience in the US, industry based solutions within a soft governmental advisory framework appear to provide the robustness and security for most elements of the agricultural economy. The role of government is to provide the greater protective fabric and to assist in the mobilisation and co-ordination of resources. Emergency planning in this area is not so much about victim assistance but about community resilience.

At present in the UK this situation does not exist. Agroterrorism has become lost amongst the wider discussion of food security and usually (due to its complexity) has been pushed down the agenda in favour of discussions regarding food imports and the level of UK production. For a nation with a declining capacity to produce food and a growing population the need to maintain food security is increasing and therefore any issue that could dramatically alter the balance of food availability in a relatively short space of time needs proper clear and unambiguous consideration. Currently it would appear that agroterrorism is viewed as a food supply issue which through the use of imports any immediate

impact could be alleviated. This approach, however, does little to address the economic and social issues resultant from any form of attack on UK agriculture as well as the long term health and wellbeing of the national agricultural system.

Table 2 : Key Pathogenic Agents

Disease	Host(s)	Zoonotic
Foot and mouth disease (FMD)	Cloven footed domestic and wild animals – cattle, sheep, pigs etc	X
Anthrax	All warm blooded animals	√
Brucellosis	Mainly cattle, but also sheep, pigs, dogs and goats	√
Highly pathogenic avian influenza (HPAI) in particular H5N1	Poultry and bird species	√
Glanders	Mainly horses	Some strains can affect people
Swine vesicular disease	Pigs	X
Rinderpest	Cloven footed domestic and wild animals – cattle, sheep, pigs etc	X
Newcastle disease	Poultry	X

Adapted from Centre for Disease Control[19]

With this in mind it might be pertinent to adopt some of the methods currently in use in the US where their experience of planning for large scale natural disasters – hurricanes, tornados, forest fires etc has embodied the need to plan for extreme eventualities into the farm system. Adopting a 'resilience' stance may mean the difference between containment or loss of control of an incident – the watchwords may therefore be 'forewarned is forearmed1' and the key to this is to provide accurate, focused information to the industry from which they can develop a response.

Recommendations

There is every indication that agroterrorism presents a real and potential threat to agricultural systems. Therefore in order to better prepare the following are proposed based on experience within the US;

- Recognition of agroterrorism (in all its possible manifestations) as a distinct threat to UK agriculture
- Wider promotion of biosecurity as the first line of defence
- Production of a preparedness strategy which engages key sectors of the industry with the aim of promoting deterrence, resilience and recovery
- Development of appropriate training packages for rural professionals, law enforcement, businesses and communities.
- Greater promotion of rural emergency planning as a distinct entity requiring particular engagement and management
- Promotion of rural business and community resilience planning
- Development of agro-security packages for the UK environment as a way of businesses protecting themselves and their communities from damaging external influences.

Richard Byrne *- Rural Affairs and Environment Group, Harper Adams University College, Newport, Shropshire, United Kingdom.*

Aggroterrorism and your farm

Source: http://www.prep4agthreats.org/Assets/Factsheets/Agroterrorism-and-Your-Farm.pdf

AGROTERRORISM AND YOUR FARM

Man-Made and Technological Threats

Agroterrorism is the deliberate use of biological agents (e.g., bacteria, viruses, toxins) against agricultural commodities, such as livestock or crops. The result can include economic damage, loss of confidence in the food supply and possible loss of life. These attacks may be extremely difficult to detect initially as signs of illness may not occur for several hours or days. Here are some steps you can take to prepare and protect your farm, livestock and crops from agroterrorism threats.

Before an Agroterrorism Situation

- **Implement biosecurity measures on your farm.**
- **Limit entry to your farm.**
  - Limit access to your farm to one gated road. This will help in monitoring visitors to your farm.
  - Keep all gates locked when not in use.
  - Keep all unused buildings locked.
  - Implement rodent and bird control in barns, especially feed areas.
- **Monitor and document all visitors to your farm.**
  - Post signs to inform visitors of rules to follow while on farm.
  - Do not take visitors to livestock areas or barns unless necessary.
  - Provide coveralls and boots (rubber or disposable) to any visitors accessing livestock.
- **Employees.**
  - Pre-screen new employees.
  - Train employees to recognized disease signs and patterns, so they can promptly detect illness in animals.
- **All personnel on the farm should use personal protection measures.**
  - Wash hands thoroughly with disinfectant soap before and after accessing livestock areas.
  - Wear clean coveralls and rubber or disposable boots when accessing livestock areas.
  - Coveralls and boots should remain on the farm for disposal, or cleaning and disinfection.
  - Do not wear contaminated clothing or boots off of the farm.
- **Vehicles.**
  - Post signs to designate specific parking and driving areas.
  - Park vehicles away from barns and livestock areas, preferably on concrete.
  - Clean and disinfect vehicles before and after transporting livestock.
  - Avoid the transfer of dirt, mud or manure by vehicles.
- **Maintain an inventory.**
  - Keep a current list of all animals on your farm.
  - Include their location and any records of vaccinations or testing.
- **Animals.**
  - Isolate any new or returning animals for a few weeks before adding them to the resident stock or herd.
  - This will help to detect any disease potential without exposing the entire herd.
  - Do not feed table scraps or garbage to farm animals.
  - Call your herd veterinarian immediately if unusual illness or sudden deaths are noticed.
- **Keep a list of important phone numbers.**
  - Herd veterinarian
  - Your State Veterinarian's office
  - Local law enforcement
  - Local extension agent
  - Local and State public health department
- **If you detect suspicious activity,**
  - Contact personnel on the above list.
  - Isolate any livestock the intruder may have contacted.
  - Monitor livestock until authorities arrive.

During an Agroterrorism Situation

- **Signs that may indicate possible agroterrorism:**
  - Unusually high number of sick animals, deaths, or abortions.
  - Abnormal or unusual signs of disease not normally seen.
  - Disease occurring outside of its normal expected season (e.g., flu-like signs in the summer).
  - Repeated outbreaks of the same type of illness.
  - Illness occurring in both animals and persons in contact with animals.
  - Unusual traffic, suspicious activity, or trespassers near your farm.
  - Obvious signs of tampering or entry into vulnerable areas, such as tire tracks or shoe prints around storage areas, water supplies, or animal housing areas.
  - Open bags, empty containers, and other trash in vulnerable or remote locations.

Development of this educational material was by the Center for Food Security and Public Health with funding from the Multi-State Partnership for Security in Agriculture MOU-2010-HSEMD-004. June 2010

the Center for Food Security & Public Health
IOWA STATE UNIVERSITY College of Veterinary Medicine

Biowarfare, Bioterrorism, and Animal Diseases as Bioweapons

By Milton Friend

Source: http://www.nwhc.usgs.gov/publications/disease_emergence/Chapter6.pdf

Although society has limited ability to prevent bioterrorist attacks, there still is a need to take preventative steps to reduce potential risks for such attacks. Increased laboratory security for disease agents, greater controls for investigations involving these pathogens and other security measures implemented since the fall of 2001, are necessary to restrict access to dangerous pathogens. A protective curtain of sorts has been drawn around us that will more readily restrict terrorists from obtaining pathogens that could be used as bioweapons. However, this protective curtain is not impermeable. Enhanced surveillance activities for early detection of flaws in this protective curtain will be bolstered by enhanced strategic planning, infrastructure development, and rapid response capabilities that minimize impacts and quickly repair damage that may occur. Furthermore, the current curtain assumes frontal attacks by known enemies using familiar tactics for exposing humans and domestic animals to dangerous pathogens. The vulnerability of the curtain to unconventional attacks also needs to be addressed.

Chapter 6

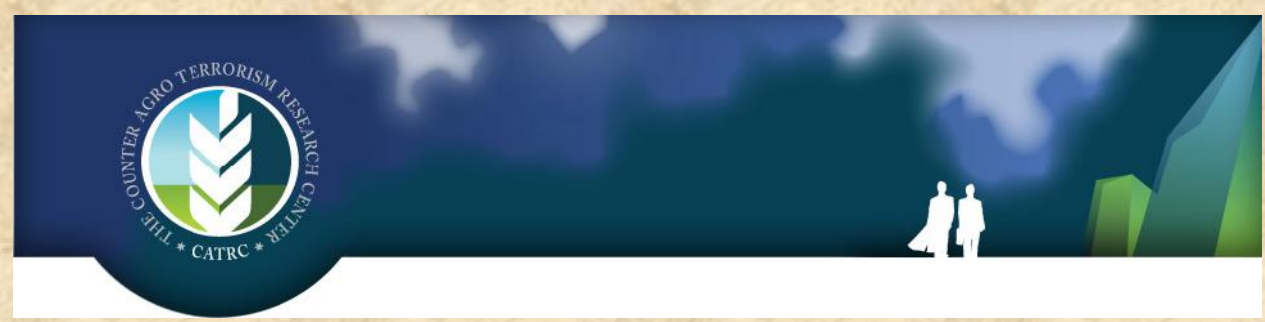
Biowarfare, Bioterrorism, and Animal Diseases as Bioweapons

"BW [biological warfare] is a special weapon, with implications for civility of life that set it apart from many other kinds of violence."

"...the intentional release of an infectious particle, be it a virus or bacterium, from the confines of a laboratory or medical practice must be formally condemned as an irresponsible threat against the whole human community." (Lederberg)[1]

Wildlife has a great capability to breach the protective curtain and easily pass through its fabric. Examples include infectious diseases transported by wildlife that caused major economic and/or human health impacts, such as Nipah virus in Malaysia, SARS in China, monkeypox in the USA, and current concerns associated with the role of migratory birds in global movement of highly pathogenic H5N1 influenza virus. Wildlife and the diseases that they can transport represent flaws in the fabric of this protective curtain and can be exploited by terrorists in attacks against society. The protective curtain can be greatly strengthened by fully incorporating the wildlife factor into its fabric. This refurbishment and enhancement can serve society well in many ways, including contributions to the larger issue of infectious disease emergence and resurgence worldwide.

► **You can read the whole chapter at the source's URL**



The Counter Agro Terrorism Research Center

Source: http://www.catrc.org.il/about-us

The Counter Agro Terrorism Research Center (CATRC) was founded in order to provide a response to the growing needs for analyzing and developing preventive and counter-active methodologies confronting the Agro Terror threat.
Agro Terrorism definition by the Counter Agro Terrorism Research Center:
A hostile attack, towards an agricultural environment, including infrastructures and processes, in order to significantly damage national and international political interests.
The Counter Agro Terrorism Research Center is an autonomous , independent non-profit center whose aim is to study and develop the counter Agro Terrorism arena in all its various aspects. Since targeting both national and comm ercial security need, the Counter Agro Terrorism Research Center strives to channel the existing knowledge in government, academia, industry and security forces into research and operational results.
Agro Terrorism is a widespread international concern shared by many countries exposed to terror. The Counter Agro Terrorism Research Center explores the Agro Terror arena within the global and regional contexts and establishes cooperation among researchers and institutes worldwide.

'Aside from cyber-terrorism, I see agro-terrorism as one of the greatest terrorism threats we face in the next 5-10 years': Food safety expert Professor David Dausey

'Agro-terrorism: One of the greatest terrorist threats we face'

Source: http://www.dairyreporter.com/Regulation-Safety/Agro-terrorism-One-of-the-greatest-terrorist-threats-we-face-Professor

Top public health professor David Dausey warns that increasing global supply chain complexity carries with it a greater risk of product contamination, with potentially disastrous results for dairy brands and public health, and a growing need to ensure product safety.

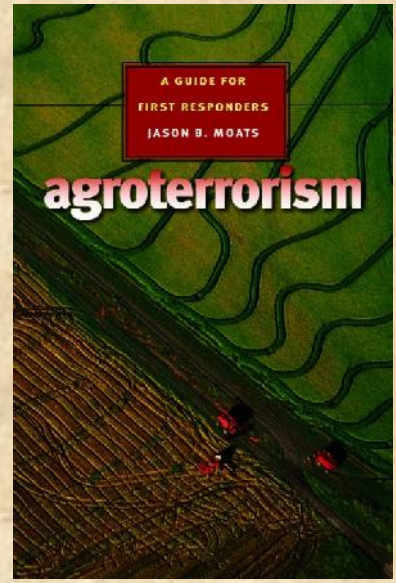
Agroterrorism – A Guide for First Responders

By Jason B. Moats

Source: http://muse.jhu.edu/books/9781603444460

"In many cases, the communities most ill-prepared to deal with . . . terrorism incidents," Jason B. Moats writes in the introduction to this book, "are the rural communities that provide . . . food and crops." Having conducted training across the country for first responders in cities, small towns, and rural communities, Moats for the first time gathers here the knowledge gleaned from research and nearly twenty years' experience in emergency services and emergency training. Whether used in the field or in the classroom, this manual is designed to help rural communities prepare for an act of agroterrorism. It explains why the U.S. agriculture industry is a target for terrorists and how farms and farming communities across the country are vulnerable. The author lists known biological and chemical agents and their effects,

explains model systems for supporting emergency response efforts, and lays out proven plans for gathering personnel and other resources in an orderly, coordinated way. In Agroterrorism: A Guide for First Responders, Moats spells out who should do what and when, providing a critically needed path through the bureaucratic maze of state, national, and interagency homeland security directives. With this book, Moats empowers those on the front lines in rural America, those charged with the responsibility of handling emergency crises in agricultural communities. Armed with the information they need, emergency response agencies, emergency managers, public health professionals, veterinary and animal health practitioners, as well as farmers and producers, will be able to answer the questions: "Where do we start?" "What do we do?" "Who is going to do it?" and "How do we pay for it?" Closing with a complete training program that includes practical exercises formatted for easy use, Agroterrorism: A Guide for First Responders contains resources vital for America's rural communities, emergency managers, and the agriculture sector that is so central to our national interest.



Published by: Texas A&M University Press (2007)

► **All chapters of this book can be downloaded (.pdf) at source's URL**

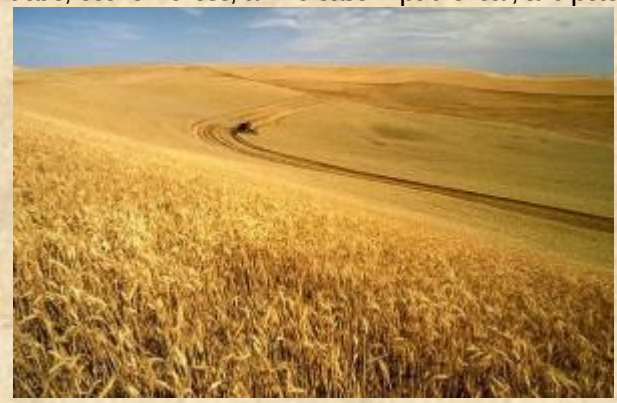
Agroterrorism: An Assault on America's Breadbasket

By Megan Cahill, Anika Khan, and Marie Smithgall
Source: http://triplehelixblog.com/2012/06/agroterrorism-an-assault-on-america%E2%80%99s-breadbasket/

Agriculture is a soft target for terrorism, and historical evidence indicates terrorists have considered attacks against our nation's crops and livestock. Current national and international agricultural models heavily utilize monocultures, fields with a single homogeneous crop grown extensively throughout an area. However, if a monoculture's cornerstone plant is susceptible to a particular plant pathogen, so too are all of the plants in the field. The widespread use of monocultures correlates to a decreased resistance to pathogens that originate either from a natural epidemic or a terrorist attack. Increased use of seed mixtures would provide a reduction in the severity and spread of a terrorist attack, and would serve to deter future attacks since terrorist organizations such as Al-Qaeda prefer attack plans with high potential for success. Seed mixtures are increasingly being used globally for their various benefits. A policy that further encourages their use would further stabilize the economy and bolster national security.

Although not a traditional act of terrorism, agroterrorism actions are the "deliberate introduction of an animal or plant disease with the goal of generating fear, causing economic losses and/or undermining stability."[1] The far-reaching economic and public fear effects, as evident in previous agriculture crises such as the 1970 American Corn Blight, clearly classify agroterrorism as a form of terrorism.[2] At a 2003 congressional hearing, Senator Susan Collins of Maine recognized the potential impact of agroterrorism in saying, "In the war on terrorism, the fields and pastures of America's farmland might seem at first to have nothing in common with the towers of the World Trade Center or our busy seaports. In fact, however, they are merely different manifestations of the same high-priority target, the American economy."[3]

Agroterrorism presents an urgent issue. There are eight nations with either current or past biological and toxin weapons (BTW) programs, and non-state actors have the potential to utilize bioterrorism for their cause. Evidence found in caves in Afghanistan suggests that Islamic militants have an interest in the weaponization of wheat rust.[4]
The appeal of agroterrorism is that it is low-tech but high-impact. For example, only 3 grams of a rice blast fungus per hectare could infect 50-90% of crops exposed.[5] In addition, the physical resources necessary to produce such an agent including laboratory equipment, and dispersal mechanisms are easily available to anyone in the scientific, pharmaceutical or agricultural business communities. The required knowledge base is also very low. Many agroterrorism agents can be made in high school labs within a few hours or days, and with the advent of the Internet, all of this information is easily accessible online.[6]
Agriculture is termed a "soft target" because of its low level of security.[7] Most fields and pastures are unprotected and unsupervised at night. Furthermore, most crops now exist as monocultures; thus, they all share the same vulnerability to a pathogen and the entire harvest can be lost to disease.[8] The threat has been documented in the past, such as the interest of the September 11, 2001 terrorists in the procurement and characteristics of crop dusters.[9] Counterterrorism experts have suggested the reason that an attack on the food supply has yet to occur is because such an attack would lack a central image for the media upon which to focus.[10] However, agriculture is a valuable part of our economy, and an agroterrorism attack would result in a disruption of American and international trade, economic loss, an increase in public fear, and potentially the loss of human life.



