GUT PUNCH: AGROTERRORISM AND ATTACKS ON AMERICA'S AGRICULTURAL SYSTEM

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I. INTRODUCTION

Many consider the attacks on the World Trade Center towers in New York City and the Pentagon in Washington, D.C. to be the deadliest acts of terror to occur on the United States' soil. This statement is difficult to deny considering nearly 3,000 Americans lost their lives due to radical jihadist terror perpetrated by Al Qaeda.[1] The ramifications from this attack were widespread and many are still felt today.[2] It is hard to imagine, but another threat of terrorism against the United States is ever present and more likely than we would like to admit.[3] An act of terror even deadlier would need to impact something we need every day to survive—

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1. *See September 11 Terror Attacks Fast Facts*, CNN (Aug. 26, 2021, 12:19 PM), https://www.cnn.com/2013/07/27/us/september-11-anniversary-fast-facts/index.html [https://perma.cc/PU99-H76V].

2. *See id.*

3. *See* PETER CHALK, HITTING AMERICA'S SOFT UNDERBELLY 19-20 (2004), https://www.rand.org/pubs/monographs/MG135.html [https://perma.cc/KZ45-QXM7].

food. An act of agroterrorism could cause an unfathomable amount of damage to the United States and the world as a whole. Agroterrorism is not new but poses unique challenges to the United States that must be acted upon deliberately and diligently by government leaders and local farmers alike. The state of the nation and the state of our stomachs depends on it.

II. WHAT IS AGROTERRORISM?

To begin the discussion on the looming issue of agroterrorism and how to solve it, the term must first be defined. According to Merriam-Webster, agroterrorism is defined as "acts of terrorism intended to damage a country's agricultural production or food supply."[4] Agroterrorism has a similar definition when it is used in a legal context.[5] In a legal context, agroterrorism is defined as "the poisonous use of plant or animal pathogens to cause destructive disease in the agricultural sector."[6] In a legal setting, agroterrorism can also mean "terrorist acts designed to damage the agriculture of a state by [sic] destroying crops, or introducing pests, or diseases."[7] Some legal definitions go beyond the actual acts of poisoning or altering a nation's food supply.[8] For example, agroterrorism may legally include hoaxes and threats of agroterrorism.[9]

Of course, agroterrorism is a subset of terrorism. Terrorism, as defined in the Code of Federal Regulations, is defined as "the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives."[10] It is noted, however, that the definition of terrorism is not universally agreed upon.[11] Agroterrorism is very similar to several other subsets of terrorism and the label used to define the act can be interchangeable. A couple of similar subsets of terrorism used interchangeably with agroterrorism are agriterrorism and bioterrorism.[12]

4. *agroterrorism*, MERRIAM-WEBSTER (Aug. 30, 2021, 6:28 AM), https://www.merriam-webster.com/dictionary/agroterrorism [https://perma.cc/7FFD-CRLH].

5. *Agroterrorism Law and Legal Definition*, US LEGAL (Aug. 30, 2021, 9:52 AM), https://definitions.uslegal.com/a/agroterrorism/ [https://perma.cc/59J4-4KYD].

6. *Id*.

7. *Id.*

8. *See id.*

9. *Id.*

10. 28 C.F.R. § 0.85 (2021).

11. U.S. DEP'T OF JUST., TERRORISM 2002-2005 iv, (Aug. 30, 2021, 6:25 AM), https://www.fbi.gov/stats-services/publications/terrorism-2002-2005 [https://perma.cc/D6VT-ZR4Y].

12. *See id.*; *Agroterrorism Law and Legal Definition*, *supra* note 5.

III. PREVIOUS ACTS OF AGROTERRORISM

Agroterrorism is largely unheard of and seldom discussed in American society.[13] However, acts of agroterrorism are not new and have been occurring for countless years, domestically and abroad.[14] Unfortunately, these acts of terrorism are rarely brought to light and discussed thereby leaving Americans in the dark regarding the dangers posed by such acts.

