

FOOD FOR THOUGHT OR TERROR: THE LEGAL ISSUES SURROUNDING AGROTERRORISM

I. INTRODUCTION

The United States' agriculture system is vulnerable to terrorist attack.¹ Agroterrorism reaches across various disciplines, challenges federal, state, and local agencies, and involves diverse programs and industries focused on agribusiness, food production, research, risk management, surveillance, consumer education, and sharing of intelligence.² The prospect of agroterrorism implicates the Pure Food and Drug Act and the Meat Inspection Act.³ Preventing agroterrorism may also impel the government to enforce and modify the Clayton Antitrust Act.⁴ This comment focuses on the legal issues connected to the deliberate sabotage of processed food with the intent to cause human disease. Specifically, this comment will provide a brief overview of agricultural biological warfare then analyze various governmental responses to agroterrorism. This comment will end with an examination of the Department of Health and

¹ Jeremy Sobel, Ali S. Khan & David L. Swerdlow, *Threat of a Biological Terrorist Attack on the US Food Supply: The CDC perspective*, 359 LANCET 874, 874-875 (2002) (discussing how the U.S. food supply has already been attacked and is susceptible to future biological terrorist attacks).

² O. Shawn Cupp, David E. Walker II & John Hillison, *Agroterrorism in the U.S.: Key Security Challenge for the 21st Century*, 2 Biosecurity and Bioterrorism: BIODEFENSE, STRATEGY, PRACTICE, & SCI. 97, 102 (2004) (recommending federal level changes to protect agriculture from terrorist attack).

³ Pure Food and Drug Act of 1906, ch. 3915, 768, 768-772 (enacted to prevent the manufacture, sale, transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein, and for other purposes); See also Meat Inspection Act of 1906, 34 Stat. 674, amended by Pub. L. No. 59-242, 34 Stat. 1260 (1967) (ratified in response to President Theodore Roosevelt's investigation of Chicago meat packers in 1904 and Upton Sinclair's *The Jungle*, the law: mandated antemortem inspection of livestock, mandated post-mortem inspection of every carcass, established sanitary standards for slaughter and processing plants, and required continuous USDA inspection of slaughter and processing operations).

⁴ The Clayton Antitrust Act of 1914, ch. 323, 38 Stat. 730 (codified at 15 U.S.C. § 12 through 15 U.S.C. § 27 and 29 U.S.C. §52 and 29 U.S.C. § 53) (prohibits, amongst other antitrust schemes, mergers and acquisitions where the effect may substantially lessen competition, but exempts agricultural organizations).

Human Services' recent, unprecedented request to pull a paper, which analyzes a potential bioterror attack on the food supply, from the *Proceedings of the National Academy of Sciences*.

II. FOOD FEAR: AGRICULTURAL BIOLOGICAL WARFARE

A. Defining Agroterrorism

Agroterrorism is “the deliberate introduction of a disease agent, either against livestock or into the food chain, for purposes of undermining stability and/or generating fear.”⁵ According to federal law and the United States Department of Agriculture (“USDA”), an agricultural attack is a form of bioterrorism.⁶ The federal government, however, does not classify agricultural warfare agents as weapons of mass destruction.⁷ This lack of classification exists because unlike nuclear weapons, agricultural warfare agents “do not kill people.”⁸ Classification impacts federal regulation and funding.⁹ Even so, a deliberate attack on the food supply not only harms the animal or plant infected but can also invoke large-scale physiological and psychological impact on humans across the globe.¹⁰ From a physiological standpoint, the introduction of toxins or

⁵ *Terrorism, Infrastructure Protection, and the U.S. Food and Agricultural Sector: Hearings Before the Senate Subcomm. on Oversight of Government Management, Restructuring and the District of Columbia*, 107th Cong. 1st Sess (2001) (testimony of Dr. Peter Chalk, Policy Analyst, RAND Corporation).

⁶ See generally Public Health Security and Bioterrorism Preparedness and Response Act of 2002, Pub. L. No. 107-188 (enacted in response to the Fall 2001 anthrax attacks, this Act's main goals were to assess and improve infrastructure integrity, increase pathogen security, and augment public health capabilities, but tries to some extent to establish more effective and efficient protocol for food protection and collaboration between pertinent food safety agencies, such as the FDA and the USDA); See also Department of Agriculture Animal and Plant Health Inspection Service, 7 C.F.R. Part 331 and 9 C.F.R. Part 121 (2005) (adopting final rules governing the possession, use, and transfer of biological agents and toxins that pose a threat to animal and plant products).

⁷ Public Health Security and Bioterrorism Preparedness and Response Act of 2002, Pub. L. No. 107-188.

⁸ Rocco Casagrande, *Viewpoint: Biological Terrorism Targeted at Agriculture: The Threat to U.S. National Security*, 7 THE NONPROLIFERATION REVIEW 92, 92-104 (2000) (advocating for more funding and changes to law for biological terrorism targeted at agriculture—an overlooked class of weapons of mass destruction); however, Steve Bowman, *Weapons of Mass Destruction: The Terrorist Threat*, CRS Report for Congress 1, 1-7 (2002) (identifies agroterrorism as a potential weapon of mass destruction).

⁹ Casagrande, *supra* note 8, at 93, 104.

¹⁰ See generally Karen-Beth G. Scholthof, *One Foot in the Furrow: Linkages Between Agriculture, Plant Pathology, and Public Health*, 24 ANNU. REV. PUBLIC HEALTH 153, 153-170 (2003) (reviewing the connection between plant health and public health); See also Manoj Karwa, Brain Currie & Vladmir Kvetan, *Bioterrorism: Preparing for the*

infectious agents such as anthrax, smallpox, botulin, or ebola causes lethal symptoms, including lesions and respiratory distress.¹¹ The psychological impact of agroterrorism manifests itself in the public's distrust in their government to provide adequate quality control and protection over food, which can quickly affect global trade of agricultural products.¹²

Naturally, an attack on the United States ("U.S.") agriculture will have significant economic repercussions. One reason for this tremendous impact is that the farm sector is the largest positive contributor to the national trade balance and contributes fifty billion dollars annually to the global economy.¹³ Agriculture accounts for one sixth of the national gross domestic product.¹⁴ Furthermore, agriculture is the number one employer in the U.S.¹⁵ In addition, since the U.S. agriculture system is so productive and efficient, Americans spend less than 11% of disposable income on food, in contrast to the global average of 20 to 30%.¹⁶ U.S. agricultural products also account for 15% of all global agriculture exports.¹⁷ All things considered, a bioterrorism attack on the U.S. agriculture is highly unlikely to result in famine or malnutrition; however, an attack could harm people, disrupt the economy, and cause widespread public concern and confusion.¹⁸

Impossible or the Improbable, 33 CRIT. CARE MED. S75, S75-S92 (2005) (explaining how biological attacks affect the human body in addition to the larger healthcare infrastructure).

¹¹ Elizabeth A. Funk, *Preparedness for a Bioterrorism Event in Alaska*, 42 ALASKA MEDICINE 101, 107-09 (2000) (charting the general characteristics and symptoms of various bioterrorism-related illnesses).

¹² Cupp, *supra* note 2, at 97-99, 104.

¹³ Henry S. Parker, *Introduction to Agricultural Bioterrorism: A Federal Strategy to Meet the Threat*, 65 MCNAIR PAPER, at x (2002) (reviewing agricultural bioterrorism and proposing USDA-led federal strategies to strengthen the U.S. agricultural infrastructure).

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ Henry S. Parker, *Chapter 2: An Emerging Threat to Food Security, in Agricultural Bioterrorism: A Federal Strategy to Meet the Threat*, 65 MCNAIR PAPER, at 11 (2002).

