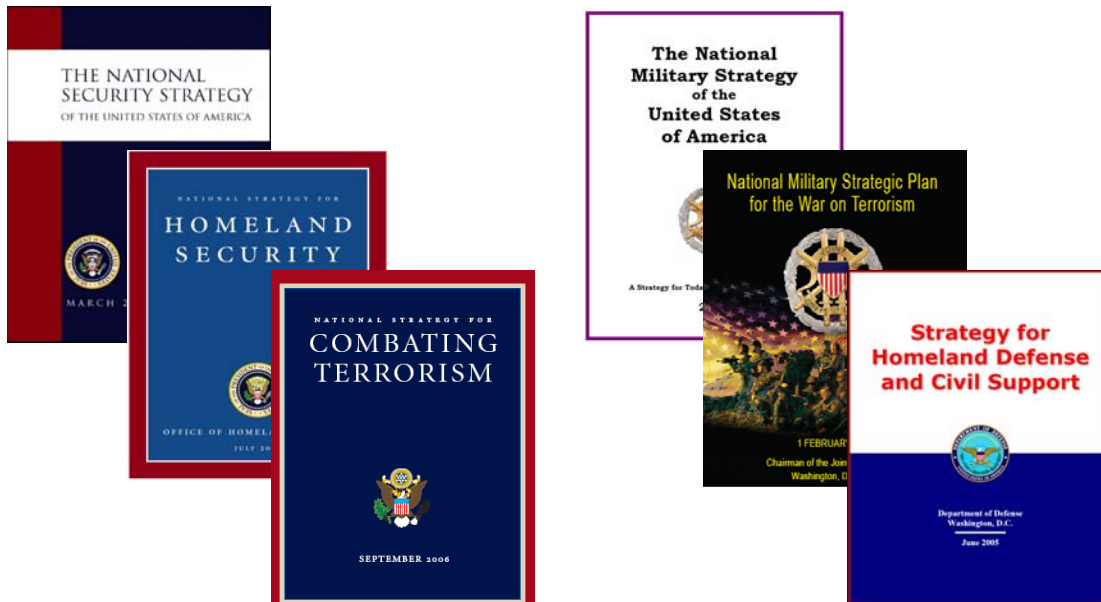




Senior Service College Fellowship Program

AEPI and USAWC Research Paper

Agroterrorism: Preparedness and Response Challenges for the Departments of Defense and the Army



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Images on Title Page

Top Left: National Security Strategy

2nd Left: Homeland Security Strategy

3rd Left: National Strategy for Combating Terrorism

Top Right:: National Military Strategy of the United States

2nd Right: National Military Strategic Plan for the War on Terrorism

3rd Right: DOD Strategy for Homeland Defense and Civil Support

UNITED STATES ARMY WAR COLLEGE

CIVILIAN RESEARCH PROJECT

Agroterrorism: Preparedness and Response
Challenges for the Departments of
Defense and Army

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The views expressed in this academic research paper are those of the author and do not necessarily reflect the official policy or position of the U. S. Government, the Department of Defense or any of its agencies.

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ABSTRACT

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Despite the identification of agriculture as one of the critical infrastructure sectors of the United States and the importance of food security being stressed within Homeland Security Presidential Directives (HSPDs)¹, resources and energy applied to aggressively defend against agroterrorism within the larger scheme of domestic security programs has been decidedly skewed. The difficult work of providing definitive policy guidance and adequate resources to counter the threat of a deliberate attack on one of our critical infrastructures has not been commensurate with the level of possible damage to our economy, national confidence and standing within the greater global community. Though not specifically tasked within the confines of existing Presidential Directives, the Department of Defense and subsequently the Department of the Army have an obligation as supporting agencies and signatories to the National Response Plan to prepare to support all national response efforts and defend against this threat.

This paper addresses the concepts of agroterrorism, current initiatives within government, private industry and academia, and identifies the policy and resource gaps impacting national preparedness for such an attack. Strategic impacts to our nation and the ability to sustain our engagement in the Global War on Terror is also discussed.

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ACRONYMS:

APHIS: Animal Plant Health Inspection Service

ANG: Air National Guard

ARNG: Army National Guard

DA: Department of the Army

DOD: Department of Defense

EPA: Environmental Protection Agency

FAD: Foreign Animal Disease

FBI: Federal Bureau of Investigation

FMD: Foot and Mouth Disease

FDA: Food and Drug Agency

GWOT: Global War on Terror

HLS/HLD: Homeland Security / Homeland Defense

HSPD: Homeland Security Presidential Directive

NASDA: National Association of State Departments of Agriculture

NGB: National Guard Bureau

NORTHCOM: United States Northern Command

OIE: World Organization for Animal Health (Office International des Epizooties)

OSD: Office of the Secretary of Defense

OSD-HD: Office of the Secretary of Defense – Homeland Defense

PDD: Presidential Decision Directive

SEMA: State Emergency Management Agency

SPPA: Strategic Partnership Program-Agriculture

USDA: United States Department of Agriculture

VC: Veterinary Corps

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BACKGROUND

*When Tommy Thompson stood down as US Health Secretary in 2004, he delivered a stark warning. "I, for the life of me, can not understand why the terrorist have not attacked our food supply, because it is so easy to do,"*²

Agriculture And Its Importance Within The United States:

The history of growth within the United States agriculture system mirrors the evolution of our country from a fledgling British colony to its emergence as arguably, the only remaining global superpower. Loss of this sector of our economy could reverse this trend and significantly reduce the US influence in the global economy and as an actor on the global political stage.

Agriculture, as a key component of our national economy and one of the reasons for our preeminent role in the global economy, serves as a strategic driver of our way of life in the United States. Unfortunately, our economic welfare as a nation and our standing as a leading exporter of agricultural products to the world are at risk should a successful agroterrorism incident be perpetrated. The strategic importance of maintaining the security of our homeland, the safety of our food supply and the ability of our citizenry to maintain our fundamental values and political system is of vital national interest.

The current assumption within the US is that our food supply will always be plentiful, be reasonably inexpensive, and with minor exception, be safe for consumption. This assumption is fueled by the fact that US citizens spend only 12.7% of their average income on food as opposed to the global average of 20-30 %³. However, annually food borne diseases cause approximately 76 million illnesses, resulting in 325,000 hospitalizations, and 5,000 deaths in the United States.⁴ America's attention rises to a

level of concern, only when an incident of food contamination is publicized. Questions regarding the sources of our food (whether they are processed grains, vegetables, beef, pork or poultry) are seldom raised except during these infrequent “scares” exacerbated by sensational on-the-spot media coverage. While helpful in quickly bringing to the public’s attention a potential health threat, the tendency of the media to quickly move on to the next “breaking event”, minimizes the depth of the issue. When coupled with the collective short memory of the American public, the incident and the underlying threat and concerns are soon forgotten.

Only in recent years has the specter of intentional food contamination entered our lexicon. Prior to the terrorist attacks on our nation on September 11th, 2001(9/11), only a handful of emergency planners and policy makers considered the significant impacts a directed attack upon our food supply might have or how we would respond as a nation to such an attack. The term “agroterrorism” was little known and infrequently used or discussed. In the post 9/11 era, with the expansive growth of emergency preparedness as an industry, agroterrorism has assumed a much more significant place in the minds of emergency planners. In 2005 and 2006, the Federal Bureau of Investigation (FBI) hosted two separate International Symposiums focused solely on agroterrorism. Although at one time response planners were more concerned with the effects of natural disasters within our borders, these same planners now hypothesize about all possible evils that could be perpetrated against our population by those seeking to influence our lives and further their individual or group causes. Islamic fundamentalist, home grown disenchanting citizens, failed nation state actors; all are seen as potential threats.

Agriculture is a key component and driver of our economy. The US, in addition to having the ability to feed our population, also serves as one of the largest exporters of food supplies (specifically proteins) to nations around the globe. Agricultural exports from the United States amounted to nearly 68 billion dollars in Fiscal Year 2006⁵. A significant disruption in our exports would have ripple effects within the US and throughout the global economy. In addition to these economic impacts, the potential impacts to public health, both nationally and on the global front could be significant.

Definitions of Agroterrorism

Agroterrorism is a subset of the larger field of threats posed by chemical and biological terrorism. As defined by the Rand Corporation,⁶ agroterrorism is “the deliberate introduction of a disease agent, either against livestock or into the food chain, for the purposes of undermining socioeconomic stability and/or generating fear. Depending on the disease agent and pathogenic vector chosen, agroterrorism is a tactic that can be used either to cause mass socioeconomic disruption or as a form of direct human aggression”.⁷ The Department of Homeland Security defines agricultural bioterrorism as an intentional attack on agriculture or the food system using a disease causing agent⁸.

Agroterrorism might lack the high visual impacts of large high yield explosives (nuclear or conventional) and may or may not result in thousands of people seeking urgent medical care; however, it remains an insidious form of terror. If perpetrated within the continental US or near our forces deployed in a combat theater, agroterrorism could strategically impact our ability as a nation to ensure the security and safety of our citizens and the ability to execute military missions as directed by our civilian leaders. An

agroterrorism attack on our deployed forces could be both debilitating and demoralizing, thus challenging a combatant commander's ability to field an effective combat force. Citizenry confidence in the government's ability to govern and ensure basic securities could be jeopardized. Economic impacts of an attack could be tremendous and require years for full recovery.