Domestic terrorism occurs when American citizens damage the lives of other American citizens.[15] One such act of domestic agroterrorism occurred in Alabama in the 1970s.[16] This act of domestic agroterrorism was committed by a well-known domestic terror group, the Ku Klux Klan, who "poisoned black Muslim farmers' water supplies for their cattle."[17] Another act of agroterrorism occurred in the Los Angeles area in 1989.[18] Here, the act of agroterrorism was committed by a group known as "The Breeders."[19] The Breeders spread an invasive fly species onto more than 20 different crops causing widespread crop destruction.[20]

Many domestic terrorists who employ agroterrorism often use agricultural-related, pathogenic agents to poison the food of others.[21] Domestic terrorists have utilized pathogenic agents such as salmonella, ricin, shigella, cholera, and typhus to name a few.[22] For example, in 1996, a hospital lab worker in Texas used shigella to poison the food of the patrons at the hospital.[23] Another example was a Kansas physician who used ricin to poison their estranged husband in 1995.[24] Agricultural

13. *See* MICHAEL E. PETERSON, *Agroterrorism and Foot-And-Mouth Disease: Is the United States Prepared?* 11, in THE COUNTERPROLIFERATION PAPERS FUTURE WARFARE SERIES NO. 13 (2002), https://media.defense.gov/2019/Apr/11/2002115479/-1/-1/0/13AGROTERRORISM.PDF [https://perma.cc/896K-2Y8L].

14. *See* Dean Olson, *Agroterrorism: Threats to America's Economy and Food Supply*, FBI L. ENF'T BULL. (Feb. 1, 2012), https://leb.fbi.gov/articles/featured-articles/agroterrorism-threats-to-americas-economy-and-food-supply [https://perma.cc/UMM9-WTYN].

15. *See Terrorism 2002-2005*, *supra* note 11, at v.

16. *See* Stevie Kiesel, *Reaping What You Sow: The Case for Better Agroterrorism Preparedness*, THE PANDORA REP. (Feb. 20, 2020), https://pandorareport.org/2020/02/20/reaping-what-you-sow-the-case-for-better-agroterrorism-preparedness/ [https://perma.cc/Y5B5-8NRC].

17. *Id.*

18. *Id.*

19. *Id.*

20. *See id.*

21. *See* CHALK, *supra* note 3, at 28.

22. *See id.* at 29.

23. *Id.*

24. *Id.*

products, chemicals, and fertilizers are often used in acts of terror by domestic terrorists, such as the use of fertilizers in the notorious Oklahoma City Bombing by Timothy McVeigh and Terry Nichols.[25]

Acts of agroterrorism also occur in foreign nations.[26] For example, agroterrorism has been used between Israel and specific organizations located in the geographic region.[27] For example, in 1978, "the Arab Revolutionary Council poisoned citruses that were being exported from Israel to Europe with liquid mercury as a means of harming Israel's economy."[28] Israel engaged in similar acts, including spraying grapevines in Palestinian territory with chemicals, which caused the destruction of tens-of-thousands of tons of grapes and hundreds of grape vines.[29]

IV. CURRENT THREATS AND CONCERNS REGARDING AGROTERRORISM

A. Why is the United States Vulnerable to Acts of Agroterrorism?

The United States is, without a doubt, the country with the highest funded armed forces and features some of the most highly-trained, highly-specialized national security and defense organizations in the world.[30] With an armed forces budget of over 700 billion dollars, this fact is difficult to deny.[31] Individual federal organizations involved in national security, such as the Federal Bureau of Investigation (FBI), have annual budgets in excess of 9 billion dollars.[32] These enormous budgets leave many wondering: How could the United States be unprepared for any terrorist attack, let alone an attack on the agricultural system? Why is the United States vulnerable to acts of agroterrorism?

There are several reasons why the United States is so vulnerable to acts of agroterrorism. One primary reason is that farming practices in the United States

25. *See* Oklahoma City Bombing, FED. BUREAU OF INVESTIGATION, https://www.fbi.gov/history/famous-cases/oklahoma-city-bombing [https://perma.cc/WRL5-3FVY].

26. *See* Kiesel, *supra* note 16.

27. *Id.*

28. *Id.*

29. *Id.*

30. *See U.S. Defense Spending Compared to Other Countries*, PETER G. PETERSON FOUND. (July 9, 2021), https://www.pgpf.org/chart-archive/0053_defense-comparison [https://perma.cc/RNB7-BPCQ].