There would be significant economic loss if the wheat rust Ug99, which is currently plaguing the African continent and Arabian Peninsula, spread to the United States. The Department of Agriculture has estimated 40 million acres of wheat in the United States is susceptible and that the economic loss could exceed 10 billion dollars.[11] As an example, Kansas, the largest wheat producing state, is predominantly composed of monocultures.[12] Two central Kansas counties, Rush and Barton, have 281,716 acres of wheat.[13] In a hypothetical agroterrorism attack, terrorists could procure black stem rust fungus from overseas and then culture the fungus in a rudimentary laboratory here in the United States. Two crop dusters could cover the combined farmland of Rush and Barton counties in two passes over six hours.[14] Since the attack could occur in one night in these scarcely populated counties, the flights could occur without interruption. Captured documents indicate that Al-Qaeda leadership will only approve on-the-ground attacks if they have a success rate of 75-100% destruction.[15] Ug99's high rates of infection and virulence, 80-100%, places an agroterrorism attack well within the operations criteria for Al-Qaeda.
Based on wind trajectories and the previous spread of wheat funguses in the United States, this pathogen would be expected to move 200-300 miles per week.[16] In the above scenario, the introduced wheat fungus would expand radially out from Kansas along the swath of wheat fields in the central United States. Each week as the fungus continues to infect more plants and the number of spores it is producing exponentially increases, the pathogen would gain a foothold in monoculture wheat fields due to their lack of genetic diversity and complete susceptibility to infection. After four weeks, the fungus would likely be found from Texas to North Dakota and even extend into Canada. Thus, a terrorist attack involving black stem rust fungus or a similar pathogen is plausible and dangerous.
Cultivar mixtures demonstrate positive benefits in two key areas: disease control and overall yield. Studies show that on average, yield increase was found to be 10.1% in cultivar mixtures, compared to monoculture mixtures, in the presence of stripe rust. In addition, a 2.5% increase occurred in the absence of any type of disease.[17] Under leaf rust conditions, cultivar mixtures with 2 components showed a 37% disease reduction rate, while mixtures with 5 components produced a rate of 70%. Disease reduction due to mixing improved as the number of cultivars in the mixture increased. Ultimately, the integration of cultivar mixtures into American farming will create a platform for risk reduction.

Cultivar mixtures are a practical, long-term solution to mitigate the threat of pathogens released by terrorists. A policy that further encourages their use would further stabilize the economy and bolster national security.

References

1. Jim Miller, "Agroterrorism: Threats and Preparedness", (CRS Report for Congress, 2004)
2. Bauer, Marvin E., "The Corn Blight Problem–1970 and 1971" (LARS Technical Reports, 1972)
3. Susan Collins, "Agroterrorism: The Threat to America's Breadbasket", (Hearing before the Committee on Governmental Affairs, United States Senate, November 19, 2003)
4. J. Fletcher et al, "Plant Pathogen Forensics: Capabilities, Needs, and Recommendations", (Microbiology and Molecular Reviews, 70:2:450-471, 2006)
5. Bailey, Katherine, "The Biological and Toxin Weapons Threat to the United States." (National Institute for Public Policy, 2001), p. 6
6. Bailey, p. 4
7. Bailey, p. 2
8. S. Cupp, D. Walker, J. Hillison, "Agroterrorism in the US: Key Security Challenges in the 21st Century", (Biosecurity and Bioterrorism: Biodefense Strategy, Practice and Science, 2004)
9. Bailey, p. 12
10. RAND, Agroterroism: What is the Threat and What Can Be Done About it?", (RAND Research Brief, 2003)
11. B. Koerner, "Red Menace: Stop the Ug99 Fungus Before Its Spores Bring Starvation," (Wired.com, 2010)
12. Kansas Department of Agriculture, "Kansas Agriculture Statistics", (ksda.gov, 2006)
13. Kansas Geological Survey, "Geohyrdology of Rush County", (Kansas University, 2008)
14. Thrush Aircraft, "Aircraft", (2011)
15. M. Horowitz, "Non-State Actors and the Diffusion of Innovations: The Case of Suicide Terrorism," (University of Pennsylvania, 2009)
16. USDA Cereal Disease Laboratory, "Cereal Rust Bulletin", (USDA, 2011)
17. Mundt, "Use of Host Genetic Diversity to Control Cereal Diseases: Implications for Rice Blast." Rice Blast Disease (293-308, 1994)
18. Image credit (public domain): Groth, Donald. "Rice blast symptoms." *Wikimedia Commons*. Last modified March 16, 2009.
19. Image credit (public domain): USDA. "Wheat harvest." *Wikimedia Commons*. Last modified December 2004.

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Security Analysis for Agroterrorism: Applying the Threat, Vulnerability, Consequence Framework to Developing Countries

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Source: http://www.ifpri.org/sites/default/files/pubs/divs/eptd/dp/papers/eptdp138.pdf

Historical Perspective on Agroterrorism: Lessons Learned from 1945 to 2012

Haralampos Keremidis, Bernd Appel, Andrea Menrath, Katharina Tomuzia, Magnus Normark, Roger Roffey, and Rickard Knutsson. Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science. September 2013, 11(S1): S17-S24. doi:10.1089/bsp.2012.0080.
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This article presents a historical perspective on agroterrorism cases from 1945 until 2012. The threat groups and perpetrators associated with bio- and agroterrorism are clustered into several groups: apocalyptic sects, lone wolves, political groups, and religious groups. We used open-source information, and 4 biological agroterrorism cases are described: (1) in 1952, Mau Mau poisoned cattle in Kenya by using a plant toxin from the African milk bush plant; (2) in 1985, the USDA claimed that Mexican contract workers were involved in deliberately spreading screwworm (Cochliomyia hominivorax) among livestock; (3) in 2000, Palestinian media reported that Israeli settlers released sewer water into Palestinian agricultural fields; and (4) in 2011, a person was sentenced to prison after threatening US and UK livestock with the deliberate spread of foot-and-mouth disease virus. All 4 cases can be assigned to political groups. These cases have not attracted much attention in literature nor in the public media, and the credibility of the sources of information varies. We concluded that agroterrorism has not been a problem during the period studied. Lessons learned from the few cases have generated awareness about the fact that nontypical biological weapons and non–high-risk agents, such as African milk bush, screwworm, and sewer water, have been used by attackers to influence local decision makers. This review will be useful in improving future preparedness planning and developing countermeasures.

Biological warfare and bioterrorism through the ages have been well documented in historical literature.[1,2] Deliberate misuse of biological agents poses a threat not only to public health, but also to the agricultural sector and the food chain, which need to be considered in terms of preparedness against bioterrorist incidents.[3] The complex global food trade and risks associated with livestock transport present vulnerabilities that may have undesirable animal and public health implications.[4] The outbreaks of foot-and-mouth disease (FMD) in the United Kingdom in 2001 and in Taiwan from 1997-1999 have shown the enormous consequences even a natural outbreak can have for a country.[5-7]
Most of the world's population gets its caloric requirements from plant-based foods such as wheat, rice, and maize, but many nations lack the capacity to feed their population. To compensate, they depend on international aid and trade in plants and plant products.[8] Relatively few cases of agroterrorism have occurred in the past, but it is important to study these few incidents to better understand the modus operandi and motivations that different actors may have for using biological agents against the agricultural sector. To better understand agroterrorism, an integrated behavioral framework for analyzing terrorism is needed.[9] In addition, improved knowledge about terrorist motives and behavior will lead to better countermeasures and strategies.[10-12]
By conducting a historical study of agroterrorism, it is possible to improve preparedness for future incidents. In this article, examples from historical events are examined to see how biological agents or weapons have been intended for agrarian sabotage. This historical study of agroterrorism will be used to analyze changes through time and show a pattern for future trends regarding agricultural terrorism—one of the least studied types of terrorism.[13,14]
Biological warfare has been used for centuries to sabotage and weaken the enemy.[15,16] This has been and still is a kind of terrorism that could potentially be used by various actors with different agendas. Examples are terrorist groups such as apocalyptic sects, lone wolves, and political and religious groups.[17]
Several countries have had offensive biological weapons programs: Canada (1939-1969), France (1922-1928, 1934-1940, and 1947-1972),[18] Japan (1930-1945),[19] Germany (1923-1945), the United Kingdom (1940-1964), the Soviet Union (1928-1992), Iraq (1974-1991), South Africa (1981-1995), Hungary (1936-1944[20] and 1945-1989), and the United States (1942-1969), to name just a few.[21] During World War I, Germany tried to attack draft horses using biological agents like *Bacillus anthracis* (anthrax) and *Burkholderia mallei* (glanders), and between the World Wars, both Germany and France studied agricultural pathogens such as rinderpest virus, *Phytopthora infestans* (causing late blight), *Puccinia* spp.

(causing wheat rust), and several beetle pests.[14] These efforts continued, and although no biological agents were used during World War II by Germany, the UK produced 5 million cattle cakes with *B. anthracis* spores to be dropped on Germany. The early period of biological warfare agent development in the UK was characterized primarily by developing antianimal and anticrop agents.[22]

During this time Japan also put considerable resources into the development and production of biological weapons and used them against China.[23] Various agroterrorism agents and diseases have been studied or weaponized in Russia (1935-1992), including African swine fever virus, avian influenza virus, *B. anthracis*, *Brucella* spp. (causing brucellosis), *Burkholderia mallei, Chlamydophila psittaci* (causing psittacosis), FMD virus, *Mycoplasma mycoides mycoides* (causing contagious bovine pleuropneunomia), Newcastle disease virus, Orf virus (causing contagious ecthyma in sheep), rinderpest virus, Venezuelan equine encephalitis virus, and vesicular stomatitis virus, as well as the plant pathogenic viruses brown grass mosaic virus, potato virus Y, tobacco mosaic virus, wheat and barley streak mosaic virus, and the fungi *Magnaporthe grisea* (causing rice and rye blast), *Puccinia sorghi* (causing maize rust), and *Puccinia graminis* (causing wheat stem rust).

In the US the following biological agroterrorism agents have been studied or weaponized from 1943 to 1969: avian influenza virus (causing fowl plague), *B. anthracis*, *Brucella* spp., *B. mallei*, *Chlamydophila psittaci*, eastern, Venezuelan, and western equine encephalitis virus, FMD virus, Newcastle disease virus, and rinderpest virus as well as *Phytophthora infestans* and the causative agents of wheat blast, wheat stem rust, rice blast, and rice brown spot disease. In Iraq, aflatoxins and the causative agents of cover smut/bunt of wheat have been studied or weaponized.[24,25] After World War II, the research on plant pathogen and anticrop weapons continued in several countries.[26]

Today, there are many lists of similar agents, like the Australia Group lists for export control, the US list[27] and the US CDC bioterrorism select agent list for human pathogens,[28] and the USDA/APHIS list of animal and plant pathogens.[29] Although the development of biological weapons is prohibited in most countries, and 166 countries have signed and ratified the Biological and Toxin Weapons Convention of 1972,[30] today there are still a few countries around the world engaged in research on biological weapons for offensive use. There is little or no open-source information about these countries regarding the status of research and development of biological weapons or what their biological warfare potential is at the present time. Countries mentioned in this connection are Syria, Iran, and North Korea. Furthermore, there is no information about what has happened to the bioweapons or know-how that Russia (as part of the former Soviet Union) produced in the past. Some fear that some of these agents, weapons, or know-how are in circulation outside the control of the state.[31] In addition, early military biowarfare programs were designed to promote sabotage, which is similar to terrorism.[32]

By examining this history, it is possible to identify patterns concerning the identities of the perpetrators, where the bioterrorism attacks have taken place, why the attacks were conducted, and the modus operandi of the perpetrators.[33] Historical research can be helpful when assessing the risks of the present and future. We analyzed some agroterrorism cases of different threat groups that used biological agents against agricultural targets. The identification of threat groups provides a better understanding of the selection of biological agent and the outcome of the agroterrorism attacks.

Methods

The material and literature used for this article were limited to open-source information, such as scientific publications, reports, public web pages, and media articles regarding cases of agricultural terrorism. Several non–open-access biocrime databases exist, but these were not used for this article.

There are many ways to categorize terrorism. Ferguson and Potter, for example, categorized terrorist groups or actors as apocalyptic sects, lone wolves, political terrorist groups, and religious terrorist groups.[17] However, it is difficult to categorize many terrorist attacks since these groups and individuals may have different motives and may fall into more than one category. In this article, only non–state-sponsored terror groups or individuals focused on agroterrorism attacks have been considered.

Definitions

In this article we have defined terms as follows:

- ***Agroterrorism:*** A subset of bioterrorism, defined as the deliberate introduction of animal or plant pests with the goal of generating fear, causing economic damage, and/or undermining social stability.[34]
- ***Biocrime:*** The threat or use of biological agents for individual objectives such as revenge or financial gain.[35]
- *Biological warfare:* The military use of biological agents, where targets of agents are predominantly soldiers, governments, or resources, that might hinder a nation's ability to attack or to defend itself.[35]
- ***Biological weapons:*** Those weapons that achieve their intended effects through the infectivity of disease-causing microorganisms including viruses, infectious nucleic acid, and prions.[36]
- ***Bioterrorism:*** The threat or use of biological agents by individuals or groups motivated by political, religious, ecological, or other ideological objectives.[37]
- ***Food terrorism:*** An act or threat to deliberately contaminate food for human consumption with biological, chemical, or physical agents or radionuclear materials for the purpose of causing injury or death to civilian populations and/or disrupting social, economic, or political stability.[38]

Results

Bioterror Groups' Modus Operandi

At the same time as state-supported development of bioweapons has declined, other groups have increased their interest in the use of biological weapons.[15] The 4 categorized bioterrorist groups might have different motives for using biological weapons.[39] Political groups could have revolution on their agenda, and they may not care about public opinion. Religious extremists, who have historically caused mass casualties, may be opposed to western values.[37] Biological weapons might be used by separatist groups, activists, or criminals.[17] The motives of groups may vary widely, but the common thread is their willingness to use biological weapons to effect changes in society. From their point of view, violence that might bring death, fear, and social disruption is an appropriate way to reach their goal.

Apocalyptic Sects

Apocalyptic groups believe that doomsday will occur in the near future and that they act on orders given to them by God. These groups are often led by charismatic leaders, and the people who join the sect often become isolated from the outside world.[17] An example is the Japanese sect Aum Shinrikyo, which made several attempts to acquire and use biological agents to kill people in order to salvage their contaminated souls. Their failed biological weapons attacks include 3 incidents in 1990 and 4 in 1993.[40-43]

Lone Wolves

There are many cases of lone wolf attacks. Lone wolves have a broad range of motives, including political and religious motives; the targets vary and so do their modus operandi.[44] This category of terrorist is harder to control, because the planning and the work are done by one person, who may be impossible to monitor before the actual attack. Lone wolves are in many cases political or religious radicals. For example, Anders Behring Breivik, the Norwegian terrorist, was seen as a lone wolf and had a clear (to him) political agenda. Even though lone wolves may not belong to a specific organization, they often share radical ideologies or beliefs with organizations or groups. Bakker and de Graaf describe the threat and difficulties surrounding lone wolf actions: "Attacks by lone operator terrorists provide the most puzzling and unpredictable form of terrorism. Lone wolf terrorists are a nightmare for the counterterrorism organizations, police and intelligence communities as they are extremely difficult to stop."[44(p46)]
Unstable people often act alone because they are unwelcome in political groups by the groups' leaders, who may consider them to be security risks.[45] In the aftermath of the anthrax letters in 2001 (also called Amerithrax) and their impact on the society, many fake threats were mailed by copycats. Statistics for threat letters are difficult to find in open-source databases, but several publications have described the threat of the anthrax letters. Since the 2001 attacks, law enforcement agencies have processed thousands of suspicious mail incidents globally, many of which are hoax bioterrorism threats. In Australia it has been reported that bio-insecticide preparations containing *Bacillus thuringiensis* spores have been involved in several threats, leading to the need for rapid and sensitive detection techniques for this organism, a close relative (but nonpathogenic) of *B. anthracis*.[46] Suspicious anthrax letters have been sent to private people,

companies, political groups, and government organizations including the US consulate in Sao Paulo, Brazil.[47] And other agents have also been used: For example, ricin toxin was found in the mailroom of US Senate Majority Leader Bill Frist in 2004.[47]
In New South Wales between October 2001 and February 2002, more than 1,000 incidents were investigated and 594 samples of suspicious substances were submitted for microbiological examination to the Centre for Infectious Diseases and Microbiology, Institute of Clinical Pathology and Medical Research in Westmead.[48] None of the suspicious samples turned out to contain any biological agent. There also have been cases in which the attack was targeted at food and water.[15]

Political Terrorist Groups
Terrorist groups of the 9/11 type are dominated by a combination of political and religious terrorists. "These groups are hybrids in that they have both political *and* religious motivations and objectives, which are tightly intertwined with their rhetoric, ideology, and action."[17(p18)] Among political terrorist groups, there are many "single issue" groups. Radicalization in political activism must be taken into consideration[49]—for example, groups who are opposed to abortion, those who espouse ecoterrorism, and animal rights activists.[50] Ecoterrorists and animal rights activists have directed their attacks against the agriculture infrastructure, and these attacks have involved violence and vandalism rather than biological agents. Some examples of bioterrorist incidents in which political groups used biological agents include: Dark Harvest, which spread dirt contaminated with *B. anthracis* spores (October 10 and 14, 1981, UK),[47,51] the Red Army Faction (1980s, Germany),[1] and the Minnesota Patriots Council (1992, USA).[47] Actions in which medical waste marked with swastikas was found at Temple Beth El in Stamford, CT (August 17, 1999, USA), and Temple Beth El in Norwalk, CT (August 18, 1999, USA), were probably actions by unidentified right-wing groups.[47]

Religious Terrorist Groups
Several religious groups and individuals, including Al-Qaida, have shown interest in acquiring biological weapons. According to Al-Qaida, it is a duty to acquire weapons to fulfill their mission. In addition to acquiring biological weapons, the group has tried to acquire other CBRNE weapons, including uranium and the chemical warfare agent VX, among others.[52] An example of the use of biological weapons is the actions by the Rajneeshee cult in July, August, and September 1984 using the bacterium *Salmonella typhimurium*.[47] It has been reported that Osama bin Laden also attempted to acquire biological weapons in Sudan and Afghanistan in 1999.[1]
At the beginning of 2012, 2 issues (Nos. 8 and 9) of the radical Islamic magazine *Inspire* were published.[53] The first includes an article written by Shaykh Anwar Al Awlaki aimed at providing advice and guidance on questions submitted by readers. The article is inter alia devoted to justifying the use of poison and biological and chemical agents to carry out attacks against population centers in countries that are in conflict with Muslims; the United States, the United Kingdom, and France are mentioned specifically. Al Awlaki states, "The use of poisons or chemical and biological weapons against population centers is allowed and is strongly recommended due to its great effect on the enemy."[53(p46)]

Agroterrorism Cases
Agroterrorism is a subset of bioterrorism whose goal is agricultural sabotage, and an agroterrorist group may choose to use biological weapons for their purposes.[54] It is relatively easy to acquire these kinds of biological agents directly from the environment. A group or an individual does not necessarily have to go through laboratories to acquire these agents, and many are not pathogenic for humans. At the same time, small groups of terrorists or even lone wolves could, in theory, acquire and use this kind of agent more easily than other biological agents that are pathogenic to humans. In addition, the risk of being caught in this kind of operation is low, and it has sometimes been difficult to distinguish a naturally occurring epidemic from an attack using biological weapons.[1] The costs of the preparation of bioweapons are often much less than what it would cost, for example, to use nuclear bombs of various types. "Experts have estimated that for a terrorist group to develop a nuclear weapon could cost them a billion dollars…But to develop a very good biological arsenal you would need about ten million dollars and a very small lab and a master's degree in chemical engineering."[55]

Because of the relatively low cost and amount of effort required in agroterrorism, some terrorist groups may direct their attacks more frequently toward agricultural production in the future. In addition, globalization, with increased importation of food, global food trading, and transportation of animals, have made modern societies more vulnerable to terrorist attacks.[56,57]

The terrorism agenda has changed through time and so have the instruments of terrorism. An attack with biological weapons would result not only in disease and death, but, depending on the society, also in panic, fear, disruption of economic activity, and more. Recent outbreaks, even though their origin was natural, have shown us the enormous effects of such an incident on society. The effects of an outbreak will not be limited to the direct economic impact on agricultural production but will also incur indirect economic losses, including disruption of trade. And experience has shown that the costs of recovery from an outbreak could be higher than those of the outbreak itself.[22] The economic consequences of an attack with biological weapons are severe: "Even a minor disease outbreak can have severe economic effects due to export restrictions."[22(p5)]

The motivations of terror groups and individuals show a wide variation. Some wish to cause panic or take revenge. For instance, Anne Kohnen writes in a report: "From the standpoint of the USDA, however, the most important motivations to consider are those that particular groups or individuals are known to hold. The 2 most common today are the profit motive and the anti-GMO (genetically modified organism) motive."[22(p11)]

Agroterrorism has occurred throughout history,[58] and biological terrorism attacks against food and water have also taken place. We looked at 4 agroterrorism cases during the period from 1945 to 2012, which are discussed in more detail below.