Historical Perspective:

Agroterrorism is not a new post 9/11 concept. From the use of rye ergot by the Assyrians in 6th Century B.C⁹ to poison the wells of their enemies, improvised and refined biological agents have been used by armies and terrorist to influence the behavior of others¹⁰. Since 1912, there have been twelve documented cases involving the sub-state use of pathogenic agents to infect livestock or contaminate a related produce¹¹.

Agroterrorism can take many forms and be carried out in a variety of ways. Toxins, pathogens and bacteria may be introduced into the food production system, either in our large plant based agricultural markets or into our livestock or commercial poultry flocks. These potential introductions could result in massive herd culling, a need to destroy processed goods and create a requirement for extensive decontamination efforts of both production facilities and livestock containment facilities. These scenarios present a clear threat to the American reliance on a safe and inexpensive food supply.

What are the Threats?

Since 9/11, the threat of agroterrorism has been widely discussed in forums ranging from emergency response planners to congressional oversight committees. In May 2005, the House of Representatives held hearings to specifically evaluate the threat of agroterrorism¹². Based upon the testimony provided, the committee concluded the

threat is real and that the intelligence community must do a better job of relaying threat information down to the state and local level. Concerns were expressed during testimony regarding Al Qaeda training manuals recovered in Afghanistan which specifically identified the targeting of agriculture as a means to impact a nation's economic stature.

Threats of agroterrorism can be divided into two general areas: intentional introduction of a foreign animal disease (FAD) pathogen into our livestock and or commercial poultry flocks; or directed attacks against our food production system, where a pathogen or some other type of contaminant is introduced into a given food sector to render it inedible or poisonous. FADs are transmissible diseases thought to be absent from the United States. Our systems of agriculture and food production provide significant vulnerabilities to terrorist attack both in our methods of animal management and traditional food production. Due to the vulnerabilities created by the openness of our systems, great opportunity is provided to terrorists, who with minimal capabilities and at limited personal risk, could severely impact the system. Although this paper focuses primarily on the impacts of agroterrorism against our livestock populations, the threat to crops and other food products through introduction of certain pathogens is also a concern.

A number of infectious pathogens exist which could be used to carry out an agroterror attack. The U.S Agricultural Bioterrorism Protection Act of 2002¹³ provides the official list of potential animal pathogens which emergency planners use as a "threat" list for potential response.¹⁴ This list is based upon a list of agents published by the Office International des Epizooties (OIE) also known as the World Organization for Animal Health^{15 16}. The OIE maintains an international listing of animal and plant

disease pathogens which are considered the most dangerous and which have the most significant impact potential on international trade¹⁷.

The critical FADs thought to present the greatest challenges for US producers are listed in the table below:

DISEASE	ANIMALS AFFECTED	CLINICAL SIGNS	MITIGATION
Foot and Mouth Disease (FMD)	Cattle, pigs, sheep, goats, cloven- hooved wildlife	Hoof and oral blisters, excessive salivation, nasal discharge, lameness	Herd Culling; Decontamination of Facilities
Highly Pathogenic Avian Influenza (HPAI)	Many avian species (poultry highly susceptible)	Sudden death, lack of energy and appetite, decreased egg production	Flock Culling, Decontamination of Facilities
Exotic Newcastle Disease (END)	Many avian species (poultry highly susceptible)	Sudden death, numerous deaths within 24-48 hours, nasal discharge, coughing, gasping for breath	Flock Culling, Decontamination of Facilities
Classical Swine Fever	Pigs	Fever, piling or huddling, loss of appetite, weakness staggering, diarrhea	Herd Culling, Decontamination of Facilities
Nipah	Pigs, horses (also zoonotic)	Fever, open mouth breathing, rapid and labored respiration	Herd Culling, Decontamination of Facilities
Rift Valley Fever (RVF)	Mammalian Species (including man)	Fever, anorexia, weakness, excessive salivation	
Rinderpest	Cattle, Pigs	Sudden onset of fever, depression and loss of appetite, reduced milk production	Herd culling, Decontamination of Facilities.
African Swine Fever (AFS)	Pigs	Fever, reddening of the skin (especially tips of ears and tail)	Herd culling, Decontamination of Facilities.
Venezuelan Equine Encephalitis	Horses, Asses, Zebras	Fever, depression, loss of appetite, lack of coordination, chewing movements, head pressing	Herd culling, Decontamination of Facilities. Vaccination program

As indicated by the Table, most of these FADs are non-zoonotic with the exception of Nipah and Rift Valley Fever. This somewhat explains the tendency of US planners to

focus more on the “traditional” bioterrorism agents when developing protective and response measures.

Foot and Mouth Disease. Foot and Mouth Disease (FMD) is thought by many to present the most significant and challenging risk to our livestock industry.¹⁸ FMD is a severe, highly communicable viral disease of cattle and swine. It also affects sheep, goats, deer and other cloven hooved ruminants. FMD is not recognized as zoonotic (i.e. transmissible to humans). The United States has been free of the FMD virus since 1929, when the last of nine U.S. outbreaks was eradicated. The disease is characterized by fever and blister-like lesions followed by erosions on the tongue and lips, in the mouth, on the teats, and between the hooves. While many affected animals recover, the disease leaves them seriously debilitated. FMD causes severe losses in the production of both meat and milk. Because it spreads widely and rapidly and has grave economic and clinical consequences, FMD is one of the animal diseases that livestock owners dread most.¹⁹ Due to the virulence with which FMD might spread against a non-inoculated population of livestock such as found in the United States, the economic impacts of an outbreak both within the US and in our international markets would be devastating.

Culling of infected herds and those herds suspected of potential infection is the commonly accepted method of quelling an outbreak. Culling of herds (slaughter and subsequent disposal of carcasses) creates a host of economic and psychological challenges for both livestock owners and the emergency response community. These cumulative economic and emotional challenges can have lasting impacts.

Unfortunately, FMD and its causative virus can be found in as many as 60% of the countries of the world and is endemic in Africa, the Middle East, Asia and many

South American nations thus offering a ready source of the pathogen for terrorists considering its use²⁰. As opposed to many of the more commonly discussed human biological warfare agents (e.g. smallpox, anthrax, etc.) which maybe difficult to produce and deliver in the best of circumstances, the FMD virus is easily obtained and dispersed. Through purchase of an FMD infected animal in one of these countries, isolating the virus from one of the infected vesicles or blisters on the animal, and then transporting that virus on just about any medium, it could easily be re-introduced into the US. Simply by stopping on a highway in rural America and releasing the virus among curious livestock an outbreak could be initiated. Due to its virility, close contact or direct introduction by this simple means could produce devastating results.

Terrorist use of the FMD virus to impact the US food supply is considered the worst case scenario by both agriculture emergency planners and the leadership of the USDA. Due to the high mobility of our livestock production system and the concentration of herds in extremely large feedlots, an undetected FMD outbreak could spread across the country in a matter of days. Cattle are continuously transported around the country to these feed lots for short periods of time. Large feeder operations in the central United States result in 95 million cattle being concentrated in only 2% of feeder locations at any given time. Estimates and modeling indicate that FMD could spread to 25 states within 5 days due to regulated movement of livestock from farms to markets. This mobility and concentration create an ideal environment and a readily available vector for the introduction of FMD into an unprotected herd.

An FMD outbreak in Great Britain in 2001 led to the slaughter of over 4 million sheep, cattle, and pigs in an attempt to control the spread. It took authorities more than 2

years to again attain “FMD Free status”. The estimated cost of the FMD outbreak was in excess of \$20 Billion (US). In addition to the localized costs, impact on animal exports and the important tourist trade effects within the UK continue to be felt over 6 years after the actual outbreak. The socio-economic impact on those farmers whose livelihood was dependent upon beef production and export remains an issue to this day.

Exotic Newcastle Disease (END) is another potential agroterrorism threat which could be directed against US poultry populations. Previously known as velogenic visotropic Newcastle disease (VVND), END is probably one of the most infectious diseases of poultry in the world. END is so virulent that many birds die without showing any clinical signs. A death rate of almost 100% can occur in unvaccinated poultry flocks. Exotic Newcastle can infect and cause death even in vaccinated poultry²¹. END is a contagious and fatal disease affecting all species of birds.

In October of 2002, an outbreak of Exotic Newcastle Disease (END) occurred in the state of California. The 2002 END outbreak in California which was initially detected within “competitive breeding locations”, i.e “cock fighting farms” within urban Los Angeles, CA, ultimately led to the forced destruction of over 3 million poultry.²² The estimated cost of the response was in excess of \$160 Million. Although there is no human health risk associated with END, the response effort taxed both state and Federal response capabilities.