31. *See id.*

32. *See FBI Budget Request for Fiscal Year 2020*, FED. BUREAU OF INVESTIGATION (Apr. 4, 2019), https://www.fbi.gov/news/testimony/fbi-budget-request-for-fiscal-year-2020 [https://perma.cc/SKG5-5MFS].

are heavily concentrated and intensive.[33] For example, dairies in the United States can be expected to house anywhere from 1,000-to-10,000 cows at one time, all bred and reared within close proximity.[34] Raising animals in extremely close quarters increases the chance of a contagious disease spreading rapidly through the animal population, especially if the disease is airborne.[35] Agroterrorists could insert and spread a communicable disease into a concentrated farming operation, which would quickly cause livestock to become infected with little opportunity for farmers to stop the spread.[36] This act of agroterrorism could lead to meat and dairy shortages, as well as economic hardship.[37]

Another reason that the United States is highly vulnerable to acts of agroterrorism is the fact that livestock have become increasingly susceptible to disease and pathogenic agents.[38]

> [United States] livestock has become progressively more disease prone in recent years as a result of changes in husbandry practices and biotechnology innovations designed to increase the quality and quantity of meat production and to meet the specific requirements of individual vendors.[39]

Some of these changes include sterilization and hormone injections, which cause the stress levels of the livestock to rise, and thus decreases the ability for livestock to fight off infectious disease.[40] Agroterrorists could use this tactic to their advantage by spreading pathogenic agents and infectious disease to the already weakened livestock and cause damage to whole herds of livestock.[41]

Another aspect of the United States agricultural system that has often been overlooked is security.[42]

> A deliberate act of sabotage is something the majority of the agricultural community has simply not thought about, much less physically sought to guard itself against. At the policy level, for example, it was not until October 1998 that the words "terrorism," "agriculture,'" and "biological weapons" were officially used in the same context by the U.S. Department of

33. CHALK, *supra* note 3, at 7.
34. *Id.* at 7-8.
35. *Id.* at 8.
36. *See id.* at 17.
37. *See id.* at 8.
38. *Id.* at 9.
39. *Id.*
40. *Id.*
41. *See id.*
42. *Id.* at 10.

> Agriculture (USDA) to assess potential vulnerabilities and threats to the agricultural industry.[43]

Many American farms operate in an open manner, with little attention or money spent on security, surveillance, or barriers.[44] This lack of security can also be seen at many food processing and meat packing plants.[45]

B. What Makes Acts of Agroterrorism Concerning?

Besides the inherent vulnerabilities in the United States' agricultural system, several other factors are concerning when it comes to agroterrorism. The first is that acts of agroterrorism require little skill compared to other acts of terrorism.[46] "[I]f the objective of an agroterrorist act is human deaths, the food chain offers a low-tech mechanism that is nevertheless conducive to disseminating toxins and bacteria such as salmonella, e-coli, and botulinum (none of which requires any substantial scientific knowledge to isolate or develop)."[47] United States' leaders have even admitted altering the United States' food supply and agricultural system would be relatively easy.[48] The United States Secretary of Health, Tommy Thompson, stated in 2004, "for the life of me, I cannot understand why the terrorists have not attacked our food supply because it is so easy to do. We are importing a lot of food from the Middle East, and it would be easy to tamper with that."[49]

Another concerning factor regarding agroterrorism is the nature of the agents used to attack and infect livestock and crops. Many of these agents are incredibly durable and able to survive on both living and nonliving material for a long period of time.[50] Many of these agents are also incapable of spreading and transmitting to humans.[51] Thus, many are easily smuggled into the United States on an individual's person, or on a living or nonliving object.[52] The inability of these

43. *See id.*
44. *See id.*
45. *Id.* at 11.
46. *Id.* at 14.
47. *Id.* at 16.
48. Thomas C. Berg et al., *Military's Role in Combating Agroterrorism: Introduction*, *in* AGROTERRORIST ATTACK: DOD ROLES AND RESPONSIBILITIES 1, 2 (Tasha L. Pravecek et al. eds., 2006), https://www.airuniversity.af.edu/Portals/10/CSDS/Books/agro_terror2.pdf [https://perma.cc/STC9-8J8L].
49. *Id.*
50. CHALK, *supra* note 3, at 15.
51. *Id.*
52. *Id.*

agents to transmit to humans also decreases the skill required by an agroterrorist to handle them.[53] "This quality precludes the necessity on the part of the perpetrator to have an advanced understanding of animal disease epidemiology and transmission modes, and eliminates the requirement for elaborate containment procedures, personal protective equipment (PPE), and/or prophylaxis antibiotics in the preparation of the agent."[54]