Mau Mau

Mau Mau was a nationalist liberation movement in Kenya whose main goal was to end British colonial rule. In 1952 the Mau Mau used a local plant toxin, the African milk bush plant (*Synadenium grantii*), which was common in the area, to poison cattle at the British mission station. This was confirmed after the Veterinary Research Laboratory in Kabete (Kenya) had ruled out other possibilities. The Mau Mau had first concentrated their attacks mainly on sabotaging British farmers. The poisoning of cattle was rare, which suggests that this action was an attack of opportunity.[37,47]

Contract Workers

In 1985 Mexican contract workers deliberately spread screwworm (*Cochliomyia hominivorax*) among livestock in Mexico close to the border with the United States. This was supposedly done because they wanted to protect their jobs, since they were working in a screwworm eradication program. Although the perpetrators never were charged, the USDA claimed that the Mexican contract workers were involved in deliberately spreading screwworm among livestock.[37,47] Managing the screwworm population is complicated, and the history of sterile insect techniques goes back to 1930-1940; the concept is based on deliberately releasing insects of a pest species to introduce sterility into wild populations in order to control them.[59]

Sewer Water

Reports from Palestinian news sources in 2000 claimed that Israeli settlers in the West Bank had released sewer water into Palestinian agricultural fields. According to the Palestinian farmers, this was recurring and was done in an attempt to make the Palestinian farmers leave their land.[37,47]

FMD Threat

In 2011, a South African man was arrested for threatening to spread foot-and-mouth disease in the United States and Great Britain if he was not paid US$4 million. He believed the governments of both nations had been too passive when "white" farmers had lost their land in Zimbabwe. He was convicted for terrorist activity and money laundering. It was reported, "This biological agent, if deployed, would have caused the destruction of property and resulted in major economic loss."[60] Investigations showed that this person did not have FMD virus in his possession.[60]

Discussion

Natural outbreaks of FMD have been reported in the media as having serious consequences.[61] A deliberate spread of agroterrorism agents must have appropriate countermeasures. According to Suffert and colleagues, "Agroterrorism as warfare has been deemed low-tech, high impact."[26(p222)]

Only a few cases of agroterrorism have been described in public media, and none has attracted much attention. Even though no case in recent history has had a severe impact, it is important to consider the potential impact that an attack might have. The 4 cases described here were politically motivated actions. These cases occurred in different places, used different dispersion methods, and had different targets (though mainly livestock) and different political motives. The agents used in 3 of these cases—African milk bush, screwworm, and sewer water—are not on the traditional lists of high-risk agent.[27-29] By contrast, the FMD hoax in 2011 serves as an example of a threat with an agent that is on the agricultural select agent list.[29] The cases of contract workers using screwworm and settlers releasing sewer water are accusations. The Mau Mau attack is a confirmed case of the deliberate spread of a plant toxin. The FMD hoax resulted in prosecution and a prison sentence. There are forensic challenges associated with agroterrorism incidents, and it is often difficult to distinguish whether an outbreak is natural or intentional.

In the cases presented here, the agents originated in the local environment, in contrast to some bioterrorism and food terrorism incidents in which the agents were characterized in laboratories before they were used. For example, the Rajneeshee sect used the reference strain *Salmonella typhimurium* ATCC 14028,[62] and the Amerithrax letters contained an anthrax strain isolated in the US.[63,64]

It is also of interest that the perpetrators in these 4 cases seemed to prefer simple and easily obtained agents and toxins. The African bush milk was common in the area of operation; sewer water that was allegedly used by the Israeli settlers also can be seen as a simple means to carry out an attack. The screwworm incident also shows the simplicity of the chosen agent to carry out the attack in an effort to keep the contract workers' jobs. No live FMD virus was ever found in the investigation of the case in 2011. However, the authorities took this threat seriously and pointed out that the attack, if the perpetrator had actually carried it out, would have had serious consequences. This was confirmed by the US Department of Justice, which stated, "Agricultural experts say that today they are most concerned about the intentional introduction of foot-and-mouth disease virus into the food supply."[65(p1)]

Even though there have not been many cases of agroterrorism, it must considered in preparedness planning. Casagrande and Wills state, "Because limited disease outbreaks can cause severe economic consequences, a terrorist need not cause a massive, uncontrolled infection to hurt its target."[14(p135)] Various groups may shift their modus operandi and decide to use biological weapons against agricultural targets to affect the economy of an enemy.[35] The prevention of a lone wolf attack is complex, and it is difficult to determine whether a lone wolf is in fact operating alone or as an individual acting on behalf of a larger group. It is important to consider the possibility that a larger group or network could be behind these individuals. At the same time, a small group or even one individual can cause a lot of damage.

History has shown that terrorists often rely on a lack of preparedness, and our study shows that agroterrorism case studies are not common. It is recommended that the authorities develop plans to prevent such attacks.

Conclusion

Agroterrorism has not been a serious problem in the period from 1945 to 2012. This might be the result of a lack of empiric data. In addition, the open-source information and the reliability of the references vary in quality. In 2 of the 4 agroterrorism cases described here, sufficient evidence to bring charges was lacking. Nevertheless, these cases demonstrate that incidents have taken place at various geographical places with different targets, using various biological agents. The attackers had various motives for the attacks, but all are related to political interests, including sabotage for economic gain. Atypical biological weapons or non–high-risk agents were used in these attacks. The lessons learned from this study should be used to improve future preparedness planning and the development of countermeasures.

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Agro-terrorism? The causes and consequences of the appearance of witch's broom disease in cocoa plantations of southern Bahia, Brazil

By Marcellus M. Caldas and Stephen Perz
Source: http://www.sciencedirect.com/science/article/pii/S0016718513000092

Abstract
During the last few decades, the media, government leaders, scholars and national security analysts have all called attention to the potential threat presented by terrorism. In general, analyses have focused on the use of biological agents to kill or injure people. Consequently, the intentional contamination of crops by biological agents has received less attention in the media and counter-terrorism efforts when compared to possible attacks on civilian populations. However, in many countries, agricultural systems are one of the main economic sectors contributing to political stability, and the present literature lacks examples of terrorist attacks to agricultural systems. This paper is one of the first to discuss a concrete case of the appearance of a plant pathogen (*Witch's Broom*) in an economically important region, possibly motivated by agro-terrorism. We highlight the differences between agro-terrorism and biocrime, and the causes and the consequences of the intentional introduction of pathogens as a means of causing economic damage. In particular, we argue that agro-terrorism and biocrime are both intentional criminal acts of introducing pathogens into agricultural systems to cause economic damage, but only agro-terrorism does so to advance a political agenda. Also, we argue that agro-terrorism can be difficult to distinguish from biocrime, and even if the intentional introduction of a pathogen is a political act of agro-terrorism, the consequences may or may not follow the desired script contemplated by the perpetrators, as pest outbreaks can entrain unintended economic, political and ecological consequences.

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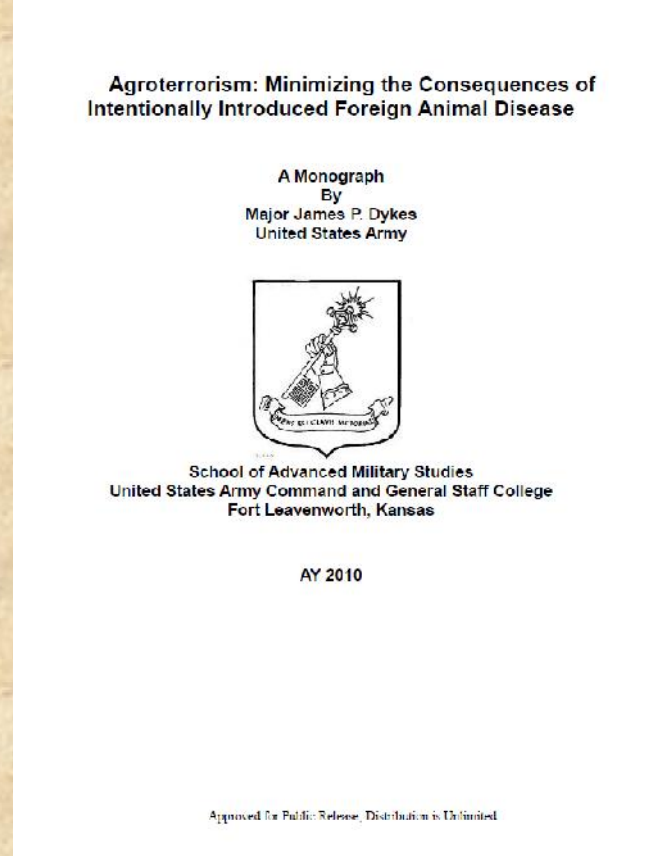
Agroterrorism: Minimizing the Consequences of Intentionally Introduced Foreign Animal Disease

By Major James P. Dykes, United States Army

Source: http://www.dtic.mil



Agroterrorism: Minimizing the Consequences of Intentionally Introduced Foreign Animal Disease

A Monograph
By
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The United States agricultural industry generates more than $1 trillion in annual economic activity and provides an abundant food supply for the United States and other countries. Since the 9/11 attacks, the United States government has recognized the vulnerability of the agriculture industry and the potential for the deliberate introduction of animal and plant diseases or agroterrorism. An agroterrorist attack could have enormous economic consequences, disrupt the entire system of critical infrastructure and affect all Americans.

The federal and state governments must establish a comprehensive foreign animal disease strategy that is equal to the risk posed by agroterrorism and/or natural outbreaks. Critical elements of this strategy must reconcile conflicting worldviews and existing tensions between the federal and state government to synchronize all remediation efforts while increasing the nation's preparedness. Finally, the national strategy must address the population of first responders by recognizing the unique authorities, restrictions, and capabilities they possess. The Department of Defense (DoD) has the opportunity to mitigate the risk of agroterrorism to the nation because it possesses the inherent dimension, organization and equipment to rapidly deploy, and conduct operations in austere and geographically distributed areas of operation.

Agro-Terrorism: From the Farm to the Fork

Source: http://www.wcjb.com/local-news-state-news-national-news/2013/02/agro-terrorism-farm-fork

Agro-terrorism is a purposeful attack which may have a political agenda behind it. But is Florida at risk? Well experts tell me because Florida is a peninsula. It can attract unwanted visitors with harmful intentions.

"It's something you enjoy doing," Roger west has been in the cattle business for almost 70 years, practically his entire life. "I really enjoy taking these dogs and going out in the pasture, checking cows and making sure everything is going okay," he says.

Farming is a big deal as Florida's economy heavily depends on agriculture. The net farm income for this year is expected to be about 130 billion dollars. The highest since 1973, according to the United States Department of Agriculture. But we're not the only ones that know this, putting Florida on terrorists' radars.

Frankie Hall with the Florida Farm Bureau says, "Let's face it, a terrorist wins when they see us being economically affected."

Two different incidents in the past decade involving Salmonella in peanut butter and E Coli in spinach killed 12 people, according to the United State's Food and Drug Administration. All of these were accidental outbreaks but the results bring us to a frightening reality.

West says, "My philosophy is that there are a lot of crazy people in the world and there's no telling what they're able to do."
It all begins on a farm and later hits our supermarket shelves. From the farm to our fork, if America's food chain becomes infected, it's hard to deal with the effects as they are timely and costly. Keith Schneider researcher on food safety at the University of Florida says, sometimes people don't even have to be harmed. "There's been a couple of instances where people have contaminated food and it's made people sick and that causes fear, which again sort of has the same impact where people stop buying a product," Schneider says.
Meaning industries could shut down and people could lose their jobs. He says, just the perception of contaminated food can destroy our state's agricultural economics. Something Hall says can happen to us. "Florida is truly a global state. People are coming to this state globally and so we have to have defensive put in to protect not just Florida but the country," Hall says.
But if an agro-terrorist act happens, there is a solution. Schneider says, "Being able to react quickly, get whatever product is affected off the shelf, notify the public and just having a plan in place, ahead of time."
Systems like Florida's SART State Agricultural Response Team and HACCP Hazard Analysis & Critical Control Points are measures put in place to protect the industry and the public.
Hall says, "We have some 15 or some major ports of entry, you know like sea ports or airports… The USDA through the FDA we have inspectors on the ground to inspect all incoming products into these airports or sea ports to protect our food supply."
Besides all the state systems put in place to prevent agro-terrorism, what else can be done? Well, farmers can be on the lookout for strangers that may enter their farming community and become a possible threat. One way to do that is to make sure your gates are locked at all times.
However, Doug Archer with the 'institute of food and agricultural sciences' at uf says agro-terrorism is something the public shouldn't really worry about. "It would be very difficult to introduce enough of a harmful substance into the food supply to harm a great number of people," Archer says.
West says no matter the circumstances, he will not let his guard down. "You just gotta keep an eye out," West adds.
So far the United States has not been a victim of an agro-terrorism act. Experts hope it remains this way as long as people are vigilant of suspicious activity and report any of it to authorities.

The threat of agroterrorism and zoonotic diseases in Asia

By Gary Flory
Source: http://www.cbrneportal.com/example-2/

Introduction
The food and agricultural sector is one of the easiest sectors of any nation's economy to disrupt and its disruption could have catastrophic consequences both nationally and regionally. Both developing and developed countries in Asia will be impacted by a disease outbreak or agroterrorism attack. For countries with agriculture as a significant portion of their gross domestic product, disruptions anywhere along the food chain could lead to food insecurity and national instability in addition to the direct and indirect economic impacts. Yet in the context of CBRNe planning, preparations for a major biological emergency, whether naturally occurring or intentional, are often given less attention and allocated fewer resources than chemical or radiological events due to the reduced potential for a significant human death toll. However there are steps -some easily accomplished, others more difficult -that can be taken to mitigate the impact of disease outbreaks and agroterrorism activities.

Human and animal health
The ongoing outbreak of H5N1 -and commonly called bird flu – and more recently H7N9 serve as a strong reminder that people, animals and the environment and inextricably linked. Many of the diseases causing death and suffering across the globe are diseases that can be transmitted from animals to humans. The effective treatment, control and eradication of these diseases require an understanding of the interconnectedness of humans, animals and the environment. Approximately 15 million people die each year from infectious diseases. In children, infectious diseases are the

main cause of death. Infectious diseases can also result in disability, diminished quality of life, and decreased productivity.
The cost of treatment and prevention of EIDs can be staggering and disproportionately impact developing countries. The impact of zoonotic epidemics from 1995 to 2008, many of them preventable, exceeded $120 billion globally (Marsh Inc. (2008) The Economic and Social Impact of Emerging Infectious Disease)
There are a number of factors linking human and animal health:

- Population Growth – Crowding results in more opportunities for existing disease organisms to mutate, recombine, and reassort into more deadly strains.
- Land Use – Contamination of water resources, deforestation and other land use changes result in more contact between humans, domestic animals, wildlife and vectors.
- Agricultural Practices – Open agriculture, deforestation, intensive agriculture and the use of antibiotics in food animals all impact the potential for disease emergence.
- International Trade and Commerce – An individual infected with an EID can be anywhere in the world within hours. Food is imported and exported around the world. Exotic pets are traded through legal and illegal markets.