ECONOMIC IMPACTS OF AGROTERRORISM

The economic impacts of a terrorist attack focused on our agricultural base could be tremendous. Agriculture is a trillion dollar industry in the US; estimates range as high as 1 out of every 6 jobs in the United States having some direct or indirect link to agriculture. Because of our advanced and extremely productive agriculture system, Americans spend less than 11% of their disposable income on food, compared with a global average of 20-30%.²³ Should our food supply be constrained, this percentage could increase dramatically. Nearly 10% of all US exports are agriculture related products.²⁴ A serious FAD outbreak would immediately shut down relevant export markets which total more than \$50 Billion annually²⁵. Concerns regarding the safety of US agricultural products would impact the role of the US in the global economy.

In addition to the primary economic challenges faced by those in the agriculture industries, another challenge facing the U.S. in the event of an agroterrorism incident is the impact on the secondarily affected population. Workers whose livelihoods are based indirectly on the safe and readily available products of US agriculture may be in danger of loss of employment. Although producers of agricultural products may be compensated for their losses by the Federal government, should there be a requirement to cull herds or destroy products, this guarantee does not subsequently apply to others whose employment may be dependent on these same goods, i.e. packing plant employees, grocers, restaurant workers, and delivery personnel. Full calculations of the secondary and tertiary impacts of an incident have not yet been completed; however, there is little doubt they could be crippling to the economies of our more rural states.

CURRENT US POLICIES AND GAPS

Many efforts have been initiated under the purview of the Department of Homeland Security (DHS) and the USDA within the agricultural and food sectors to enhance our level of food security, however, involvement by the Department of Defense (DOD) and specifically the US Army has been lacking. To substantiate guidance which mandates DOD involvement, one can review the plethora of National Security and Strategy Documents promulgated since the terror attacks of September 2001. In addition to strategy documents, Congressional language in Public Laws enacted since 2001 also support the efforts of the DOD to engage in agroterrorism defense and response efforts. The response to agroterrorism within the US will require a coordinated effort on the part of multiple Federal state and local agencies crossing multi-jurisdictional boundaries.

Lacking a single source document which outlines response requirements, the following plans and policies offer available guidance:

The National Strategy for Homeland Security (NSHS) published in July 2002²⁶ outlines roles and responsibilities for US governmental departments and agencies in ensuring the safety of the United State population and its infrastructure. As introduced by President Bush, the NSHS is, counter to its title, a national plan, not a Federal strategy. The plan relies upon the spectrum of jurisdictions, from townships through state and regional compacts up to the capabilities of the Federal government, and encourages a cooperative effort in facilitating an integrated and coordinated effort to quell concerns of additional terrorism incidents being perpetrated against the United States.

The NSHS specifically tasks the DOD for response to emergencies and responding to catastrophes with capabilities other agencies do not have available.

The National Strategy for Combating Terrorism was originally published in February 2003 and outlined four overarching strategic goals for both countering and responding to acts of terrorism.

- a) Defeat Terrorists and Their Organizations
- b) Deny Sponsorship, Support, and Sanctuary to Terrorists
- c) Diminish the Underlying Conditions that Terrorists Seek to Exploit
- d) Defend U.S. Citizens and Interests at Home and Abroad

In 2006, the NSCT was updated and the goals refined based upon challenges and successes encountered since the strategies inception. The refined 2006 strategy recognizes that the Global War on Terrorism is a long fight and far from over. The strategy recognizes that terrorist cells are constantly adapting to changing circumstances in the international environment and that our responses to these threats must evolve as well. The primary objective of the new strategy is to prevent attacks by terrorist networks. A subordinate task in support of this objective is to defend potential targets from attack. The plan recognizes the ability of the terrorist cells to adaptively adopt new “soft” targets thus catching their adversaries off guard. US agriculture is one of these potential soft targets.

The Public Health Security and Bioterrorism Preparedness and Response Act of 2002: This act outlines responsibilities of the Secretary of Agriculture and other Federal agencies to insure the safety of our food supply and for general public health emergency preparedness. This public law supports the use of academic institutions to work on agricultural bioterrorism counter measures and technologies to minimize potential impacts. The act also contained a provision to provide \$190 Million for research

and development related to agricultural bioterrorism. This public law also outlines grant funding for states and territories seeking Federal funds to enhance bioterrorism preparedness.

Homeland Security Presidential Directives (HSPDs) were developed in the aftermath of 9/11 as a method for the executive branch to communicate presidential decisions regarding homeland security policy and issues. Since October 2001, 14 HSPDs have been issued from the White House clarifying presidential decisions on homeland security policy. A number of HSPDs issued to-date provide guidance regarding agroterrorism and other related response issues. The HSPDs outlined below are those most important relative to agroterrorism and the subsequent US response posture:

Homeland Security Presidential Directive 7: Critical Infrastructure Identification, Prioritization, and Protection (CIPP)²⁷. HSPD 7 establishes national policy for Federal departments and agencies to identify and prioritize United States critical infrastructure and key resources and to protect them from terrorist attacks. The importance of this HSPD is its recognition of agriculture as one of our critical national infrastructures requiring attention for its security. Acknowledgement within this HSPD that many of our critical infrastructures were under private ownership also indicates the need for continued Federal and private partnerships in the area of comprehensive emergency response preparation.

Homeland Security Presidential Directive 9: Defense of United States Agriculture and Food²⁸. The centerpiece of policy guidance regarding agroterrorism, published in January 2004, HSPD 9 establishes our national policy to defend the agriculture and food system against terrorist attacks, major disasters, and other

emergencies. HSPD 9 recognizes that US agriculture and food systems are vulnerable to disease, pest, or poisonous agents that either occur naturally, are unintentionally introduced, or are intentionally delivered by acts of terrorism. America's agriculture and food system is an extensive, open, interconnected, diverse, and complex structure providing potential targets for terrorist attacks. "We should provide the best protection possible against a successful attack on the United States agriculture and food system, which could have catastrophic health and economic effects"²⁹. HSPD 9 outlined a 5 pronged strategy for protection of US agriculture and food systems from terrorist attack, major disasters and other emergencies through:

- (a) identifying and prioritizing sector-critical infrastructure and key resources for establishing protection requirements;
- (b) developing awareness and early warning capabilities to recognize threats;
- (c) mitigating vulnerabilities at critical production and processing nodes;
- (d) enhancing screening procedures for domestic and imported products; and
- (e) enhancing response and recovery procedures.

HSPD 9 contains the caveat that ... "in implementing this directive, Federal departments and agencies will ensure that homeland security programs do not diminish the overall economic security of the United States". While HSPD 9 is the most comprehensive of our national strategies specifically addressing agroterrorism and food safety, much additional policy work is still required. Analysis of this HSPD identifies several opportunities where the DOD in conjunction with the USDA and other Federal agencies could provide support to preparedness and response efforts.

Policy Gap Analysis: Despite the plethora of strategies and policies promulgated since 9/11, a study completed by the General Accounting Office (GAO) in 2004 assessed the content of our national strategies across a spectrum of requirements to determine whether they indeed were meeting the needs of strategy requirements. This assessment briefed to the U.S. House of Representative is outlined below³⁰:

NATIONAL STRATEGIES AND THE EXTENT THEY ADDRESS GAO'S DESIRABLE CHARACTERISTICS

National Strategy (Short Titles)	Purpose Scope and Methodology	Problem Definition and Risk Assessment	Goals, Subordinate Objectives, Activities and Performance Measures	Resources, Investments and Risk Management	Organizational Roles, Responsibilities and Coordination	Integration and Implementation
National Security	Does Not Address	Does Not Address	Partially Addresses	Does Not Address	Does Not Address	Does Not Address
Homeland Security	Addresses	Addresses	Partially Addresses	Partially Addresses	Addresses	Partially Addresses
Combating Terrorism	Partially Addresses	Addresses	Partially Addresses	Does Not Address	Partially Addresses	Partially Addresses
Weapons of Mass Destruction	Does Not Address	Does Not Address	Partially Addresses	Does Not Address	Partially Addresses	Partially Addresses
Physical Infrastructure	Addresses	Addresses	Partially Addresses	Partially Addresses	Partially Addresses	Partially Addresses
Secure Cyberspace	Partially Addresses	Addresses	Partially Addresses	Partially Addresses	Partially Addresses	Partially Addresses
Money Laundering	Partially Addresses	Partially Addresses	Partially Addresses	Partially Addresses	Partially Addresses	Partially Addresses

As indicated by the table, a number of strategies have been developed and published dealing with potential threats our country faces in the post 9/11 era; however, at the Federal level, many gaps remain. Significant among the gaps is the lack of fully developed goals, subordinate objectives and performance measures. Also lacking is detailed guidance on resources, risk assessments and risk management which are critical in full strategy development and promulgation. While subordinate DOD strategy documents begin to lay out goals for the military departments, many of the same shortcomings identified by the GAO are again present. Challenges presented by the cyclical DOD budgeting process make detailed long term strategic plans problematic.

NATIONAL RESPONSE PLANNING EFFORTS:

Emergency response planning within the US is a complicated effort due to the multiple overlapping Federal, state and local jurisdictions and the host of agencies involved at all levels. Most emergency response officials acknowledge that our system of emergency response in the US is based upon the premise that “all emergencies are local”. This is based upon the inherent responsibility of locally elected officials to insure the safety of their electorate, whether that electorate body is a town, large city, or state.