Further complicating this problem, not only are these agents durable and relatively easy to handle with little skill, they also come in large assortments that leave agroterrorists with multiple options to choose from.[55] The Office of International des Epizooties has indicated 15 "List A" pathogenic agents with potential to cause mass catastrophe to agriculture.[56] List A pathogenic agents are agents that have "the potential for very serious and rapid spread, irrespective of national borders, that are of serious socio-economic or public health consequence and that are of major importance in the international trade of animals and animal products."[57] Some of these pathogenic agents, such as African Swine Fever (ASF), highly pathogenic avian influenza (AI), Exotic Newcastle Disease (END) and African Horse Sickness (AHS) have at least a fifty percent mortality rate on impacted species.[58] The ease of use and incredibly high mortality rate creates the perfect cocktail for an agroterrorist to wreak havoc.

C. What are the Potential Impacts of an Agroterrorist Attack?

While many acts of agroterrorism are localized and typically impact a small subset of the country, a concerted and widespread agroterrorist attack would be nothing short of devastating to the United States. Nearly every major part of a normal American's life would be affected.[59]

The first impact the United States would likely experience is economic in nature.[60] The agricultural industry is a driving force of the United States' economy. United States agricultural exports alone are larger than a majority of the world's individual nations annual Gross Domestic Product (GDP).[61] The ability of the United States to efficiently mass produce meat and produce has benefited the

53. *Id.*
54. *Id.*
55. *See id.* at 14 n. 19.
56. *Id.*
57. *Id.*
58. *Id.* at 16.
59. *See id.* at 19.
60. *Id.*
61. Berg et al., *supra* note 48, at 5.

average American, who spends slightly more than ten percent of their average income on food.[62] Compare the United States in this regard with another powerful nation, Russia, where their citizens spend roughly fifty percent of their income on food.[63]

Because of agriculture's role as a large industry in the United States, a widespread agroterrorist attack on the nation would likely cause the industry to experience devastating economic impacts. The most immediate form of economic disruption would come from the costs associated with containing the spread of the disease, as well as removing and eradicating the animals that are inflicted with disease(s).[64] These economic impacts were seen on a smaller scale in Taiwan in 1997, when the nation attempted to counter the spread of Foot and Mouth Disease (FMD).[65] In an attempt to stop the spread of the disease, Taiwan had to immediately spend ten million dollars for vaccines and approximately "[four] billion [dollars] for surveillance, cleaning and disinfection of affected livestock premises, and related viral eradication programs."[66] Estimates for similar procedures in the United States are predicted to cost at the very least five billion dollars, but many estimates predict this cost to be exorbitantly higher.[67]

Economic impacts beyond immediate containment procedures are also expected to be costly.[68] The United States would have to fund and bail out impacted farmers and any individual or company that was severely impacted by the outbreak.[69] An example of this economic impact was seen in the United Kingdom (UK) in 2001, when the nation was dealing with an outbreak of FMD.[70] Here, farmers had to be compensated by the UK government in excess of one billion dollars for the mass animal culling operation of over 3,000,000 animals, which had been undertaken to stop the spread of the disease.[71] Certain United States' agricultural sectors are also likely to be permanently undercut by competitors if shut off to contain the spread.[72] Competing nations could seize this opportunity and fill the void in the market, permanently impacting the United States by creating

62. *Id.* at 5-6.
63. *Id.* at 6.
64. CHALK, *supra* note 3, at 19.
65. *Id.* at 19-20.
66. *Id.*
67. *See id.* at 20.
68. CHALK, *supra* note 3, at 20.
69. *Id*.
70. *Id*.
71. *Id*.
72. Berg et al., *supra* note 48, at 5.

new differences in the balance of trade between the United States and other nations.[73]

Another potential impact of an agroterrorist attack—and one that is likely to be more dangerous and harmful to society—would be the impact to food availability in the United States and the world as a whole.[74] Having fresh meat and produce is incredibly important. The United States, however, is very unprepared to deal with widespread food shortage.[75] "Some food security experts estimate that the average city in the [United States] has at most a five-day supply of fresh meat, fruit, and vegetables on hand."[76] This problem is likely to be exacerbated when individuals become aware or have a sense that a food shortage is on the horizon, as human nature and biology kicks in causing citizens to panic buy and hoard the already small quantity of fresh food available.[77] Food shortages would be detrimental not only to the United States, but also to nations around the world that rely on the United States for food assistance.[78] Adverse health outcomes could arise in nations already lacking the resources for proper nutrition and sustenance.[79]

