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NIJ Research Report

Defining Law Enforcement's Role in Protecting American Agriculture from *Agroterrorism*

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CONTENTS

Abstract.....	iv
About the Authors.....	v
Acknowledgements.....	vi
List of Tables	viii
List of Figures.....	ix
EXECUTIVE SUMMARY	1
Overview.....	1
Law Enforcement’s Role in Agroterrorism	2
Primary Threat to Livestock: Foot-and-Mouth Disease	3
Identifying the Terrorists/Extremists	5
Law Enforcement’s Role in Protecting U.S. Agriculture	6
Conclusions.....	7
Recommendations.....	9
INTRODUCTION.....	12
Background of Research Project.....	12
Risks for America	12
Challenges for law enforcement.	15
Terrorist Threat to American Agriculture.....	16
Primary threat to agriculture: Foot-and-mouth disease	18
Profiling the terrorists	24
Research Project: Goals and Objectives	25
LITERATURE REVIEW	27
Pre-9/11 Research.....	27
Post 9/11 Research.....	29
Background: Agroterrorism.....	29
Socioeconomic costs.....	31
Veterinary concerns.....	33
Preparedness.....	36
Law enforcement.....	38
Congressional field hearing.....	40
Homeland Security Presidential Directives	42
IACP issues critical report.....	42
RESEARCH DESIGN, METHODOLOGY, RESULTS AND DISCUSSION.....	45
Focus Groups	47
Vulnerabilities.....	48
Field Surveys	51
Survey of Kansas Sheriffs.....	51
Survey of Livestock Industry.....	71
Overview of Simulation Exercises.....	82

Simulation exercise: <i>Sudden Impact</i>	84
Simulation exercise: <i>Endangered Species</i>	86
Livestock Traffic Movement in Kansas.....	88
ECONOMIC IMPLICATIONS	94
Foot-and-mouth disease: Economic impact.....	99
Summary	108
UNDERSTANDING AGROMOVEMENT	110
Disease management.....	112
LAW ENFORCEMENT INTELLIGENCE NETWORK	115
Intelligence products.....	116
Current initiatives.....	119
Training and Education.....	127
Training and education conclusions.....	130
RESEARCH INITIATIVES	131
Kansas Regional Response Teams.....	131
Agro-Guard Community Policing Program.....	133
Reporting suspicions.....	137
The role of law enforcement.....	138
Managing the Risk	139
Smuggled-Food Interdiction Teams (SFIT).....	140
Agroterrorism Training for Law Enforcement: National Module	142
Target-Specific Training for Law Enforcement	142
Community Training.....	145
Utilization of the RCPI Network	146
Training Delivery Methods.....	148
On-Line Training	148
A Law Enforcement Training Model.....	149
External Funding.....	149
CONCLUSIONS and RECOMMENDATIONS	151
Conclusions.....	151
Recommendations.....	152
REFERENCES.....	156
APPENDICES	162
Definition of Terms and Organizations:	162
Kansas Statutes (K.S.A. 47-611 – 47-618).....	167
Homeland Security Presidential Directive/HSPD-9	171
Survey of Kansas Sheriffs.....	176

Survey of Livestock Industry.....	180
Training Module	186
Grant Timeline	188

Abstract

American agriculture represents a "soft" target for terrorists. Experts agree that the single greatest threat to our agricultural economy is foot-and-mouth disease (FMD). An outbreak of this highly-contagious viral disease would have a catastrophic effect, including immediate cessation of beef exports, full-scale quarantines, possible destruction of millions of animals, stop-movement orders, and economic chaos (losses upwards to \$60 billion). Five primary groups are considered to be threats to agriculture: international terrorists, domestic terrorists, militant animal rights groups, economic opportunists, and disgruntled employees.

NIJ authorized an in-depth study to determine law enforcement's role in protecting against acts of agroterrorism. Through interactive focus groups, input was obtained from law enforcement, livestock producers, meat packers, truckers, feedlot managers, and animal health officials. Research methodology also included two simulation exercises; field surveys; field interviews; and results of preventive measures initiated on a trial basis in Kansas.

Law Enforcement's Role. Unlike traditional enforcement duties, an FMD outbreak would likely require law enforcement to remain on-site for 60 days or more to enforce quarantines and stop-movement orders. Law enforcement's focus should be on *prevention*: (1) identify threats to local agricultural industry; (2) conduct vulnerability assessments of potential agricultural targets; (3) develop new partnerships; (4) establish a meaningful criminal intelligence network; and (5) develop local community policing programs for agriculture.

