AGRICULTURAL TERRORISM IN THE MIDWEST:
Risks, Threats and State Responses

A report from the
AGRICULTURE COMMITTEE
of the
MIDWESTERN LEGISLATIVE CONFERENCE
THE COUNCIL OF STATE GOVERNMENTS
This report was written by Jeff Greco, policy analyst with the Midwestern Office of The Council of State Governments. He staffs the Midwestern Legislative Conference’s Agriculture Committee.

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# Table of Contents

**Agricultural Terrorism in the Midwest: Risks, Threats and State Responses**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>2</td>
</tr>
<tr>
<td>Defining Agroterrorism and Understanding its Risks</td>
<td>3</td>
</tr>
<tr>
<td>Risks and Threats</td>
<td>10</td>
</tr>
<tr>
<td>State Approaches to the Agroterror Threat</td>
<td>13</td>
</tr>
<tr>
<td>Conclusion</td>
<td>23</td>
</tr>
<tr>
<td>References</td>
<td>24</td>
</tr>
</tbody>
</table>

*A Report from the Agriculture Committee of the Midwestern Legislative Conference The Council of State Governments*

**Jeff Greco**

**December 2002**

*Cover photos courtesy of the U.S. Department of Agriculture*
Introduction

Agriculture is a weak link in the nation’s defense against terrorism. Farmland and agricultural facilities in the United States are unevenly monitored, preparations for an agricultural catastrophe are still limited in scope, and regulatory regimes are often sparse. Even as higher-profile targets spawn considerable public interest, key vulnerabilities in the agricultural sector often receive less attention from the media and government agencies than comparable targets in other industries. But the actual risks posed by agroterrorism are substantial; many experts consider attacks on agricultural interests both easier to carry out and more likely to inflict widespread economic damage than other, more familiar forms of terrorism.

The U.S. Department of Agriculture estimates that net farm income in 2002 will be in excess of $35 billion; agriculture accounts for one-sixth of the U.S. economy. In the Midwest, agriculture employs some 15 percent of the workforce and pumps more than $10 billion into the region’s economy. The ripple effect of an agroterror attack on other sectors of the economy would be dramatic and inevitable.

This report assesses the risks that agricultural terrorism poses to the people and economy of the Midwest. It also presents an overview of Midwestern states’ efforts to prevent, deter and respond to agroterror events in this region. But the totally unforeseen events of Sept. 11, 2001, testify to the inability of even the best planners to predict and prepare for every eventuality.

Terrorists exploit the element of surprise to inflict the greatest possible damage on their targets, and the agriculture industry’s large and diverse holdings make it impossible to imagine every terror scenario, to secure every animal or to vaccinate against every disease. Compounding the challenge is the fact that many governing authorities have only recently begun to focus on the possibility of an intentional contamination of the U.S. food supply.

This report identifies some of the key challenges that industry and government leaders face in addressing the issue of agricultural security and presents a number of strategies that could reduce the likelihood of a major agroterror event and minimize the impact of any attacks that do occur.
Defining Agroterrorism and Understanding its Risks

Terrorism is not an easy concept to define. After Sept. 11, many Americans were forced to broaden their understanding of terrorism to include non-state-sponsored acts motivated by religious or issue-based extremism rather than ideology. The subsequent anthrax attacks, by employing a biological agent to provoke a public response more typical of a physical attack, further shaped public perceptions of terrorism. One reason why agricultural terrorism may ultimately prove attractive to terrorists is the novelty of the approach.

Most forms of agroterror lurk at the fringe of what society has typically defined as terrorism and may again catch many Americans by surprise if and when an attack occurs. The classical definition of terrorism – the use of violence and intimidation to achieve an end – may not entirely apply when agricultural targets are selected, especially if no human lives are lost as a consequence. But terrorism also involves an element of fear and quantifiable losses, both of which would soon emerge in the aftermath of a large-scale attack.

Studies in Conflict and Terrorism, a periodical whose editors and contributors have discussed the agroterror phenomenon for many years, defines agricultural terrorism as the “infiltration and destruction of a society’s food source through the contamination of livestock or the sabotage of grains.” This formulation captures both the psychological impact of an attack – the loss of food sources that are critical to human sustenance – as well as the devastating economic impact of such an attack.

Understanding the Threat Can Lead to a Better Response

While investigators, health authorities and the public struggle to understand and respond appropriately to an agroterror event, the event itself can quickly spiral out of control. One classic case worth noting is the suspected poisoning of Chilean grapes in 1989; despite repeated threats of cyanide contamination, no poisoning was ever found, no one became ill, and no evidence of an actual attack ever surfaced. Yet panicked consumers refused to buy Chilean fruit of any kind – and suppliers declined to stock it – and the Chilean agriculture industry lost an estimated $210 million from the incident.

During the foot-and-mouth-disease outbreak in the United Kingdom, the British agriculture industry’s staggering losses were compounded by a decline in tourism, the skepticism of foreign markets toward British farm products of any kind, and the loss of confidence on the part of agricultural producers toward the British government that cannot be quantified. While not an act of terror, the crisis nevertheless illustrated how unconventional acts of terror could have vast and unpredictable consequences.

No one died as a result of the 2001 outbreak of foot-and-mouth disease, but it did result in billions of dollars in damage. Likewise, most acts of agroterrorism
Agricultural Terrorism in the Midwest: Risks, Threats and State Responses

are unlikely to involve large numbers of human fatalities, but the effects could still be devastating.

One way to reduce the agroterror threat is simply to raise awareness of the nature of the threat — and to do so in a way that does not dismiss the reality that the long-term consequences of such an event are every bit as serious (if not more so) as those of a more conventional terrorist attack.