¹⁸ COMMITTEE ON BIOLOGICAL THREATS TO AGRICULTURAL PLANTS AND ANIMALS, NATIONAL RESEARCH COUNCIL, COUNTERING AGRICULTURAL BIOTERRORISM 3, 61-69 (2002).

B. Agroterrorism Attacks

Military planners in several countries have specifically considered agricultural systems as potential targets.¹⁹ One explanation for this strategy is numerous countries have already used agricultural biological warfare.²⁰ Most of the information regarding agricultural biological warfare is anecdotal at best, highly classified or destroyed, and fortunately, in several countries, never made it past the research and development stage.²¹

During World War I, German operatives implemented the first contemporary use of agricultural biological warfare in a sabotage campaign in the United States, Argentina, Romania, France, Mesopotamia, and possibly Spain and Norway.²² The Germans targeted draft animals, military cavalry, and food animals with anthrax and glanders with the hopes of interrupting Allied transportation and supply lines.²³ Despite Hitler's ban on offensive biological warfare, the German military experimented with foot-and-mouth disease on cattle and reindeer in Russia.²⁴ Furthermore, the Germans conducted trials with the following: antler moths, potato beetles, potato stalk rot, potato tuber decay, turnip weevils, and turnip bugs.²⁵

In 1939, the French investigated using potato beetles and rinderpest virus to infect cattle in Germany.²⁶ In Japan, between 1940 and 1941, "aerial dissemination was used to spread infected grains of wheat millet and contaminated cotton."²⁷ The United States and Britain also had extensive agricultural biological warfare programs during World War II.²⁸ The U.S. considered using a fungus to destroy rice crops in Japan, prior to

¹⁹ Jonathon Ban, *Agricultural Biological Warfare: An Overview*, 9 THE CHEMICAL & BIOLOGICAL ARMS CONTROL INSTITUTE 1, 1 (2000) (providing an international historical account of agricultural biological warfare).

²⁰ *Id.* at 2.

²¹ Lt Col Robert P. Kadlec, USAF, *Biological Weapons for Waging Economic Warfare*, in BATTLEFIELD OF THE FUTURE: 21ST CENTURY WARFARE ISSUES Chapter 10 (U. Press of the Pacific 2002), available at <http://www.airpower.maxwell.af.mil/airchronicles/battle/chp10.html> (last visited Oct. 28, 2006); See also Ban, *supra* note 19, at 2.

²² Ban, *supra* note 19, at 2.

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*

²⁸ See generally B.J. Bernstein, *The Birth of the U.S. Biological Warfare Program*, 256 SCIENTIFIC AMERICAN 116 (1987).

President Nixon's renunciation of offensive biological warfare in 1969.²⁹ This type of attack was considered impractical because of the delayed impact.³⁰ The former Soviet Union had the most wide-reaching agricultural biological warfare programs, which included experiments with such agents as: foot-and-mouth disease, rinderpest, African swine fever, and mutants of avian influenza.³¹ It is important to take into consideration that some of these former Russian scientists are currently underpaid or unemployed and might be lured into selling their expertise to state and non-state actors.³² More recently, prior to the Persian Gulf War, Iraq had laboratories examining the use of wheat stem rust and camel pox, both surrogates for smallpox.³³

Even though 162 countries have created policies and mechanisms to restrict the use of agricultural biological warfare, compliance is largely unregulated.³⁴ Moreover, non-state players have used and continue to have the potential to use these weapons.³⁵ For example, the Arab Revolutionary Army Palestinian Commandos used mercury in 1978 to contaminate Israeli citrus exports heading for Europe.³⁶ Reportedly, poisoned oranges were discovered in the Netherlands, Belgium, Germany, Sweden, and the United Kingdom.³⁷ While no one died, Europeans in at least three counties became ill from eating Israeli citrus products.³⁸ Israel had to cut back its orange exports by 40%.³⁹ Another non-state attack occurred when members of the Rajneeshee cult, who sought to affect election results, injected *Salmonella* into salad bar items in Oregon and

²⁹ ROBERT HARRIS & JEREMY PAXSON, *A HIGHER FORM OF KILLING: THE SECRET STORY OF CHEMICAL AND BIOLOGICAL WARFARE* 95-106 (Random House Trade Paperback Edition 2002) (1982).

³⁰ *Id.*

³¹ Ban, *supra* note 19, at 3.

³² *Id.*

³³ *Id.* at 2.

³⁴ *See generally* The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, opened for signature on April 10, 1972, entered into force on March 26, 1975, ratified by 22 countries, and as of 2004 169 parties (banning production of an entire category of weapons); *See also* Kadlec, *supra* note 21, at 3.

³⁵ Ban, *supra* note 19, at 3-4.

³⁶ *Id.* at 4.

³⁷ Canadian Security Intelligence Service, *Chemical and Biological Terrorism: The Threat According to the Open Literature*, available at http://www.csis-scrs.gc.ca/en/publications/other/c_b_terrorism03.asp (last visited Oct. 28, 2006).

³⁸ *Id.*

³⁹ *Id.*

caused 751 illnesses.⁴⁰ In 1985, the U.S. embassy in Sri Lanka received a letter claiming that Sri Lankan tea exports bound for the U.S. had been contaminated with cyanide.⁴¹ Years later, the U.S. embassy in Chile received a series of anonymous telephone calls claiming to have laced Chilean grapes with cyanide.⁴² Between detention, inspections, and reductions in consumer confidence, the Chilean growers and exporters lost an estimated \$333 million in revenue.⁴³ History demonstrates the continued threat of agroterrorism.

C. A Feeding Ground for Agroterrorism?

Agroterrorism is under-appreciated. Threats to American agriculture were not even addressed in the General Accounting Office report on combating terrorism released just nine days after the terrorist acts on September 11, 2001.⁴⁴ While many factors may account for the government's and public's ignorance of agroterrorism, one study noted that the majority of Americans take for granted that their food is safe and readily available.⁴⁵ Agriculture has also become increasingly "invisible" because of a drastic reduction in farms (two million in 1998 compared to six million in 1929) and fewer Americans directly employed in agricultural production (less than 3% of the U.S. workforce in 1998 worked on a farm whereas 23% were employed in farming in 1929).⁴⁶

Besides contributing to making agriculture "invisible," modern agricultural practices increase the likelihood of agroterrorism because of concentrated production.⁴⁷ For instance, 84% of the U.S. cattle population is located in the southwest, about 60% of the swine population is concentrated in the Midwest, and 78% of the chicken population is lo-

⁴⁰ Joseph McDade & David Franz, *Bioterrorism as a Public Health Threat*, 4 EMERG. INFECT. DIS. 493, 493-494 (2006).

⁴¹ Ban, *supra* note 19, at 4.

⁴² *Id.*

⁴³ *Id.*

⁴⁴ Parker, *supra* note 13, at ix.

⁴⁵ Peter Chalk, *Chapter 4: Policy Recommendations, in Hitting America's Soft Underbelly: The Potential Threat of Deliberate Biological Attacks Against the U.S. Agricultural and Food Industry*, RAND NATIONAL DEFENSE RESEARCH INSTITUTE, at 33 (2004) (analyzing the vulnerability of the U.S. agriculture to bio-attacks and recommending significant federal and local changes).

⁴⁶ Peter Chalk, *Chapter 2: Vulnerability of U.S. Agriculture to Bio-Attacks, in Hitting America's Soft Underbelly: The Potential Threat of Deliberate Biological Attacks Against the U.S. Agricultural and Food Industry*, RAND NATIONAL DEFENSE RESEARCH INSTITUTE, at 7-9 (2004).