Conclusions. The research team reached unanimous concurrence that law enforcement has *insufficient resources* to adequately respond to an FMD outbreak. Law enforcement has remained reactive, if not passive, in acknowledging agroterrorism as a serious threat. Criminal intelligence concerning threats to agriculture is virtually non-existent. Published information is silent on law enforcement's role in addressing threats targeting American agriculture.

Recommendations. To strengthen America's defense against threats of agroterrorism, the research team developed eight recommendations:

1. In keeping with Presidential Directive HSPD-9, the Department of Homeland Security (DHS) should provide leadership to address the threats of agroterrorism by developing a *national* law enforcement strategy;
2. DHS should coordinate preventive measures developed by *local* law enforcement;
3. *Local* preventive measures should be funded by Federal appropriations;
4. USDA should pursue additional funding for its interdiction program targeting illegal meat products being smuggled into the United States;
5. A national animal identification system should be mandatory, and rapidly implemented;
6. *Local* law enforcement should commit to the aggressive development of information sources concerning criminal threats to agriculture;
7. Agroterrorism awareness training should be provided by the Regional Community Policing Institute, and funded through ODP grants; and,
8. Community policing programs for the agriculture industry should be developed to promote *local* partnerships and prevent criminal activity, including acts of terrorism.

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We express our grateful appreciation to those experts:

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KBI Director Larry Welch and Ford County Sheriff Dean Bush are respected law enforcement leaders in Kansas and understand the importance of agriculture and its role in the American economy. Both gentlemen have been very supportive of this research project, and have committed special agents and sheriff deputies to help develop preventive strategies against acts of agroterrorism.

Community leaders of Dodge City and Ford County are to be commended for their vision, commitment, and leadership in developing a well-coordinated, comprehensive strategy to guard against agroterrorism. The local planning initiative developed in Ford County should serve as a strong, proactive model for other communities throughout the United States.

And to one of the true stalwarts in keeping America safe, we express our grateful appreciation to Senator Pat Roberts (R-KS) for his leadership and vigilance against terrorism. Long before the terrorist attacks of 9/11, Senator Roberts issued warnings of concern about our homeland defense, including emerging threats to American agriculture and our domestic food supply. He has been actively involved in this research project, and has been a source of inspiration in finding solutions to combat the threat of agroterrorism.

List of Tables

Table 1 - FMD Response Sequence.....	23
Table 2 - Confirmed Cases of Agriculture and Food Bioterrorism in the 1900s.....	30
Table 3 - Characteristics of the Survey Respondents (Statewide).....	55
Table 4 - Response Ratings for Statements Relating to Partnership, Planning and Willingness to Support Initiatives	59
Table 5 - Response Ratings for Intelligence Statements	60
Table 6 - Response Ratings for Statements Relating to Communications	62
Table 7 - Response Ratings for Statements Relating to Training.....	64
Table 8 - Response Ratings for Statements Relating to Investigation.....	65
Table 9 - Response Ratings for Statements Relating to Policy, Knowledge, and Resources.....	66
Table 10 - Description of Livestock Associations.....	73
Table 11 - Responses to Statements Relating to Workplace Security	75
Table 12 - Responses to Statements Relating to Written Policy and Practice.....	77
Table 13 - Level of Training Received by Personnel in the Livestock Industry	78
Table 14 - Respondents' Attitudes Toward Awareness and Reporting of Suspected Agroterrorism	79
Table 15 - Use of Technologies to Deter Agroterrorism	80
Table 16 - Community Partnerships	82
Table 17 - Traffic counts of cattle trucks in Ford, Finney, Lyon, and Seward Counties.....	90
Table 18 - Daily Capacity of Processing Plants.....	106