A broader public conception of terrorism that includes “nonviolent” agroterror events could better prepare the public for an attack, which, in turn, could mitigate the consequences by ensuring a more effective response. The conventional definition of terrorism as the use of violence to achieve a political goal is simply too narrow to encompass the specter of agricultural terror, which relies on psychological intimidation (and often violence toward animals) to achieve its objectives.

WHY AGRICULTURE IS AT RISK

Clearly, there are higher-profile, more attractive targets available to terrorists than agricultural property and holdings.

As noted above, some perpetrators may also be disappointed to discover that biological weapons in general, and agricultural terrorism in particular, are not an efficient way of producing large-scale human casualties. But a human tragedy is not always the only outcome terrorists are willing to accept; indeed, some terrorists may fear that a surplus of human fatalities would harm them or their cause.

Rand Corporation terrorism expert Peter Chalk notes that environmental activists, who have been responsible for the majority of recent agroterror incidents (as well as threats), are also keen to build public support for their cause, raise funds and cultivate a positive image among certain segments of the public — tasks that are undermined by human injuries or fatalities.

Chalk cites fellow Rand terrorism expert Bruce Hoffman: “Agricultural terrorism (conveys) a coercive point but doesn’t necessarily cross the threshold of killing people, and thus doesn’t create the same kind of backlash.”

Opponents of genetically modified crops, animal exploitation, or U.S. food and land policies have already caused substantial damage to facilities in several Midwestern and Pacific Northwest states, and as these movements gain strength, terrorism analysts expect a comparable increase in such incidents.

In addition, certain perpetrators may be more reticent to jeopardize their own lives and health for the sake of their cause, and agricultural targets involve much less risk to the perpetrators themselves. Finally, some biological agents are easy to manipulate and may appeal more to amateur terrorists with little experience in planning complicated attacks.
AGROTERROR IS A THREAT TO JOBS, FOOD SUPPLY

The USDA’s 1997 Census of Agriculture estimates that the nation’s agriculture industry pumps $1.3 trillion into the economy, more than $200 billion of which is in the form of raw agricultural produce. Regionally, the sale of agricultural products brings $60 million in farm receipts to the 11 Midwestern states and is a leading industry throughout the region. While no attack could destroy the entire agricultural industry – which constitutes 13 percent of the gross domestic product – even a small-scale incident could result in massive losses.

The recent foot-and-mouth epidemic in the UK is again instructive: although the outbreak was short and the response efficient, the USDA reports that the British government was still forced to slaughter some 11 million animals at a cost of more than $10 billion to the British economy in
compensation paid to farmers. (The indirect costs to the tourism and retail industries are even greater.)

According to Chalk, the indirect costs of an attack, though often incalculable, are usually far higher. When avian influenza hit portions of the U.S. poultry industry in 1983-1984, for example, the eradication cost of $63 million was dwarfed by the estimated $349 million rise in poultry product prices to consumers in the first six months of the outbreak. The Midwest, home to more than 80 million cattle, hogs, sheep, goats and bison, is more economically exposed to the threat of agroterrorism than any other region in the country.

The simultaneous contamination of several livestock facilities could shut down the nation’s food distribution system, force the destruction of a large portion of the country’s livestock industry (through mass cullings), and result in the layoffs of thousands of feedlot workers and food processors. Any positive disease reading would likely trigger an international embargo of U.S. food products, about 24 percent of which are exported annually. In the Midwest, some $20 billion in farm exports are at risk.

An especially large-scale attack also could threaten food supplies; an April 2001 study by the College of Staten Island, New York, claims that “the average U.S. city has a five-day supply of fresh meat, fruit, and vegetables … a risk made more acute as many urban supermarkets no longer rely on large in-store inventories, but instead depend on just-in-time deliveries.” In the Midwest – where agriculture employs up to 25 percent of the workforce in states such as Kansas, Nebraska and the Dakotas, and where cash receipts for farm products amount to $4 billion to $9 billion annually per state – even a minor disruption in agricultural commerce could cost thousands of jobs and millions of dollars in lost income.

The ongoing consolidation of U.S. agricultural facilities and assets is of particular concern. Larger facilities not only render an attack easier to execute, they also exacerbate the impact of a terrorist event if animals in close proximity to each other spread a biological or chemical agent easily.

Michael Dunn, a bioterrorism expert at the New York Academy of Sciences, estimates that by 2010, just 30 feedlots will generate 50 percent of the country’s slaughtered cattle, a typical poultry farm will have more than 1 million birds, and feedlots of 500,000 cattle will not be uncommon. While consolidated facilities give producers and regulators an opportunity to tighten security in ways that might not be practical at large numbers of smaller facilities, the potential impact of a security breach is nevertheless alarming.

### Midwestern Agricultural Exports, Fiscal Year 2001

<table>
<thead>
<tr>
<th>State</th>
<th>Total ag exports</th>
<th>US rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois</td>
<td>$3.06 billion</td>
<td>5</td>
</tr>
<tr>
<td>Indiana</td>
<td>$1.55 billion</td>
<td>9</td>
</tr>
<tr>
<td>Iowa</td>
<td>$3.26 billion</td>
<td>3</td>
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<tr>
<td>Kansas</td>
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<td>4</td>
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<tr>
<td>Michigan</td>
<td>$777 million</td>
<td>22</td>
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<tr>
<td>Minnesota</td>
<td>$2.30 billion</td>
<td>7</td>
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<td>Nebraska</td>
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<td>6</td>
</tr>
<tr>
<td>North Dakota</td>
<td>$1.20 billion</td>
<td>14</td>
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<tr>
<td>Ohio</td>
<td>$1.14 billion</td>
<td>16</td>
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<tr>
<td>South Dakota</td>
<td>$1.11 billion</td>
<td>18</td>
</tr>
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Source: U.S. Department of Agriculture

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Source: U.S. Department of Agriculture
Dunn suggests that the transfer of animals between feedlots, along with the mixing of animals from different feedlots at slaughterhouses, is becoming more common. This increases the likelihood that even a small-scale attack would have at least regional, rather than merely local, implications, he believes.