A final impact likely to occur in the event of an agroterrorist attack would be political turmoil and decreased trust in government and institutions.[80] Terrorist attacks are often carried out to cause widespread fear and anxiety throughout a society and an agroterrorist attack would be no different.[81] Particular agroterrorist attacks, especially attacks carried out using zoonotic disease agents (pathogens that can transfer from animals to humans), have the potential to cause widespread panic if human deaths were to occur.[82] Panic surrounding an agroterrorist attack would increase if the disease outbreak is not immediately contained. Food disseminates and moves rapidly throughout American society, and if the spread of the disease-ridden meat or produce is not easily identified, Americans could become increasingly fearful of what they eat and whether their food is dangerous.[83] It is easy to imagine that this panic and fear could lead to further distrust in government

73. *Id.*
74. *Id.* at 7.
75. *Id.*
76. *Id.*
77. *Id.*
78. *Id.*
79. *Id.*
80. CHALK, *supra* note 3, at 27.
81. *Id.* at 25.
82. *Id.*
83. *Id.* at 26.

and its institutions, especially if the attacker and the areas affected are not easily identifiable.

D. Known Threats of Agroterrorism

An agroterrorist attack on the United States might seem farfetched or impossible; however, this threat is very plausible and more likely than many care to admit.[84] One of the most well-known agroterrorist threats the United States has knowledge of comes from a group that the United States and its citizens are all too familiar with: the terror group, Al Qaeda.[85]

In recent years, the United States has begun uncovering secret Al Qaeda documents in the caves of Afghanistan during raids by United States military forces, whereas these documents indicate that attacks against the American agricultural industry could be devastating to the United States and its allies.[86] Over 250 such documents have been found, including American agricultural information translated into Arabic and training manuals describing the destruction of American crops and livestock.[87] While the operating capacity of Al Qaeda has certainly diminished since the early 2000s, the problem of both foreign and domestic terror organizations engaging in acts of agricultural terrorism is more likely to occur than the United States is equipped to handle.[88]

Terror organizations or other unruly actors have a wide array of agents at their disposal to commit these acts of terror, but several agents are more likely to be used than others.[89] One such disease agent likely to be used by agroterrorists is ASF.[90] ASF has a mortality rate of 60%-to-100% in livestock depending on the specific strain of the pathogen, and it is non-zoonotic, which means terrorists can avoid human death while handling and introducing the pathogen into the agricultural population.[91] The impact of ASF being introduced into American livestock would be incredibly damaging to the United States, with some studies indicating the United States could suffer a financial loss of over five billion dollars in a 10 year period.[92] Recent studies of such a disease being widely introduced into

84. *See* Olson, *supra* note 14.
85. *Id.*
86. Berg et al., *supra* note 48, at 2.
87. *Id.*
88. Olson, *supra* note 14.
89. CHALK, *supra* note 3, at 14.
90. *Id.* at 16.
91. *Id.* at 15-16.
92. *See id.* at 20.

the American livestock population estimate an impact of over fifteen billion dollars, putting a huge dent in the United States economy and global food supply.[93]

Perhaps the most likely disease to be used by an agroterrorist to devastate the United States would be FMD.[94] The United States eradicated FMD in 1929 but this disease still ravages animal populations in South America, Africa, and Asia.[95] "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."[96] FMD can be transmitted from animal-to-animal through the air with an astounding 50 miles radius, damaging nearby farms and a wide array of livestock in a rural community.[97]

FMD is very likely to be used as a pathogen for several reasons. First, as already mentioned, it is highly transmissible.[98] Second, it does not have to be weaponized, as the livestock themselves are the primary vectors once one animal has been inoculated with the pathogen.[99] Third, it is non-zoonotic, resulting in no potential risk of humans becoming infected by the disease.[100] This aspect means that the skill required by the agroterrorist to carry out the attack can be considerably less than that of a zoonotic disease, as no high level of scientific background is required.[101] FMD being non-zoonotic also makes it a very non-expensive avenue for an agroterrorist as little personal protective equipment and scientific equipment is necessary.[102] The use of FMD creates a low risk, high reward scenario for an agroterrorist, for the cost to act would be relatively low and the potential disruption to the American economy would be high.[103] It would cost an estimated sixty billion dollars if inoculation from the disease occurs throughout the United States agricultural community.[104]

