

Testimony before the
House Committee on Homeland Security,
Subcommittee on Intelligence, Information Sharing and Terrorism Risk Assessment

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Good afternoon, Members of the Committee. I greatly appreciate the chance to appear before you today to offer my testimony on the nature of the threat to US agriculture.

The threat to US agriculture is primarily economic. Agricultural disease agents, intentionally spread amongst crops or livestock in the US, have the potential to cause billions of dollars of damage to the US economy. These losses will be incurred from disease control costs and associated reductions in tourism, food processing, transportation and trade.

It is my opinion that US agriculture is threatened by a wide variety of actors, from states in economic competition with the US, to fringe animal rights groups, to lone criminals to Al Qaeda. The variety of the threat of an attack on the US agricultural system is born out of two main factors: 1) the technological barriers to an attack are easily surmountable by even technically unsophisticated actors, and 2) an attack on agriculture would help fulfill the goals of many state and non-state actors.

Let me begin by commenting on the first factor: that the technological barriers to an attack are easily surmountable. Influencing this factor is the nature of the disease agents, the pathogens, that may be used in an attack on agriculture. The pathogens that are most dangerous to US agriculture are those contagious agents that can spread explosively in a herd or between farms. The fact that these pathogens are highly contagious eliminates the need of the adversary to manufacture a complicated device to expose hundreds or thousands of animals or plants to the pathogen during the attack. No weaponization of the pathogen, and the complicated equipment required for that process, is necessary. The simple direct exposure of animals or plants to infected material (such as a tainted cloth dropped into an animal pen or handfuls of infected plant material thrown into fields) may begin an outbreak that affects thousands to millions of animals or acres of crops.

Further facilitating the use of agricultural pathogens is the fact that they are easily handled by even technically unsophisticated actors. First of all, the most contagious agents do not cause significant disease in humans. The fact that an adversary does not need to protect themselves from their agent of choice obviates the need for specialized protective equipment and facilitates manipulation of the agent in rudimentary facilities such as basements or farms. Furthermore, these pathogens are relatively hearty; many can survive in isolated tissues from a plant or animal or on cloth for weeks. No special storage conditions are required during smuggling of the agent into the US. Lack of a requirement for special storage conditions suggests that the agent could be

smuggled in easily concealable or disguised containers, such as wine bottles, Tupperware or, for those agents that survive on cloth, impregnated in the clothing of the adversary. Once smuggled into the country, enough agent can be manufactured for an attack by the intentional infection of bins of plant cuttings or captive animals. These living factories could produce kilograms of infected material that could then be introduced into fields or pens all over the US.

The nature of the pathogens that could be used on agriculture, therefore, eliminates the need for sophisticated laboratory equipment for the acquisition, production, processing or dissemination of the agent. Unfortunately, pathogens of this kind are not particularly rare. Foot and mouth disease, Rinderpest, Newcastle disease, African swine fever, wheat smut and rice blast are just a few of the diseases that could be used that have all of the qualities described above. These pathogens are endemic to the developing world and an adversary need only find disease outbreaks to find a source of their agent.

It is not only the nature of dangerous agricultural pathogens, but also the nature of the modern agricultural system that facilitates an attack. Modern US agriculture is vast, mobile and consolidated. Its vastness implies that large feedlots and farms are almost impossible to physically secure, enabling even incautious actors to gain access to their targets. The livestock industry is mobile; animals are moved between states to various facilities that wean, fatten and finish them. This movement enables infected animals to come into contact with thousands of others in facilities across the country. Also, the US agricultural industry is highly consolidated; an attack that affects even one processor would affect a significant portion of the industry.

US agriculture is dominated by big businesses that employ tens of thousands of Americans. The shares of these businesses, the commodities they produce and the futures derived from them, comprise a significant portion of our financial markets. Because of the economic hardship that a disease outbreak can bring, even minor outbreaks or rumors of outbreaks can create shockwaves within stock and futures markets, causing the overnight loss of billions of dollars in market value.

When an outbreak is identified, the system to control and eradicate the disease leads to further economic losses. Exports are halted to prevent the spread to our trading partners. Although our exports are halted, the demand for the commodity does not diminish, and importing nations will seek out other suppliers for goods the US can no longer supply. Once the importers establish a relationship with a new supplier, the US may find it difficult to recapture the lost markets; therefore, economic losses can persist for many years after the outbreak is stamped out. To prevent the spread of the disease within the country, agricultural movement is halted and transportation in agricultural areas may be disrupted. These movement restrictions will affect the transportation and tourism industries and may cause farmers unaffected by the disease to slaughter their animals due to the inability to obtain fodder. When an outbreak is identified on a farm, the diseased animals and all animals at risk of infection (usually all those in the affected premises) are slaughtered. Oftentimes, those animals at risk of infection reside at a different farm near a facility where an infected animal was found; these animals are often killed to create disease firebreaks.