The regional impact of an attack could be especially devastating given the lack of diversity in much of the U.S. agricultural industry.

Most states’ farm economies depend on just a few – even one or two – agricultural products; likewise, the country often receives its entire supply of a particular food from one region or state. The concentration of cattle in western Kansas and neighboring areas, for example, not only makes it much easier for a terrorist to wipe out an entire region’s economy, but also makes it easier to effectively wipe out a large portion of an entire industry on which the nation depends. A carefully targeted attack on several commodities could decimate large swaths of the U.S. farm economy and severely diminish the nation’s food supply.

Finally, terrorists might well target agriculture simply because of its vulnerability. At a time when the security of other potential targets has been increased, agriculture may be one of the few areas of vulnerability left exposed. Armed with a minimum of scientific knowledge and equipment, a terrorist can introduce devastating diseases with little or no risk of getting caught – or getting the disease.

“The critical issue with agroterrorism,” according to a 2001 Purdue University report on the issue, “is the low level of technical knowledge required to use it in some cases. Any person with minimal understanding of microbiology can acquire the organisms and spread them.”

**Why hasn’t an agroterror attack happened yet?**

The relative ease with which an agroterror attack can be launched raises the question of why such events are so rare. Some policymakers argue that the lack of a high-profile, successful agroterror event suggests that large-scale attacks are difficult to perpetrate, and therefore less deserving of government attention and resources. But, in fact, agroterrorism is nothing new, and technological advances have actually made carrying out such attacks easier in recent years.

According to the FBI, more than 500 acts of environmental terrorism have occurred in the United States over the past five years, although some of these incidents did not involve direct contamination of the food supply. Many of these acts escaped public attention either because they did not fall within common understandings of what terrorism is or because authorities prevented the attack from seriously endangering the public. But each of these incidents – ranging from a May 2001 contamination of an Oregon tree farm by envi-
Agricultural Terrorism in the Midwest: Risks, Threats and State Responses

**WHY TERRORISTS MIGHT TARGET AGRICULTURE**

- **Biological agents are not hazardous to perpetrators** — Except for a few agents of zoonotic disease, most of the diseases a terrorist might seek to introduce are not harmful to humans. With the risk of serious injury or disease largely removed, a terrorist may feel emboldened to launch a strike at the heart of the U.S. economy.

- **Few technical obstacles to weaponization** — Most of the agents a terrorist might use require no special training to handle and are widely available on the open market. An agroterror attack would not require extensive or long-range planning, and it could be carried out at little expense.

- **Low security of vulnerable targets** — Agricultural farmland is too widespread, and facilities too numerous, to fully secure. Producers avoid taking security precautions that are impractical, expensive or result in too great an inconvenience.

- **Lower moral barrier to cross** — Fear of negative publicity, overwhelming retaliation or merely an attack of conscience deters some terrorists from targeting humans. Attacks on plants or animals may be easier for perpetrators to justify morally, especially if civil and criminal penalties are also lighter.

- **Maximum effect may not require many cases** — Even a single instance of a highly contagious disease may be sufficient to result in extensive damage; the attack would not necessarily be limited to the immediate area where a biological agent is introduced.

- **An attack can mimic a naturally-occurring disease** — Terrorists may be able to escape detection and cause more extensive damage if their destructive act is initially mistaken for a naturally-occurring disease. In the United States and most other countries, diseases are assumed to be naturally occurring unless there is evidence to the contrary.

- **Physical presence at the contamination site is not required** — By contaminating import materials such as straw, animal feed or fertilizer, a terrorist can cause serious damage without even entering the country. Authorities might not be able to conclusively label the outbreak a terrorist attack, and the perpetrators could improve their chances of escaping detection.

*Source: “Agricultural Biowarfare and Bioterrorism,” by Mark Wheelis, University of California at Davis*

Environmental extremists to the destruction of genetically modified corn in California in 1999 — represents an assault on the integrity of the U.S. agriculture industry. No matter how trivial, each incident reinforces an impression of vulnerability that might eventually elicit larger-scale attacks by groups with a greater capacity to inflict real damage to the industry.

While many of the more recent attacks targeted agribusiness personnel and infrastructure rather than the general food supply, there is plenty of evidence that the food supply is vulnerable. In a well-known 1984 incident, more than 700 individuals in northern Oregon fell ill when members of the Rajneesh cult contaminated restaurant salad bars with salmonella; similar incidents, with fewer victims, have occurred several times since then. In 2000, 27 people in Quebec were poisoned with arsenic from a single coffee machine. During both world wars, combatant states targeted livestock and/or crops — anthrax was among the agents used — with little overall effect.
Within the last several years, activists have destroyed experimental crops in such diverse locales as Italy, New Zealand and several U.S. states. Recent incidents have included attacks on crops grown by the University of California, the University of Washington and, in the Midwest, Michigan State University. While no proof was ever discovered, groups have also claimed responsibility for natural disasters as well: a 1989 fly infestation in southern California and a 1996 outbreak of citrus canker in Florida (the latter was attributed to the Cuban biological weapons program).

Yet, in the past, few policymakers have considered such incidents a threat to national security; local media reports in the Oregon and Quebec cases did not even describe the attacks as a form of terrorism. When attacks are seen as the work of isolated groups or unstable individuals, implications may seem inconsequential. But in the post-Sept. 11 world, no attack – no matter how minor – will escape extensive media scrutiny.

**The need to stay on alert**

Even if investigators can quickly and accurately rule out large-scale terrorist involvement – and often such rulings cannot be made on a timely basis – the potential for lasting economic consequences is substantial. Skeptics who claim that agroterror events are too rare to merit serious attention may either be overlooking the many documented cases that have already occurred or ignoring the likelihood that these incidents would be seen in a far different light in the current climate of vigilance and anxiety gripping the country.