93. *See id.*
94. Olson, *supra* note 14.
95. *Id.*
96. *Id.*
97. *See id.*
98. *See id.*
99. *Id.*
100. *Id.*
101. *See id.*
102. *Id.*
103. *See id.*
104. *See id.*

V. WHAT'S BEING DONE ABOUT AGROTERRORISM?

The threat of an agroterrorist attack is very real and frightening, leading many to wonder about preventive measures. To start, it's useful to know what is already being done to prevent agroterrorism. A number of national and local government bodies have introduced legislation regarding agroterrorism.[105]

At the national level, a variety of measures are being taken to address agroterrorism and possible agroterrorist attacks.[106] Perhaps the largest and most important piece of national legislation to address agroterrorism came in 2017 with the Securing our Agriculture and Food Act.[107] This Act ensures that the United States Department of Homeland Security (DHS) and USDA, along with other organizations comprising the United States national emergency infrastructure, are prepared to protect America's agricultural systems in the event of an agroterrorist attack.[108]

> The act formalizes cooperation already occurring in the Strategic Partnership Program Agroterrorism Initiative, a collaboration of the DHS, the USDA, the FBI and the Food and Drug Administration. The initiative establishes and employs centers of excellence, modeled after the DHS Fusion Center network, to quantify and then remedy vulnerabilities in agriculture.[109]

While the bill certainly aids in shoring up holes in the United States' national security apparatus—particularly in the area of agriculture—the bill has its critics. Such critics state that the bill is yet another example of wasteful government spending and oversight preparing for an event that has yet to occur.[110] However, many proponents of the bill argue that the cost and extended oversight the bill requires are necessary, considering the importance agriculture plays in the United States economy and how the food produced by the United States provides for many nations around the world.[111]

While the Securing our Agriculture and Food Act was an Act specifically made to target agroterrorism, several other national security acts have also

105. *See*, *e.g.*, Securing our Agriculture and Food Act, Pub. L. No. 115-43, 131 Stat. 884 (2017); IOWA CODE § 717A.4(1)(a) (2021).

106. *See* Securing our Agriculture and Food Act, 131 Stat. 884.

107. *See id.*

108. Ryan Larson, *Disruptive by Design: Why We're Not Ready to Fight Agroterrorism*, SIGNAL (Oct. 1, 2017), https://www.afcea.org/content/disruptive-design-why-were-not-ready-fight-agroterrorism [https://perma.cc/7QNJ-7B3A].

109. *Id.*

110. *See id.*

111. *See id.*

included pieces in the legislation aimed at countering it.[112] One example of this can be seen in the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (BTA).[113] This Act was created in order to better strengthen and secure the United States food supply, highlighted by the tragic events of September 11, 2001.[114] This Act did several things, including mandating all domestic and foreign food facilities and manufacturers register with the FDA to aid in quick identification and containment of poisoned and tainted food.[115] Also included in the Act is a prior notification requirement that must be given before the importation of any shipment of human and animal food, as well as agreements to commission and train special Customs and Border Protection (CBP) agents to target and examine suspect food shipments at United States' ports.[116]

The national government is not the only actor proposing legislation to prevent agroterrorism. Many state governments are taking matters into their own hands to combat agroterrorism in their respective states.[117] Iowa, for example, has a section of the Iowa Code dedicated to ecoterrorism, with specific subsections specifically devoted to agroterrorism and interference with animals.[118] Pertinent sections of this Act make it unlawful for a person, without consent, to destroy property of an animal facility or kill or injure an animal maintained there.[119] Specific sections of this Act also make it a Class B Felony to use pathogens with an intent to threaten the health of an animal or crop.[120] Many states make it a criminal offense to trespass onto another's property and to collect information or to photograph animals being held there.[121] One example of this is a Wyoming statute that prohibits "trespassing to unlawfully collect resource data."[122] Collecting resource data is done by entering onto open land without an ownership interest or permission to collect information or photograph resource data

112. *See The Bioterrorism Act*, U.S. CUSTOMS & BORDER PATROL (Jan. 27, 2014), https://www.cbp.gov/trade/priority-issues/import-safety/bioterrorism [https://perma.cc/43M4-BAPW].