Taken together, these qualities of US agriculture imply that even an attack on a few animals or plants can be spread to a significant portion of the industry quickly due to the nature of the industry. Even if the disease does not spread far, our disease control efforts will magnify the cost of the disease far beyond the cost of the plants or animals directly affected. Further, even outbreaks that are rapidly identified and controlled can cause losses due to market fluctuations.

When these qualities of US agriculture are considered along with the qualities of agricultural pathogens, a grim picture of the technical barriers to an attack comes into focus. Because agricultural pathogens are relatively easy to find, acquire, manipulate and use to strike thousands of animals or plants, adversaries with little technical skill can attempt an attack. Because of control efforts, movement restrictions, and market forces, even an attack that only reaches a single farm may inflict damage beyond its proportions. For these reasons, an attack on agriculture is within the reach of almost any state or sub-state group, or even an individual.

Because technical factors only widen the field of actors who can threaten agriculture, let me turn your attention to the second factor influencing the threat—an attack on agriculture is consistent with the goals of several groups—by addressing the motivation of several types of adversaries in turn.

Rival states have a significant financial motivation to attack US agriculture. By initiating a disease outbreak in the US, rival states could capture our export markets, causing a shift of billions of dollars a year from the US. States prosecuting a shadow war with the US may wish to harm us economically even if they do not directly benefit. The motivation to execute such an attack is underpinned by the uncertainty that an attack will be distinguishable from a natural disease outbreak. What would differentiate the accidental importation of FMD-infected swine from China to Taiwan from the intentional infection of swine shipped to Taiwan? Furthermore, the ambiguity of the US response to an attack on our agriculture may embolden a state adversary. A terrorist attack that kills Americans will surely invite military retaliation. However, would the President risk the lives of soldiers if a rival nation simply caused the destruction of our corn or cows?

For radical ecological and animal rights groups, an attack on agriculture is a means and an ends. These groups loathe the treatment of animals in the US farming system or the fact that a significant portion of US crops are genetically modified. To these groups, an attack on agriculture is not a means to sew economic hardship or to gain profit, but to destroy the industry that offends them. These groups, and their less radical allies, have issued statements wishing for the introduction of devastating disease into the US. The lack of human deaths in an agricultural attack is consistent with these groups somewhat non-violent operations.

Criminals, who wish to profit from an attack on agriculture, are another type of actor who may threaten US agriculture. As stated above, significant losses can be inflicted due to market changes when a disease outbreak is discovered. Similarly, money can be made through the manipulation of futures markets or selling-short of the stocks of affected companies. Furthermore, the threat of an attack can be used to blackmail agricultural interest groups and large companies. These criminals could be acting alone (due to the facility of the execution of an agricultural attack) or could be in a large group, such as a company wishing to cripple a rival.

Lastly, terrorists bent on destroying the US could use an attack on agriculture as part of a larger campaign. Groups like Al Qaeda could seek an agricultural attack as a simple means to undercut one of our greatest economic strengths.

All of these groups have the means to attack agriculture and each group has goals that would be satisfied by such an attack, even if that attack fails to spread to a significant portion of the targeted sector due to the economic costs that even minor outbreaks can cause. For many of these groups, such as countries jockeying for economic advantage and radical ecological and animal-rights groups, no other type of attack can satisfy their goals. To address this threat, new policies and regulations that eliminate the ambiguity in the US response to an attack on agriculture and that reduce our adversaries' potential benefit from such an attack are needed.

I do not mean to imply that an attack on agriculture is imminent. The factors influencing the threat to agriculture have been in place for several decades and yet no large attack has been executed. It is possible that sub-state groups use only weapons that are close at hand and are unlikely to travel to exotic locations to acquire their agent. It is possible that the spread of a plant or animal disease pales in comparison to the theater caused by car bombs or other, more conventional and common types of attacks.

What can be said with some certainty is that, although an attack on agriculture may never come, natural agricultural disease outbreaks strike the US with some frequency. Most measures that can be taken to reduce the damage of an attack on agriculture will likely help in natural disease outbreaks that have happened before and will happen again. Investments in animal tracking systems and disease control assets will surely deliver a concrete benefit even if an attack never materializes.

The threat to agriculture stems from two main factors: the technological barriers to an attack are easily surmountable by the least technically sophisticated groups and an attack on agriculture serves the stated goals of state and non-state actors. Groups that have the motives and the means to attack agriculture include states in economic rivalry with the US, foreign terrorist groups, criminals and domestic groups on the fringe of animal rights and ecological issues. Tempering this threat assessment is that, although the vulnerability of agriculture has existed for several decades and groups that have the motives and means to exploit this vulnerability have existed for an equally long time, no large attack on agriculture has occurred in the US or elsewhere. However, steps that can be taken to prevent and attack or mitigate its damage will also benefit the US economy when an inevitable natural disease outbreak strikes our country.