Another reason why agroterror attacks may seem deceptively infrequent is that they are not always successful. Biological attacks can fail in several ways. For example, schemes that rely on the lack of facility oversight, certain weather patterns or cross-contamination at various distribution points are obviously not fail-safe. Even successful attacks may not achieve a terrorist’s goals if the attacks are not recognized as such; slow moving, wind or insect-borne viruses might never be linked to terrorism.

When suspicions arise, investigators and the media are unlikely to categorize an event as an act of terrorism without conclusive proof. While the agroterror failure rate may keep many terrorists from experimenting further with this form of attack, it also lulls U.S. policymakers (and the public) into complacency. As Chalk suggests, the total number of attempted attacks, including those that failed or went unrecognized, could be substantially higher than the FBI’s official totals.

“Animal and plant health officials in Washington concede … that more acts may have actually taken place than are known about … as the tendency is to automatically assume that disease outbreaks are naturally occurring events,” he adds.
Risks and Threats

The key vulnerability of the U.S. agriculture industry is the diffuse nature of its holdings. Unlike other potential targets – the nuclear power industry, border zones, military sites, etc., which have relatively concentrated holdings that can be more easily guarded and defended – millions of acres of agricultural land and thousands of processing facilities are too numerous to fully monitor.

Vulnerabilities in the Food Production System

Contamination of foodstuffs can occur at any point during the food production process, from the importation of seeds to the unpacking of finished products at a supermarket. Along the way, even relatively unprocessed food passes through warehouses and packaging/labeling facilities and is transported several times on vehicles that are not always secure. Harvard University microbiology researcher Rocco Casagrande notes that vastly different kinds of attacks – on various commodities, using various agents and in various kinds of facilities – gives the potential terrorist many options from which to choose.

“The two extremes” of “crops that are grown over thousands of square miles” and “a modern animal farm with often several hundred thousand animals in one location … require that a terrorist use markedly different techniques.” Diverse vulnerabilities also pose a challenge to law enforcement, emergency management personnel, government regulators and producers aiming to prevent and/or respond to agroterror attacks.

In light of such difficulties, complete surveillance of U.S. agriculture holdings is not a realistic, cost-effective objective. With more than 500,000 farms and 57,000 processors in the United States, and more than 350,000 acres of farmland in the Midwest alone, no inspection regime could fully guarantee safety and security.

Risk management is critical. By focusing on key vulnerabilities, industry and government leaders can significantly reduce the likelihood of an attack as well as the severity of damage if an attack does occur; smaller sites with fewer animals may be harder to secure, but the consequences of an attack may also be constrained.

As the agricultural industry consolidates, and as fewer and fewer farmers and facilities control an ever-larger percentage of the nation’s agricultural output, the range of attractive targets narrows. This consolidation is a double-edged sword in the fight against agroterror: it limits the scope of damage at minor facilities and small farms, but it dramatically expands the range and reach of terrorists who are able to penetrate larger packing plants and processing facilities. Chalk contends that “the outbreak of a contagious disease (at a large facility) would be very difficult to control and could necessitate the
destruction of all the livestock, a formidable and expensive task.”

Emergency response personnel can prepare to respond appropriately to terror events at even the smallest farm or facility, but as a practical matter, plans to deter, prevent and respond to attacks tend to focus on those vulnerabilities that present the greatest threat to the industry.

**Many Groups Have an Interest in Agricultural Security**

The risks detailed in this report are far from exhaustive, highlighting primarily those deficiencies that state government might find useful and within its purview to address. Producers, suppliers and other private entities have strong incentives to safeguard their own assets, and industry associations such as the National Pork Board and the American Association of Swine Veterinarians publish and disseminate guides to help members secure their property and holdings.

Other security concerns are more properly the responsibility of the federal government. In late 2001, with passage of the Bioterrorism Preparedness and Response Act, the U.S. Congress appropriated approximately $40 billion to safeguard the U.S. agriculture industry. The national security implications of even a small terror event ensure that the federal government will play an important role in the investigation and management of any agroterror incident.

State government fills an important niche in the effort as well, and state legislatures are charged with appropriating funds, enacting regulatory guidelines and setting forth appropriate penalties for agroterror crimes. Even when state and federal authority overlap, states are likely to play a higher-profile role in the on-the-ground war on terrorism. State veterinarians and plant inspectors have more contact with producers than their federal counterparts, and state regulators know what kinds of agricultural activity pose the greatest risk locally. States also will have an easier time prosecuting offenders under state law than in federal court; tough consequences for agroterror crimes can be an effective deterrent for many forms of agroterrorism.

**Classifying Risks**

Preparation for an agroterror event falls under two broad categories: preventive action and crisis response. Preventive action includes all steps taken to deter criminal activity, including surveillance of key sites, educational programs and enactment of new criminal provisions. Some such action will make

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<thead>
<tr>
<th>State</th>
<th>Top ag commodity</th>
<th>Commodity as percentage of total farm receipts</th>
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<tr>
<td>Illinois</td>
<td>Corn</td>
<td>36.8%</td>
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<tr>
<td>Indiana</td>
<td>Corn</td>
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<td>Hogs</td>
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<tr>
<td>Wisconsin</td>
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Source: U.S. Department of Agriculture
agroterror events less appealing to perpetrators, who may think twice before setting out on a costly mission. Other action will prevent terrorists from acquiring the supplies they need, making contact with crops or livestock, or otherwise committing a criminal act. Finally, there are steps states can take to prevent attacks that do occur from emerging as a serious threat either to the agriculture industry or to public health.