113. *Id.*

114. *Id.*

115. *Id.*

116. *Id.*

117. *Ecoterrorism or Agroterrorism: Related Statutes*, MICH. STATE UNIV. (Aug. 30, 2021, 9:58 AM), https://www.animallaw.info/statutes/topic/ecoterrorism-or-agroterrorism?order=title&sort=desc [https://perma.cc/FG46-7SG6].

118. IOWA CODE § 717A.4(1)(a) (2021).

119. *Id.* § 717A.2(1)(a).

120. *Id.* § 717A.4.

121. *See Ecoterrorism or Agroterrorism: Related Statutes*, *supra* note 117.

122. WYO. STAT. ANN. § 6-3-414(b)(i) (2021).

(including animal species).[123] These types of legislative acts are often referred to as "ag-gag."[124]

Beyond looking at various types of legislation, many government agencies are involved in stopping and preventing threats of agroterrorism.[125] Some of the groups most heavily involved in protecting America's agriculture from terrorism include the FBI, DHS, USDA, and FDA.[126] These four government organizations joined together and developed the entity known as the Strategic Partnership Program Agroterrorism (SPPA) Initiative.[127] The SPPA provides assessments on the nature of agroterrorist threats in the United States, including information about where and how the agricultural system is vulnerable to attack, identifying and providing suggestions to mitigate these vulnerabilities, and bolstering agricultural security practices.[128]

VI. WHAT MORE CAN BE DONE TO PREVENT AGROTERRORISM?

A. Preventative Measures

While the United States has certainly taken the threat of agroterrorism and other similar subsets of terrorism (such as bioterrorism and ecoterrorism) more seriously following 9/11, the nation has a long way to go to successfully prevent and respond to acts of agroterrorism. Many suggestions have been made to better prepare the United States for these acts, the majority of which have been classified as preventative measures. These suggestions can be further divided into either short-term or long-term preventative measures.

What preventative measures can be taken in the short term to prevent an act of agroterrorism? A good start would be to develop and inoculate livestock with vaccines against List A pathogens.[129] Currently, these pathogens are not the focus of most vaccination plans in the United States for ordinary livestock.[130] While

123. *Id.* § 6-3-414(b).

124. *Ecoterrorism or Agroterrorism: Related Statutes*, *supra* note 117.

125. *See Strategic Partnership Program Agroterrorism (SPPA) Initiative: Second Year Status Report July 2006 – September 2007*, U.S. FOOD & DRUG ADMIN. (June 22, 2018), https://www.fda.gov/food/food-defense-programs/strategic-partnership-program-agroterrorism-sppa-initiative-second-year-status-report-july-2006 [https://perma.cc/7C2X-6TS5].

126. *Id.*

127. *Id.*

128. *Id.*

129. CHALK, *supra* note 3, at 42.

130. *Id.* at 15.

proving costly on the front end for research and development of these vaccines, there is, arguably, no better method for preventing the spread of disease than vaccines. Vaccines could achieve herd immunity for closely-held animal populations and could be used as a response measure if stockpiled in case of an outbreak.[131]

Another preventative measure the United States ought to undertake is bolstering surveillance and biosecurity in the nation's food processing and rendering plants.[132] Current inspection practices of these facilities are very limited and inconsistent.[133] These limitations and inconsistencies are not the fault of these plants, as the United States lacks the appropriate number of trained veterinary diagnosticians to detect and respond to dangerous pathogens.[134] The United States has been pushing young adults in recent years to enter STEM fields, yet still finds itself lacking in capable veterinary scientists.[135] The United States needs to further incentivize individuals to become trained in this regard, in order to respond to an ever-growing concern of agroterrorism.[136]

While hiring trained diagnosticians is of the utmost importance, these plants can take immediate, strong preventative action to better secure themselves and the nation's consumers from agroterrorism. Plants can do this by better securing and monitoring their facilities and not just their food.[137] Some potential implementation options to better secure facilities include "restricting individual's entry and exit rights, locking up storage/bulk ingredient containers, and mounting video surveillance cameras at key internal processing hubs."[138] Another step food processing companies need to take is increasing the thoroughness of background checks for seasonal employees and individuals working in positions that deal with widely distributed meat products, as these are the most likely to cause widespread danger if infected with a pathogen.[139] These simple steps can greatly reduce the risk of any tampering with agricultural products by company outsiders and disgruntled employees alike, better securing our nation's food and agricultural products.