⁴⁷ Scholthof, *supra* note 10, at 153.

cated in the southeast Atlantic region.⁴⁸ Cattle are fattened on large feed-lots, which may hold as many as 150,000 to 300,000 head of beef.⁴⁹ Likewise, the majority of the U.S. crops are grown in the Midwest.⁵⁰ Aside from production, agribusiness is concentrated within “mega-firms;” only three agribusiness firms control approximately 82% of the U.S. corn exports.⁵¹ Most agricultural products take several steps, travel thousands of miles, and undergo various processing stages in their transition from the farm to the fork.⁵² These steps not only contribute to the food supply’s vulnerability but also make quick and valid detection of the point of bio-warfare agent introduction more challenging.⁵³

Concentrated production took a toll on American agriculture in 1997.⁵⁴ The American wheat industry was plagued when two spores of karnal bunt were discovered in Arizona.⁵⁵ This plant pathogen makes wheat commercially useless and can contaminate the soil for as long as five years after it infects crops.⁵⁶ Immediately, U.S. wheat exports to thirty trading partners were automatically halted by international law and resulted in revenue losses of over ten to hundreds of millions of dollars.⁵⁷ The major obstacle to exporting U.S. wheat came from Chinese policy.⁵⁸ China had a zero tolerance policy for the type of fungal disease that was affecting U.S. wheat. These circumstances forced the USDA and the

⁴⁸ Ban, *supra* note 19, at 4.

⁴⁹ *Id.*

⁵⁰ *Id.* at 5.

⁵¹ Bryce Oates, *Family Farmers from Mid-Missouri and Mexico Hold Fair Trade Picnic Roundtable*, IN MOTION, Jul. 12, 2003; See also Cropchoice.com, *Corporate Ag Biz Concentration*, available at <http://www.cropchoice.com/leadstryefff.html?recid=1377> (last visited Jul. 24, 2006) (explaining how concentrated agriculture has become: only five companies dominate the world’s seed market; only four firms control 81% of the beef packing industry; only four firms control 60% of the pork industry; and only four firms control 50% of the chicken industry).

⁵² Cupp, *supra* note 2, at 98 (documents the steps agricultural products, such as milk, take from the cow to processing, to inspection to distribution plants to the dinner table).

⁵³ T.B. Whitaker & A.S. Johansson, *Sampling Uncertainties for the Detection of Chemical Agents in Complex Food Matrices*, 68 J. FOOD PROT. 1306, 1306-13 (2005) (measuring uncertainties associated with detecting chemical agents in complex food matrices).

⁵⁴ Ban, *supra* note 19, at 5.

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ Minnesota Association of Wheat Growers, North Dakota Grain Growers Association, South Dakota Wheat Inc., and the Minnesota Barley Growers Association, *Wheat Diseases Becoming a National Priority*, PRAIRIE GRAINS MAGAZINE, Dec. 1995, available at <http://www.smallgrains.org/springwh/November96/Sayler.htm> (last visited Jul. 24, 2006).

U.S. wheat industry to work with several wheat importing countries to develop new export certificate language to accept wheat from areas in the U.S. where certain fungal diseases were known to occur. In the same way, the laws of exporting countries also influenced the estimated 70% of processed food the U.S. purchased from other countries in 2001.⁵⁹

Today's agricultural practices create numerous obstacles in protecting the U.S. food supply from production to consumption. Farmers, agribusinesses, economists, rural sociologists, consumers, politicians, and antitrust law experts must research and discuss feasible means of ensuring consumer safety from agroterrorism.⁶⁰ Making agriculture less concentrated involves several complicated issues. Contract production is one problem and currently purchasers have more bargaining power than farmers.⁶¹ Another issue is business arrangements, such as mergers and alliances.⁶² These types of arrangements reduce the number of players in areas ranging from input supply to processing.⁶³ The market power of seed genetics is also a major obstacle.⁶⁴ The patentability of seed genetics enables companies to control the market and associated technologies, as well as legally impede competing companies.⁶⁵

Antitrust oversight is one of the best solutions to diluting agricultural concentration.⁶⁶ At the federal level, the Federal Trade Commission and the Department of Justice should evaluate proposed mergers and alliances, tying contracts, and other anticompetitive practices.⁶⁷ Evaluation should aim to avoid any anticompetitive effects, particularly from the standpoint of producers.⁶⁸ Agribusiness analysis must focus on barriers to entry.⁶⁹ This evaluation approach is necessary because the highly concentrated agribusiness environment facilitates difficult barriers to new entries.⁷⁰ Patent laws also hinder new market entry.⁷¹ The upcoming

⁵⁹ Richard Gilmore, *US Food Safety under Siege?*, 22 NATURE BIOTECHNOLOGY 1503, 1503-1505 (2004) (discussing internationalization of U.S. food supply).

⁶⁰ See generally Jon Lauck, *Toward an Agrarian Antitrust: A New Direction For Agricultural Law*, 75 N.D. L. REV. 449 (1999) (examining potential methods of using anti-trust law to reform the current agricultural context).

⁶¹ Cropchoice.com, *supra* 51, at 2.

⁶² *Id.*

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ *Id.* at 4.

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ *Id.*

reauthorization of the Farm Bill, the most powerful piece of legislation governing American agriculture, is a critical policy venue to implement legal solutions that can improve the current concentrated agricultural situation.⁷² Agricultural concentration is not limited to the U.S., thereby making international policy on agricultural concentration vital to ensuring a fair and safe market environment.

D. Food Safety v. Agroterrorism: The Problems with Century Old Laws

Unintentional food borne disease outbreaks provide useful information on detecting and responding to agroterrorism. One of the largest food borne disease outbreaks in U.S. history occurred in 1994.⁷³ An estimated 224,000 U.S. citizens were infected during an outbreak of *Salmonella enteritidis*, caused by contamination of pasteurized liquid ice cream that was transported in tanker trucks.⁷⁴ In Illinois, over 170,000 people were infected during an outbreak of *S typhimurium* in 1985 caused by the contamination of pasteurized milk from a dairy plant in northern Illinois.⁷⁵ Overseas, over 7,000 Japanese children became ill with *Escherichia coli* O157:H7 infection from contaminated radish sprouts served in school lunches.⁷⁶ Unintentional and intentional food borne disease outbreaks are serious issues. The ability to prevent and detect both types of outbreaks, as well as respond to their massive impact is critical in the U.S. and abroad.

Updating federal law is vital to improving food safety and preventing agroterrorism. In short, the USDA has the authority to regulate meat, poultry, and certain egg products while the U.S. Food and Drug Admini-

⁷¹ See generally 35 U.S.C. §§ 161-164. Townsend-Purnell Plant Patent Act of 1930 (protected plant patent claims because the work of plant breeders "aid in nature" was viewed as important to society); 7 U.S.C. §§ 2321-2582 (2000). Plant Variety Protection Act of 1970 (provided additional legal protection to plant species compromising most of commercial agriculture); and Roger A. McEowen, *Legal Issues Related to the Use and Ownership of Genetically Modified Organisms*, 43 WASHBURN L. J. 611, 628-639 (2004) (discussing the legal issues related to the intellectual property right protection of genetically modified and conventional crops).

⁷² Bev Ransom, *Sustainable Agriculture in the 2007 Farm Bill*, available at <http://www.sarep.ucdavis.edu/news/tr/v17n3/sa-2.htm> (last visited Jul. 24, 2006).

⁷³ T.W. Hennessy et al., *A National Outbreak of Salmonella enteritidis Infection from Ice Cream*, 334 N. ENG. J. MED. 1281, 1281-86 (1996).

⁷⁴ *Id.*

⁷⁵ C.A. Ryan et al., *Massive Outbreak of Antimicrobial-Resistant Salmonellosis Traced to Pasteurized Milk*, 258 JAMA 3269, 3269-74 (1987).