The second category, crisis response, is no less important for state authorities to consider. While the probability of a large-scale event occurring is low, the odds of such an event succeeding according to a terrorist’s plans are somewhat higher, given the practical difficulties of deterring attacks in rural areas. Chalk notes that “weaponizing biological pathogens to destroy agricultural livestock is a far easier process than creating munitions designed to kill people” because it “imitates natural or common disease occurrences” and is “unlikely to attract the same response as a more ‘conventional’ bioattack against a heavily populated center.” Moreover, both the eventual extent of the damage as well as the public response to the attack are likely to be strongly influenced by the way authorities (including state authorities) respond. State action that falls within the crisis response category includes preparing emergency management plans, securing access to key information sources regarding potential threats, and ensuring the use of laboratories that can identify agents that an agroterrorist may utilize.

**Different kinds of attacks**

Direct attacks on crops or livestock would be economically devastating to producers and the industry, especially if mass cullings, vaccinations or economic sanctions followed. But the impact on public health might be limited – as, for example, the British outbreak of foot-and-mouth disease was in 2001 – if state authorities could identify the problem before contaminated food products reached consumers. On the other hand, an attack during a later stage of the food production process might occur too late to prevent human illness and/or death. This kind of attack might have more limited consequences for the industry if the origin of the contamination could be quickly identified, since the chief assets of the agriculture industry (crops, livestock, most facilities) would be undamaged. But a large-scale human tragedy would shake public confidence in the safety and security of U.S. agriculture, disrupt the nation’s efficient food supply system and depress sales of U.S. produce for the foreseeable future.

In both cases, the economic damage is significant, but the public health component of a later-stage attack adds a critical, emotional element that may make recovery more difficult. This report, however, focuses primarily on pre-harvest risks to producers and their assets, since this segment of the agriculture industry may be less attuned to security issues than later-stage processors that have faced security crises on a more regular basis. Nevertheless, it bears repeating that a security breach at any stage of the food production process would have severe repercussions for the industry as a whole; security is a collective responsibility that producers, processors, retailers and regulators should mutually enforce.
State Approaches to the Agroterror Threat

I. Define, Criminalize and Penalize Agricultural Terrorism

Strongly worded legislation can be a critical tool in the fight against agroterror, but surprisingly, many state criminal codes do not recognize agricultural terrorism per se as a unique crime. States that do criminalize the practice often have narrow provisions written by legislators annoyed with juvenile pranks and delinquency. Mass contamination of agricultural holdings is a more recent concern sometimes overlooked.

New Laws Strengthen Penalties

Critics complain that even the toughest language is unlikely to deter professional terrorists on an ideologically driven mission. But lax laws regarding agricultural terrorism may well encourage some terrorists to look more closely at agricultural targets rather than human ones, and there are plenty of potential terrorists who would certainly fear large judgments against them that could bankrupt their organization. Environmental extremists may avoid targeting states that impose lengthy jail sentences or other burdens on convicted terrorists, fearing the depletion of their ranks and the loss of their freedom.

In a recent report, the Biological and Toxin Weapons Convention ranked “enacting appropriate legislation” as the top priority for states and other government jurisdictions seeking to deter agricultural terrorism. Mark Wheelis, the author of the report, states that “legislation can be a significant deterrent to biological attack on the agricultural sector (if it) provides for substantial criminal penalties for the hostile use anywhere of biological agents against plants or animals as well as people.” Most states have come to the same conclusion, and such legislation is now either on the books or under discussion in most U.S. states.

Several Midwestern states have taken the lead in writing tough agroterror legislation. In a law that took effect in early 2001, Indiana reclassified agroterrorism as a Class C felony; Iowa’s post-Sept. 11 measure classifies the crime as a Class D felony, punishable by a 10-year jail sentence. Iowa and Wisconsin laws call for expensive penalties – up to a $10,000 fine if the damage exceeds that amount. Some states have also revised civil codes to allow victims of agroterror to sue offenders and the groups they represent; a pending bill in Wisconsin would even allow collection of triple damages in such cases.

Recognizing the difficulty of enforcing such statutes – very few agroterrorists are caught during the commission of the crime – some states have even begun to criminalize mere threats to commit such crimes. Michigan now subjects anyone convicted of making lethal threats to a fine of up to $25,000, although it’s not clear whether animal threats qualify, while Indiana and Pennsylvania have criminalized the “intent to maliciously expose an animal to disease.”
Agroterror legislation thus serves three important functions. First, it deters potential perpetrators from committing crimes that are heavily punished. Even if only a minority of potential perpetrators is deterred, fewer successful attacks contribute to an overall climate of agricultural security that, in turn, may help deter other attacks. Second, clear and precise language with specific penalties facilitates the prosecution of violators. While perpetrators can often be successfully tried under other statutes (and sometimes for other, related crimes), stronger language streamlines the prosecution, increases the likelihood of a successful prosecution, and guarantees that the perpetrator will face a penalty proportionate to the gravity of the offense committed. Finally, and most obviously, a state’s legal code is a reflection of the values of its citizens. In most states, agriculture is a key component of the local economy and the foundation of a unique way of life in rural communities. In recognizing agricultural terrorism as a mortal threat to these communities, a state sets forth in the clearest of terms that it considers the defense of the agriculture industry a vital state interest rather than a private responsibility of the industry.

2. Educate Producers, Responders about Risk of Agroterrorism

Producers are the first line of defense when an attack occurs; they are likely to become aware of the situation first and to notify authorities soon afterward. But many producers, especially small farmers, are unlikely to be particularly familiar with the threat of agroterrorism or to have prepared in advance for the possibility of an attack. Producers need to know what preventive steps to take and how to respond to anomalous situations.

States increase outreach efforts

No method of outreach will ensure that everyone receives the message, but many states are now devising creative solutions to reach producers. In Iowa, representatives from the Department of Agriculture are disseminating informational literature at the State Fair and other agricultural events that bring producers together; state personnel are also using signs and word of mouth at such events to encourage producers to pay close attention to animals that have been away from the farm. While large events have always been a conduit for the spread of animal disease, producers are now hearing for the first time that fairs and auctions may also be an ideal environment for the intentional spread of zoonotic diseases.