Homeland Security Presidential Directive 5 (HSPD-5)³¹: Management of Domestic Incidents outlines roles and responsibilities for the various Federal Agencies in support of the Department of Homeland Security (DHS) for domestic incident management. Policy established within the HSPD 5 is designed to assist the Federal government in preventing, preparing for, responding to, and recovering from terrorist attacks, major disasters, and other emergencies. To achieve this objective, the US Government has established a single, comprehensive approach to domestic incident management. The objective of this approach is to ensure that all levels of government across the nation have the capability to work efficiently and effectively together, using a national approach to domestic incident management. In regard to domestic incidents, the US Government treats crisis management and consequence management as a single, integrated function rather than as two separate functions. This directive states:

“The Secretary of Homeland Security is the principal Federal official for domestic incident management³². Pursuant to the Homeland Security Act of 2002, the Secretary is responsible for coordinating Federal operations within the United States to prepare for, respond to, and recover

from terrorist attacks, major disasters, and other emergencies. The Secretary shall coordinate the Federal Government's resources utilized in response to or recovery from terrorist attacks, major disasters, or other emergencies if and when any one of the following four conditions applies: (1) a Federal department or agency acting under its own authority has requested the assistance of the Secretary; (2) the resources of State and local authorities are overwhelmed and Federal assistance has been requested by the appropriate State and local authorities; (3) more than one Federal department or agency has become substantially involved in responding to the incident; or (4) the Secretary has been directed to assume responsibility for managing the domestic incident by the President.”

The National Response Plan (NRP):

The National Response Plan (formerly the Federal Response Plan) outlines the response framework for an all-hazards response to incidents occurring within the United States. Updated in December 2004, the NRP identifies fifteen critical Emergency Support Functions (ESFs) that must be addressed in response planning. Agriculture and Natural Resources are identified as ESF #11 within the plan. A Food and Agriculture Incident specific Annex was developed and published in July of 2006. Within the annex are specific roles and responsibilities outlined for the various NRP signatories. Additional information regarding the DOD support role to this plan is outlined later in this paper. DOD is one of the 32 signatories which have pledged full support to the plan.

Signatories consist of Federal agencies in addition to several non-governmental organizations.³³

National Planning Scenarios:

In 2004, to assist emergency planners at all levels, the Homeland Security Council³⁴, at the direction of President Bush, in 2004 developed fifteen planning scenarios outlining potential threats which emergency planners could use in addressing threats to the US. These scenarios undergo periodic updates to insure they reflect current response planning requirements. Two of the scenarios addressed potential agroterrorism type activities: 1) Biological Attack – Food Contamination, and 2) Biological Attack – Foreign Animal Disease (Foot & Mouth Disease). These scenarios were developed to ensure we prepare for the next major event, not the last one. The executive summary accompanying release of the scenarios emphasized the need for capability based planning efforts on the part of response planners. The NPS provide an excellent tool for planners at all levels to assess the impacts of potential threats across a spectrum of mission requirements.

Emergency Response Funding Issues:

Federal funding in support of homeland security initiatives has skyrocketed since the attacks 9/11. DHS has been the primary Federal agency tasked with serving as a conduit and providing oversight to homeland security programs and initiatives. Although over \$20 Billion have been provided, the challenge of insuring that the right amount of dollars were being provided to counter actual threat has been difficult. In January 2007, the Secretary of Homeland Security, Michael Chertoff, after undergoing extensive

criticism in the media for failing to allocate dollars into areas of the highest amount of need, announced fiscal year guidance for 2007 for state and local jurisdiction grants for homeland security programs. Secretary Chertoff indicated that the grants programs would be geared to areas of risk across the United States, not just in a handful of places as had previously been the case. The DHS grant program is broken into five areas; State Homeland Security Program (SHSP), Law Enforcement Terrorism Prevention Program(LETPP), Urban Areas Security Initiative(UASI), Metropolitan Medical Response System(MMRS), and the Citizen Corps Program(CCP).

DHS attempted to take a risk management approach to Homeland Security, acknowledging that all risks could not be eliminated, however with the dollars available, a holistic approach to minimizing as many types of risks as possible in as many locations as possible was the most responsive and responsible way to proceed.

As identified in the March 2005 GAO Report on Homeland Security titled, “Much is Being Done to Protect Agriculture from a Terrorist Attack , but Important Challenges Remain”, “...states are not receiving sufficient technical Federal assistance in developing emergency response plans and other activities to effectively prepare them to deal with agroterrorism”. This finding was directed specifically at the inability of the USDA to fill Area and Regional Emergency Coordinator positions around the country; however the finding could also be extended to lack of detailed planning guidance and support being provided.

Recent trends in homeland security suggest a movement away from a “Federal centric” response posture. Although recognition that all emergencies are local has

pervaded the response community for a number of decades, state emergency managers have always relied upon the Federal government for assistance. Recent testimony by Homeland Security officials identifies a trend toward providing funds to the states for self preparedness efforts. In testimony before the Committee on the Guard and Reserve, the Honorable George Forseman, Under Secretary for Preparedness, DHS, indicated that his department is looking to increase the roles at the state level for response efforts; over \$18 billion have been provided to the states in the past 5 years to support this effort. Mr. Forseman also focused on the fused relationship between Federal and state response assets.

FEDERAL INITIATIVES ON AGROTERRORISM:

Since 2001, agencies of the Federal government have initiated a number of programs and activities focused on both prevention and mitigation of an agroterrorism attack. Although these activities and programs are a step in the right direction for the Federal response level, once again, the lack of DOD involvement remains problematic. The Homeland Security Act of 2002, which created DHS, assigned the lead coordinating responsibility for protecting the nation against terrorist attacks, including agroterrorism to the Secretary of Homeland Security. Inherent with this responsibility is coordination oversight for initiatives being worked by the various Federal and state agencies involved. Following are descriptions of a few of the newer initiatives focused on this effort:

Strategic Partnership Program Agroterrorism: In August of 2005, a collaborative Federal partnership was formed with the Federal Bureau of Investigation (FBI), the U.S Department of Agriculture (USDA), Food and Drug Administration (FDA) and the

Department of Homeland Security known as the Strategic Partnership Program Agroterrorism (SPPA)³⁵. The intent of SPPA is for the sponsoring organizations to work cooperatively with US agriculture industries in conducting vulnerability assessments, ensuring that protective security measures are in place which will minimize exposure to possible agroterrorism incidents. As a Federal initiative, the SPPA program creates great promise in that it recognizes the critical importance of engaging private industry in preparedness activities. Through this collective effort, government and private industry come together in the risk management process, from identification of vulnerabilities through recommendations on remediation of risks identified³⁶.

SPPA was implemented in September 2005 and the first report on its progress was released in October 2006 by USDA, FDA and the FBI.³⁷ Although the SPPA effort complies with the direction and intent of our National Strategies by directing a greater focus on partnerships with private business and local jurisdictions, the DOD participation has been limited to a small number of personnel from OSD and DA attending SPPA sessions in an advisory role. No full risk assessment using the SPPA methodology has been conducted on military facilities which support food distribution to our soldiers.

InfraGard: The InfraGard program began in the FBI's Cleveland Field Office in 1996,³⁸ in an effort to gain support from the information technology industry and academia for the FBI's investigative efforts in the cyber arena. The program expanded to other FBI field offices, and in 1998 the FBI assigned national program responsibility for InfraGard to the former National Infrastructure Protection Center (NIPC) and to the Cyber Division in 2003. Through the InfraGard program, the FBI has developed a relationship of trust

and credibility in the exchange of information concerning various terrorism, intelligence, criminal, and security matters. Our agriculture system is one of the 13 mission areas encompassed by the network. The program provides an information sharing and analysis effort serving the interests and combining the knowledge base of a wide range of members. At its most basic level, this program represents an excellent partnership between the FBI and the private sector³⁹.

FBI/FDA/USDA Criminal Investigation Handbook for Agroterrorism: In addition to the InfraGard Network, the FBI, in conjunction with the FDA and USDA in 2006 published the Criminal Investigation Handbook for Agroterrorism⁴⁰. Recognizing the FBI lead Federal role in the collection of evidence and prosecution of those committing terrorist activities committed within the United States, the handbook concisely outlines the concepts agroterrorism, and identifies the roles and responsibilities of law enforcement and, food and agriculture agencies in responding to an agroterrorism incident.

The handbook facilitates communication and interaction among officials and representatives from law enforcement, animal health, plant health, and public health who may become involved in a joint investigation of a potential agroterrorism event.

Food Emergency Response Network (FERN): FERN is a network of state and Federal laboratories that are committed to analyzing food samples in the event of a biological, chemical or radiological terrorist attack in the United States. The Federal partners are the FDA, USDA, CDC and the EPA. In the event of a suspected agroterrorism attack, FERN members provide a national surge capability for sample analysis. Laboratory analysis is critical to institute measure aimed at minimizing the impacts of a suspected agroterrorism

attack. The FERN fall into the Integrated Consortium of Laboratory Networks (ICLN) which was created by DHS to link together a coordinated and operational system of laboratory networks in support of timely and high quality results required for effective consequence management. The biological section of the FERN has some overlap with the CDC's Laboratory Response Network, which is more focused on pathogens dangerous only to humans. Additional participants in the ICLN include the National Animal Health Laboratory Network (NAHLN) and the National Plant Diagnostic Network (NPDN).