⁷⁶ J.H. Mermin & P.M. Griffin, *Invited Commentary: Public Health Crisis in Crisis—Outbreaks of Escherichia coli O157:H7 in Japan*, 150 AM. J. EPIDEMIOLOGY 797, 797-803 (1999).

stration (“FDA”) regulates all other foods.⁷⁷ The fact remains that in fiscal year 2004, the USDA was allocated \$899 million for food inspection programs while the FDA received only \$413 million.⁷⁸ Based on funding allocations, one might think that meat and poultry products cause the most food borne disease outbreaks; however, FDA-regulated foods in 2004 accounted for the majority of outbreaks.⁷⁹

Misaligned funding is just one example how out of date laws produce ineffective government agencies’ responses.⁸⁰ The food safety laws that govern the USDA and FDA are nearly 100 years old—the Pure Food and Drug Act and the Meat Inspection Act were originally passed in 1906.⁸¹ These century old laws fail to adequately govern and protect the public against the modern, centrally produced food supply and the drastic proportion of imports that find their way onto the kitchen tables of U.S. citizens.⁸² Quite simply, the laws hardly address the current reality of food production and food importation.⁸³ Inadequate border control and inspection of imports also contribute to the American food supply’s vulnerability.⁸⁴ Therefore, the government must seriously consider updating its food safety laws.

The National Academy of Sciences’ (“National Academies”) latest report on food safety provides strong support and specific recommendations for modifying existing food safety laws. That is, the National Academies stated in a 1998 report that the major hurdle in food safety regulation is the lack of a single agency, a single budget, and a single leader regulating and responding to the current food safety challenges.⁸⁵ Indeed, the National Academies reported that twelve agencies enforce thirty-five food safety laws.⁸⁶ Several countries including Britain, New Zealand, The Netherlands, and Germany are establishing unified food safety agencies.⁸⁷

⁷⁷ Caroline Smith DeWaal, *Rising Imports, Bioterrorism, and the Food Supply*, 59 FOOD & DRUG L.J. 433, 433-439 (2004) (advocating for changes in the existing U.S. food safety infrastructure and laws).

⁷⁸ DeWaal, *supra* note 77, at 434.

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ Pure Food and Drug Act of 1906 and Meat Inspection Act of 1906, *supra* note 3.

⁸² DeWaal, *supra* note 77, at 434.

⁸³ *Id.*

⁸⁴ *Id.* at 435.

⁸⁵ INSTITUTE OF MEDICINE, NATIONAL RESEARCH COUNCIL, ENSURING SAFE FOOD FROM PRODUCTION TO CONSUMPTION, 12 (1998).

⁸⁶ INSTITUTE OF MEDICINE, *supra* note 85, at 3, 7.

⁸⁷ DeWaal, *supra* note 77, at 439.

While the United States does not appear to be making any changes towards consolidating its food safety efforts to one unified agency, recent policy efforts tried to address some of this country's food safety shortcomings.⁸⁸ The U.S. increased the FDA, the USDA, and the Department of Homeland Security's authority to protect the U.S. food supply.⁸⁹ Regulations have been enacted and several are still under comment.⁹⁰ In spite of these efforts, the U.S. still has to modernize its food safety laws and infrastructure. The current statutes and regulations leave the safety of the U.S. food supply in too many agencies' hands without any assurance of increased protection, efficiency, and collaboration.

The laws lack effective authority to ensure that state and local personnel have the requisite skills necessary to identify and respond to an act of agroterrorism.⁹¹ In addition, the laws fail to adequately clarify how the various authoritative agencies will link up to ensure a coordinated effort.⁹² Several law enforcement issues merit further statutory clarification. More statutory and regulatory attention is needed in ensuring the effectiveness of voluntary disease reporting systems.⁹³ The recent policy efforts to enhance U.S. food safety lack any means of securing assessment of these changes.⁹⁴ Research is also needed in understanding the impact these laws have on surveillance, quality control, and emergency

⁸⁸ Public Health Security and Bioterrorism and Response Act of 2002, *supra* note 7.

⁸⁹ See generally Agricultural Bioterrorism, 7 U.S.C. § 8401 (2002) (providing authority to the USDA to create and maintain a list of potential biological agents); Registration of Food Facilities, 21 U.S.C. § 350(d) (2004) (requiring the registration of any facility manufacturing, processing, packing, or holding food for consumption to register with the government); Maintenance and Inspection of Records, 21 U.S.C. § 350(c) (2004) (establishing standards of maintenance, inspection, and the record keeping necessary to ensure compliance); Virus-Serum-Toxin Act, 21 U.S.C. §§ 151-159 (2004) (aiming to prevent the preparation or sale of harmless products in the U.S.); Homeland Security Act, 6 U.S.C. §§ 101-557 (2002) (detailing the new Department's role in protecting the American food supply and responding to potential threats or attacks of terrors); Animal Health Protection Act, 7 U.S.C. §§ 8301-8317 (2005) (enacting standards for health in animals with the aim of safeguarding the ultimate food supply); and Animal Enterprise Terrorism, 18 U.S.C. § 43 (2006) (detailing penalties associated with animal terrorism).

⁹⁰ 21 C.F.R. Parts 1, 20 (2005). Bioterrorism Act, FDA Food Safety Regulations; 9 C.F.R. Parts 1-99 and 300-399 (2005). Animal and Plant Health Inspection Service; 6 C.F.R. 1-99 (2005). Department of Homeland Security; and 7 C.F.R. Part 311 (2005). Possession, Use, and Transfer of Biological Agents and Toxins.

⁹¹ See generally RAND, *Agroterrorism: What is the Threat and What Can Be Done About It?*, available at http://www.rand.org/pubs/research_briefs/RB7565/index1.html (last visited Jul. 24, 2006).

⁹² *Id.*

⁹³ RAND, *supra* note 91.

⁹⁴ *Id.*

response.⁹⁵ Understanding the costs and benefits of varied agencies having a role in food safety and the long-term benefits of not having a unified food safety system is needed.⁹⁶ American, as well as international, consumers merit the protection of more aggressive and imperative adoptions to over a hundred years of agricultural and agroterrorism developments.

E. Food Fright?

Despite the fact that agroterrorism events are rare, they have cropped up in the U.S. Even if an agroterrorism attack has a low probability of occurring, the result of an attack would be drastic.⁹⁷ Panic and civil disruption are likely consequences of an agroterrorism attack.⁹⁸ Many scientists and policy makers acknowledge that the threat of agroterrorism is exaggerated, yet argue that preparedness is essential.⁹⁹ While the risk might be benign, the U.S.'s interest in agroterrorism may provoke state or non-state actor interest in using agricultural biowarfare.¹⁰⁰

Opponents of increased government funding for the prevention of agroterrorism may argue that substantial funding is being allocated towards fighting bioterrorism while real threats of chronic disease, such as heart disease and cancer, kill thousands daily.¹⁰¹ Establishing public health funding and resource priorities is a difficult, yet problematic issue. Likewise, redirecting the U.S. military spending towards urgent domestic needs for health care, education, jobs, and alternative energy sources (i.e., reducing the U.S.'s dependency on foreign oil) is a challenge.¹⁰²

⁹⁵ *Id.*

⁹⁶ *Id.*

⁹⁷ Kwara et al., *supra* note 10, at S75.

⁹⁸ *Id.*

⁹⁹ DeWaal, *supra* note 77, at 435.

¹⁰⁰ Ban, *supra* note 19, at 3.