In Ohio and North Dakota, among other states, the agriculture departments’ animal health divisions have worked with the local media to present critical information about agricultural terrorism to the public. Newspaper articles and television stories alert producers to the threat and provide producers with contact information on how to learn more about securing facilities, reporting suspicious situations and responding to suspected attacks.

Most states also post useful information on their agriculture departments’ Web
sites – Ohio and Minnesota, for example, feature checklists for producers and others involved in the agricultural industry.

Finally, some states sponsor classes, seminars and informational meetings on the topic, led either by state personnel or private-sector security experts. North Dakota’s informal program has reached thousands of farmers, giving them the opportunity not only to learn about the phenomenon but to ask questions and share their concerns.

Producers aren’t the only ones who need to know the risks. In Illinois, the state’s Terrorism Task Force conducted some 968 classes for first-responders, including animal health specialists who may become aware of a potentially devastating animal-borne disease before it becomes widespread. In agricultural areas, these classes include critical instruction on how to respond to a suspected agroterror attack. States can also encourage large producers to sponsor their own security briefings, a strategy that many corporations say has significantly expanded and improved common-sense precautions taken at their facilities.

3. INCREASE AND IMPROVE INSPECTION EFFORTS.

Most states conduct routine inspections of agricultural fields and facilities to ensure compliance with environmental and animal health regulations. In Ohio, slaughter yards

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**PRECAUTIONS AGAINST AG TERRORISM: CHECKLIST FOR FARM OWNERS AND OPERATORS**

- ✓ Fertilizer dealers should report suspicious purchases of or attempts to purchase ammonium nitrate or urea to the FBI.
- ✓ Livestock producers and veterinarians should be alert for signs of infectious foreign animal diseases and check their animals daily for symptoms.
- ✓ Pay close attention to product inventories and shipments.
- ✓ Conduct a security review of the farm and facility, including structures, parking areas, personnel who have access to the property, alarm systems, emergency power systems, employee and visitor identifications, communications and perimeter security.
- ✓ Develop contingency plans and provide training for personnel.
- ✓ Ensure security and emergency plans are in compliance with local, state and federal requirements.
- ✓ Keep an updated list of all emergency contacts and numbers and share it with others involved in farming operation.
- ✓ Report all suspicious activities, vehicles or people around the property.
- ✓ Report all threats on personnel and facilities.
- ✓ Report all thefts, inventory shortages or missing products that could pose a public health or safety risk.
- ✓ Report all burglaries, sabotage or missing products that could pose a safety or security risk.

*Source: Ohio Department of Agriculture (letter to owners and operators of agriculture enterprises)*
are inspected on a monthly basis, and in Iowa, unannounced visits are routine. But most states do not examine overall security, either because current inspectors are not trained to do so or because of concerns about privacy invasion. Security specialists have identified key measures for producers to consider – installation of fencing, locks and bolts and security cameras, use of visitor logs and strict storage requirements for agricultural chemicals. As of yet, though, no state in the region has required producers to implement these security measures.

**COOPERATION BETWEEN PRIVATE, PUBLIC SECTORS IS VITAL TO SECURITY**

Some states are now considering mandating closer cooperation between state emergency management personnel and the private sector, but even in this area, most states have been hesitant to intervene too intrusively. In Ohio, for example, only facilities with more than 1,000 animals have been asked to submit disaster plans with security precautions, and there is no requirement that such facilities comply with the state’s request.

Even if authorities cannot compel producers to supply such information, states may soon decide that it is in their interest to collect security information that could prove invaluable to them in the event of a crisis. Knowledge of a facility’s vulnerabilities – entry and exit points, types of animals and chemicals kept on site, employee data, etc. – could assist states in responding more efficiently to a crisis.

Since most states already conduct farm inspections on a routine basis, an additional security inspection could be performed simultaneous to other inspections at little additional cost but to the great benefit of the state.

One final measure that could be beneficial is a consolidation of inspection agencies to ensure that on-site inspectors communicate effectively concerning security risks; an environmental specialist who notices a broken gate should be able to report the situation efficiently to animal health staff (or whatever agency handles animal security issues) if a producer is not in compliance with basic security regulations.

**4. STRENGTHEN THE ANIMAL HEALTH SUPPORT STAFF**

Veterinarians and other animal health experts are a vital resource, but these individuals are often ill-equipped to handle real emergencies. A recent American Veterinary Medical Association report highlighted the problem by noting that public health veterinarians with specific training in the diagnosis of zoonotic diseases capable of inflicting harm on human populations are still in short supply. “Although all states have veterinarians in key positions throughout their agriculture departments,” the report concludes, “not all have positions for public health veterinarians (who) would facilitate necessary cross communication with the human medical community.” If a major agroterror event occurs, simultaneous attacks/outbreaks in different locations would require a larger staff capable of transporting specimens for testing, issuing security and public health instructions, and quarantining property.
THE NEED FOR MORE VETERINARIANS

One problem that nearly all states face is a dearth of qualified personnel; a single state veterinarian leaves a state dangerously exposed in the event of major crisis. Kansas recently expanded its staff and instituted a requirement that a trained in-state veterinarian be on call at all times. The new rule stemmed from an April 2002 incident in which the state’s veterinarian was traveling out of state when a rumor spread about foot-and-mouth disease; the state lost a few critical hours tracking down the official and defusing the crisis.

But staff expansion has been modest amid budget difficulties in most states. Iowa, for example, still has only six district veterinarians and Ohio just four; many other states in the region have similar or smaller staffs. State agriculture directors admit that assistance from the private sector, from other states and from the federal government might be necessary during a major crisis.