National Animal Identification System: The National Animal Identification System (NAIS)⁴¹ is an information system that assists producers and animal health officials in responding quickly and effectively to animal disease outbreaks or incidents within the United States. This is a voluntary program sponsored by the USDA for the states and industry participants. The intent of NAIS is to assist all partners in the system to protect agriculture premises, reduce hardship caused by animal outbreaks, and to protect access to markets. As an information system NAIS assists state and Federal food safety and veterinary services personnel by creating and maintaining a traceability aspect to food production and subsequent movement. Tracability within the livestock sector of agriculture creates a visible deterrent as well as providing direct support to law enforcement and epidemiologist in tracking an agroterrorism incident to its origin. It can also assist responders in minimizing the spread of an agroterror or FAD outbreak.

ACADEMIC INITIATIVES

In the United States, academic initiatives are born out of the necessity of the times. With the events of 9/11 and the growth of investment both by the government and the private sector into homeland security related issues, numerous academic initiatives have been created around the country. Numerous universities and colleges have created Homeland Security Institutes and training facilities in an effort to both train and educate our future leaders on the issues faced in the “insecure” post 9-11 environment. Homeland Security degrees are the current “trend” in higher education. Research programs into homeland security related areas are being funded around the country through lucrative DHS grant programs. The strong lure of Federal funding and an active public interest in homeland security issues is a proven attraction for both public and private institutions.

The proliferation of facilities offering homeland security courses of instruction creates a number of challenges. Maintaining a level of standardization among curricula, insuring a level of quality commensurate with the importance of the topic, and certification of the programs as adequate to meet future needs are all of concern. Additionally, the challenge of sustaining programs that meet a perceived need through the sporadic Federal funding process can create questionable results. DHS, through its grants program has provided start-up dollars for a number of academic programs throughout the United States. Maintaining these programs with the appropriate funding levels may be a challenge in the future as other issues come to the forefront of national interest.

Academic Centers of Excellence: The Department of Homeland Security in an effort to engage the academic community and apply current research and technologies toward the

identification of homeland security solutions, has established several Centers of Excellence. The National Center for Food Protection and Defense (NCFPD), led by the University of Minnesota, defends the safety of the food system from pre-farm inputs through consumption by establishing best practices, developing new tools, and attracting new researchers to prevent, manage, and respond to food contamination events. The National Center for Foreign Animal and Zoonotic Disease Defense (FAZD) at Texas A&M University is focused on protecting against the introduction of high-consequence foreign animal and zoonotic diseases into the United States, with an emphasis on prevention, surveillance, intervention, and recovery.

The National Agriculture Biosecurity Center (NABC)⁴² was established at Kansas State University in 2002. NABC is working with the USDA's Animal and Plant Health Inspection Service (USDA-APHIS) in collaboration with other land-grant universities and partners to coordinate the development, implementation, and enhancement of capabilities for addressing threats to the nation's agricultural economy and food supply. NABC is currently participating in planning, training, outreach and research activities related to vulnerability (i.e. threat and risk) analyses, incident response (including assessment of intergovernmental management issues), and detection/prevention technologies. Significant opportunities exist to expand these and related biosecurity programs.

Response Training Programs: Several universities and colleges around the country have been selected to receive DHS funding to support programs focused on 1st Responder Training. These programs have a wide variety of topics taught in both an academic and practical application environment. Iowa State, Kansas State, University of Kentucky, and

the University of Tennessee host just a few of these programs. The variety of academic programs should ultimately have a positive impact on our domestic response posture, as long as control measures are in place and monitoring is sustained by those Federal agencies providing funds.

DOD RESPONSE EFFORTS AND MECHANISMS

In accordance with the National Strategy for Homeland Security, the Department of Defense contributes to homeland security in three ways: military missions overseas, homeland defense, and civil support operations⁴³. DOD and the Army have a long history of providing support to civil authorities in response to both man-made and natural disasters. Long before the tragic events of 9/11 and the tremendous DOD response to recent hurricanes in the Gulf Coast, the military has provided a much needed resource pool of both equipment and manpower to support emergency response efforts.

Historically the primary resource for military support to civil authorities has been provided through the Army component of the National Guard. Reliance upon the National Guard has been due to several factors. First, the Guard has the ability to be employed in a state duty status, thus avoiding the restrictions of the often cited Posse Comitatus Act of 1878. This act, enacted during the reconstruction phase after the American Civil War to prevent use of the Army in domestic law enforcement, is frequently cited as the reason why active component forces are neither available nor favored for use in civilian support and response activities. Secondly, the Guard is forward deployed in over 2800 communities around the United States. Due to recent strains on the military in executing the global war on terror, more active forces have been used in supporting roles for domestic response. Lastly, the Guard has, a Joint Staff Headquarters,

within each state and territory staff that can provide resident emergency response planning capabilities. These staffs have frequent interactions with the local and state emergency response community thus facilitating a more effective response effort.

Although the framework for DOD response has evolved since 9/11 with both the transfer of “action agency” from the Secretary of the Army to the Assistant Secretary of Defense for Homeland Defense and the establishment of United States Northern Command (US NORTHCOM), much of the established framework remains the same. Current DOD policy for provision of support to civil authorities is outlined in the DOD Strategy for Homeland Defense and Civil Support⁴⁴. This strategy document outlines the formal mechanisms required to facilitate the flow of US military forces into a response effort. Although the actions required are well known in the emergency response arena, our abilities to support the requirements of an agroterrorism response have not yet been adequately assessed nor exercised⁴⁵.

Lessons learned in other countries responding to “agroterror like” incidents, indicate that manpower alone is not adequate⁴⁶. Military forces engaged in remediation efforts for agroterrorism must be adequately trained and prepared to provide an appropriate support effort. Although significant efforts have been made by the subordinate elements within the Department, overall policy guidance for military engagement in an agroterrorism response has yet to be defined.

US Northern Command (U.S. NORTHCOM) was established after the events of 9/11 to provide unity of command among our armed forces for homeland defense and military assistance to civil authorities⁴⁷. US NORTHCOM has published extensive guidance relative to the use of U.S. military forces in domestic response efforts. Unfortunately, in

two of its base publications, US NORTHCOM Civil Support Concept for Employment (370 Pages) and the US NORTHCOM Homeland Defense Concept of Employment (150 Pages), extensive information is provided on emergency response; however, no attention is paid to the issue of agroterrorism response. With the unique aspects and the potential for agroterrorism, this oversight must be corrected. NORTHCOM must be tasked by OSD through the Joint Staff to initiate detailed agroterrorism response planning efforts. Recent planning efforts for response to Avian Influenza or a Pandemic Influenza outbreak could be used as baseline planning documents.

NORTHCOM has participated in exercises conducted by the National Guard Bureau with agriculturally “heavy” states; however, follow-on exercises with increasingly demanding scenarios must be developed to fully test our military response capabilities.

Military Response Capabilities

The Department of Defense and by extension the Department of the Army have identified capabilities to address threats of terrorism in support of our homeland security; however, efforts focused on the subset of agroterrorism have been minimal. The primary focus of the DOD has been on those biological terrorism agents which inflict direct harm to humans, (i.e. smallpox, anthrax, etc.) As most agroterror pathogens are not zoonotic, that is they do not transfer from animals to humans, significantly less effort has been expended. In researching the level of DOD response effort geared towards agroterrorism, responses from a variety of sources ranged from, “we will probably just use our pandemic influenza plan”, to “agroterrorism... that is really a USDA problem”. Unfortunately, should an agroterrorism incident actually occur in a large scale in the

United States or against our forces in a theater of operations, these responses will most likely not stand up to public expectations, the subsequent scrutiny of the American public, nor the likely post incident congressional review.

Although the Department of Defense has invested in significant planning efforts regarding other forms of terrorism, and the potential for Pandemic Influenza and Highly Pathogenic Avian Influenza, specific work on how US forces would be brought into support both states and Federal response efforts have been lacking. The Department of Defense and its subordinate forces represent the largest resource pool in the United States for bringing assistance to the United States population and reassuring the citizenry that order is in place.

While responding to domestic terrorism incident may be a relatively “new” mission for the Department, in 1997 the DOD assembled a team of experts under the auspices of the Director of Military support (then organized under the U.S. Army Staff), to identify how to best organize US forces for domestic terrorism response efforts. The office established by the Army to carry out this effort, the Consequence Management Program Integration Office (CoMPIO) existed as a component of the Army Staff from March of 1998 through August of 2001.