¹⁰¹ Compare JIM MONKE, CRS REPORT FOR CONGRESS, AGROTERRORISM: THREAT AND PREPAREDNESS CRS-31 (2006) (estimating \$225-240 million was spent in FY 2002 on homeland security for agriculture), with Julie Louise Gerberding, *Heart Disease and Stroke: The Nation's Leading Killers*, available at <http://www.cdc.gov/nccdphp/publications/aag/cvh.htm> (last visited March 17, 2006); and U.S. CANCER STATISTICS: 2002 INCIDENCE AND MORTALITY 30 (U.S. Health and Human Services, Centers for Disease Control and Prevention & National Cancer Institute 2005).

¹⁰² Victor Sidel & Barry Levey, *War, Terrorism, and Public Health*, 31 J. L., MED. & ETHICS. 516, 516-523 (2003).

III. GOVERNMENTAL RESPONSES TO AGROTERRORISM

A. *The National Academies' Assessment*

Most experts contend that the U.S. is vulnerable to agroterrorism; yet, a report indicates that the U.S. lacks a comprehensive plan to defend against this threat.¹⁰³ Specifically, the National Academies found that relevant government agencies could neither rapidly detect and identify many pests and pathogens, nor could these agencies quickly respond to a large-scale attack.¹⁰⁴ To correct these deficiencies, the National Academies recommends that the U.S.'s plan to defend against agroterrorism include basic research aimed at understanding the biology of pests and pathogens as a foundation to developing new tools for surveillance and new ways to control an outbreak.¹⁰⁵ The U.S. plan should also define the role of each federal and state agency that will play a role in preventing and responding to an attack and should define how these agencies will cooperate with one another.¹⁰⁶ Participating agencies should develop a consensus list of biological agents that might be used and then a short list of agents for which preparations and countermeasures can be made.¹⁰⁷

The National Academies recommend the identification of credible spokespeople and the development of potential attack scenarios for training purposes.¹⁰⁸ The U.S. also needs to create a network of laboratories to coordinate the detection of bioterror agents in the event of an attack.¹⁰⁹ To facilitate the early detection of bioterror agents, particularly genetically engineered agents, new technologies are needed.¹¹⁰ The National Academies recommends building on current USDA emergency plans and the Centers for Disease Control and Prevention's ("CDC") Health Alert Network.¹¹¹ To summarize, the National Academies' assessment suggests that little capability exists in the U.S. in terms of procedural responses for dealing with such a crisis, stocks of vaccine to limit the spread of disease, carcass disposal capacity, or even psychological pre-

¹⁰³ Harley W. Moon et al., *US Agriculture is Vulnerable to Bioterrorism*, 30 J. VET. MED. EDUC. 96, 96-104 (2003) (summarizing the National Academies *Countering Agricultural Bioterrorism*, 2002 report and highlighting key study findings and recommendations).

¹⁰⁴ *Id.* at 102.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ Moon, *supra* note 103, at 101.

¹¹⁰ *Id.* at 102.

¹¹¹ *Id.* at 101.

paredness to accept such an event whether natural or intentionally introduced.

B. *The Laws on Agroterrorism*

One of the main criticisms of the governmental response to agroterrorism is the exclusion of agriculture from key policy documents such as the Defense Against Weapons of Mass Destruction Act (Title 50, Chapter 40, of the U.S. Code).¹¹² This Act fails to not only include agroterrorism as a weapon of mass destruction but also treat agroterrorists like criminals who commit acts of terrorism.¹¹³ Even the U.S. Senate has recognized that “agriculture is an area that has received comparatively little attention with regard to terrorism.”¹¹⁴ Furthermore, the Department of Homeland Security and the National Institute of Health have received federal authority to allocate the majority of funding for bioterrorism research—not agroterrorism research.¹¹⁵

Another law that needs reassessment is the Clayton Antitrust Act.¹¹⁶ This Act concerns the social, political, and economic implications of high concentration, monopoly, and massive mergers.¹¹⁷ Given the concentration of the U.S. agricultural system,¹¹⁸ enacting the Clayton Antitrust Act may be one means of lessening the concentration of U.S. agricultural systems. Using federal law to combat agroterrorism is an important preventive step; however, laws accomplish little without resources, personnel, implementation, and enforcement. Hence, focusing on the agencies that use laws to prevent, detect, and respond to agroterrorism is vital.

C. *Agencies with Agroterrorism Authority*

A cornucopia of agencies have the authority to investigate and respond to food borne disease outbreaks. Key roles belong to local, state, and

¹¹² Rocco Casagrande, *Biological Warfare Targeted at Livestock*, 52 BIOSCIENCE 577, 580 (2002).

¹¹³ Defense Against Weapons of Mass Destruction Act of 2002. Title 50, Chapter 40, of the U.S. Code.

¹¹⁴ J. Levin, et al., *Agroterrorism Workshop: Engaging Community Preparedness*, 10 J. AGROMEDICINE 7, 7 (2005).

¹¹⁵ See generally Project BioShield Act of 2004, Pub. L. No. 108-276 (enacted predominantly to address medical countermeasures against biological terror attacks).

¹¹⁶ See generally The Clayton Antitrust Act of 1914, ch. 323, 38 Stat. 730 (codified at 15 U.S.C. § 12 through 15 U.S.C. § 27 and 29 U.S.C. §52 and 29 U.S.C. § 53).

¹¹⁷ *Id.*

¹¹⁸ Cupp, *supra* note 2, at 102.

federal health departments.¹¹⁹ Also, state departments of agriculture or food-safety divisions in addition to the FDA and the USDA provide the food specific authority.¹²⁰ These agencies have the power to inspect, collect trace-back data, and quarantine crops, animals, foods, and humans.¹²¹ If agroterrorism is suspected, the Federal Bureau of Investigation (“FBI”) in conjunction with other law enforcement agencies assumes investigation leadership.¹²² The partnership of law enforcement and public health agencies is critical in responding to agroterrorism.¹²³ Multi-agency collaboration still has challenges that impede effective agroterrorism response.¹²⁴ Besides the previously stated players, the Department of Homeland Security, the Department of Transportation, the Environmental Protection Agency, and the Federal Trade Commission contribute to anti-agroterrorism efforts.¹²⁵

An important and often overlooked aspect in delineating the government’s agroterrorism response is assessing the federal and state public health infrastructure capacity. A study on the interactions and information flows for infectious disease surveillance identified critical gaps in local capacity.¹²⁶ The study found wide ranges, 6 to 90%, of reporting at the local level.¹²⁷ Investigators of this study recommend that lawmakers

¹¹⁹ Sobel, *supra* note 1, at 875-76.

¹²⁰ See generally Jeremy Sobel et al., *Investigation of Multistate Foodborne Disease Outbreaks*, 117 PUBLIC HEALTH REP. 8 (2002) (explaining how local and federal agencies respond to multistate foodborne outbreaks).

¹²¹ *Id.* at 11.

¹²² J.C. Butler et al., *Collaboration Between Public Health and Law Enforcement: New Paradigms and Partnerships for Bioterrorism Planning and Response*, 8 EMERG. INFECT. DIS. 1152, 1152-56 (2002).

¹²³ *Id.*

¹²⁴ Maureen Lichtveld et al., *Preparedness on the Frontline: What’s the Law got to do with it?*, Supplement to 30 J. L., MED. & ETHICS 184, 184-88 (2002).

¹²⁵ The U.S. Department of Homeland Security, *Emergencies & Disasters*, available at <http://www.dhs.gov/dhspublic/display?theme=14&content=446> (last visited Feb. 24, 2006); The U.S. Department of Transportation, *Volpe Center*, available at <http://www.volpe.dot.gov/about/index.html> (last visited Mar. 18, 2006); U.S. Environmental Protection Agency, *Pesticide Safety and Site Security*, available at http://www.epa.gov/pesticides/factsheets/pest_secu_alert.htm (last visited Feb. 24, 2006); and The Federal Trade Commission, *Offers to Treat Biological Threats: What you Need to Know*, available at <http://www.ftc.gov/bcp/online/pubs/alerts/bioalrt.htm> (last visited Feb. 24, 2006).