131. *Id.* at 42.

132. *Id.* at 34.

133. *Id.*

134. *See id.*

135. Julie Cooper, *Fighting Agroterrorism*, TEX. STATE UNIV. (Aug. 30, 2021, 9:59 AM), https://hillviews.txstate.edu/issues/2017/a-taste-of-texas-state/fighting-agroterrorism.html [https://perma.cc/AK6R-HJRE].

136. *Id.*

137. CHALK, *supra* note 3, at 40.

138. *Id.*

139. *Id.*

These are some short-term fixes the United States needs to make in order to better prepare for an act of agroterrorism. There are, however, some long-term fixes the United States needs to undertake to more fully secure the agricultural industry from agroterrorism attacks. First, the United States needs to begin moving away from the concentrated nature of its farming practices.[140] Crowded animal populations, numbering in the thousands in large United States agricultural facilities, being bred and reared in close proximity to one another is a breeding ground for disease.[141] To decrease the risk of transmitting deadly pathogens amongst themselves, United States agricultural facilities must begin to expand to properly and safely accommodate all livestock. Moving away from large-scale farming would likely prove to be the safest long-term solution to this problem. However, based on the United States' farming practices, this route is very unlikely to be taken.[142] Thus, facilities, at the very least, must begin to expand their structures without increasing their herd size to protect from disease spreading in general.

Another long-term change the United States needs to seriously consider is the reversal of its recent husbandry practice developments. Livestock in the United States are often bred to be as large as possible and, as a result, have the highest possible quality of meat.[143] As discussed, this process often involves injecting livestock with hormones and steroids, dehorning, branding, and sterilization.[144] These husbandry practices often leave livestock more sick and stressed, thereby making them more susceptible to diseases and pathogens.[145] The United States must begin to weigh the benefits of increasing the amount of meat we produce against the risk of having livestock populations susceptible to disease and a potential agroterrorist attack. This change is certainly not one that can be made overnight, but it is hard to imagine a long-term scenario where it is safe and sustainable to maintain a livestock and agricultural industry with hormone-filled, highly stressed animals as its bedrock.

140. *See id.* at 8.
141. *Id.*
142. *See id.* at 7.
143. *See id.* at 9.
144. *Id.*
145. *Id.*

B. Response Measures

Along with the various preventative measures the United States needs to take to prevent an agroterrorist attack, the United States needs to have response measures in place in the event of an agroterrorist attack. Responses to acts of terror are never easy and no one-size-fits-all solutions are reasonable, as the nature of the terrorist attack inevitably vary. However, having response measures in place will prove fruitful in the event of an attack. Useful response measures include regular response containment exercises and programs at food facilities and plants, stockpiling of vaccines and medications, and advanced veterinary training in exotic animal disease.[146]

Potentially the greatest response measure the United States should take is to educate the American public about agroterrorism and its potential consequences.[147] Many Americans have little knowledge about agroterrorism, if any at all. The United States government—along with state governments—need to create an emergency response plan in the event of an agroterrorist attack and allow the plan to be available for public viewing. The average American would be wholly unprepared to deal with such a catastrophe. Failure to effectively communicate such plans "could cause the public to question the safety of the food supply and possibly lead individuals to speculate over the effectiveness of existing contingency planning against weapons of mass destruction in general."[148] At a minimum, the United States government needs to educate its citizens how to identify if they have poisoned or tainted food, and what they should do if they believe they are in possession of such food. The United States government should also encourage its citizens to acquire an emergency food supply, explain what should be in this food supply, and inform them how long they need to have an extra supply of food in case the United States food and agricultural system is compromised.

VII. CONCLUSION

Agroterrorism—while never having been utilized at a large scale in the United States—should not be dismissed as a fantasy. Agroterrorism and its consequences can be deadly and may undermine civilian trust in the United States government and food. Terrorists, including those in groups like Al Qaeda, have an interest in committing acts of agroterrorism and have a wide array of diseases, such

146. *Id.* at 42.
147. *Id.*
148. *Id.* at 22.

as FMD, available to do so.[149] Agroterrorism requires little skill compared to other acts of terror, thus widening its pool of potential users.[150] The United States and its state governments must begin taking preventative measures and develop response actions in the event of such an attack. Our nation and our citizens' stomachs depend on it.

149. *Id.* at 15, 29.
150. *Id.* at 15.