Feasibility of an agroterrorism attack

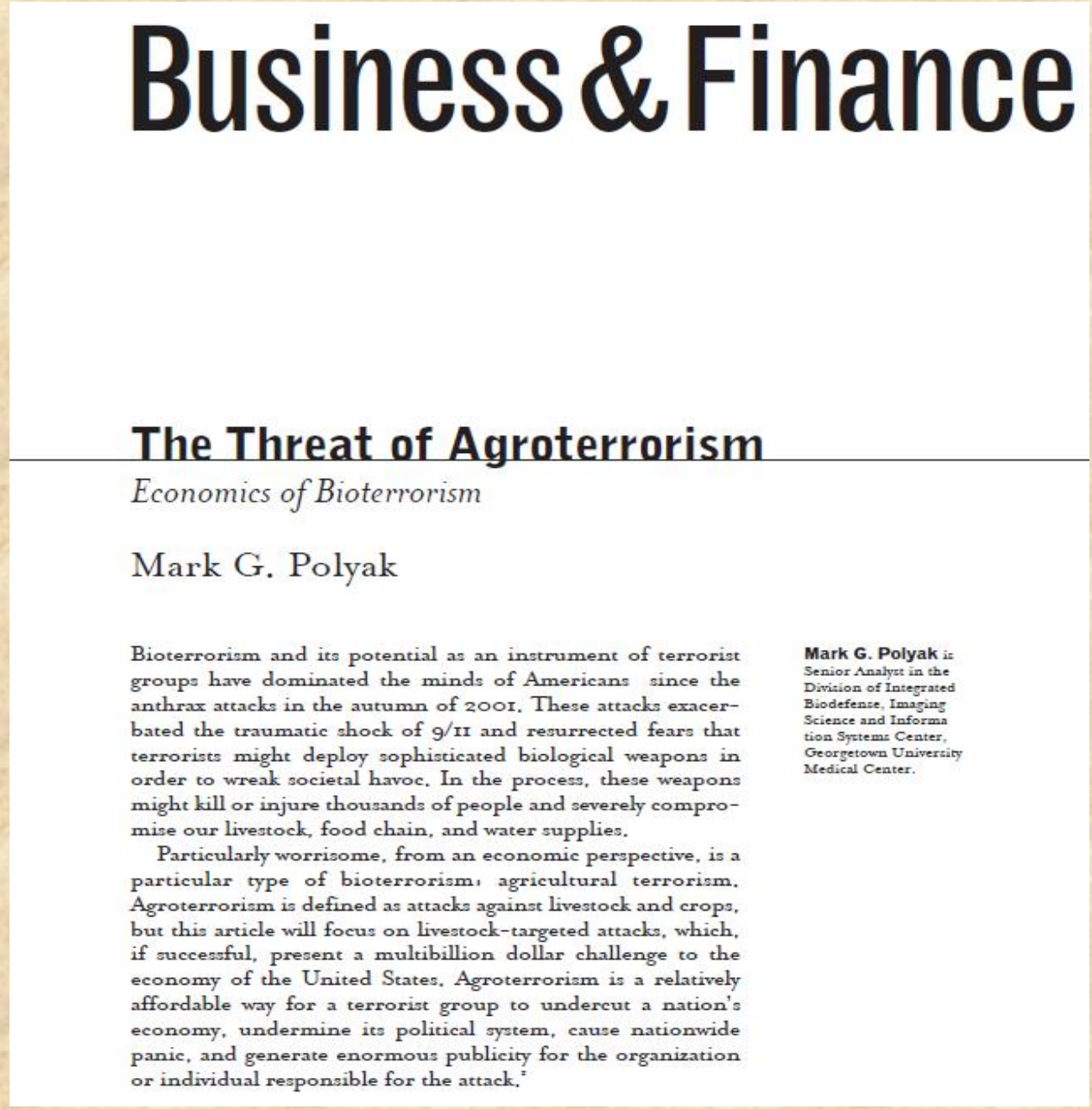
The history of bioterrorism confirms that naturally occurring disease agents such as plague, smallpox and anthrax are often used as weapons. Occurrences of reportable animal diseases published by the World Organization for Animal Health (OIE) over the last 12-months include numerous disease events in the region including anthrax, low pathogenic avian influenza (LPAI), highly pathogenic avian influenza (HPAI), classical swine fever, foot and mouth disease (FMD), and Newcastle disease. The presence of these diseases in the region increases the risk of an intentional introduction to an uninfected country or the unintentional introduction through a breach in biosecurity. Additionally, exploitable vulnerabilities exist throughout the entire food production system which can be difficult to manage. The vast nature of the food production system provides many opportunities for the introduction of disease agents. Other factors which make agriculture an attractive target include:

- Many highly contagious disease agents are endemic throughout the region
- Severe economic consequences of an attack
- Plant and animal pathogens are easier to acquire than human agents
- Little or no physical security at production facilities
- Farms are widely dispersed
- Disseminating plant or livestock pathogens presents less risk for the perpetrator
- The low cost and simplicity of delivery
- Incubations periods provide the opportunity for the disease to spread undetected and for the perpetrator to escape

Reducing the risk

Just as vulnerabilities exist throughout the entire food supply chain, preparedness/mitigation measures are available to manage risk at each step. Many lessons have been learned from recent disease events such as FMD in South Korea and the United Kingdom and avian influenza around the globe. Through planning and implementation of effective mitigation strategies we can elevate our preparedness and effectively reduce the attractiveness of the use of these agents.

The Threat of Agroterrorism - Economics of Bioterrorism



Business & Finance

The Threat of Agroterrorism

Economics of Bioterrorism

Mark G. Polyak

Bioterrorism and its potential as an instrument of terrorist groups have dominated the minds of Americans since the anthrax attacks in the autumn of 2001. These attacks exacerbated the traumatic shock of 9/11 and resurrected fears that terrorists might deploy sophisticated biological weapons in order to wreak societal havoc. In the process, these weapons might kill or injure thousands of people and severely compromise our livestock, food chain, and water supplies.

Particularly worrisome, from an economic perspective, is a particular type of bioterrorism: agricultural terrorism. Agroterrorism is defined as attacks against livestock and crops, but this article will focus on livestock-targeted attacks, which, if successful, present a multibillion dollar challenge to the economy of the United States. Agroterrorism is a relatively affordable way for a terrorist group to undercut a nation's economy, undermine its political system, cause nationwide panic, and generate enormous publicity for the organization or individual responsible for the attack.[2]

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By Mark G. Polyak
Source: http://www12.georgetown.edu/sfs/publications/journal/Issues/sf04/B&F%20Polyak.pdf

Groups compare recent activist activity to agro-terrorism attacks

Source: http://www.agriview.com/news/livestock/groups-compare-recent-activist-activity-to-agro-terrorism-attacks/article_4e64d546-42b6-11e1-b1ed-001871e3ce6c.html

Words turned into action Jan. 8 as an estimated 14 trucks and cattle-transporting trailers were intentionally set on fire at the largest feed yard in California. An animal rights extremist group quickly took credit for the arson attack in the San Joaquin Valley.

Though the cause of the fire was still under investigation at the time of publication, an anonymous statement released by spokeswoman Nicoal Sheen of the Animal Liberation Front (ALF) Press Office said the attack was aimed at "the horrors of factory farming." Sheen later said that the office distributes releases from people involved in illegal actions but that the office was not directly involved in the attack.

The release indicated that "containers of accelerant were placed beneath a row of 14 trucks (by unnamed animal activists) with four digital timers used to light four of the containers and kerosene-soaked rope carrying the fire to the other 10."

The group reported they "were extremely pleased" to see that all 14 trucks "were a total loss" with some being "completely melted to the ground." The message ended with a call for others to commit additional acts of violence against agriculture producers.

John Harris, CEO of Harris Ranch, used the opportunity to tell the people how the operation cares for their livestock in a national spotlight. His statement also mentioned those behind the crime.

"We must live in a society that is safe for all and no one can tolerate violence such as this," he said. "ALF and similar terrorist groups pose a real threat and I am confident that the many law enforcement agencies working on this case will bring them to justice soon."

Though ALF indicated that they were only the go-between in the case, the Animal Agriculture Alliance replied with a release saying that "it is unacceptable for any group to praise this direct assault on American agriculture."

The Alliance warned producers that ALF, which is listed by the U.S. Department of Homeland Security as a domestic terrorist organization, has been responsible for other targets of violence in the livestock industry.

"For example, scientists using animals for life-saving medical research at UCLA have frequently been threatened with bomb scares and intimidation," the group stated. "In the U.S. and abroad, ALF and other extremist groups have issued death threats, committed vandalism and hacked websites, all in the name of their distorted ideology. There is no place for such violent acts of intimidation."

The Animal Liberation Front, whose website is dark in color and illustrated with black-masked activists rescuing animals, says that they are working to protect animals from the "real terrorists,"

pointing at livestock producers and animal testing facilities as the problem. Such propaganda has helped the organization to secure a loyal following.

"ALF is not a group per se," says one piece of promotional material handed out by the group. "There are no membership lists and no leaders. Because their activity is illegal, ALF activists keep their involvement secret - from the public, their families, their friends, everyone - in order to remain free and continue carrying out actions."

The same flier discredits the terrorist theory, saying that "since its first action in 1976, not one human or animal has ever been harmed by the ALF" and that "many businesses that inflict immense suffering on non-human animals have closed due to ALF actions."

The Animal Agriculture Alliance reads this as a goal to eliminate animal agriculture entirely. The objective, said the Alliance, is shared by multiple activist groups. To send a message to the collective group, the Alliance is working to bring justice to the perpetrators of the Jan. 8 incident.

"It is imperative that activists be held accountable for their attempts to undermine farmers, ranchers and meat processors," the Alliance wrote.

Bill Donald, current National Cattlemen's Beef Association (NCBA) president, shared a similar viewpoint after discovering news of the attack, saying that the arson is "an example of extremists showing a disregard for property and lives."

"This is not only an attack on a family-owned and operated business; this is a domestic terrorist attack on our nation's providers of food and fiber," Donald said. "This extremist behavior goes above mere activism and the freedom of speech: these criminals are threatening lives and causing substantial economic harm."

Though no people or animals were reported injured during the attack, Donald said those responsible do not have the livestock's best interest in mind.

"Anyone concerned about the welfare of animals would not orchestrate attacks on individuals who are experts at caring for these creatures," said Donald. "Cattlemen and women implement the highest animal handling and food safety standards designed by veterinarians, animal behavioral experts and researchers."

The Alliance encouraged producers to remain vigilant for possible activist activity.

"This incident shines light on the need for the agricultural community to be able to protect itself from these senseless bullying tactics by those who seek to destroy the industry by any means," the group said.

ADVICE FROM THE OHIO LIVESTOCK COALITION

The Ohio Livestock Coalition released advice for Midwest livestock producers following the release of undercover dairy abuse footage released in 2010. Though the situation differed in scope and action, the group indicates the advice from Hinda Mitchell, crisis communication specialist for CMA in Iowa, is still applicable today.

"Before an undercover activist strikes: be smart and do the right thing," Mitchell said. "The best public relations are to be responsible and to not let it happen in the first place."

If unsatisfactory actions are filmed or viewed by the public, the messages sent often paint a picture of the entire industry.

"It perpetuates the challenge we face each day - ensuring our consumer believes in how we farm, in how we produce food, and that we are firmly committed to responsible care of our animals," Mitchell continued. "It doesn't matter who put the video out, what matters is the visual image our consumers are left with at the end of the video tape. The best we can hope for is to manage and mitigate the worst of it and work hard to maintain consumer trust in today's farming practices."

Mitchell's advice revolves around making sure that animal activists do not have ammunition against the operation by managing livestock properly. Her recommendations are as follows:

1. Do the right thing. Make sure your farm is exceeding all expectations for animal care, cleanliness and environmental responsibility. Let's not be our own worst enemy.
2. Watch your back and your neighbor's back. Pay attention to strange vehicles, and try and get license numbers off any suspicious vehicles. Engage local law enforcement if needed.
3. Hire the right people. Do background checks, reference checks and ask for actual Social Security cards and other hiring documentation. Seek counsel from an employment lawyer if needed. Put new hires on probation and watch them closely. If it doesn't feel right, it probably isn't. And if a potential hire is suspicious, share that information with other farmers.
4. Empower your farm workers. Let them know of their importance as a team member in protecting your farm. Ask your workers how new people are performing. And let them know you expect them to immediately report any strange behaviors or if they suspect any undercover activity.
5. Set codes of conduct for animal care. If you don't have them, establish animal care standards and train your employees on those standards. Require ANY farm worker that handles animals to sign a written Code of Conduct. This is important both for animal care protocol and to verify all employees understand their shared obligation.
6. Stay active and in touch with your industry leadership. There is so much happening in livestock and poultry farming right now, you can't afford to NOT be engaged. Likewise, share any information you gather in your local community about any of these activities.
7. Maintain strict security procedures on your farms. Now more than ever, keep your doors locked and be mindful of what's happening inside and outside your operations. Don't let your absence or a false sense of security be your downfall.
8. Alert your local law enforcement. Let them know there have been a number of issues on farms across the country, and ask them to do a few extra "drive-bys" at your farm. An ounce of prevention is worth a pound of cure.

Americans Are 110 Times More Likely to Die from Contaminated Food than Terrorism

Cantaloupe vs. al-Qaeda: What's more dangerous?

Source: http://www.alternet.org/media/americans-are-110-times-more-likely-die-contaminated-food-terrorism

One of the most important revelations from the international drama over Edward Snowden's NSA leaks in May is the exposure of a nearly lunatic disproportion in threat assessment and spending by the US government. This disproportion has been spawned by a fear-based politics of terror that mandates unlimited money and media attention for even the most tendentious terrorism threats, while lethal domestic risks such as contaminated food from our industrialized agribusiness system are all but ignored. A comparison of federal spending on food safety intelligence versus antiterrorism intelligence brings th e irrationality of the threat assessment process into stark relief.

In 2011, the year of Osama bin Laden's death, the State Department reported that 17 Americans were killed in all terrorist incidents worldwide. The same year, a single outbreak of listeriosis from tainted cantaloupe killed 33 people in the United States. Foodborne pathogens also sickened 48.7 million, hospitalized 127,839 and caused a total of 3,037 deaths. This is a typical year, not an aberration.

We have more to fear from contaminated cantaloupe than from al-Qaeda, yet the United States spends $75 billion per year spread across 15 intelligence agencies in a scattershot attempt to prevent terrorism, illegally spying on its own citizens in the process. By comparison, the Food and Drug Administration (FDA) is struggling to secure $1.1 billion in the 2014 federal budget for its food inspection program, while tougher food processing and inspection regulations passed in 2011 are

held up by agribusiness lobbying in Congress. The situation is so dire that Jensen Farms, the company that produced the toxic cantaloupe that killed 33 people in 2011, had never been inspected by the FDA.
In the past 10 years, outbreaks of foodborne illness have affected all 50 states, with hundreds of food recalls annually involving many of America's leading brands, including Whole Foods, Trader Joe's, Taylor Farms Organics, Ralph's, Kroger, Food 4 Less, Costco, Dole, Kellogg's and dozens of others. There have been multi-state recalls of contaminated cheese, organic spinach, salad greens, lettuce, milk, ground beef, eggs, organic brown rice, peanut butter, mangoes, cantaloupe and hundreds of other popular foods.
Since Sept. 11, 2001, foodborne pathogens have killed an estimated 36,000 people in the United States. During this same period, terrorism has killed 323 Americans worldwide. Imagine for a minute if food safety threats were marketed to the public in the same lurid fashion as terror threats. Here is a sample press release:

WASHINGTON, DC - Homeland Security announced today that America is under attack by deadly terrorist cells. These terrorists often originate overseas. The threat to our security is credible. They can destroy our way of life and must be stopped. They have no respect for individual life or democratic freedoms. They operate on a cellular basis and hide in darkened spaces. They kill over 3,000 innocent Americans each year and are likely to strike again at any moment. These deadly operatives are masters of disguise, often concealing themselves in peanut butter sandwiches, spinach salads, hamburgers, milkshakes or gourmet cheeses. Their leaders have code names such as E-coli, Salmonella, Listeria, Staph Bacteria and Hepatitis A. We urge all Americans to be alert.
With profound respect for the memory of the 2.997 people who lost their lives as a result of the Sept. 11, 2001 terrorist attacks, Americans are 110 times more likely to die from contaminated food than terrorism, with 1 in 6 sickened every year at an annual cost to the economy of nearly $80 billion. Children and the elderly are the most vulnerable because their immune systems are weakest.

Terrorists Seek to Poison Food at U.S. Restaurants, Hotels

Source: http://www.marlerblog.com/lawyer-oped/terrorists-seek-to-poison-food-at-us-restaurants-hotels/#.UmdqIVNZh1M

So, says the headline this morning. Apparently, the U.S. Homeland Security Department this year identified a terrorist plan to contaminate salad bars and buffets at restaurants and hotels with lethal materials. The strikes involving ricin and cyanide would have occurred during one weekend at a significant number of establishments. The plot was "credible," according to an intelligence insider. Here to me is the take-away quote:
"Initially it would look very much like food poisoning," said Susan Ford, a pharmaceutical sciences professor at St. John's University in New York.
Go figure? This should sound familiar to readers of this blog in August 2008 – Keep reading – "Who Poisoned our Peppers?:
What if the great 2008 Tomato, right Pepper, Salmonella Outbreak actually happened this way?
At 10:00 PM last May 30th, on the same day New Mexico asked for help from the Centers for Disease Control and Prevention (CDC) and the U.S. Food & Drug Administration (FDA) with a growing outbreak of Salmonella Saintpaul, a foreign Network begin airing a video taken inside a

fresh produce distribution center showing workers treating peppers with an unknown liquid. There is a claim that this is a terrorist act.

In the next 15 minutes, every network news operation is playing the video. The broadcast networks break into regular programming to air it, and the cable news stations go nonstop with the video while talking heads dissect it.

Coming on a Friday afternoon on the East Coast, the food terrorism story catches the mainstream Media completely off guard. Other than to say the video is being analyzed by CIA experts, and is presumed to be authentic, there isn't much coming out of the government.

Far-fetched? Don't count on it. I have been saying for years that a foodborne illness outbreak will look just like the terrorist act described above, but without the video on FOX News. Far-fetched?

Tell that to the 751 people in Wasco County, Oregon—including 45 who required hospital stays—who in 1984 ate at any one of ten salad bars in town and were poisoned with Salmonella by followers of Bhagwan Shree Rajneesh. The goal was to make people who were not followers of the cult too sick to vote in county elections.

Tell that to Chile, where in 1989, a shipment of grapes bound for the United States was found laced with cyanide, bringing trade suspension that cost the South American country $200 million. It was very much like a 1970s plot by Palestinian terrorists to inject Israel's Jaffa oranges with mercury.

Tell that to the 111 people, including 40 children, sickened in May 2003 when a Michigan supermarket employee intentionally tainted 200 pounds of ground beef with an insecticide containing nicotine.

Tell that to Mr. Litvenenko, the Russian spy poisoned in the UK with polonium-laced food.