¹²⁶ Raymond J. Baxter, et al., *Is the U.S. Public Health System Ready for Bioterrorism? An Assessment of the U.S. Public Health Infrastructure and its Capacity for Infectious Disease Surveillance*, 2 YALE J. HEALTH POLICY & ETHICS 1, 1-2 (2001-2002) (sharing findings on local and federal infrastructure capacity for bioterrorism and recommending focus on local level competence).

¹²⁷ *Id.* at 14.

focus on bolstering the nation's public health infrastructure—the people, systems, and linkages that work to detect and immediately respond to bioterrorism.¹²⁸

This comment now briefly highlights some of the activities and collaborations of two federal agencies.

a. The Department of Health and Human Services' Agroterrorism Activities

i. The Food & Drug Administration ("FDA")

The food safety elements of the Bioterrorism Preparedness and Response Act give the FDA greater authority.¹²⁹ Key provisions of this legislation and other pertinent regulations include: mandate registration of any domestic or foreign facility; enact maintenance of records; ensure detention of food; enforce prior notice of imported food shipments; authorize debarment for persons convicted of a felony for conduct relating to the adulteration of food; place the expense of refused food on the owner; provide grants to states, territories, and Indian tribes to undertake examinations, inspections, and investigations; and establish authority to commission other federal officials.¹³⁰

The FDA has set forth laws that clarify international regulations. Under the new Bioterrorism Act, foreign establishments must register if they manufacture, process, pack, or hold food for consumption in the U.S.¹³¹ At the same time, FDA jointly works with the U.S. Customs and Border Protection to safeguard incoming food.¹³² Nonetheless, even the acting FDA Commissioner in 2004 stated that the agency was overwhelmed with imported foods.¹³³ Consequently, only 90 of the 360 ports

¹²⁸ *Id.* at 15-16.

¹²⁹ Lester Crawford, *Food Safety and Global Security*, 30 J. VET. MED. EDUC. 110, 110-111 (2003).

¹³⁰ Food and Drug Administration, HHS, Administrative Detention of Food for Human or Animal Consumption under the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, 21 CFR 1; 21 CFR 10.45(d); 21 CFR 16.1(b)(1) (2004); *See also* Food and Drug Administration, HHS, Establishment and Maintenance of Records under the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, 21 C.F.R. Parts 1 & 11 (2004).

¹³¹ Food and Drug Administration, HHS, *FDA Food Security Information for Domestic and Foreign: Manufacturers or Processors, Packers, and Holding Facilities*, available at <http://www.fda.gov/ohrms/dockets/98fr/02n-0276-gdl0001.pdf> (last visited Feb. 24, 2006).

¹³² *Agencies Team Up to Protect Food Supply*, March-April FDA Consumer 28, 28-29 (2004).

¹³³ DeWaal, *supra* note 77, at 436.

of entry have FDA inspectors and this contributes to a mere one percent of imported food being inspected.¹³⁴ Naturally, FDA is a key player in ensuring the U.S. food supply is safe to eat.

ii. The Centers of Disease Prevention & Control (“CDC”)

The CDC has produced numerous reports and their website is loaded with various resources to help prepare individuals, hospitals, as well as local and state governments for agroterrorism.¹³⁵ The CDC has prepared a strategic plan for bioterrorism preparedness and response.¹³⁶ This plan includes a list of potential biological agents, some of which are food borne disease agents.¹³⁷ The CDC advocates for improvements in surveillance.¹³⁸ Furthermore, the CDC has been working with other pertinent agencies to identify roles and points of collaboration.¹³⁹ Specifically, CDC has worked on increasing its capability to detect, diagnose, respond, communicate, and prepare for agroterrorism.¹⁴⁰ The CDC also recognizes its role of pulling together data and resources if a multi-state food borne disease outbreak occurs.¹⁴¹ Therefore, CDC is a major contributor to anti-agroterrorism efforts.

b. The United States Department of Agriculture’s Efforts (“USDA”)

The USDA addresses naturally occurring plant and animal disease outbreaks, but little of the USDA’s resources aim to protect the U.S. food supply from agroterrorism.¹⁴² Agriculture was not originally included in the Presidential Decision Directive-62 (PDD-62) that called for an inter-agency process to define federal roles and activities for addressing weap-

¹³⁴ *Id.*

¹³⁵ See generally Centers for Disease Control and Prevention, *Bioterrorism*, available at <http://www.cdc.gov> (last visited Mar. 17, 2006); U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, CENTER FOR DISEASE CONTROL AND PREVENTION, PUBLIC HEALTH EMERGENCY RESPONSE, GUIDE FOR STATE, LOCAL, TRIBAL PUBLIC HEALTH DIRECTORS, VERSION 1.5 (HHS 2006); and THE CENTER FOR LAW AND THE PUBLIC’S HEALTH AT GEORGETOWN AND JOHN HOPKINS UNIVERSITY, THE MODEL STATE EMERGENCY HEALTH POWERS ACT 10 (HHS 2001).

¹³⁶ Centers for Disease Control and Prevention, *Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response—Recommendations of the CDC Strategic Planning Workgroup*, 49 MORB. MORTAL WKLY. REP. 1, 1-14 (2000).

¹³⁷ *Id.* at 7.

¹³⁸ A.S. Khan et al., *Precautions against Biological and Chemical Terrorism Directed at Food and Water Supplies*, 116 PUBLIC HEALTH REP. 3, 3-14 (2001).

¹³⁹ Sobel, *supra* note 1, at 875-76.

¹⁴⁰ *Id.* at 876-79.

¹⁴¹ Sobel, *supra* note 120, at 8-19.

¹⁴² Ban, *supra* note 19, at 5.

ons of mass destruction and critical infrastructure terrorism. This initial oversight meant the USDA was a latecomer to this key terrorism effort.¹⁴³ Similarly, USDA has not made significant contributions to the Biological Weapons Convention Protocol, despite several plant and animal agents being listed as having biological warfare potential.¹⁴⁴ Nevertheless, the USDA has been working to combat agroterrorism.¹⁴⁵

These efforts include appointing representatives to the seven National Security Council interagency Working Groups established by the National Security Council's Coordinator for Counter-terrorism.¹⁴⁶ Later, the Protection of Agriculture and the Food Supply was added as an eighth Working Group.¹⁴⁷ The Special Interagency Programs (SIP) office of the USDA, in addition to the agency level Biosecurity Committee, works to create partnerships with agencies that have a stake in agroterrorism.¹⁴⁸ For example, the USDA works with the Department of Homeland Security and the FDA to partner with universities and industries in funding and enhancing food biosecurity issues.¹⁴⁹ Starting in 2001, Congress allocated several million dollars on research and development on agroterrorism activities.¹⁵⁰ Prior to 2001, no agroterrorism funding was available.¹⁵¹ Accordingly, the U.S. should continue to invest in USDA's agroterrorism activities.

D. Private Sector & University Research Laboratories

The government cannot fight agroterrorism by itself and must encourage private sector investment and involvement.¹⁵² Private sector entities provide significant contributions in disease surveillance systems, genetic analyses, research and development, and counter measures.¹⁵³ The resources and expertise of the private sector, as well as university research laboratories are critical necessities for any government hope of prevent-

¹⁴³ *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ See generally, The United States Department of Agriculture, *Agroterrorism*, available at <http://www.usda.gov> (last visited Mar. 17, 2006).

¹⁴⁶ See generally, The United States Department of Agriculture, *Agroterrorism*, available at <http://www.usda.gov> (last visited Mar. 17, 2006).