The result of that effort, published in January 1998 was entitled, “*Department of Defense Plan for Integrating National Guard and Reserve Component Support for Response to Attacks Using Weapons of Mass Destruction*”⁴⁸. This report was the genesis for an investment by the Department of Defense in development and fielding of the National Guard Weapons of Mass Destruction Civil Support Teams (WMD-CSTs). In addition to proposing the development of these teams, the report also outlined how

reserve forces within the United States could be task organized to support a coordinated response to a variety of domestic terrorism requirements. The National Guard Bureau J-3 continued the initial CoMPIO initiatives through the fielding of Chemical Biological Radiological Nuclear Enhanced Response Force package (CERFP) elements and other “joint” response capabilities across the United States. These elements offer a variety of capabilities that could be used in support of an agroterrorism response.

DOD/USDA/APHIS Coordination. The DOD entered into a Memorandum of Agreement (MOA) with the United States Department of Agriculture in June of 2006. This MOA outlines the support to be provided to the USDA’s Animal and Plant Health Inspection (APHIS) service for a response to animal diseases. APHIS has the primary responsibility under the USDA to plan for and coordinate the Federal response to animal disease emergencies. While this MOA is an important step towards qualifying DOD support, it is limited in its scope to the provision of veterinary officer support to USDA at the both the National Headquarters and potentially at a suspected incident site. While having a military veterinarian on scene at working directly with APHIS during an incident is advantageous, the myriad of other support requirements which may be required for an actual response is not addressed. Support that may be requested from the DOD ranges from requirements for site or route security to assistance with herd culling and carcass disposal. While not primary missions of DOD or Army forces, these are missions which could easily be assumed or supported.

Other DOD Initiatives DOD, in an effort to provide support to national preparedness, has funded via the DOD Technical Support Working Group, a “lessons learned” database for agroterrorism response at the Kansas State University. Through efforts by the

National Agricultural Biosecurity Center and three subcontractors, this project develops content and software to help the nation's emergency management personnel respond more effectively to an agricultural or zoonotic bioterrorist event.

DOD Planning Efforts: DOD and the subordinate services are well known for their detailed plans to meet nearly any and all contingencies for which they may need to respond to. DOD is continuously developing and modifying an entire family of plans; contingency plans, operational plans, strategic plans, short term plans, transformation plans; focused on ensuring the Department is prepared for any domestic response requirement. The challenge for any type of planning effort is to identify true operational requirements for which plans might or could be required for and then to have the resources available to complete the needed plans. Other than the previously mentioned efforts at providing inputs to the USDA response planning effort for Highly Pathogenic Avian Influenza, little or no planning has been completed with the services which would be directly applicable to an agroterrorism response.

Response Exercises: US NORTHCOM has participated on a limited scale in a series of agroterrorism response exercises.

High Plains Guardian (HPG) Exercise: HPG was an exercise conducted in July 2004 by the National Agricultural Biosecurity Center at Kansas State University. The exercise provided a number of key "lessons learned" which can guide and facilitate the DOD and service planning process. Key lessons, issues identified and the author's recommendations on potential DOD resolution are identified in the table below:

High Plains Guardian Lessons Learned (2004)

Lessons Learned	Key Issue	Potential DOD Resolution
State and Federal interests will not always coincide during a FAD Outbreak	Confusion between responding agencies may hamper response efforts	Utilization of state National Guard Joint Force HQ's as "DOD" Point of entry.
Response to a widespread FAD outbreak will require unique and unconventional partnerships with the private sector	Confusion between multiple jurisdictions and inter-state issues.	State National Guard forces are adept at cross border coordination
A successful stop movement effort will require the cooperation of both neighboring state and the affected general population	Confusion between multiple jurisdictions and inter-state issues.	State National Guard forces are adept at cross-border coordination
States would benefit from improved resource modeling capabilities	Computer modeling aids are used throughout the DOD	National Guard WMD-CST units have assigned modeling personnel.
Quarantine of affected premises and related activities will quickly exhaust limited state and regional resources	Substantial security issues with enforcement of a USDA declared quarantine	National Guard personnel are familiar with local law enforcement and could augment local forces.
States emergency responders may lack adequate vehicles and equipments essential for a timely FAD response	Vehicle availability	National Guard Forces have substantial "rolling-stocks" in all states.
Times required for transportation of samples may delay response.	Lab and transport capabilities	WMD-CSTs have mobile analytical labs which can be used for testing and transport of suspect samples
DOD, National Guard and Civil Authorities lack adequate institutional linkages for supporting a coordinated response to a FAD event	Continued response exercises required.	National Guard forces exercise response capabilities on an annual basis.

***Lessons learned with author assessment of key issues and recommendations for DOD.**

HPG 2004 was a conducted as a follow-on exercise to the 2003 iteration. In the 2003 HPG, it was identified by the exercise sponsors that DOD and National Guard roles required critical re-examination for FAD response. Critical response issues identified by the HPG 2003 exercise are identified below along with projected DOD support capabilities developed by the author.

Critical Operational Response Issues: High Plains Guard 2003

Issues:	DOD Support Capabilities
Transportation of Samples	WMD-CST / Guard / RC Aviation Assets
Quarantine and Security	ARNG / Reserve Security Forces
Herd Surveillance	DOD Vet Support
Stop movement	ARNG / Reserve Security Forces
Decon of conveyances and personnel	Guard CST Advisors / CERF-P Elements
Herd Depopulation	Guard and Reserve Security Forces (w/tng)
Carcass transportation	Guard and Reserve Transportation Units
Carcass Disposal	Not a DOD Capability
Decontamination of Premises	Guard CST Advisors / CERF-P Elements

- **Issues with author's identification of DOD Support capabilities.**

These are key operational response mission areas which exercise attendees and observer controllers identified for further study and additional work. These mission areas provide a base of planning assumptions for military operational planners.

The Threat of Agroterrorism to Deployed Forces: Food supplies for troops actively engaged in combat operations present a soft target for terrorists. In the event of the introduction of a pathogen causing debilitation of forces, the impact could be severe. The US Army Veterinary Corps provides surveillance on all foods purchased for consumption outside of the continental United States (OCONUS), including food prepared through both military facilities and food provided through contract vendors. With the U.S heavily engaged in two OCONUS theaters of operation in Afghanistan and Iraq, surveillance and inspection of foods locally procured for consumption by our deployed forces has become a significant mission area for our limited veterinary support staffs and preventive medicine units. Heavy reliance is placed upon these elements to ensure the safety of our deployed soldiers food supply.

Use of the Reserve Component in Incident Response: The first line of domestic military response within the United States has historically been through its reserve component

troops, primarily the National Guard which are permanently stationed around the country in over 3000 communities. As indicated previously, the US Congress in 1998 authorized the formation of National Guard Weapons of Mass Destruction - Civil Support Teams (WMD-CSTs) to support domestic response for incidents involving weapons of mass destruction. These small specialized teams have the capability to assess a suspected incident, advise civilian first response personnel, and facilitate the flow of follow on DOD and other governmental support into an area of operations. Many of the capabilities of WMD-CSTs could be used to support a multitude of tasks in an agroterrorism response. In addition to the WMD-CST units, additional forces known as CERF-P elements have been tasked organized to support domestic terrorism responses. CERF-P elements are made up of existing ARNG force structure (units) which have been provided additional training and equipment for specific HLD/HLS mission. Capabilities of the CERF-Ps include engineering, military police, medical and other advisory/support capabilities. The Joint Force Headquarters within each state National Guard provides the additional capability to support an influx of DOD Forces by providing a ready made adaptable headquarters support element.

Within the Reserve Component, the one vital specialty which is currently lacking in quantity for response to an agroterrorism response is within the Veterinary Corps⁴⁹(VC). As missions and requirements have evolved over the past two decades, authorizations have been dropped within the reserve components, specifically in the National Guard. In the guard today, only 12 VC officers remain on the roles. In the United States Army Reserve (USAR) 270 VC officers are counted; however, of that number, 101 are currently assigned to the Individual Ready Reserve (IRR)⁵⁰. Recent

experience by the Department of the Army in mobilizing soldiers' from the IRR has shown that many of those soldiers are not currently fit for military duty for a variety of reasons, leaving this population even more depleted. Additionally, a 2003 GAO Report⁵¹ reflected that the Army had not maintained up to date contact information on over 40,000 of its approximate 315,000 thousand soldiers assigned to the IRR.

The lack of veterinary personnel authorizations in the National Guard and its impact on response is a potential issue. State National Guard forces lack resident expertise regarding FADs and threats to food supplies, upon which decisions at the state level may be made on agroterrorism and food safety. A concerted effort must be undertaken to provide this much needed asset to every state and territory in support of agroterrorism readiness. The Department of the Army needs to assess the requirement to develop documented authorizations for VC officers and enlisted personnel. As the Department of Defense first line of response, the state National Guard organization leadership could enhance their ability to assess and response to an agroterrorism incident if provided this key capability.

Balancing Reserve Component Commitments: The Reserve Components (RC) of the United States have been used extensively since 9/11 in a variety of roles and missions. The National Guard has mobilized in excess of 260,000 soldiers of its assigned 350,000 soldiers and the United States Army Reserve has mobilized over 160 thousand soldiers. Recent policy decisions coming from the Pentagon indicate the Defense Department will now consider additional mobilizations of some Guard and Reserve forces that have previously completed a mobilization period. Due to the extensive use of the RC for GWOT and GWOT Support mission, diligence must be used when incorporating RC

forces into plans for domestic response. With no visible end in-site of the GWOT commitments, consideration must be made by military planners as to what the appropriate force mix for domestic response should be. Current readiness indicators already point towards a hollowing of our reserve components based upon extensive deployments and equipment losses in overseas theaters.