Federal grants have allowed most states to hire one or two more veterinarians and to provide more advanced training for existing staff members. Still, animal health division managers say that such modest expansions — if not supplemented by state-funded efforts — will not be sufficient to expand veterinarian responsibilities to include inspection and education efforts far beyond their current duties.

An even more pressing concern may be state officials’ lack of pertinent knowledge about diseases a terrorist might introduce. Terrorists may be familiar with exotic diseases such as ebola or the plague, but state veterinarians usually are not. Just two of Iowa’s six veterinarians are trained in foreign animal disease diagnosis (others are in training); no one in North Dakota has any such specialized training. Animal health specialists say that other veterinarians could be trained quickly once such a disease is identified. But the damage may be done if a fast-spreading disease is not diagnosed early.

The threat is so pressing that Nebraska, among other states, has even shifted the job responsibilities of its state veterinarians to focus more heavily on contagious animal diseases (and the development of a state plan to respond to the appearance of such a disease) and away from more prosaic animal health concerns. Nebraska state veterinarians are now, for the first time in an official capacity, working directly with state emergency agency staff to ensure that a response to an agroterror incident is smooth and coordinated. Even with few new funds, most states are now re-examining the mission and responsibilities of their animal health staff to ensure that all staff members are properly trained to respond to foreign animal diseases with which few have had any personal experience.

5. REQUIRE MORE STRINGENT DISEASE REPORTING

The failure to report animal health anomalies is a continuing concern at the local and state levels, where communication gaps can slow response rates. Most states — including
Illinois, Ohio and Kansas – have criminalized the failure to report irregularities that later result in disease diagnoses, and most states also now require state veterinarians to personally evaluate every anomalous situation that arises. State agriculture directors acknowledge that some producers may be reluctant to report unusual situations that could trigger more paperwork, additional inspections and possible penalties, not to mention economic implications if competitors or clients were able to access the information. At the same time, mere reporting of suspicious situations does not automatically provide greater protection if that information is not widely disseminated.

**IOWA DEVELOPS IMPROVED, INTERNET-BASED SYSTEM**

Iowa has adopted an innovative disease-reporting approach that addresses many of these concerns and, in the opinion of state agriculture officials, is a significant improvement over previous reporting procedures. The state’s Rapid Veterinarian Network links roughly two-thirds of the state’s private-sector veterinarians in a strictly voluntary, Internet-based program. (Most of the remaining veterinarians do not have access to the Internet, limiting their participation.)

The reporting system has streamlined the reporting process, allowing veterinarians to document unusual occurrences without all the paperwork that once was required; as a result, reports have increased and more veterinarians are using the system. Moreover, the system affords immediate access for some 840 veterinary clinics to all of the animal health reports filed in Iowa. While such information was once only available to state animal health officials in Des Moines, and transmitted to local veterinarians after considerable delay, Internet reporting has now made it possible for a local animal health specialist to learn immediately whether suspicious reports have been filed in a nearby city or county. And because the Internet site is password-protected, the possibility that unconfirmed disease reports will fall into the hands of competitors, clients or the general public is much reduced.

Other states may be able to improve compliance with state reporting laws by implementing similar systems that offer incentives for producers, veterinarians and state animal health officials to communicate more frequently and efficiently.

6. **COMMUNICATE MORE EFFECTIVELY ACROSS INSTITUTIONAL LINES**

Communication is critical to containing agricultural terrorism. An agroterror event is likely to be a multidimensional occurrence with implications for the agriculture industry, for public health, for the overall economy and for all levels of government. States realize that cooperation begins long before a crisis event actually occurs; personnel in local, state and federal agencies must know who to contact and how to do so in the event of a crisis, and they must have a strong sense of which aspects of the crisis are their responsibility to address. Most states have long-standing emergency management plans that seek to address some of these issues, but those plans have not always included...
representatives from the agriculture industry (from both the public and private sectors) and animal health specialists. But since the outbreak of foot-and-mouth disease in the UK in 2001, and especially since the events of Sept. 11, 2001, most states have incorporated the threat of agricultural terrorism into their disaster plans.

**Dialogue, work just beginning in many states**

In Indiana, the state’s Counter-Terrorism and Security Council, an organization led by the lieutenant governor and responsible for all aspects of the state’s homeland security, has established an agriculture-specific task force to address the agroterror issue.

The task force is made up of more than 20 representatives from the agriculture industry, academia and federal agencies. It meets regularly to develop plans for preventing and responding to agroterror incidents. So far, the task
force has focused on training needs and has helped to write Indiana’s preparedness strategy – including how local animal health emergencies are handled – into state law. Vaccine and antidote administration is under discussion, and the group hopes to discuss other security issues as well.

The task force, which meets once a month and was made a statutory entity in early 2002, has two full-time employees and utilizes state resources from other agencies. It is funded by a $200,000 federal grant. The effort is only a small part of the state’s overall counter-terrorism strategy, but it represents the first organized attempt to address the agroterror challenge. It does so by bringing together experts from government agencies and private sector representatives who have rarely been consulted on state security measures in the past.

Communication is important not just between representatives of different economic and governmental sectors, but between various levels of government. Many states are concluding that state funds are best spent on training and equipment for first-responders at the local level. In Kansas, the Legislature authorized the creation of regional emergency management teams that help local government authorities plan, train, exercise and prepare for disasters, including agroterror events. The response teams also coordinate their activities with state authorities, relieving the latter from some of their oversight responsibilities.

Finally, states might consider working with other states to address the possibility of a regional crisis; an out-of-control agroterror event will obviously not respect state borders. The multistate presence of many large producers, together with their diverse supplier and customer bases, requires states to work together to address common security issues. Moreover, interstate cooperation could help states marshal the resources necessary should a major event occur. One possible vehicle for regional cooperation would be an interstate compact on agroterror issues that would formalize newly established links between states in the Midwest.