¹⁴⁷ Ban, *supra* note 19, at 5.

¹⁴⁸ *Id.* at 5-6.

¹⁴⁹ The Department of Homeland Security, *Fact Sheet: Strengthening the Security of Our Nation's Food Supply*, available at http://www.dhs.gov/dhspublic/interapp/press_release/press_release_0453.xml (last visited Feb. 24, 2006).

¹⁵⁰ Ban, *supra* note 19, at 6.

¹⁵¹ *Id.*

¹⁵² Moon, *supra* 103, at 102-103.

¹⁵³ *Id.*

ing agroterrorism.¹⁵⁴ While the BioShield Act incorporates the private sector (mostly for vaccine, drug, and medical responses to counter bioterrorism), efforts should be made to ensure private sector entities and university research laboratories are engaged in the government's efforts to fight agroterrorism.¹⁵⁵ The government must be cautious in not overly relying on industry self-reporting. Also, attention should be given to whether current product liability laws adequately prevent product tampering and protect companies from liability from an unrelated, criminal third-party actor.¹⁵⁶ Therefore, further dialogue is needed in understanding the relationships between government agencies, industries, and university research laboratories.

IV. AGROTERRORISM RESEARCH, PUBLICATION, & BIO-SECURITY

A. *Got Published?*

Communication amongst public and private players is important, but the potential threat of communicating agroterrorism methods raises serious issues for researchers, editors, policy makers, and other stakeholders.¹⁵⁷ Recently, the National Academies took an unusual step of briefing the USDA and the Department of Homeland Security on their preliminary findings and conclusions on agroterrorism.¹⁵⁸ The report was submitted for a classification review.¹⁵⁹ In another unprecedented move, officials from the Department of Health and Human Services ("HHS") asked the *Proceedings of the National Academy of Sciences* ("PNAS") to

¹⁵⁴ C.G. Atchison et al., *Developing the Academic Institution's Role in Response to Bioterrorism: The Iowa Center for Public Health Preparedness*, 9 J. PUBLIC HEALTH MANAG. PRACT. 418, 420 (2003).

¹⁵⁵ Gilmore, *supra* note 59, at 1505.

¹⁵⁶ See generally *Elsroth v. Johnson & Johnson*, 700 F.Supp. 151, 155-167 (S.D.N.Y. 1988) (holding that: 1) the retailer did not have a duty to protect the decedents from acts of tampering by an unknown third party; 2) the retailer was not liable under a product defect theory; 3) the manufacturer was not liable under a design defect theory; and 4) the manufacturer was not liable under an inadequate warning theory); See also *McNeilab, Inc v. North River Ins. Co.*, 645 F. Supp. 525, 529-556 (D. NJ 1986) (finding that: 1) policies providing coverage for amounts owed by insurer "by reason of liability" did not provide recall coverage; 2) sistership provisions explicitly excluding certain recall claims did not implicitly include other recall campaign; and 3) insured could not recover on theory of quasi contract or agency).

¹⁵⁷ Ronald Altas et al., *Uncensored Exchange of Scientific Results*, 100 PROC. NAT'L ACAD. SCI. 1464, 1464 (2003).

¹⁵⁸ *EH Update: Better Plan Needed to Protect U.S. Agriculture from Bioterrorism*, 65 J. ENVTL. HEALTH 40, 40 (2003).

¹⁵⁹ *Id.*

pull a paper on botulism in milk scheduled for online publishing on May 30, 2005.¹⁶⁰

In short, Lawrence Wein and Yifan Liu developed a mathematical model of how a deliberate release of even a small amount of botulinum toxin can quickly move (within 84 hours) from cows-to-consumers, poison thousands of individuals, and have tremendous economic repercussions.¹⁶¹ While Stewart Simonson, HHS's Assistant Secretary for Public Health Emergency Preparedness, recognized that the idea of using botulinum as a bioweapon is not a novel threat, HHS was concerned with the level of detail disclosed in Wein and Liu's study.¹⁶² Wein responded to PNAS's decision to hold the report and HHS's request by describing the study in some detail in an opinion piece on May 30, 2005 in *The New York Times*.¹⁶³ The paper was ultimately published in PNAS's July 12, 2005 issue.¹⁶⁴ Simonson contends that HHS's request may have drawn more attention to the paper than it otherwise might have received and stated that "...it's a balance, and it struck [HHS] as the right thing to do."¹⁶⁵ Hence, the government and scientists need to more effectively address the role research and publication play in agroterrorism.

B. Not a New Problem

The issue of withholding publication of scientific research due to security issues is not a recent development.¹⁶⁶ Research surrounding the

¹⁶⁰ Jon Cohen, *HHS asks PNAS to Pull Bioterrorism Paper*, 308 SCIENCE 1395, 1395 (2005).

¹⁶¹ Lawrence M. Wein & Yifan Liu, *Analyzing a Bioterror Attack on the Food Supply: The Case of Botulism Toxin in Milk*, 102 PROC. NAT'L. ACAD. SCI. 9984, 9984-9989 (2005).

¹⁶² Cohen, *supra* note 160, at 1395.

¹⁶³ Lawrence M. Wein, *Got Toxic Milk?*, N.Y. TIMES, May 30, 2005, at A15; *See also* Scott Shane, *Paper Describes Potential Poisoning of Milk*, N.Y. TIMES, June 29, 2005 at A20.

¹⁶⁴ Wein, *supra* note 161, at 9984.

¹⁶⁵ Cohen, *supra* note 160, at 1395.

¹⁶⁶ *See generally* Communication of Restricted Data, 42 U.S.C.A. § 2274 (1954, amended 2002); *See also* United States v. Progressive, Inc., 467 F.Supp. 990 (W.D. Wis. 1979) (determining that U.S. had established that irreparable harm was threatened by plan of a magazine publisher to publish an article describing the method of manufacturing and assembling the Hydrogen bomb and an injunction was permissible to prohibit publication and this injunction did not violate the publisher's First Amendment rights); David Rudenstine, *Transcript of Weapons of Mass Destruction, National Security, and a Free Press: Seminal Issues as Viewed Through the Lens of the Progressive Case*, 26 CARDOZO L. REV. 1337, 1337-1377 (reviewing the historical and long-standing legal concepts expounded in the Progressive Case that have had lasting influence on free press); Ray E. Kidder, *Weapons of Mass Destruction, National Security, and a Free Press*, 26

atomic bomb drew the most significant attention and even Albert Einstein stressed the importance of striking a balance between scientific discourse and national security.¹⁶⁷ Einstein stated:

By academic freedom I understand the right to search for truth and to publish and teach what one holds to be true. This right also implies a duty: one must not conceal any part of what one has recognized to be true. It is evident that any restriction on academic freedom acts in such a way as to hamper the dissemination of knowledge among the people and thereby impedes national judgment and action.¹⁶⁸

Further, Einstein explained: "It is not enough for a handful of experts to attempt the solution of a problem, to solve it, and then apply it. The restriction of knowledge to an elite group destroys the spirit of society and leads to its intellectual impoverishment."¹⁶⁹ Thus, history reinforces the need for striking an appropriate balance between academic freedom and global security.