SUMMARY: The threat of agroterrorism is a real and significant danger to our National Security and specifically to our economic well-being. Since 9/11 many Federal agencies have initiated programs geared at identifying risks and instituting protective measures to guard against the threat of agroterrorism. The DOD and the Army need to increase their actions in this arena. Coordination for immediate use of the Reserve Components should be completed prior to an incident occurring. Although our agricultural community has been extremely successful or just lucky in avoiding any incidents thus far, and we can still enjoy incredible freedoms within our agriculture community, additional attention needs to be paid to securing our nations food supply and securing this economic treasure.

RECOMMENDATIONS: Priority needs to be given to the development of support requirements for a potential response to agroterrorism. Current policies are not comprehensive enough in describing what actions the nation will take for a complete response. Additional training and response exercises which stress our response capabilities must be developed and executed to insure we are prepared to respond if called upon.

Specifically, the author recommends the following:

- 1) A full mission analysis of potential roles and mission for the US military in response to an agroterrorism incident must be conducted, under the auspices of

- US NORTHCOM. Utilizing the “SWOT”⁵² analysis methodology, a clear requirements picture for U.S. military forces should be developed.
- 2) OSD and the services in coordination with the Joint Staff must assess service response capabilities, to include use of the National Guard and Reserve Components, and assess the training and equipping needs necessary to meet identified requirements.
 - 3) OSD-HD must develop and publish policies supporting the Federal interagency community response efforts for agroterrorism.
 - 4) Services must develop and publish guidance to subordinate elements clearly identifying the projected missions for an agroterrorism response effort.
 - 5) US NORTHCOM in conjunction with the National Guard Bureau should develop and execute a series of more aggressive and challenging Agroterrorism Response exercises specifically tailored to assess military personnel, equipment and training requirements.
 - 6) A study of veterinary corps officer requirements within the Reserve Components should be conducted to assess if current authorizations support projected requirements. The DOD mission analysis for HLS/HLD missions should be addressed in this study.

CONCLUSION: Although the US has invested significant amounts of monetary and personnel resources to the challenges of preparing for domestic response issues since 9/11, in terms of agroterrorism preparedness and response, the Department of Defense and the Army have not developed adequate policies or plans outlining their potential involvement. Due to our performance in previous natural disasters and in response to

terrorist actions in this country there is a great reliance upon the United States Military to save the day. The cry of, “send in the cavalry”, commonplace since the Indian Wars of the 1800s is no less relevant today. It is incumbent upon our US military leadership both civilian and uniformed to insure that our planners and forces adequately assess requirements and be prepared to respond when the cry is heard again. Our military forces will be key members in what is certain to be a multi-agency, multi-jurisdictional response effort should agroterrorism rear its head within the confines of the United States. We must be prepared.

DRAFT PLAYBOOK FOR DOD AND ARMY RESPONSE EFFORTS:

Agroterrorism Response Scenario: The DHS has published 14 National Planning Scenarios to be used by emergency planners when developing response plans. The scenario for agroterrorism which is Scenario 14: Biological Attack - Foreign Animal Disease (FAD). Using the published scenario as a baseline, the following is a narrative of how DOD/US Army support could become required to support an agroterrorism incident.

- *In state X, a cattle rancher notices that several of his animals are sick and requests veterinarian assistance. A local veterinarian conducts an assessment and identifies that a suspected FAD may be the cause. The local vet requests assistance from the state veterinarian’s office. A foreign Animal Disease specialist is dispatched to the ranch to conduct initial determination / presumptive identification testing. Presumptive diagnosis is for Foot and Mouth Disease. Samples are immediately transferred via state owned aircraft to Plum Island’s Foreign Animal Disease Laboratory.*

ACTION	STATE RESPONSE	FEDERAL RESPONSE	DOD/MILITARY FORCE RESPONSE
FAD Presumptive Identification Occurs in State X.	Notifications initiated	Sample transported to Federal Foreign Animal Disease Diagnostic Laboratory at Plum Island	Monitor Laboratory results, assist in sample transport if requested, initiate coordination with NGB for execution of quarantine / security requirements
2 nd FAD Suspected in State Y	Immediate notifications to Federal authorities	Sample transported to Federal Foreign Animal Disease Diagnostic Laboratory at Plum Island	Stand up of NORTHCOM and Joint Staff Operations Cell to monitor on-going developments

ACTION	STATE RESPONSE	FEDERAL RESPONSE	DOD/MILITARY FORCE RESPONSE
Confirmation of FM at Plum Island FADDL	Stop Movement – Initiation of Epidemiologic Study	Notification to International Authorities of FMD Outbreak	OSD-HD / OSD FHP initiate daily teleconference with USDA and DHS operations centers.
At a slaughter house in state Z, a worker notices that new shipment of cattle have arrived in generally poor condition.	Immediate notifications to federal authorities. Request for support from state vet office for testing and support.	DHS / FBI initiate actions operating under the assumption that the test results being submitted by subsequent states will test positive for FMD.	Requests for assistance to the DOD are received for: Security Operations/ Quarantine Operations/ Feeding Support to livestock stranded by “Stop Movement Orders” Surveillance Support.
Public Notification of FAD is released (identifies as FMD / suspected terrorist influence)	Hot line established with states to support public education campaigns	USDA provides “Expert Commentators” to support need for public education.	
Authorization actions initiated in locations identified as FMD positive	Security requirements increase. State National guard assets on duty in support role	Additional USDA/APHIS Teams dispatched to affected areas. USDA requests execution of USDA / DOD MOA for additional FAD Qualified Veterinarian support	Requests for support to culling operations received through DHS / FEMA from 17 states.
FMD now suspected in 23 states.	Continued requests to the Federal government for additional security support	Additional requests for culling, mass burial and decontamination support forwarded to DOD for support	Active Component Forces are identified to support culling operations across the Midwest and into the upper NW states.
Civil unrests begins at local markets	Law Enforcement Support Requested to quell civil unrest.	Field and Assess requests for additional security and law enforcement support	Coordinate with NGB Staff for National Guard Security forces of the CERFP Elements
World markets begin to tumble.		Work to stabilize markets via special legislation for “victim” support	Coordinate with NGB Staff for National Guard Security forces of the CERFP Elements
Outbreaks Controlled	Consequence Management Activities - Assess Environmental Exposures and extent of contamination in production and delivery facilities	Provide decontamination support to states and commercial facilities where virus has been positively identified.	Continue Defense Support to Civil Authorities; Support Epidemiology Efforts; Support Law Enforcement Efforts at evidence collection

Considerations for use during incident response planning effort:

- Who is notified within the existing emergency response network?
- Joint Staff Actions: What actions are required pre- incident / during the response and post-incident?
- NORTHCOM Notification: What coordination efforts are required by NORTHCOM to insure the availability of the “right” force at the “right” time at the “right” place?
- Execution of Existing Requests for Assistance: DoD Early approval of RFAs
- Subsequent taskings (Security, Transportation of Samples, Stop movement) Law Enforcement, Herd Culling, Carcass Removal, Epidemiological Support)
- Coordination with NGB and other RC Elements: Establishment of JFHQ’s within impacted states for coordination and C2 of Federal forces as required.
- WMD-CST Utilization and Communication: Potential for regionalization of support requirements must be coordinated within the NGB J3 community.
- CERFP Call Up and Utilization: Early identification of CERFP requirements will facilitate effective usage of these elements.
- Subsequent Requirement Identification: Future requirements must be assessed early on in an incident to insure available resources are not over tasked and hence non-available for later operations.

¹ Agriculture was outlined as a critical infrastructure within HSPD 7, Critical Infrastructure Identification, Prioritization, and Protection and the issuance of HSPD 9, Defense of United States Agriculture and Food identified the importance of securing our agriculture and livestock production systems.

² Thompson, Tommy, Secretary Health and Human Services; Comments made at departure ceremony: <http://news.bbc.co.uk/2/hi/americas/5274022>

³ U.S Census Bureau, Statistical Abstract of the United States: 2004-2005 (124th edition), The National Data Book, (Washington D.C.: U.S. Government Printing Office, 2004), 234.

⁴ Mead, P. S., Slutsker L., Dietz, V., McCraig, L.F., Bresee, J.S., Shapiro, C., Griffin, P.M., Tauxe, R.V., *Food Related Illness and Death in the United States*, Emerging Infectious Disease, Vol 5, No 5, Sep –Oct 1999

⁵ United States Department of Agriculture, Economic Research Service: Foreign Agricultural Trade of the United States (FATUS): Monthly Summary December 2006:

<http://www.ers.usda.gov/Data/FATUS/MonthlySummary.htm>

⁶ Dr. Peter Chalk is an Analyst for RAND specializing in South East Asia, international Terrorism and emerging threats.

⁷ Chalk, Peter. 2004 *Hitting America's Soft Underbelly: The Potential threat of Deliberate Biological Attacks Against the U.S. Agricultural and Food Industry*, RAND (Washington D.C.)