Tell that to Stanford University researchers who modeled a nightmare scenario where a mere 4 grams of botulinum toxin dropped into a milk production facility could cause serious illness and even death to 400,000 people in the United States.

The reason I bring this up is not only because we are about to mark the seventh anniversary of 9/11, but because I wonder if food terrorism really had been the cause of this year's Salmonella Saintpaul outbreak, would it have made any difference in our government's ability to figure out there was an outbreak, to figure out the cause, and to stop it before it sickened so many.

Would the fact of terrorists operating from inside a fresh produce distribution center somewhere inside the United States or Mexico brought more or effective resources to the search for the source of the Salmonella Saintpaul? If credit-taking terrorists were putting poison on our peppers, could we be certain Uncle Sam's response would have been more robust or effective then if it was just a "regular" food illness outbreak?

After 9/11, Health & Human Services Secretary Tommy G. Thompson said: "Public health is a national security issue. It must be treated as such. Therefore, we must not only make sure we can respond to a crisis, but we must make sure that we are secure in defending our stockpiles, our institutions and our products."

Before Thompson's early exit from the Bush Administration, he did get published the "Risk Assessment for Food Terrorism and Other Food Safety Concerns." That document, now 5-years old, let the American public know that there is a "high likelihood" of food terrorism. It said the "possible agents for food terrorism" are:

- Biological and chemical agents
- Naturally occurring, antibiotic-resistant, and genetically engineered substances
- Deadly agents and those tending to cause gastrointestinal discomfort
- Highly infectious agents and those that are not communicable
- Substances readily available to any individual and those more difficult to acquire, and
- Agents that must be weaponized and those accessible in a use able form.

After 9/11, Secretary Thompson said more inspectors and more traceability are keys to our food defense and safety. To date, we've made no movement to ensure this.

So would the fact of a terrorist group operating from a produce distribution center inside the United States or Mexico have brought more or effective resources to the search for the source of Salmonella Saintpaul? If credit-taking terrorists were putting poison on our peppers, could we be certain that Uncle Sam's response would be more robust, more effective than if it was just a "regular" food illness outbreak?

Absolutely not! The CDC publicly admits that it manages to count and track only one of every forty foodborne illness victims, and that its inspectors miss key evidence as outbreaks begin. The FDA is on record as referring to themselves as overburdened, underfunded, understaffed, and in

possession of no real power to make a difference during recalls, because even Class 1 recalls are "voluntary." If you are a food manufacturer, packer, or distributor, you are more likely to be hit by lightening than be inspected by the FDA. You are perfectly free to continue to sell and distribute your poisoned product, whether it has been poisoned accidentally or intentionally.
The reality is that the Salmonella Saintpaul outbreak is a brutal object lesson in the significant gaps in our ability to track and protect our food supply. We are ill prepared for a crisis, regardless of who poisons us.
Somewhere between the farm and your table, our Uncle Sam got lost.

1984 Rajneeshee bioterror attack

Source: http://en.wikipedia.org/wiki/1984_Rajneeshee_bioterror_attack

The **1984 Rajneeshee bioterror attack** was the food poisoning of 751 individuals in The Dalles, Oregon, United States, through the deliberate contamination of salad bars at ten local restaurants with salmonella. A leading group of followers of Bhagwan Shree Rajneesh (later known as Osho) had hoped to incapacitate the voting population of the city so that their own candidates would win the 1984 Wasco County elections. The incident was the first and single largest bioterrorist attack in United States history. The attack is one of only two confirmed terrorist uses of biological weapons to harm humans since 1945.
Having previously gained political control of Antelope, Oregon, Rajneesh's followers based in nearby Rajneeshpuram, Oregon, sought election to two of the three seats on the Wasco County Circuit Court that were up for election in November 1984. Fearing they would not gain enough votes, Rajneeshpuram officials decided to incapacitate voters in The Dalles, the largest population center in Wasco County. The chosen biological agent was *Salmonella enterica* Typhimurium, which was first delivered through glasses of water to two County Commissioners and then, on a larger scale, at salad bars and in salad dressing.
751 people contracted salmonellosis as a result of the attack; 45 of them were hospitalized. There were no fatalities. Although an initial investigation by the Oregon Public Health Division and the Centers for Disease Control did not rule out deliberate contamination, the actual source of the contamination was only discovered a year later. On February 28, 1985, Congressman James H. Weaver gave a speech in the United States House of Representatives in which he "accused the Rajneeshees of sprinkling salmonella culture on salad bar ingredients in eight restaurants". At a press conference in September 1985, Rajneesh accused several of his followers of involvement in this and other crimes, including an aborted plan to assassinate a United States Attorney, and he asked State and Federal authorities to investigate. Oregon Attorney General David B. Frohnmayer set up an Interagency Task Force, composed of Oregon State Police and the Federal Bureau of Investigation, and executed search warrants in Rajneeshpuram. A sample of bacteria matching the contaminant that had sickened the town residents was found in a Rajneeshpuram medical laboratory. Two leading Rajneeshpuram officials were indicted and served 29 months in a minimum-security federal prison.

Planning

Bhagwan Shree Rajneesh in his luxury Rolls-Royce greeted by sannyasins on one of his daily "drive-bys" in Rajneeshpuram, 1982

Several thousand of Rajneesh's followers had moved onto the "Big Muddy Ranch" in rural Wasco County and established a city called Rajneeshpuram. They had taken political control of the small nearby town of Antelope, Oregon (population: 75), whose name they changed to "Rajneesh". The group had started on friendly terms with the local population, but relations soon turned negative because of the unenthusiastic response from locals to the commune's expansion. After being denied building permits for Rajneeshpuram, the commune leadership sought to gain political control over the rest of the County by influencing the November

1984 County election. Their aim was to win two of three seats on the Wasco County Circuit Court, as well as the Sheriff's Office. Their attempts to influence the election included the "Share-a-Home" program, in which thousands of homeless people were transported to Rajneeshpuram to inflate the constituency of voters for the group's candidates. The Wasco County Clerk countered this attempt by enforcing a regulation that required all new voters to submit their qualifications when registering to vote.

The commune leadership planned to sicken and incapacitate voters in The Dalles, where most of the voters resided, in continuation of their efforts to rig the election. Approximately twelve people were involved in the plots to employ biological agents, and at least eleven were involved in the planning process. No more than four appear to have been involved in development at the Rajneeshpuram medical laboratory, although not all of them were necessarily aware of the objectives their work served. At least eight individuals were involved with the actual distribution of the bacteria. The main planners of the attack included Ma Anand Sheela, Rajneesh's chief lieutenant, and Diane Yvonne Onang (Ma Anand Puja), a nurse practitioner and secretary-treasurer of the Rajneesh Medical Corporation. Salmonella bacteria were purchased from a medical supply company in Seattle, Washington, and cultured in labs located inside the commune. Contamination of the salad bars was considered a "trial run". The group also attempted to introduce pathogens into The Dalles' water system. If successful, the same techniques were to be used closer to Election Day. This second part of the plan was never implemented because the commune decided to boycott the election when it became clear that those brought in through the "Share-a-Home" program would not be allowed to vote.

Salmonella poisoning

Perpetrators spread salmonella contaminants on surfaces in the Wasco County Courthouse.

The salsa bar of The Dalles Taco Time.

Two visiting Wasco County commissioners were poisoned with bacteria during a visit to Rajneeshpuram on August 29, 1984. Both men fell ill as a result, and one was hospitalized. Afterward, members of Sheela's team spread salmonella on produce in grocery stores and on doorknobs and urinal handles in the county courthouse, but this did not produce the desired effects. In September and October 1984, they contaminated the salad bars of 10 local restaurants with salmonella, infecting 751 people. Forty-five people received hospital treatment; all survived.

The primary delivery tactic involved one member concealing a plastic bag containing a light brown liquid with the salmonella bacteria, and either spreading it over the food at a salad bar, or pouring its contents into salad dressing. The perpetrators referred to the contaminated liquid as "salsa". By September 24, 1984, more than 150 people were violently ill. By the end of September, 751 cases of acute gastroenteritis were documented; lab results showed that all of the victims were infected with *Salmonella enterica* Typhimurium. Symptoms included diarrhea, fever, chills, nausea, vomiting, headaches, abdominal pain, and bloody stools. Victims ranged in age from an infant, born two days after his mother's infection and initially given a five-percent chance of survival, to an 87-year-old.

Local residents suspected that Rajneesh's followers were behind the poisonings, and turned out in droves on election day to prevent the organization from winning any county positions, thus rendering the terrorist plot unsuccessful.[2] The Rajneeshees eventually withdrew their candidate from the November 1984 ballot. Only 239 of the commune's 7,000 residents voted. The outbreak cost local restaurants hundreds of thousands of dollars and health officials shut down the salad bars of the affected establishments. Some residents would not go out alone out of fear of further attacks. One resident stated: "People were so

horrified and scared. People wouldn't go out, they wouldn't go out alone. People were becoming prisoners."

Four of the restaurants in The Dalles affected by the attack

Investigation

Officials and investigators from a number of different agencies were dispatched to The Dalles to investigate the cause of the outbreak. Dr. Michael Skeels, Director of the Oregon State Public Health Laboratory at the time, explained that the incident provoked such a large public health investigation because "it was the largest food-related outbreak in the U.S. in 1984".The investigation identified the bacteria responsible as *Salmonella enterica* Typhimurium and concluded that the outbreak had been due to food handlers' poor personal hygiene, as workers preparing food at the affected restaurants had fallen ill before most patrons had.

Oregon Democratic Congressman James H. Weaver continued to investigate because he felt the officials' conclusion did not adequately explain the facts. He contacted physicians at the CDC and other agencies and urged them to investigate Rajneeshpuram. According to Lewis F. Carter's *Charisma and Control in Rajneeshpuram*, "many treated his concern" as paranoid or as an example of "Rajneeshee bashing". On February 28, 1985, Weaver gave a speech on the floor of the United States House of Representatives in which he accused the Rajneeshees of sprinkling salmonella culture on salad bar ingredients in eight restaurants. As events later showed, Weaver had presented a well-reasoned, if only circumstantial, case, whose circumstantial elements were confirmed by evidence when investigators gained access to Rajneeshpuram several months later.

In the week starting Monday, September 16, 1985, Rajneesh, who had recently emerged from a four-year period of public silence and self-imposed isolation at the commune, convened press conferences where he stated that Sheela and 19 other commune leaders, including Puja, had left Rajneeshpuram over the weekend and gone to Europe. Following their departure, he said, he had

received information from residents that Sheela and her team had committed a number of serious crimes. Calling them a "gang of fascists", he said they had attempted to poison his doctor and his female companion, as well as the Jefferson County district attorney and the water system in The Dalles. He added that he believed they had poisoned a county commissioner and Judge William Hulse, that they may have been responsible for the salmonella outbreak in The Dalles, and invited state and federal law enforcement officials to come to the Ranch and investigate. His allegations were initially greeted with skepticism by outside observers.

Oregon Attorney General Dave Frohnmayer established a task force among the Wasco County Sheriff's office, the Oregon State Police, the FBI, the INS and the National Guard that set up headquarters on the Ranch to investigate the allegations. Feeling they would need greater authority to perform an effective search, and fearing that evidence might be destroyed, they obtained search warrants and subpoenas; 50 investigators entered the Ranch on October 2, 1985. Dr. Skeels found glass vials containing salmonella "bactrol disks" in the laboratory of a Rajneeshpuram medical clinic. Analysis by the CDC lab in Atlanta confirmed that the bacteria at the Rajneesh laboratory were an exact match to those that sickened individuals who had eaten at local restaurants. The investigation also revealed prior experimentation at Rajneeshpuram with poisons, chemicals and bacteria, in 1984 and 1985. Dr. Skeels described the scene at the Rajneesh laboratory as "a bacteriological freezer-dryer for large-scale production" of microbes. Investigators found a copy of *The Anarchist Cookbook*, and literature on the manufacture and usage of explosives and military biowarfare. Investigators also believed that similar attacks had previously been carried out in Salem, Portland, and other cities in Oregon. According to testimony, the plotters boasted that they had attacked a nursing home and a salad bar at the Mid-Columbia Medical Center, but no such attempts were ever proven in court. As a result of the bioterrorism investigation, law enforcement officials discovered that there had been an aborted plot by Rajneeshees to murder Charles Turner, a former United States Attorney for Oregon.

Prosecution

Rajneesh driving one of his Rolls-Royce cars in 1982. Sheela claimed to have discussed the plot with him, but this was never proven.

The mayor of Rajneeshpuram, David Berry Knapp (known as Swami Krishna Deva or KD), turned state's evidence and gave an account of his knowledge of the salmonella attack to the FBI. He claimed that Sheela said "she had talked with [Rajneesh] about the plot to decrease voter turnout in The Dalles by making people sick. Sheela said that [Rajneesh] commented that it was best not to hurt people, but if a few died not to worry." In Miller's *Germs: Biological Weapons and America's Secret War*, this statement is attributed to Sheela: According to KD's testimony, she played doubters a muffled tape of Rajneesh's voice saying that "if it was necessary to do things to preserve [his] vision, then do it," and interpreted this to mean that murder in his name was fine, telling doubters "not to worry" if a few people had to die. The investigation uncovered a September 25, 1984, invoice from the American Type Culture Collection of microbes, showing an order received by the Rajneeshpuram laboratory for *Salmonella* Typhi, the bacterium that causes the life-threatening illness typhoid fever.

According to a 1994 study published in the journal *Sociology of Religion*, "[m]ost sannyasins indicated that they believed that [Rajneesh] knew about Ma Anand Sheela's illegal activities." Frances FitzGerald writes in *Cities on a Hill* that most of Rajneesh's followers "believed [him] incapable of doing, or willing, violence against another person", and that almost all of them thought the responsibility for the criminality was Sheela's – according to FitzGerald they believed he had not known anything about it. Carus writes in *Toxic Terror* that, "There is no way to know to what extent [Rajneesh] participated in actual decision-making. His followers believed he was involved in every important decision that Sheela made, but those allegations were never proven." Rajneesh insisted that Sheela, who he said was his only source of information during his

period of isolation, used her position to impose "a fascist state" on the commune. He acknowledged that the key to her actions was his silence.
Rajneesh left Oregon by plane on October 27, 1985, and was arrested when he landed in Charlotte, North Carolina, and charged with 35 counts of deliberate violations of immigration laws. As part of a plea bargain arrangement, he pled guilty to two counts of making false statements to immigration officials. He received a ten-year suspended sentence and a fine of US$400,000, and was deported and barred from reentering the United States for a period of five years. He was never prosecuted for crimes related to the salmonella poisoning.
Sheela and Puja were arrested in West Germany on October 28, 1985.After protracted negotiations, they were extradited to the United States and arrived in Portland on February 6, 1986. They were charged with attempting to murder Rajneesh's personal physician, first-degree assault for poisoning Judge William Hulse, second-degree assault for poisoning The Dalles Commissioner Raymond Matthews, and product tampering for the poisonings in The Dalles, as well as wiretapping and immigration offenses. The U.S. Attorney's office handled the prosecution of the poisoning cases related to the 10 restaurants, and the Oregon Attorney General's office prosecuted the poisoning cases of Commissioner Matthews and Judge Hulse.
On July 22, 1986, both women entered Alford pleas for the salmonella poisoning and the other charges, and received sentences ranging from three to twenty years, to be served concurrently. Sheela received twenty years for the attempted murder of Rajneesh's physician, twenty years for first-degree assault in the poisoning of Judge Hulse, ten years for second-degree assault in the poisoning of Commissioner Matthews, four and a half years for her role in the salmonella poisoning, four and a half years for the wiretapping conspiracy, and five years' probation for immigration fraud; Puja received fifteen, fifteen, seven and a half, and four and a half years, respectively, for her role in the first four of these crimes, as well as three years' probation for the wiretapping conspiracy. Both Sheela and Puja were released early for good behavior, after serving twenty-nine months of their sentences in a minimum-security federal prison. Sheela was deported, and went on to run two nursing homes in Switzerland.

Aftermath

The Rajneeshees committed the most significant crimes of their kind in the history of the United States ... The largest single incident of fraudulent marriages, the most massive scheme of wiretapping and bugging, and the largest mass poisoning.

—Oregon Attorney General Dave Frohnmayer

The Oregonian ran a 20-part series on Rajneesh's movement, beginning in June 1985, which included an investigation into the salmonella incident. As a result of a follow-up investigation, *The Oregonian* learned that Leslie L. Zaitz, one of their investigative journalists, had been placed as number three on a top-ten hit list by Sheela's group.Then-Oregon Attorney General Dave Frohnmayer commented on the poisoning incident and other acts perpetrated by the group, stating: "The Rajneeshees committed the most significant crimes of their kind in the history of the United States ... The largest single incident of fraudulent marriages, the most massive scheme of wiretapping and bugging, and the largest mass poisoning." Looking back on the incident, Skeels stated, "We lost our innocence over this ... We really learned to be more suspicious ... The first significant biological attack on a U.S. community was not carried out by foreign terrorists smuggled into New York, but by legal residents of a U.S. community. The next time it happens it could be with more lethal agents ... We in public health are really not ready to deal with that."
Milton Leitenberg noted in the 2005 work *Assessing the Biological Weapons and Bioterrorism Threat*, "there is apparently no other 'terrorist' group that is known to have successfully cultured any pathogen." Federal and state investigators requested that details of the incident not be published in the *Journal of the American Medical Association* (JAMA) for 12 years, for they feared a description of the events could spark copycat crimes, and *JAMA* complied. No repeat attacks or hoaxes subsequently occurred, and a detailed account of the incident and investigation was published in *JAMA* in 1997. A 1999 empirical analysis in the journal *Emerging Infectious Diseases* published by the CDC described six motivational factors associated with bioterrorism, including: charismatic leadership, no outside constituency, apocalyptic ideology, loner or splinter group, sense of paranoia and grandiosity, and defensive aggression. According to the article, the "Rajneesh Cult" satisfied all motivational factors except for an "apocalyptic ideology". An analysis in the book *Cults,*

Religion and Violence disputes the link to charismatic leadership, pointing out that in this and other cases, it was organizational lieutenants who played a pivotal role in the initiation of violence. Arguing for a contextual rather than decisive view of charisma, the authors state that the attribution of outcomes to the personality of a single individual, even a charismatic leader, usually camouflages a far more complex field of social relationships.

