

Agroterrorism Prevention, Response, and Recovery [Summary of Sept. 16, 2002 Presentation for NPPEC]

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Agroterrorism, or the deliberate use of a biological agent against livestock, poultry, or crops, poses a threat to our nation's farms and to the U.S. economy. A single case of certain diseases¹ can trigger an immediate halt to exports, and a prolonged outbreak could devastate an entire market. Nevertheless, there are many things we can do as a country to reduce the threat of such an attack. These actions have the additional benefit of improving the country's overall ability to deal with outbreaks of all kinds, natural or deliberate.

The 2001 outbreak of foot-and-mouth disease (FMD) in the United Kingdom demonstrates a fraction of the devastation that we could experience in the United States, given a similar outbreak in this country. While the UK outbreak began as an accident, it initially had all the signs of being a terrorist attack: in just two weeks, cases of FMD surfaced at opposite ends of the UK, as if someone had deliberately spread the disease as widely as possible. It is estimated that the first animal was infected nearly three weeks before symptoms were noticed. During these three weeks infected animals were shipped to dealers and markets throughout the country, coming into contact with other animals and continuing the spiral of infection. While the majority of cases were brought under control very quickly, sporadic infections continued to appear for another eight months. The UK is still recovering from this disaster, but initial estimates of the damage have been released: 6 million animals were slaughtered, and the country lost about \$12 billion. With an agricultural system roughly ten times the size of the UK system, the United States has reason to take this threat seriously.

Targeting agriculture is an ancient wartime strategy, intended to deprive the enemy of his food supply. During World Wars I and II, several countries developed biological weapons that targeted agriculture in the hopes that food shortages would weaken the enemy's war-making abilities. The United States, Canada, Britain, Germany,

Japan, and the Soviet Union all developed anti-agriculture pathogens, including anthrax, brucellosis, rinderpest, wheat rust, rice blast, and even pests such as potato beetles and nematodes. In 1972 the United States, Britain, Canada, and the Soviet Union signed the Biological Weapons Convention, swearing off development of offensive biological weapons. Despite this, the Soviet/Russian program continued well until the 1990s. The extent of Russia's anti-agriculture weapons development is still being uncovered. Also, Iraq is known to have developed and tested anti-crop agents (wheat cover smut) in the mid-1980s, presumably to use against neighboring Iran.² While development of anti-agriculture biological weapons has been largely discontinued throughout the world, it is important to note that dangerous pathogens have been extensively researched in the not-so-distant past, and that this know-how—and possibly the actual pathogens—still exists today.

In order to carry out an attack, a terrorist must have the technical and organizational ability to start an outbreak. He or she must be able to procure or produce infectious material or ready-made pathogens and successfully infect healthy animals or plants. Without going into detail, it should be noted that this is probably easier said than done. More important than ability, however, is motive. The desire to target agriculture using biological agents is unique in several ways. While the agroterrorist's motive may be to protest U.S. agricultural policies, or even to bring the attacker financial gain,³ it could also be something more arcane: simply that agriculture is a “soft target”, the easiest way to bring about economic disaster. The preference for biological agents over explosives is also unique. Except for the recent anthrax-letter incidents, there is very little historical precedent for using biological agents in a terrorist attack. Even the anti-agriculture “eco-terrorist” groups have opted to destroy crops by hand rather than use diseases. Biological attack, however, would likely evade detection, since infection

¹ “List A” diseases, as designated by the Office International des Epizooties (World Organization for Animal Health), require the host country to immediately stop exports derived from infected animal types. See http://www.oie.int/eng/maladies/en_classification.htm for List A diseases.

² Simon Whitby and Paul Rogers, “Anti-crop Biological Warfare—Implications of the Iraqi and U.S. Programs”, *Defense Analysis*, Vol.13, No. 3, (1997), p. 305. Also Raymond Zilinskas, “Iraq’s Biological Warfare Program: The Past as Future?” in *Biological Weapons: Limiting the Threat*, Joshua Lederberg, ed., (Cambridge, Mass.: MIT Press, 1999), p.139.

³ Financial gain is possible through options speculation, if an attacker can anticipate export restrictions, probably price changes, etc.

wouldn't set in for several days or even weeks. This may be reason enough to go the "biological" route.

There is no one, single way to prevent, respond to, or recover from an agroterrorist attack; rather, we should take actions on several levels. First, the threat can be countered at the individual **plant/animal** level, by making each organism resistant to disease, through vaccination as an example. Second, we can take action at the **farm** level, by making each farm resistant to disease introduction, by reducing the chance that a farm could spread disease, and by giving each farm the ability to eradicate and recover from diseases that do manage to infiltrate. Actions at the farm level might include greater biosecurity and better disease surveillance. Third, we can take action at the **agricultural sector** level, by supporting our nation's system of farms so they can respond to or recover from disease in a coordinated fashion. For example, having professionals on hand with diagnostic experience and equipment would help the sector deploy resources to the most critical area. Finally, we should take actions at the **national** level, by establishing plans and policies that keep exotic pathogens outside our borders, that keep overall health of farms high, and that would be able to coordinate a disease eradication and recovery effort at a national level. In addition to greater border security, actions at this level might include greater investment in research and development for rapid diagnostics.

Agroterrorism is a lesser-known but very real threat to our nation's economy. The means and motives already exist in the world—and possibly within our own borders—to carry out an attack. While we remain hopeful that an attack never comes to fruition, there still remains the possibility of an accidental or natural outbreak that is equally devastating. For this reason, we must prepare ourselves, our farms, and our country so that we can prevent, respond to, and recover quickly from whatever the future holds.