7. IMPROVE LAB CAPACITY AND QUALITY

Most states have access to laboratories where animals and crops can be tested for foreign agents. But, often, these facilities were not designed to conduct tests during a crisis in which public health and the viability of a state’s agriculture industry are at stake. Current state laboratories suffer from several key deficiencies. First, most labs cannot test adequately for diseases that are not endemic to the local areas – exactly the kinds of diseases a terrorist might seek to introduce. Instead, specimens must be sent to a federal facility in New York, where results may not be made available for several days (especially if the facility is overrun with samples from other states).

FACILITY, STAFF NEEDS IN THE STATES

Ohio and North Dakota are among the majority of Midwestern states whose
animal health officials lack the capital to invest in sophisticated laboratory equipment (such as molecular diagnostic machinery) that can dramatically expedite an accurate diagnosis. With poor immediate prospects for an improved testing environment, Ohio is preparing to utilize distant federal facilities instead; the state is preparing to use waiting aircraft to whisk samples to out-of-state labs in an effort to streamline the diagnostic process. The USDA plans to station some 400 disease diagnosticians across the country to ensure that a qualified tester is always within four hours of the site of any outbreak. But when time is of the essence, such delays can exacerbate the gravity of an attack.

Second, most state laboratories do not have enough capacity to conduct multiple tests during a crisis. This requirement becomes important once a state has confirmed that a disease is spreading rapidly around the state. At that point, a rigorous testing program may be needed to determine the disease’s progress, requiring a large number of samples to be tested in a short period of time. When the West Nile Virus reached the Midwest, laboratories were quickly overwhelmed with dead birds and other specimens. In Illinois and Michigan, among other states, lengthy backlogs resulted.

By a wide margin, animal health personnel in the Midwest say that the most critical need they face is a lack of laboratory capacity (and staff) that would be of paramount importance during a fast-moving agricultural crisis. While out-of-state facilities might be able to help (if they are not also overrun with testing requests), and federal funds may eventually become available to spur in-state laboratory construction, insufficient laboratory capacity is, at least in the short and medium terms, a key vulnerability.

8. EXPAND EMERGENCY MANAGEMENT POWERS

All Midwestern states have long-standing emergency response plans. However, many of these plans do not contemplate an agricultural or food supply emergency and do not explicitly grant responding authorities powers they may find useful or essential in the event of a true emergency.

BALANCE OF POWERS, CIVIL LIBERTIES REMAIN ISSUES

The Centers for Disease Control and Prevention has issued a Model State Emergency Health Powers Act for states to consider as they re-examine their emergency powers statutes. As of August 2002, seven states had enacted their own versions of the act. In the Midwest, only Minnesota has done so – South Dakota has enacted limited new powers for the state’s governor – while four other states (Illinois, Kansas, Nebraska and Wisconsin) have rejected emergency legislation that, according to opponents, threatened civil liberties.

More states are likely to consider – and pass – additional emergency management powers once concerns about privacy, the balance of powers and
civil liberties are addressed and reconciled with the need for quick action in the event of a crisis.

Minnesota’s law is among the broadest in the region, but its applicability in an agroterror emergency is still limited. The law grants the state’s governor broad powers to command facilities, personnel and medical supplies, but the statute only applies to public health emergencies that pose “a significant risk of substantial future harm to a large number of people.” Threats to animals, crops and non-organic farm assets cannot trigger any of the law’s provisions unless there is sufficient reason to believe that humans may be at subsequent risk of “death or serious, long-term disability.”

On the other hand, the statute also extends the governor’s powers when an event falls short of the official definition of a “public health emergency.” The Minnesota governor can now procure facilities (except private homes) in accordance with the state’s emergency management program, control who may enter or leave public places, command all forms of public and private transportation, and transfer state personnel as necessary.

The governor can exercise these powers at any time, even as a part of drills and training exercises, and would not need to consult with other officials or the legislature. During a declared public health emergency, these powers expand to include commanding private property, requiring citizens to perform emergency management services and disposing of bodies. In other states, where governors do not enjoy such powers (or can exercise them only during a national security crisis and not a public health crisis), time may be lost waiting for federal decrees, legislative approval or permission from the courts.
Conclusion

Systematic efforts to combat the threat of agricultural terrorism are still in their infancy. The attacks of Sept. 11, 2001, along with the 2001 foot-and-mouth-disease crisis in the UK, did focus the attention of the U.S. agricultural community on the threat, and most states have begun to address it in concrete ways. The plausibility and appeal of such an attack are now beyond question, and industry leaders have worked hard to demonstrate the potentially devastating impact of even a relatively minor agroterror event in the current climate of global uncertainty.

But poor communication between government agencies, between levels of government, and between the public and private sectors continue to hinder states in their efforts to adopt a seamless approach to agricultural terrorism preparedness and prevention.

Many states do not yet recognize agricultural terrorism as a legally distinct phenomenon, complicating the prosecution of perpetrators, the swift response of emergency action teams, and surveillance and inspection efforts. In other cases, the facilities and procedures that animal health, emergency management and other agencies have at their disposal are not yet equipped to deal with the intentional spread of dangerous diseases. Laboratories are unable to test for exotic diseases and too few in number to cope with a major crisis, while personnel are not trained to identify security risks or to diagnose foreign animal diseases.

Antiquated reporting systems in many areas delay transmission of vital disease vectors among veterinarians and producers; and regulations that require producers and veterinarians to share security information, emergency plans and positive disease diagnoses with state authorities are either not enforced or do not exist at all. Many important changes will require an institutional shift in thinking among producers, responders and legislators that the events of Sept. 11 have already set in motion. The challenge for industry leaders and regulators is to take the necessary steps to secure the U.S. agricultural sector before another such tragedy occurs.
References


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