A plaque at the Antelope post office commemorates local resistance to the "Rajneesh invasion".

The media revisited the incident during the 2001 anthrax attacks in the United Statesl The 2001 publication of Judith Miller's *Germs: Biological Weapons and America's Secret War*, which contained an analysis and detailed description of the events, also brought discussion of the incident back into the newsl Residents of The Dalles commented that they have an understanding of how bioterrorism can occur in the United States. The incident had spread fear in the community, and drained the local economyl. All but one of the restaurants affected went out of business. In 2005, the Oregon State Land Board agreed to sell 480 acres (1.9 km²) of Wasco County, including Rajneeshpuram, to the Colorado-based youth ministry Young Life. On February 18, 2005, Court TV aired an episode of *Forensic Files* about the incident, entitled: '"Bio-Attack' – Oregon Cult Poisonings".The salmonellosis outbreak was also discussed in the media within the context of the 2006 North American E. coli outbreakl
The book *Emerging Infectious Diseases: Trends and Issues* cites the 1984 Rajneeshee bioterror attack, along with the *Aum Shinrikyo* group's attempts to use anthrax and other agents, as exceptions to the belief "that only foreign-state supported groups have the resources to execute a credible bioterrorism event". According to *Deadly Cultures: Biological Weapons Since 1945*, these are the only two confirmed uses of biological weapons for terrorist purposes to harm humans. The incident was the single largest bioterrorist attack in United States history. In the chapter titled: "Influencing An Election: America's First Modern Bioterrorist Attack" in his 2006 book *Terrorism on American Soil: A Concise History of Plots and Perpetrators from the Famous to the Forgotten*, author Joseph T. McCann concludes: "In every respect, the salmonella poisoning carried out by the cult members was a major bioterrorist attack that fortunately failed to achieve its ultimate goal and resulted in no fatalities."

Targets for Terrorism: Food and Agriculture

Source: http://www.cfr.org/homeland-security/targets-terrorism-food-agriculture/p10197

Is America's food supply safe from terrorist attacks?

No. The United States spends more than $1 billion every year to keep America's food supply safe, but even without terrorism, food-borne diseases cause about 5,000 deaths and 325,000 hospitalizations each year, according to the Centers for Disease Control and Prevention (CDC). Former Secretary of Health and Human Services Tommy Thompson told a congressional terrorism panel in November 2001 that he was "particularly concerned" about food-related terrorism, which could involve either attempts to introduce poisons into the food supply or attacks that would ruin domestically cultivated crops or livestock.

Have there been past terrorist attacks in the United States involving food?

Yes. In 1984, members of an Oregon religious commune—followers of an Indian-born guru named Bhagwan Shree Rajneesh—tried to influence a local election by poisoning salad bars with salmonella bacteria to sicken voters. Although no one died, 751 people became ill. There have been a couple of other attempts to deliberately contaminate food with biological agents since World War II, but these have been criminal acts, not terrorism.

There have been no documented terrorist attacks on U.S. agriculture. But the number and variety of food-borne illnesses and crop and livestock diseases make it hard to distinguish terrorist attacks from natural events. It took a year for U.S. officials to conclude that the Oregon attack was deliberate.

How might terrorists attack the food supply?

The Oregon attack took place at local restaurants, near the end of the food-distribution chain, but an attack could occur at any point between farm and table. Imported food could be tainted with biological or chemical agents before entering the United States, or toxins could be introduced at a domestic food-processing plant. Crops or livestock raised on American soil could also be targeted. Experts also worry that terrorists might try to spread false rumors about unsafe foods via the mass media or the Internet.

How much damage could an attack on the U.S. food supply cause?

Some attacks could cause illnesses and deaths, depending upon how quickly the contamination was detected. But even attacks that don't directly affect human health could cause panic, undermine the economy, and even erode confidence in the U.S. government, experts say. Agriculture exports amount to about $140 billion a year, and many American jobs have at least an indirect connection to food and agriculture. A 1970s plot by Palestinian terrorists to inject mercury into Jaffa oranges reduced Israel's exports of citrus fruit to Europe by 40 percent, and a 1989 incident in which a shipment of Chilean grapes to the United States tested positive for cyanide led to international trade suspensions that cost Chile $200 million. The U.S. Department of Agriculture estimates that an attack on livestock—a successful attempt to infect American cattle with a contagious disease such as foot-and-mouth, for example—could cause between $10 billion and $30 billion in damage to the U.S. economy.

What kinds of terrorists might mount a food-related attack?

We don't know. Concerns about such attacks have grown since September 11. Some forms of attack wouldn't require a large or highly skilled organization and could come from foreign groups like Osama bin Laden's al-Qaeda network, domestic terrorists, eco-terrorists, a cult-like group such as Oregon's Rajneeshees, or an unaffiliated individual—anyone who wanted to undermine the economy and spread panic. Elsewhere, groups that have threatened agroterrorist attacks include Tamil militants in Sri Lanka and British activists opposed to chemical and biological warfare.

Who is in charge of food safety?

The two main agencies are the Food and Drug Administration (FDA), which is part of the Department of Health and Human Services, and the Food Safety and Inspection Service (FSIS), a part of the Department of Agriculture. The FSIS handles meat, poultry, and egg inspections, and the FDA inspects everything else. State and local agencies, other federal bodies, and foreign inspection services are also sometimes involved in food safety.

Many experts have long favored consolidating food-safety programs in a single agency, and calls for a consolidation have been repeated since September 11. But food manufacturers and some members of Congress have grown accustomed to the current system and oppose its overhaul.

Battelle Scientists Use Anti-Terrorism Tool To Help Poultry Industry Fight Salmonella

Source: http://www.10tv.com/content/stories/2013/10/11/columbus-batelle-scientist-salmonella-tools-to-fight-outbreak.html

At Battelle Memorial Institute, senior researcher Brian Hawkins glanced at a cartoon chicken decorating the top of a webpage, then observed, "Poultry is the riskiest food there is. There's a large number of recalls and food-borne illnesses just due to contamination of poultry every day."

All this week, that point has been driven home, as hundreds of Americans across 17 states have been sickened by chicken infected with salmonella bacteria.

Some forms of those bacteria are not killed by current antibiotics.

Meanwhile, at Battelle, scientists like Hawkins think they can help the poultry industry fight future illness outbreaks by using the same techniques they perfected for Homeland Security to fight the effects of terrorism.
Hawkins said that they used math to create a computer program for Homeland Security that analyzes risks - to explain, for instance, what happens if a terrorist puts poison in the water.

"Whether a terrorist put it there, or whether it's a problem endemic in chickens such as salmonella, how it proceeds is the same. And the things we can do to stop it, after it's been contaminated, are largely similar, " he explained. "We can't tell you that someone on the corner of Fifth and High is going to be sick, but we can give you a decent idea of where and how that might happen."
He said that the poultry industry hires experts to manage infection control, but people in the industry also know that there are many points in the process when the birds can get infected at the farm, in the processing plant, during transport, at the grocery store, and in kitchen.
There are different technologies available to chill and handle chicken, but the industry is unsure which techniques will do the best job at any given point.
"They've really got to look at cost-benefit," Hawkins said, "Because the cost of food can't increase drastically without causing economic problems, and they're very sensitive to that."
That's where the new Battelle web tool comes in. Users can input a variety of factors to help them make decisions that affect both the nation's health and their own bottom line.
"Which one of those is going to have the best impact is something they don't really know.
Our tool gives them a way to quantify that, so they can inform that decision," he said.
The researchers will present their new tool at an international poultry conference in January 2014.

The Threat of Bioterrorism and the Ability to Detect It

By Anthony Kimery
Source: http://www.hstoday.us/blogs/the-kimery-report/about-anthony-l-kimery.html

A day after Congress passed legislation to overhaul food safety laws and on the heels of the Department of Homeland Security's (DHS) disclosure that terrorism intelligence threat streams indicated Al Qaeda (AQ) has discussed an attack on US soil by contaminating "salad bars" and "buffets" with poisons, a Salmonella attack by Mother Nature sickened 89 people (23 percent of whom had to be hospitalized) in 15 states and the District of Columbia, reported the Centers for Disease Control and Prevention (CDC).
The outbreak appeared to be linked to contaminated alfalfa sprouts "at a national sandwich chain," CDC said in a statement. And it was widespread. According to CDC, 50 people were sickened in Illinois, 14 in Missouri, nine in Indiana, three in Wisconsin and two in Pennsylvania. Connecticut, Georgia, Hawaii, Iowa, Massachusetts, New York, South Dakota, Tennessee, Texas, Virginia and the District of Columbia all reported at least one confirmed case of Salmonella-induced illness linked to the reputedly contaminated alfalfa sprouts.
According to a variety of public health authorities, this and other foodborne outbreaks during the last several years "should be a wake-up call" to what could happen if terrorists were able to pull off an attack on the nation's food supplies with pathogenic bacteria like the Salmonella recently found on Alfalfa sprouts that can be found at salad bars and buffets across the nation. Even though the

sprouts are washed, CDC and other authorities said the only way the pathogenic bacteria on them can be killed is by thoroughly cooking the sprouts.

Biological weapons have been called "the poor man's atom bomb" because the capacity to produce and spread pathogens requires relatively little in the way of sophisticated technology. And as recent federal and private sector studies have concluded, surveillance, reporting and situational awareness capabilities remain deficient for both naturally occurring and terrorism-caused incidents of biological foodborne contamination.

Unintended contamination of food provides an example of the potential widespread threat that could be posed by terrorists. Eight months ago, more than 500 million eggs had to be recalled in response to a nationwide Salmonella outbreak federal authorities said they linked to two egg manufacturing plants. At least 1,300 people are believed to have been sickened by the tainted eggs between May and July, or roughly 200 a week, according to CDC. The historical average is about 50 Salmonella-related illnesses a week. The government eventually said it determined that unsanitary processing practices are believed to have been responsible for the contamination.

A year earlier, the Food and Drug Administration (FDA) ordered a recall of Salmonella contaminated peanut butter and products containing peanut butter made by a specific company. In this case, federal investigators also linked the *Salmonella Typhimurium* strain in the poisoned peanut butter to improper food processing procedures. The investigations also reportedly found recurring shoddy inspection practices.

What was particularly alarming was that "this [was an ingredient-driven outbreak; that is, potentially contaminated ingredients affected many different products that were distributed through various channels and consumed in various settings," FDA said.

Moreover, in each of these outbreaks, the actual number of people who were sickened is probably much higher. CDC's Dr. Christopher Braden, a medical epidemiologist who currently serves as Acting Director, Division of Foodborne, Waterborne and Environmental Diseases, explained that only about one in 30 cases of Salmonella-induced illness during an outbreak is reported to health officials.

CDC considers Salmonella to be a "Category B" pathogen because it's moderately easy to disseminate.

Deliberate contamination has precedents

In 1984, followers of the bizarre religious cult, Bhagwan Shree Rajneesh, contaminated local salad bars in Dalles, Oregon with *Salmonella Typhimurium* in an attempt to incapacitate so many voting residents of Wasco County that the cult's own candidates would win the county elections. The attack sickened 751 people and required 45 to be hospitalized.

In 1996, a disgruntled laboratory worker deliberately infected food to be consumed by co-workers with *Shigella Dysenteria* Type 2, causing 12 people to be sickened, four of whom had to be hospitalized and five sent to emergency rooms.

In May 2003, a supermarket employee pleaded guilty to intentionally poisoning 200 pounds of ground beef with an insecticide containing nicotine. Although the tainted meat was sold in only one store, more than 100 people, including about 40 children, were sickened.

About 40,000 cases of Salmonella poisoning are reported every year in the US, CDC said. Counterterrorism officials told *HSToday.us* that that number undoubtedly would be "much, much higher" as the result of a terrorist attack, and that it would take "precious time" before public health authorities realized that the escalating number of sickened persons were actually victims of a biological attack.

In the case of a Salmonella terrorist attack, the young, elderly and persons with weakened immune systems would be most at risk, CDC said.

According to CDC, there are an estimated 76 million illnesses, 325,000 hospitalizations and 5,000 deaths annually from food that has been inadvertently contaminated by pathogens - at a cost of somewhere around $35 billion. Based on current population data, this roughly translates to an estimate that, each year, one out of every four Americans will develop a foodborne illness.

According to a report by CDC researchers in *Morbidity and Mortality Weekly Report*, the leading causes of foodborne disease outbreaks in 2007 were due to Norovirus and Salmonella contamination of mostly poultry, beef and leafy greens. But surveillance data also indicated that no

cause was ever determined for about one-third of foodborne disease outbreaks in nearly a quarter of victims.
Counterterror authorities said this data illustrates the difficulty officials will have in quickly determining that an outbreak is the result of an attack and just how widespread the attack is when so many people who get sick from contaminated food either do not see their doctor or go to a hospital.

Terror bio-attack is real

DHS has stated that "the prospect of a mass-scale food contamination event is of particular concern because the nation is subject to major unintentional foodborne illness outbreaks. Experts reason that … an individual or individuals with malevolent aims could reproduce these outbreaks with more dire consequences."
"Now, can you imagine what a well-coordinated terrorist attack could do if they're using a really nasty pathogen?" asked a veteran counterterrorism official who has been dealing with the threat of a biological terrorist attack.
The October 2003 Department of Health and Human Services (HHS) and FDA report, *Risk Assessment for Food Terrorism and Other Food Safety Concerns*, noted that just "major outbreaks of foodborne illness occur all too frequently," and sometimes affect hundreds of thousands of people.
"Among the largest reported outbreaks caused by unintentional biological contamination," the report stated, "was an outbreak of *Salmonella Typhimurium* infection that sickened approximately 170,000 people in 1985 and was linked to post-pasteurization contamination of milk from a US dairy plant. An outbreak of hepatitis A caused by tainted clams affected nearly 300,000 people in China in 1991 and may be the largest foodborne disease incident in history."
Then, "in 1994, an outbreak of *Salmonella Enteritidis* infection linked to a contaminated ice cream pre-mix sickened an estimated 224,000 people in 41 states in the US," and "in 1996, about 8,000 children in Japan became ill, and some died, after eating *E. coli* 0157:H7-tainted radish sprouts served in school lunches."
"In today's global marketplace, the contamination of food in one country can have a significant effect on public health in other parts of the world," the joint HHS-FDA report emphasized, noting that "in 1989, approximately 25,000 people in 30 states in the US were sickened by *Salmonella Chester* in cantaloupes imported from Mexico."
And, "in 1996 and 1997, 2,500 people in 21 states in the US and two Canadian provinces developed Cyclospora infections after eating tainted Guatemalan raspberries."
"If an unintentional contamination of one food, such as clams, can affect 300,000 individuals, a concerted, deliberate attack on food could be devastating, especially if a more dangerous chemical, biological or radionuclear agent were used," the HHS-FDA report concluded, adding, "it would be reasonable to assume that a terrorist using the food supply as a vehicle for attack would use an agent that would maximize the number of deaths associated with the contamination," and that "many of these agents are the same pathogens that have been linked to significant outbreaks of foodborne illness due to unintentional contamination."
A top government public health official told *HSToday.us* on background because of the politically sensitive nature of his position that while "most foodborne pathogens cause relatively mild self-limited illnesses, [they] certainly could cause nationwide distress. The ones which would have a greater potential for more serious life-threatening illnesses would include *E. coli* O157 and Botulism. The later is especially of great concern due to the fact that very miniscule amounts of the toxin are needed to contaminate food to cause the paralytic disease, and you don't need viable replicating organisms - only the pre-formed toxin. The incubation period for both would be very short, within 24 hours or so depending on dosage."
In 2000, the World Health Organization (WHO) adopted a resolution stating it was "[d]eeply concerned that foodborne illness associated with microbial pathogens, biotoxins and chemical contaminants in food represent a serious threat to the health of millions of people in the world."
The recent scare that Al Qaeda or one of its affiliated movements (AQAM) might try to carry out a biological attack in the US was brought to light by a DHS intelligence alert distributed to selected hotel and restaurant executives. Officials said the alert was in response to a "credible" threat. But this is isn't a new AQ threat, veteran WMD counterterrorism intelligence officials stressed.
The officials told *HSToday.us* that they've been aware "for some time" of AQ's desire to contaminate fresh foods in the United States, especially with highly pathogenic bacteria cultured in large batches that, for example, could be put in syringes that could then be used to spray the potentially deadly pathogens on fresh food like produce and vegetables.

The officials said intelligence indicated AQ has considered deploying cadres of Americans who'd been recruited and converted into jihadists who could get jobs in fresh food production, distribution and transportation. Through their access to large bulk packaging, distribution and transportation inside the nation's massive food processing system, they might be able to contaminate large amounts of fresh food shipments.

Former Director of National Intelligence Michael McConnell said "one of our greatest concerns continues to be that a terrorist group or some other dangerous group might acquire and employ biological agents … to create casualties greater than September 11."

In his 2004 resignation speech, former HHS Secretary Tommy Thompson declared: "I, for the life of me, cannot understand why the terrorists have not … attacked our food supply because it is so easy to do."

Homeland Security Today earlier reported (see *The WMD Connection* in January 2010) that counterterrorism authorities have long been concerned that AQ is much more likely to attempt to carry out a mass casualty attack using biological agents rather than lethal chemicals or radiological or nuclear weapons.

Pathogenic bacteria are bacteria that cause bacterial infection like tuberculosis, which is caused by the bacterium *Mycobacterium Tuberculosis*, which kills roughly two million people a year.

Other pathogenic bacteria include those that cause foodborne illnesses like Salmonella. Pathogenic bacteria also are responsible for tetanus, typhoid fever, diphtheria, syphilis and leprosy.

But are mass casualties likely?

But not all of these pathogenic bacteria could successfully be used to contaminate food and produce mass illnesses, authorities pointed out. But some could, and that's what worries homeland security officials.

Some of these officials said in the wake of the disclosure of the DHS alert that the tactic of contaminating food with biological agents is beyond the capabilities of Al Qaeda.

DHS spokesman Sean Smith said in a prepared statement that "we get reports about the different kinds of attacks terrorists would like to carry out that frequently are beyond their assessed capability," noting, however, that Al Qaeda "has publicly stated its intention to try to carry out unconventional attacks for well over a decade."