C. *Current Publishing Guidelines for Scientists on Potential Threats*

While the debate over publishing scientific data that may threaten national security has been around for decades, current guidelines for scientists fail to address existing threats and provide clarity for authors, editors, and reviewers. For example, in 2003, the "Statement on Scientific Publication and Security" was published simultaneously in *Science*, *PNAS*, *Nature*, and the American Society for Microbiology's journals.¹⁷⁰ This Statement explained that journals will have a policy that enables editors to screen and, if necessary, reject manuscripts submitted for publication if "an editor...conclude[s] that the potential harm of publication outweighs the potential societal benefits."¹⁷¹ Still, the Statement was criticized for not providing scientists with clear guidelines as to what

CARDOZO L. REV. 1389, 1389-1395 (providing an historical context to the government's use of classification to prevent publication of the H-Bomb Secret); Ian M. Dumain, *No Secret, No Defense: United States v. Progressive*, 26 CARDOZO L. REV. 1323, 1323-1335 (explaining how government secrecy has a longstanding history of restraining free speech during war times); and Howard Morland, *Born Secret*, 26 CARDOZO L. REV. 1401, 1407 (explaining how the Born Secret Doctrine regarding nuclear weapons is "the only public policy that has ever risked the survival of the nation and has been exempted from the First Amendment").

¹⁶⁷ See generally ALBERT EINSTEIN, *EINSTEIN ON PEACE* (Otto Nathan & Heinz Norden eds., Schocken Books 1968) (1960).

¹⁶⁸ Albert Einstein, available at <http://www.quoteworld.org> (last visited Jun. 14, 2006).

¹⁶⁹ Albert Einstein (1931) (on file with author).

¹⁷⁰ Stanley Falkow, "Statement on Scientific Publication and Security" *Fails to Provide Necessary Guidelines*, 100 PROC. NAT'L. ACAD. SCI. 5575, 5575 (2003).

¹⁷¹ Ronald Altas et al., *supra* note 157, at 1464.

constituted a potential contribution nor described who would make these decisions.¹⁷² The Statement also failed in establishing a committee composed of scientists and members of the intelligence community to further discuss and delineate what “sensitive” encompasses.¹⁷³ Most scientists and government agencies do not want to produce lists, exact definitions, or robust classification schemes.¹⁷⁴ Basically, no one wants to give bad people, bad ideas.¹⁷⁵ Classifying work as unpublishable may hinder vital work in critical areas if scientists avoid researching topics they fear will not be published. Current guidelines not only fail to meaningfully articulate security concerns but, more importantly, leave scientists and editors in ambiguity.

D. The Government’s Attempts to “Classify” “Sensitive” Science

The events of September 11, 2001 stimulated a more specific and focused interest in national security law.¹⁷⁶ While the Freedom of Information Act (5 U.S.C.A. § 552(b)) opened the doors to most records, certain records remain classified.¹⁷⁷ Various regulations and numerous cases attempt to describe classification procedures;¹⁷⁸ but not all the details are available on classification schemes for agroterrorism. Since September 11, 2001, the government has tightened up access to “sensitive” information.¹⁷⁹

Leslie Gielow Jacobs, a Professor of Law at the University of Pacific McGeorge School of Law, reviewed the challenges the government faces in trying to classify work conducted in this country at universities and in

¹⁷² Falkow, *supra* note 170, at 5575.

¹⁷³ *Id.*

¹⁷⁴ *Id.*

¹⁷⁵ *Id.*

¹⁷⁶ Scott L. Silliman, *Teaching National Security Law*, 1 J. NAT’L. SECURITY L. & POL’Y 161, 161-68 (2005) (reviewing past, present, and future national security law and policy efforts at law schools and stresses the importance of preparing law schools to be competent in this area of law).

¹⁷⁷ See generally Brian L. Porto, Annotation, *What are Matters “Related Solely to the Internal Personnel Rules and Practices of an Agency” Exempted from Disclosure under Freedom of Information*, 141 A.L.R. FED. 531 (1997) (discussing the Freedom of Information Act and exemptions to government agencies classified information).

¹⁷⁸ See generally Ralph V. Seep, *Validity and Construction of Classified Information Procedures*, 103 A.L.R. FED. 219 (1991) (explaining how information becomes classified and what exemptions are made to information meeting this specification).

¹⁷⁹ See generally Leslie Gielow Jacobs, *A Troubling Equation in Contracts for Government Funded Scientific Research: “Sensitive but Unclassified” = Secret but Unconstitutional*, 1 J. NAT’L. SECURITY L. & POL’Y 113, 113-60 (2005) (providing a constitutional assessment of the government’s use of “sensitive but unclassified” research).

the private sector.¹⁸⁰ The main barrier being that scientific information is a form of private speech protected by the Constitution.¹⁸¹ Even when scientific information poses a danger to national security, the government is limited in restricting private speech.¹⁸² In fact, the government carries a heavy burden of showing justification for imposing restraints on private speech.¹⁸³ Unless the government tries to get a court order, which is only available in extreme situations, the government cannot classify or prevent the sharing of threatening information.¹⁸⁴ One obvious means of controlling potentially threatening scientific studies the government has is to establish or restrict funding for and regulation of research.¹⁸⁵

For government funded private research, the government is working to use contract clauses to suppress merely “sensitive” research.¹⁸⁶ “Sensitive but unclassified” research relationships raise several issues including editorial discretion that may impede the publication of work that undermines government agency competence or policy decisions.¹⁸⁷ While the security aims of these clauses are justifiable, the constitutional restraints on free speech are questionable.¹⁸⁸ The issues surrounding “sensitive” research merits further attention.

E. Preventive Publication Policies or Perish

Science is a critical component to preventing agroterrorism.¹⁸⁹ The fatal realities of agroterrorism and the recent illustration of ineffective publication discourse demonstrates that scientists, government officials, and the intelligence community need to corroborate in a manner that first and foremost protects national security, but also encourages academic freedom and a wider public engagement.¹⁹⁰ Without publication, a vital aspect of science is missing: the opportunity to permit reproducibility.

¹⁸⁰ *Id.* at 113-28.

¹⁸¹ *Id.* at 113.

¹⁸² *Id.* at 155.

¹⁸³ *New York Times Co. v. Washington Post Co.*, 403 U.S. 713, 721-748 (1971) (determining that the government bears a “heavy burden” when attempting to infringe on First Amendment rights and that freedom to discuss public issues is vital to national health).

¹⁸⁴ Jacobs, *supra* note 179, at 113.

¹⁸⁵ *Id.* at 114.

¹⁸⁶ *Id.* at 114.

¹⁸⁷ *Id.* at 116-28.

¹⁸⁸ Jacobs, *supra* note 179, at 154.

¹⁸⁹ Moon, *supra* note 103, at 96-104.

¹⁹⁰ See generally Laura K. Donohue, *Terrorist Speech and the Future of Free Expression*, 27 CARDOZO L. REV. 233, 234-340 (differentiating between persuasive speech and knowledge-based speech and suggesting different types of restraints on freedom of expression may be merited if the information encourages terrorist attacks).

Open publication enhances the opportunity for developing more effective means of countering agroterrorism. The fact remains that even communicating a concept, let alone a detailed flow chart of terror, raises grave national security issues.

Establishing means of guarding risky science from wrongful public use is important in this age of terror. Nonetheless, scientists and policy makers must work together to more effectively balance scientific discourse and national security. While *The New York Times* and other public mediums are vital communication venues to discuss national issues, scientists and policy makers should aim for more private and corroborative discourse before inviting potential terrors to the dinner table.

V. CONCLUSION

Scientists and policy makers, amongst others, must recognize that agroterrorism is feasible and can have a devastating impact on agriculture, humans, and the U.S. economy. In addition, agroterrorism stakeholders must recognize the sensitivity and utility surrounding agroterrorism research and development. The debate over the publication of one study demonstrates the possibility that basic knowledge can be exploited. This public debate proves further dialogue is needed in not only establishing safeguards for critical scientific analyses but also closing the gap on vital national security issues. Food fright should be utilized as an opportunity to: promote the advances of the U.S. agricultural system; encourage discussion across necessary disciplines, agencies, industries, and programs; and finally, examine the necessity of instituting clear and confidential means of communicating classification concerns.

DR. SHEILA FLEISCHACKER