⁸ Department of Homeland Security brochure “Bioterrorism: Threat to US Livestock Production” (Washington DC)

⁹ 600 BC: Assyrians poisoned the wells of their enemies with rye ergot, which affected those ingesting it with sickness or death. The fungus that causes ergot produces ergotamine, a hallucinogen similar in chemistry and effects to LSD. Ergot poisoning causes delusions, paranoia, myoclonic twitches, seizures, and cardiovascular problems that can lead to death. Those affected seemed to go mad, which added the terror element and served to demoralize their comrades; available at:

<http://www.dshs.state.tx.us/preparedness/bioterrorism/public/history/#ancient>

¹⁰ Eitzen, E.M., Takafuji, E.T.: Historical Overview of Biological Warfare, Textbook of Military Medicine, Medical Aspects of Chemical and Biological Warfare, 1997 Published by the Office of the Surgeon General, Department of the Army Pgs. 415-424.

¹¹ Gilmore, James *Fourth Annual Report to the President and the Congress of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction*, Rand Corporation , Washington D.C. December 2002

¹² U.S. Government Printing Office, Hearing before the Subcommittee on Intelligence, Information Sharing, and Terrorism Risk Assessment of the Homeland Security House of Representatives, One Hundred Ninth Congress (Serial No. 109-16) (Washington D.C. May 25, 2005), also available at:

<http://www.gpoaccess.gov/congress/index.html>

¹³ The Agricultural Bioterrorism Protection Act of 2002; Subtitle B of Public Law 107-188, the Public Health Security and Bioterrorism Preparedness and Response Act (Washington, DC 2002)

¹⁴ Agricultural Bioterrorism Protection Act of 2002 (Subtitle B of P.L 107-188).

¹⁵ The OIE is an intergovernmental organization with 155 member countries. The World Trade Organization's (WTO) “Agreement on the Application of Sanitary and Phytosanitary Measures” explicitly call for the use of standards, guidelines and recommendations developed under the auspices of the OIE.

¹⁶ “International Standards” Office International des Epizooties, available at

http://www.oie.int/NORMS/A_norms.htm

¹⁷ Prior to 2004, two separate lists were maintained by the OIE (type a and Type B), based upon the potential for rapid spread and impact on international markets, however member countries in 2004 voted to consolidate the lists into a single list reflecting all current threats.

¹⁸ Animal Plant and Health Inspection Fact Sheet dated 2002,

http://www.aphis.usda.gov/lpa/pubs/fsheet_faq_notice/fs_ahfmd.html

¹⁹ Animal Plant Health Inspection Service, United States Department of Agriculture Fact Sheet: Foot and Mouth Disease (Washington D.C. January 2002)

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²⁰ United States General Accounting Office, “Foot and Mouth Disease; To Protect U.S. Livestock, USDA Must Remain Vigilant and Resolve Outstanding Issues”, Report to the Honorable Tom Daschle, U.S. Senate, (Washington D.C. July 2002)

²¹ Animal Plant Health Inspection Service, United States Department of Agriculture Fact Sheet: Exotic Newcastle Disease (Washington D.C., January 2003)

http://www.aphis.usda.gov/lpa/pubs/fsheet_faq_notice/fs_ahend.html

²² Dr. Annette Whiteford, Director, California Animal Health Food and Safety Service: Briefing provided to the 2006 International Symposium on Agroterrorism, Kansas City, MO September 2006

²³ Congressional Research Service Report for Congress; Agroterrorism: Threat and Preparedness; August 2004

²⁴ Central Intelligence Agency Country Fact Book, available on the internet at:

<https://www.cia.gov/cia/publications/factbook/geos/us.html>

²⁵ Department of Homeland Security, Brochure on, Bioterrorism Threat to US Crop Production (Washington, DC)

²⁶ George W. Bush, National Strategy for Homeland Security (Washington D.C.: The White House, July 2002).

²⁷ George W. Bush, Homeland Security Presidential Directive 7 (HSPD-7), “Critical Infrastructure Identification, Prioritization, and Protection,” (Washington D.C.: The White House, December 2003).

²⁸ George W. Bush, Homeland Security Presidential Directive 9 (HSPD-9): Defense of United States Agriculture and Food”, (Washington D.C.: the White House, January 2004)

²⁹ Ibid.

³⁰ United States General Accounting Office, “Combating Terrorism: Evaluation of Selected Characteristics in National Security Strategies Related to Terrorism,” statement of Randall A. Yimm to the Subcommittee on National Security, Emerging Threats and International Relations, Committee on Government Reform, U.S. House of Representatives, February 3, 2004. Also available at

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³¹ George W. Bush, Homeland Security Presidential Directive 5 (HSPD-5) : Management of Domestic Incidents” (Washington D.C.: The White House, February 2003)

³² Ibid. (20)

³³ Department of Homeland Security, Brochure on, Bioterrorism Threat to US Crop Production (Washington, DC)

³⁴ Homeland Security Council. Executive Branch Advisory Council which pre-dated the establishment of the Department of Homeland Security as a policy advisory body for the President on Homeland Security Issues

³⁵ US Food and Drug Administration

³⁶ Specific objective of the SPPA program include: Validate or identify sector-wide vulnerabilities by conducting critical infrastructure/key resources (CI/KR) assessments in order to: Identify gaps; Inform Centers of Excellence and Sector Specific Agencies (SSA) of identified research needs; and Catalog lessons-learned.

³⁷ The implementation of the SPPA Program : To facilitate this work, a series of site visits were conducted at multiple food and agriculture and production facilities. All Food and Agriculture Sector sub-sector were studied (i.e. production, processing, retail, warehousing, and transportation) in order to assess the farm-to-table continuum. The primary purposes of the visits are to work with industry to validate or identify vulnerabilities at the specific site and the sector as a whole. These visits will be built upon the work done by the Sector Specific Agencies in order to assist in developing the National Infrastructure Protection Plan (NIPP), Federal Sector Specific Plans (SSP) and state SPP. All visits are conducted on a volunteer basis. Start date for the SPPA program was September 1st, 2005.

³⁸ Federal Bureau of Investigation Website for INFRAGARD:

http://www.infragard.net/about_us/facts.htm , Washington, DC 2006

³⁹ InfraGard is an association of businesses, academic institutions, state and local law enforcement agencies, and other participants dedicated to sharing information and intelligence to prevent hostile acts against the United States. In March 2003, NIPC was transferred to the Department of Homeland Security (DHS), which now has responsibility for Critical Infrastructure Protection (CIP) matters. The FBI retained InfraGard as an FBI sponsored program, and will work with DHS in support of its CIP mission, facilitate

InfraGard's continuing role in CIP activities, and further develop InfraGard's ability to support the FBI's investigative mission, especially as it pertains to counterterrorism and cyber crimes.

⁴⁰ Federal Bureau of Investigation, Food and Drug Administration, United States Department of Agriculture Handbook: Criminal Investigation Handbook for Agroterrorism (Washington D.C. 2006)

⁴¹ National Animal Identification System information available at:

<http://animalid.aphis.usda.gov/nais/index.shtml> Accessed on 12 Jan 2007

⁴² Additional information regarding the National Agriculture Biosecurity Center is available on their web site at: <https://www.ksu.edu/nabc/index.html>

⁴³ National Strategy for Homeland Defense (Washington D.C. Office of Homeland Security 2002)

⁴⁴ Gordon England, Strategy for Homeland Defense and Civil Support (Washington D.C.: The Pentagon, June 2005)

⁴⁵ DOD Response to the Hurricane Katrina response effort was heralded by many as being a significant contribution to lessening the impacts of this tragedy in the Gulf States. Consideration was given shortly after the bungled Federal Government response to placing the Department of Defense in a lead agency role in place of the Federal Emergency management Agency which had much lower levels of public support.

⁴⁶ Department for Environment, Food and Rural Affairs, United Kingdom,

<http://www.defra.gov.uk/footandmouth/cases/1967a.htm>

⁴⁷ Rowe, Richard, BG, *US NORTHERN COMMAND: Homeland Defense Concept Of Employment*, 2004 Colorado Spring, CO

⁴⁸ The DOD Report is available at <http://www.defenselink.mil/pubs/wmdresponse/>. The report also proposed the Consequence Management Program Integration Office as the DOD office assigned responsibility to develop and field DOD response elements for domestic WMD response. In existence from March 1998 through June of 2001 CoMPIO managed to field the new WMD-CST teams to the National Guard in record time, taking the units from concepts to OSD level certification for response in a mere 14 months.

⁴⁹ Vroegindewy, Gary, COL: Interview by author; October 2007

⁵⁰ Owens, Steven LTC, Army Medical Department (AMEDD) Personnel Proponency Division, San Antonio, TX November 2006

⁵¹ United States General Accounting Office Report # 03-921: Military Personnel; DOD Actions Needed to Improve the Efficiency of Mobilization for Reserve Forces. Also available at:

<http://www.gao.gov/new.items/d03921.pdf>

⁵² SWOT Analysis: Identification of Strength, Weakness, Opportunities and Threats

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