In his March 3, 2009 S. Rajaratnam School of International Studies paper, *Food Terrorism: How Real? A Historical Survey Since 1950*, Gregory Dalziel stated that "there is very little clear evidence of actual intent from terrorist groups to attack the food supply chain in order to produce mass casualties, whether with CBRN materials or otherwise."

Earlier, the Congressional Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism's final report, *World at Risk*, concluded that "because of the difficulty of weaponizing and disseminating significant quantities of a biological agent in aerosol form, government officials and private sector experts believe that no terrorist group currently has an operational capability to carry out a mass casualty [biological] attack."

"But they could develop that capability quickly," the report added, noting that "in 2006 congressional testimony, Charles Allen, Under Secretary for Intelligence and Analysis at the Department of Homeland Security, noted that the threat of bioterrorism could increase rapidly if a terrorist group were able to recruit technical experts who had experience in a national biological warfare program, with knowledge comparable to that of the perpetrator of the 2001 anthrax letter attacks. In other words, given the high level of know-how needed to use disease as a weapon to cause mass casualties, the United States should be less concerned that terrorists will become biologists and far more concerned that biologists will become terrorists."

Continuing, the panel's report stated that "the last point bears repeating. We accept the validity of intelligence estimates about the current rudimentary nature of terrorist capabilities in the area of biological weapons but caution that the terrorists are trying to upgrade their capabilities and could do so by recruiting skilled scientists. In this respect the biological threat is greater than the nuclear; the acquisition of deadly pathogens, and their weaponization and dissemination in aerosol form, would entail fewer technical hurdles than the theft or production of weapons-grade uranium or plutonium and its assembly into an improvised nuclear device."

But, the Commission ultimately concluded, "the difficulty of quantifying the bioterrorism threat to the United States does not make that threat any less real or compelling. It involves both motivation and capability, and the first ingredient is clearly present. Al Qaeda had an active biological weapons program in the past, and it is unlikely that the group has lost interest in employing infectious disease as a weapon.

That roughly a half-dozen countries are suspected to possess or to be seeking biological weapons also provides ample grounds for concern."

Some WMD counterterrorism authorities and other officials disagreed, saying post-9/11 intelligence has continued to indicate that Al Qaeda remains interested in carrying out biological attacks. The concerns have been serious enough that beginning in May 2005, the Heart of America Joint Terrorism Task Force (HOA-JTTF), in conjunction with the Kansas City Division of the FBI and the greater Kansas City metro area police, convened the International Symposium on Agroterrorism to bring together experts and officials from around the world to discuss this threat.

There have been three symposiums since then that have been attended by thousands of authorities and government officials from dozens of countries to brainstorm how to protect and monitor the global food supply from terrorism. The 4th symposium will again be held in Kansas City next April 26-28.

"It would be foolish to think that Al Qaeda doesn't have the resources and skill sets to develop pathogenic bacteria" that it could use to contaminate food stuffs, an official told *HSToday.us*.

"What they lack," said another official, "are the jihadists in the right positions necessary to carry out a large-scale attack" that would result in mass casualties. "That's their [AQ] problem."

All of the officials though stressed that Al Qaeda today "is thinking out of the box – things that a lot of people probably would consider to be science fiction," as one said.

Continuing, the official emphasized that Al Qaeda "represents a determined Islamist jihad-inspired religious mindset that's thinking in terms of fighting infidels – us – using wide-ranging asymmetrical attack methodologies. Before 9/11, how many would have believed that terrorists could – or would - fly planes into the World Trade Center buildings … or the Pentagon … or that someone could send anthrax spores through the mail … or that some terrorist would be such a true believer that he'd stuff a bomb up his ass or in his underwear?"

The official stressed that "these are religious inspired terrorists who believe that killing themselves to kill infidels will send them to be with Allah; they really believe that jihad is the one sure fire way to get to heaven. We're facing a motivated enemy that is thinking so far out of the box that's sometimes even I find what they're thinking about doing is ridiculous. But it isn't! And that's the reality!"

The HHS-FDA study stated that "the threat to the US food supply is more than theoretical," explaining that "when US troops entered the caves and safe houses of members of the Al Qaeda terrorist network in Afghanistan in the months following the September 11th attacks, they found hundreds of pages of US agricultural documents that had been translated into Arabic."

"A significant part of the group's training manual is reportedly devoted to agricultural terrorism - specifically, the destruction of crops, livestock and food processing operations," the study noted. Moreover, recent threats of food sabotage from known terrorist groups have been reported. Specifically, the Central Intelligence Agency stated in January 2003 that it was investigating whether one of Al Qaeda's leading experts on chemical and biological warfare was involved in a plot to poison food intended for British troops. The investigation stemmed from the discovery of ricin in a London apartment linked to suspected militants, one of whom worked for a catering company. The suspects were believed to have been in contact with people who worked on at least one British military base."

Then, "in early September 2003," the HHS-FDA report pointed out, the Federal Bureau of Investigation issued a bulletin warning that terrorists might use two naturally occurring toxins, nicotine and solanine, to poison US food or water supplies. The FBI noted that terrorist manuals and documents recovered in Afghanistan refer to the use of these substances as poisons.

Citing the supermarket employee that deliberately contaminated ground beef with an insecticide containing nicotine, FBI officials advised: "Such lone offenders, whether Al Qaeda [sic] sympathizers or domestic criminals, are a concern to FBI because they are so difficult to detect."

And "the US is not alone in its concern about a food terrorist event. The WHO Secretariat noted [in 2002] that several countries have reported heightened states of alert for a biological or chemical attack on air, water, or food," the study said, stressing that "the events of September 11, 2001, and evidence from Al Qaeda validate concerns about threat of terrorism against the United States."

The economic threat

Retired Air Force Col. Randall Larsen, who served as executive director of the Congressional Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism, told *HSToday.us* that while the nation's food supply system is certainly vulnerable to a terrorist attack "at many points … I'm not convinced that an attack on the food supply could ever reach the level of being a mass destruction attack."

The first witnesses to testify before the National Commission on Terrorist Attacks Upon the United States (known as the 9/11 Commission), Larsen continued: "Yeah, you could do that, but you could easier also probably kill just as many with a bomb at the food court of a shopping mall."

Director of The Institute for Homeland Security and the National Security Advisor to the Center for Biosecurity at the University of Pittsburgh Medical Center, Larsen said "I believe there's a small likelihood of a mass destruction" attack on the food supply.

Larsen explained that while there are indeed "choke points" for the production of specific food products that potentially could be targeted, he said the food production and processing industry is very cognizant of internal security because of the potential threats they face every day from disgruntled and sloppy employees and "mother nature."

An attack or attacks could cause "mass disruption" and pockets of illnesses, Larsen said, but the larger impact would be economic, noting that "one in seven people work in the food industry in production, processing and retail sales."

Larsen pointed out that a sophisticated attack on our meat supply using Hoof and Mouth disease "would require the destruction of 50 million cloven-hoofed animals to get the disease under control and to control the economic impact."

"I worry more about the economic impact than I do a mass casualty impact," Larsen said.

Indeed. The HHS-FDA report stated that the "deliberate or accidental contamination of food [could] have enormous economic implications in the US, where one out of every eight Americans is estimated to work in an occupation directly linked to food production."

The study said "food terrorists may have economic disruption as their primary motive."

"At least three types of economic effects may be generated by an act of food terrorism," the study concluded. These could be from "direct economic losses attributable to the costs of responding to the act; indirect multiplier effects from compensation paid to affected producers and the losses suffered by affiliated industries, such as suppliers, transporters, distributors and restaurant chains; and international costs in the form of trade embargoes imposed by trading partners."

"Though the costs associated with the food sabotage … are unavailable," the study said, "reports from unintentional contamination incidents demonstrate the tremendous costs of responding to such events. In 1998, a company in the US recalled nearly 16,000 metric tons of frankfurters and luncheon meats potentially contaminated with Listeria monocytogenes, at a total cost of $50 million to $70 million. The company reported spending more than $100 million in the following two years to improve food safety and convince consumers that its products were safe."

"Indirect costs," HHS and FDA concluded, "can be staggering as well. The US Department of Agriculture estimates that foodborne illnesses linked to five pathogens costs the economy $6.9 billion annually," noting that "the outbreak from Salmonella-contaminated ice cream was estimated to have cost the US economy about $18.1 million in medical care and time lost from work."

"Agriculture and the general food industry remain absolutely critical to the social, economic and, arguably, political stability of the US, indirectly constituting roughly two percent of the country's overall domestic gross domestic product (GDP)," stated RAND Corp. policy analyst Peter Chalk during a Senate Subcommittee on Oversight of Government Management, Restructuring and the District of Columbia, in October 2001.

Reiterating that "one in eight people work in some component of agriculture – more if food production is included," this makes "the industry one of the US' largest employers. Cattle and dairy farmers alone earn between $50 and $54 billion a year through meat and milk sales, while roughly $50 billion is raised every year through agricultural exports. The share of produce sold overseas is more than double that of other US industries, which gives agriculture major importance in terms of the American balance of trade."

Chalk told the subcommittee that "these figures represent only a fraction of the total value of agriculture to the country, as they do not take into account allied services and industries such as suppliers, transporters, distributors and restaurant chains." He noted that "the downstream effect of

any deliberate act of sabotage/destruction to this highly valuable industry would be enormous; creating a tidal wave effect that would be felt by all these sectors, impacting, ultimately, on the ordinary citizen him/herself."
"Unfortunately," Chalk warned lawmakers, "the agricultural and food industries remain highly vulnerable to deliberate (and accidental) disruption."
But, Chalk said although "over the [previous] decade many states, particularly in North America and Western Europe, have made substantial investments in improving their ability to detect, prevent and respond to terrorist threats and incidents [that] has fed into an increasingly well-protected public infrastructure throughout much of the developed world where, at a minimum, effectively developed vulnerability-threat analyses have been used to maximize both anti-terrorist contingencies and consequence management modalities … Agriculture [nevertheless] is one area that has received very little attention in this regard."
"In terms of accurate threat assessments, response structures and preparedness initiatives," Chalk said, "the sector continues to exist as a glaring exception to the wide-ranging emphasis that has been given to critical infrastructure protection in this country."
And still does, authorities told *HSToday.us*.

The ability to monitor and detect

The recent alarm over terrorist "chatter" about possible bioterror attacks on the nation's food supply comes at a time when there are growing worries about the ability of the country's medical community to be able to monitor and quickly detect a foodborne bio-attack.
CDC has stated that "disease reporting is likely incomplete, and completeness might vary depending on the disease and reporting state. The degree of completeness of data reporting might be influenced by the diagnostic facilities available; control measures in effect; public awareness of a specific disease; and the resources, and priorities of state and local officials responsible for disease control and public health surveillance. Finally, factors such as changes in methods for public health surveillance, introduction of new diagnostic tests, or discovery of new disease entities can cause changes in disease reporting that are independent of the true incidence of disease."
More recently, the Government Accountability Office (GAO) reported HHS has failed to "develop and deliver to congressional committees a strategic plan that demonstrated the steps to be taken toward the establishment and evaluation of an electronic public health situational awareness network, as required by" the Pandemic and All-Hazards Preparedness Act (PAHPA) of 2006."
The Act "mandated actions" by the HHS secretary "for efficient sharing of real-time information to help prevent potentially devastating consequences that could result from public health emergencies."
PAHPA directed use of information technology to collect and share real-time information electronically among public health entities to aid in creating the situational awareness needed to enable early detection of and effective response to emerging events.
But "while multiple offices within HHS have developed related strategies that could contribute to a comprehensive strategic plan for an electronic public health information network to enhance situational awareness, these strategies were not developed for this purpose," GAO reported. "Instead, the offices developed the strategies to address their specific goals, objectives, and priorities and to meet requirements of executive and statutory authorities that mandated the development of strategies for nationwide health information exchange, coordinated biosurveillance, and health security."
Continuing, GAO stated that "HHS has not defined a comprehensive strategic plan that identifies goals, objectives, activities, and priorities and that integrates related strategies to achieve the unified electronic nationwide situational awareness capability required by PAHPA. The department has developed and implemented information technology systems intended to enable electronic information sharing to support early detection of and response to public health emergencies; however, these systems were not developed as part of a comprehensive, coordinated strategic plan as required by PAHPA. Instead, they were developed to support ongoing public health activities over the past decade, such as disease and syndromic surveillance."
Consequently, GAO concluded, "without the guidance and direction that would be provided by an overall strategic plan that defines requirements for establishing and evaluating the capabilities of existing and planned information systems, HHS cannot be assured that its resources are being

effectively used to develop and implement systems that are able to collect, analyze, and share the information needed to fulfill requirements for an electronic nationwide public health situational awareness capability."

One senior state public preparedness official told *HSToday.us* that "I scanned the GAO report and discussed it with my in-house colleagues. The premise [of the PAHPA-mandated plan] makes good sense, but from an operational standpoint I see very little in the way of effective, manageable, timely, intelligently linked, workable communication protocols. I would guess it comes under the heading of 'devoutly to be wished.'"

Continuing, the official said "I believe that the sheer weight and complexity of our multilevel local state and federal bureaucracies dooms such a program. What we have done [in my state] is to identify a small network of individuals who are linked to other small networks who in turn are linked to others, etc, and share local and regional data as it affects our jurisdictions. We have done this because our view of the Feds is colored by their lamentable foot dragging when it comes to immediate and intelligent response to rapidly changing events."

The Washington, DC-based Trust for America's Health (TFAH) stated in its recently released eighth annual *Ready or Not? Protecting the Public from Diseases, Disasters, and Bioterrorism* report that seven states cannot currently share data electronically with health care providers and that ten states do not have an electronic syndromic surveillance system that can report and exchange information to rapidly detect disease outbreaks.

The report also looked at findings from a recently released report from CDC based on activities in 2007-08 that focus on emergency operations and food outbreak identification. Among the findings: 21 states were not able to rapidly identify disease-causing *E. coli* O157:H7 and submit the lab results in 90 percent of cases within four days.

According to the report, while states have made progress, there are still major ongoing gaps in preparedness, including biosurveillance and maintaining an adequate and expertly trained workforce.

TFAH concluded that "the United States lacks an integrated, national approach to biosurveillance, and there are major variations in how quickly states collect and report data which hamper bioterrorism and disease outbreak response capabilities."

Fears were further stoked in December when North Texas Rep. Dr. Michael Burgess (the top Republican on the House Subcommittee on Oversight and Investigations and a member of the Committee on Health Care, Energy and Environment and chairman of Congressional Health Care Caucus) expressed consternation over the failure of CDC and DHS to prevent three people known to have an infectious disease from boarding flights this year.

According to Burgess, who spoke to *HSToday.us*, three out of nine people with an infectious disease who were supposed to be on the "Do Not Board" list were able to get on their flights – one in January and the other two in March.

DHS and CDC established the "Do Not Board" list in June 2007 after an Atlanta man known by CDC to have a drug-resistant strain of tuberculosis managed to fly in and out of the United States despite reportedly having been told by federal authorities not to fly and to get medical attention.

According to CDC, 32 people currently are on the "Do Not Board" list because they have tuberculosis. Several have hard to treat drug-resistant strains.

Burgess said he's asked DHS and CDC why the three people were allowed to fly when they were supposed to have been on the "Do Not Board" list.

"This issue is clearly a problem that only affects a small number of people [those who are infected], but which has the potential to affect many people if they're allowed fly," Burgess said.

"I want to know why they aren't able to administer this" list, Burgess said, adding, "there appear to be weak spots in the system."

In one case, TSA said the airline didn't know that a passenger's name had been put on the "Do Not Board" list because at the time the airline was only required to check the list every 24 hours. The person's name was put on the list at 9:38 PM, and the passenger checked in at 11:53 AM the following day. The other two infected persons on the "Do Not Board" list weren't caught for other reasons TSA would not explain.

As of last month, TSA became the authority responsible for cross-checking passengers on all flights against the variety of watch lists that the airlines previously were responsible for checking. The TSA program is called Secure Flight, and is supposed to fix the problem some airlines had in updating and checking the lists.

Burgess, however, said he has asked DHS to prove to him that the new system will work as intended. But he also still wants to know why three persons with a highly infectious disease were able to board passenger planes given that the technology was in place to ensure that the airlines knew that these individuals were not to be allowed to board.
"That's what you would think," Burgess said. "We have this enormous apparatus in place, so this shouldn't have been very hard to do."
Some authorities also wonder whether terrorists known to have an infectious disease who are covertly being monitored by the Intelligence Community will be put on the "Do Not Board" list. Not all suspected and known terrorists are put on the "No Fly" list because intelligence authorities want to be able to track their comings and goings.
National Counterterrorism Center (NCTC) Director Michael Leiter, a veteran intelligence practitioner, disclosed during the public portion of a January 20, 2010 Senate Committee on Homeland Security and Governmental Affairs hearing that some terrorists on terrorist watch lists are sometimes secretly allowed into the country for clandestine counterterrorism intelligence collection purposes.
Leiter told the Committee "that when people come to the country and they are on the watch list, it is because we have generally made the choice that we want them here in the country for some reason or another."
Leiter didn't go into further detail during the public portion of the hearing, but veteran counterterrorists explained in interviews with *HSToday.us* at the time that there are individuals in terrorism databases and suspected and known terrorists who've necessarily been left off the "No Fly" list and allowed into the country so that counterterrorism agents can gather vital intelligence on them, their movements, activities and associations.
Public health authorities expressed their concern that this could be "a loophole" that could allow a terrorist or terrorists "deliberately infected" with a highly contagious pathogen to enter the country. *HSToday.us* reported in 2005 that intelligence indicated Al Qaeda had discussed infecting "bio-martyrs" with pandemic influenza.

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Salmonella and Hepatitis Outbreaks Start Up as Government Shuts Down

Source: https://truth-out.org/news/item/19375-salmonella-and-hepatitis-outbreaks-start-up-as-government-shuts-down

Food-borne pathogens are not cooperating with the Republican shutdown of the US government.
In fact, they are busy sickening and killing Americans in more than 18 states, while the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) are

scrambling to recall furloughed employees to deal with a dangerous food-borne salmonella outbreak and a lethal Hepatitis outbreak in Hawaii.

The dual outbreaks have been linked to contaminated Foster Farms chicken products and the Dallas-based USPLabs LLC dietary supplement, OxyElite Pro. The outbreaks have sickened more than 300 people so far, killed one and hospitalized 87, with reports of antibiotic resistance for the precipitating strain of salmonella Heidelberg. No recall is currently in effect for Foster Farms chicken, but USPLabs LLC has ceased distributing the supplement until the FDA investigation is complete.

US Department of Agriculture's (USDA) Food Safety Inspection Service (FSIS) inspectors have not been affected by the ongoing government shutdown as many meat and poultry facilities cannot legally operate without a USDA inspector on site. But more than 45 percent of all FDA employees have been furloughed, leaving daily operations

such as crucial inspections of food imports on hiatus until the government reopens.

The CDC, which functions as the detective agency for the FDA and FSIS, was down to a skeleton crew of just 10 employees in its food-borne illness division when the latest outbreaks occurred.

Since the government shutdown began 11 days ago, these 10 employees have been struggling to maintain the constant updates required by the CDC's nationwide PulseNet database for tracking food-borne pathogens and outbreaks. All federal and state agencies across the United States rely on this database for their work on food safety.

The US Food Safety Modus Operandi

There are three US government agencies charged with keeping our food safe through inspection and prevention programs. The FDA is the main agency conducting inspections, followed by the FSIS meat inspection program under the USDA, and the CDC in its capacity as epidemiological detective agency.

The food-borne illness divisions of all three agencies are underfunded and understaffed even during times when the government is fully operational. Many food safety experts believe a chronic lack of funding is putting Americans at risk on a daily basis, to which 3,000 deaths, 128,000 hospitalizations and over 48 million reported annual instances of food-borne illness bear witness. The federal shutdown has pushed the FSIS, FDA and CDC into crisis, endangering Americans in all 50 states.

In addition to the dangerous underfunding at the FDA, privatized meat inspection programs have slashed the number of USDA inspectors at pilot plants around the nation. This larger trend of chronic underfunding and privatization reveal a systemic negligence that had contributed to making food safety a low priority even before the government shutdown.

The entire multi-agency US food safety program currently operates on a reactive model, in which after-the-fact recalls and outbreak containment have replaced prevention and aggressive inspections. For example, only 6 percent of domestic food producers and 0.4 percent of food importers were inspected in 2011, a typical year.
With a federal shutdown, we are seeing the catastrophic effects of this reactive model and its cost in damaged and lost lives. The current crisis demands a clear understanding of how food safety has been compromised and the implementation of smart solutions, many of which are already on the table.

How Did We Get Here?
In January of 2007, the Government Accountability Office (GAO) identified federal oversight of food safety as a "high-risk" area that needs further action and attention, stating that "the patchwork nature of the federal oversight of food safety calls into question whether the government can plan more strategically to inspect food production processes, identify and react more quickly to any outbreaks of contaminated food, and focus on achieving results to promote the safety and integrity of the nation's food supply."
The report identified several problems that weaken oversight of the US food safety system, including spending resources on overlapping food safety activities, where jurisdiction between the FDA and the USDA is not clearly defined; limited authority to compel companies to carry out recalls; fiscal challenges including budget cuts; and vulnerability to biological terrorism. Overall the GAO called the US food system fragmented:
This federal regulatory system for food safety evolved piecemeal, typically in response to particular health threats or economic crises. During the past 30 years, [the GAO has] detailed problems with the fragmented federal food safety system and reported that the system has caused inconsistent oversight, ineffective coordination, and inefficient use of resources. [The GAO's] most recent work demonstrates that these challenges persist.
In 2007, another report was released, authored by academics, industry experts and other government agencies, finding the FDA was so underfunded and understaffed, it is putting consumers at risk. The report concluded that a plethora of problems plagued the food safety system, including inadequate inspections of food manufacturers, a broken food import system, a depleted FDA staff with added responsibilities, and other wide-ranging problems.
While some of the problems identified in the 2007 GAO report, such as oversight authority issues, will theoretically be mitigated with the full implementation of the Food Safety Modernization Act (FSMA), which became law in 2011, the food safety system remains on the GAO's list of "high risk" areas in 2013. The GAO could not be contacted for this story due to the ongoing government shutdown.
A history of underfunding stretches back through both the Clinton and George W. Bush administrations, especially the latter, which gutted much of the FDA inspection regime and cut its budget. More recently, the federal government under the Obama administration instituted a new statistical method for calculating food-borne deaths and illnesses that may understate the problem.
Additionally, a legacy of privatization during the Clinton and Bush administrations helped weaken USDA inspection in meat plants by experimenting with pilot programs such as the Hazard Analysis and Critical Control Point-Based Inspection Models Project - or HIMP - which has been in place in some meat plants since the late 1990s.
The USDA recently announced plans to expand the HIMP pilot program, which would replace almost half the USDA inspectors in industrial meat plants with inspectors employed by those very same companies.
The USDA has allowed HIMP and similar privatized, experimental meat inspection programs to be used in meat plants in foreign countries, including Australia, Canada and New Zealand, whose products are for export to the United States. Pilot plants using the HIMP model in the United States, as well as meat plants using similar privatized inspection in foreign countries, have been plagued by an epidemic of contamination-related problems within the past two years.
The CDC has confirmed that outbreaks linked to imported food have been on the rise since the 1990s. With nearly half of FDA staff furloughed, about 91 percent of all imported seafood, nearly 50 percent of imported fruits and 20 percent of imported vegetables are going uninspected.
Many inspections in the United States are still being carried out through state and local agencies, but reporting any problems encountered at the federal level will prove challenging as the shutdown persists.

Responding to the Outbreaks

Affected food safety agencies are struggling to deal with the current outbreaks and other vital tasks amid the shutdown.

Wired magazine confirmed with the CDC before the government shutdown that the agency would not be able to track microbes that signal multistate outbreaks of food-borne illnesses.

"I know that we will not be conducting multistate outbreak investigations. States may continue to find outbreaks, but we won't be doing the cross-state consultation and laboratory work to link outbreaks that might cross state borders," a CDC staffer told Wired.

Since the agency brought back 30 furloughed staffers in its food-borne illness division, the agency has identified seven strains of salmonella related to the outbreak, with some of those strains exhibiting resistance to antibiotics, a CDC spokesperson told Truthout. The skeleton crew at the CDC is entering health information from those already sickened into their databases in an ongoing investigation.

"Different strains have different resistance profiles for different drugs. It's concerning, and it could be contributing to what we know at this point in the investigation is an increased rate of hospitalization as compared to what you would expect in a salmonella Heidelberg outbreak," CDC spokesperson Barbara Reynolds told Truthout.

According to Reynolds, the USDA has taken some steps relating to Foster Farms, but she was unaware of exactly what those steps were. The USDA could not be contacted for this story due to the government shutdown.

The agency is having trouble updating its nationwide PulseNet database for tracking food-borne pathogens and outbreaks. Rather than working through the centralized database, workers are being forced to contact health departments through email and by telephone to exchange information.

The FSIS originally alerted the CDC to the outbreak on Monday after issuing a safety alert. The CDC has now recalled 30 furloughed food-borne illness staffers shortly thereafter, but the FSIS has not been able to link the sicknesses to a specific production period or product, Instead, they reported that the troubled Foster Farms meat would have one of the following numbers on its packaging: P6137, P6137A or P7632.

California-based Foster Farms published a press release Monday warning consumers to cook their meat to an internal temperature of 165 degrees Fahrenheit and stating that they have not recalled their contaminated poultry products.

The Way Forward, Improving Food Safety

In the immediate short term, improvements in food safety must focus on regulation of the current internationalized agribusiness production system. Over a longer period, public support for existing policies that foster the growth of America's small farmers and make agriculture more local and more organic is essential. In addition, a small but growing percentage of America's food supply can be slowly diversified at the grassroots level over the next decade with incentives for families and neighborhoods to grow more of their own food closer to home.

One of the quickest ways to improve food safety within the current system is to enact and enforce FSMA. This law was passed by both the House and Senate and signed into law by President Obama in 2011, but it has not yet been fully enacted. FSMA represents the first major overhaul of the nation's food safety laws in nearly 70 years. For the first time, it gives the FDA authority to legally mandate a recall of contaminated food.

Under the current system, each request for production records and/or a recall becomes a negotiation between the FDA and the food producer. Ultimately, recalls are voluntary for the producer, as is compliance with FDA recommendations to reduce risk and improve food safety after a recall is completed. FSMA gives the FDA full authority to mandate recalls and hold food producers accountable for records transparency and corrective actions. It is urgently needed now.

In August, 2012, the nonprofits Center for Food Safety (CFS) and the Center for Environmental Health (CEH) sued the FDA and its commissioner, Dr. Margaret Hamburg, to force implementation of the new FSMA regulatory and inspection programs. US District Judge Phyllis Hamilton ordered the FDA to begin meeting FSMA deadlines immediately.

The FDA has until mid-2015 to fully enact the new law, but amendments introduced by Republicans in Congress threaten to weaken FSMA, while budget delays and heavy lobbying by agribusiness interests in Congress could delay or gut the law's implementation. Ensuring that the FSMA is fully

implemented requires continued political pressure from voters, who can amplify their efforts by working through organizations such as CFS and CEH.

It is also essential that the FSIS begin moving away from the privatization model of meat and poultry inspection detailed above, in which an increasing number of meat producers self-inspect. This privatized inspection scheme, implemented under the guise of austerity, is failing to stop the production and distribution of contaminated meat and has resulted in multiple deadly salmonella outbreaks. A more activist model of prevention, inspection and epidemiological surveillance of meat and poultry producers similar to FSMA is essential. At present, litigation by food safety advocates such as CFS is producing surprising success stories and needs to be supported until stricter laws are passed.

The Rise of Small Farms

From 1934 to 2001, the number of small farms in the United States declined steadily from a peak of nearly 8 million farms to a low of just over 2 million in 2001. However, from 2002 to 2007, the number of small farms increased 4 percent, the first increase since 1920, and the increase continued through 2010.

This increase in small farms is driven in part by a $1 billion boom in local farmers' markets, which have doubled in number to a total of nearly 7,000 markets nationwide since 2004, according to USDA figures.

In an ironic twist, the increase in farmers' markets is also driven by price pressure from large agribusiness producers. Small farmers are seeking more direct access to customers and offering more organic produce, meat and dairy products at slightly higher prices as a result.

This trend is likely to continue and can be encouraged by simple consumer choice. However, small farmers need to be more clearly defined, exempted from the expensive regulations imposed on large agribusiness producers and given special tax incentives.

The Obama administration has a publicly stated goal of adding 100,000 new farmers by 2016, and the administration requested $5 billion in annual funding for such a program in its 2011 and 2012 budgets. At the same time, the Farm Security and Rural Investment Program of the Obama administration has spent nearly $16 billion since 2009 to increase sustainable agricultural production and protect rural wetlands.

These are policies that help diversity our food production system with more local produce while increasing food safety and smart land stewardship. There are a number of organizations working to promote policies that help small family-owned farms and promote safer, more organic local food production. They deserve wide support for their efforts.

Individual and Community Solutions

Longer-term solutions center on the gradual reduction of our dependence on multinational agribusiness corporations and food distributors. With nearly two-thirds of fresh fruits and vegetables sold in the United States coming from food importers, there is an urgent need to begin moving toward a more diverse model of self-sufficiency.

History suggests that with the right government support and tax incentives, part of the solution to food safety can come from individual citizens and local communities. This is not wishful thinking. Even without policy and financial incentives, and lacking any public relations efforts, more than 31 percent of US households, 36 million in total, participated in food gardening in 2008, growing vegetables, fruits, berries and herbs.

At the same time, the American Community Gardening Association estimates there are 18,000 community gardens in the United States, in spite of a lack of government support and competition with developers for open land. The benefits of community gardens are considerable, including their capacity to teach good environmental stewardship to families and children, build stronger communities, reduce food imports while increasing nutrition, reduce agriculture's carbon footprint and even increase property values.

At many points in US history, including the early 20th century, government educational and funding programs were in place to encourage home and community gardening. During World War II, for example, "victory gardens" were encouraged to increase self-reliance and homeland security. In 1944, these victory gardens produced 42 percent of US vegetables.
Incentives for individual and community gardens, which are often categorized as "urban farming," can be provided through federal grants to states that have developed smart programs to encourage home and community gardening, via state and local incentive programs such as California's recent legislation to promote urban farming and through partnership with an enormous variety of non-profit organizations across the United States.

Conclusion
Without continued pressure from voters to implement the kinds of solutions outlined above, the food safety system in the United States will remain in crisis even when the government is fully funded. The current shutdown and funding cutoff have exposed how a legacy of privatization and underfunding has created a reactive model of food safety that puts the well-being of all Americans at risk. We can and must do better!

US food anti-terror plans costly; $3.4 billion spent in post-9/11 decade

Source: http://www.alarabiya.net/articles/2011/09/14/166793.html

One of the deepest fears sweeping the United States following the Sept. 11 attacks was that terrorists might poison the country's food.
Hoping to ease people's anxieties about what they were eating, President George W. Bush vowed to draw a protective shield around the food supply and defend it from farm to fork.

An Associated Press analysis of the programs found that the government has spent at least $3.4 billion on food counter-terrorism in the last decade, but key programs have been bogged down in a huge, multi-headed bureaucracy. And with no single agency in charge, officials acknowledge it's impossible to measure whether orchards or feedlots are actually any safer.
On Tuesday, a Senate subcommittee held a hearing to examine a congressional watchdog's new report revealing federal setbacks in protecting cattle and crops since Sept. 11. Just days after the 10th anniversary of the attacks, lawmakers demanded answers about potential food-related threats and reports that the government may have wasted money on languishing agriculture anti-terror programs.
"We may be blindsided by an intentional food-based attack on this nation sometime soon," John Hoffman, a former Department of Homeland Security senior adviser, testified at the hearing. "The unfortunate truth is that we, as a nation, lack effective surveillance ... At present, our primary detection capability is the emergency room."
Top U.S. food defense authorities insist that the initiatives have made the food supply safer and say extensive investments have prepared the country to respond to emergencies. No terrorist group has threatened the food supply in the past decade, and the largest food poisonings have not arisen from foreign attacks but from salmonella-tainted eggs produced on Iowa farms that sickened almost 2,000 people.
Seeking to chart the government's advances, the AP interviewed dozens of current and former state and federal officials and analyzed spending and program records for major food defense initiatives, and found:

- The fragmented system leaves no single agency accountable, at times slowing progress and blurring the lines of responsibility. Federal auditors found one Agriculture Department

surveillance program to test for chemical, biological, and radiological agents was not working properly five years after its inception in part because agencies couldn't agree on who was in control.

- Bureaucratic delays and funding concerns have slowed efforts to move an aging animal disease lab from an island near New York City. A report by leading scientists also found an accidental release of foot-and-mouth was likely to happen at the new facility in America's beef belt.
- Congress is questioning whether $31 million the Department of Homeland Security spent to create a state-of-the-art data integration center to monitor biological threats to food and other arenas has accomplished anything because agencies are not using it to share information.

The food defense effort shifted into high gear in 2004 when Bush directed the government to create new systems to guard against terrorist attacks. Agencies got money to assess risks, contain foreign disease outbreaks and help farms and food processing plants develop protection programs.

The newly established Department of Homeland Security, which was charged with sharing information about federal food defense plans, also distributed grants among agencies, contractors and universities and set up councils of private industry and local officials to help guide its policies.

During the past nine years, it spent $467 million on food-related research alone.

A $6 million counter-terrorism network headquartered in Iowa that helps veterinarians stop viruses from spreading between herds is considered one of the successes. Another is a program that gave California dairymen hundreds of thousands of dollars to buy high-tech locks for their milking barns.

The department also spent $550 million to run its Office of Health Affairs, which coordinates responses to biological events across federal agencies. In fiscal year 2008, that office set out to build a new data integration center where food, agriculture, disease and environmental officials could see each other's surveillance information in real time.

But Jeff Runge, DHS's former chief medical officer, said the other agencies did not want to hand over their data, and turf battles delayed the government's progress in pinpointing a culprit as hundreds of people fell ill during a nationwide salmonella outbreak tied to peppers that summer.

In June, Democratic Rep. Bill Pascrell introduced a bill that would eliminate the data center. The Republican-led House Appropriations Committee also has questioned what Homeland Security has accomplished after spending $31 million running the program.

"It just didn't work," said Runge, who oversaw the center. "Now al-Qaeda is headed by a physician who has expressed interest in biological attacks, and I don't think we are putting enough brain cells on this issue."

The department is working to integrate data across federal agencies, and is trying to enhance the center's effectiveness by reviewing the "challenges and opportunities of integrated bio-surveillance," a DHS official said.

Sen. Daniel Akaka convened Tuesday's hearing after requesting a new Government Accountability Office report, which that found there was no coordinated effort to oversee the government's progress on food defense.

"The implication, of course, is that it puts the country at risk if we do not know what agencies are doing," the GAO's director of natural resources and environment, Lisa Shames, told the Senate Homeland Security subcommittee.

National Security Staff has agreed to review the government's food defense work, she said.

FDA has spent $1.3 billion on food defense programs since 2005, the most recent year available, said spokeswoman Patricia El-Hinnawy. The USDA said it has spent $1.64 billion on food defense since 2003.

One top priority was setting up an animal identification system to track infected livestock. Agriculture Secretary Tom Vilsack recently proposed a new system that would work whether animals were infected by accident or by terrorists.

Five years after its creation, the Food Emergency Response Network has not set up a targeted surveillance program to test for chemical, biological, and radiological agents, and USDA and FDA still can't agree on who runs it, USDA's Office of Inspector General found.

Protecting the food supply remains a top priority, and USDA continues working to advance its efforts, said Sheryl Maddux, deputy director of its Office of Homeland Security and Emergency Coordination.

That's where upgrading America's primary animal disease laboratory comes in, federal officials say. The facility, which does crucial research on foot-and-mouth disease, is currently housed on a tiny island 100 miles (160 kilometers) east of New York City.

DHS spent $233 million running the lab in the past few years and plans to move the operations to Manhattan, Kansas, by 2018.

But a National Research Council report issued last year cited safety concerns with the Kansas location, including a 70 percent chance that dangerous pathogens could be released close to urban populations and cattle yards over the project's 50-year life.
DHS officials have said the lab will be safe, and say the report failed to consider safety measures that will be added during construction.