List of Figures

Figure 1 - Foot-and-Mouth Disease Quarantine Area	4
Figure 2 - AGRO-GUARD Sign.....	6
Figure 3 - Western Kansas Feedyard.....	13
Figure 4 - FMD Symptoms	19
Figure 5 - Feedyard Locations in the U.S.	21
Figure 6 - Incident-based Flowchart.....	53
Figure 7 - Variables list and questionnaire statements	54
Figure 8 - Sheriff Survey Regions by Kansas Counties	56
Figure 9 - Graph of selected sheriff responses.....	67
Figure 10 - Sheriff agencies not certified to use KsLEIN	70
Figure 11 - Variable list and questionnaire statements	72
Figure 12 - Time and location of cattle truck counts	89
Figure 13 - Total Cattle Inventory	102
Figure 14 - U.S. Packers	102
Figure 15 - Cattle Slaughter for 2003	102
Figure 16 - Kansas/Texas Major Beef Processing Plants	105
Figure 17- Kansas Cattle Feeding Industry	108
Figure 18 - What is Evidence?.....	113
Figure 19 - Regional Response Teams in Kansas.....	132
Figure 20 - AGRO-GUARD Sign.....	133
Figure 21 - Livestock Stakeholders	134
Figure 22 - Report Suspicious Activity	136
Figure 23 - Examples of Suspicious Activity	138
Figure 24 - Cycle of Preparedness	140
Figure 25 - Terrorism Indicators.....	144

EXECUTIVE SUMMARY

Overview

The impact of an act of terrorism on American agriculture can be summed up in four graphic word pictures---*terror, money, mass slaughter, and funeral pyres* (Breeze, 2004). These words illustrate the consequences of an attack on our livestock industry through the intentional introduction of a foreign animal disease such as foot-and-mouth disease (FMD). One agricultural economist estimates that a nationwide outbreak of FMD would result in immediate stoppage of our beef industry, which would cost between \$750,000 and \$1 million per minute for each operating business hour. The result would be too overwhelming for the livestock industry to absorb and would stagger the U.S. economy.

America's food supply is among the *most* vulnerable and *least* protected of all potential targets of terrorists. With its exposed fields, farms, and feedlots, our livestock industry is considered a "soft" target in military terms. Intelligence reports, published in the spring of 2005, indicated al-Qaeda operatives are considering attacks against the United States on a number of unspecified soft targets such as restaurants, movie theaters, and schools (Zagorin, 2005). Senator Pat Roberts (R-KS), chairman of the Senate Foreign Intelligence Committee, warned of the possible threat to American agriculture: "*We know that several of the September 11 hijackers had agriculture training and that it would be very easy to attack our unprotected feedlots and wide open croplands*" (2001).

Is America's food supply safe from a terrorist attack? Are our farms, fields, and feedlots protected from an act of agroterrorism? Could America's beef industry and the country's economy survive an outbreak of a foreign animal disease such as FMD? According to

agriculture experts, politicians, economists, law enforcement officials, and researchers, the answer to each of these compelling questions is the same: *No*.

Given the nation's high vulnerability to an act of agroterrorism and its dire economic impact, the National Institute of Justice (NIJ) authorized and funded an in-depth research project to determine law enforcement's role in protecting American agriculture from agroterrorism.

A diverse team of experts in the fields of law enforcement, livestock production, beef processing, livestock transportation, animal health, agriculture economy, and academic research conducted a 21-month study of agroterrorism to accomplish the following objectives:

1. Identify the vulnerabilities of America's livestock industry;
2. Identify proactive measures by law enforcement needed to help protect the nation's livestock industry from agroterrorism;
3. Identify the emergency response procedures and resources required by law enforcement to respond to an act of agroterrorism; and
4. Develop a standardized training module for law enforcement agencies interested in addressing agroterrorism.

Law Enforcement's Role in Agroterrorism

Based on the findings of this study, it may be an understatement that law enforcement resources will be pushed to the limit in responding to an FMD attack on America's livestock industry. Unlike responses to "everyday" criminal activities--barricaded fugitives; homicide crime scenes, missing persons---a foreign animal disease outbreak would likely require that law enforcement remain on-site for 60 days or more to enforce quarantines and stop movement orders. Law enforcement's duties and responsibilities fall into two distinct categories: prevention; and emergency response.

Prevention:

- Identify threats to the local agricultural industry;
- Conduct vulnerability assessment of potential local agricultural targets;
- Develop new partnerships with health officials and industry personnel;
- Establish an awareness and criminal intelligence database;
- Develop a community policing strategy for the local livestock industry.

Emergency Response:

- Implement local response plan (National Incident Management System {NIMS});
- Crime scene management:
 - tissue collection from infected animals;
 - evidence collection from the affected premise; and
 - suspect development.
- Enforce the quarantine plan ordered by the Livestock Commissioner;
- Enforce the stop movement order by restricting movement of all related livestock vehicles;
- Conduct a full-scale criminal investigation to identify/apprehend/prosecute suspects;
- Conflict resolution, e.g. civil unrest, breakdown of basic services, emotional stress, and impact of public health issues.

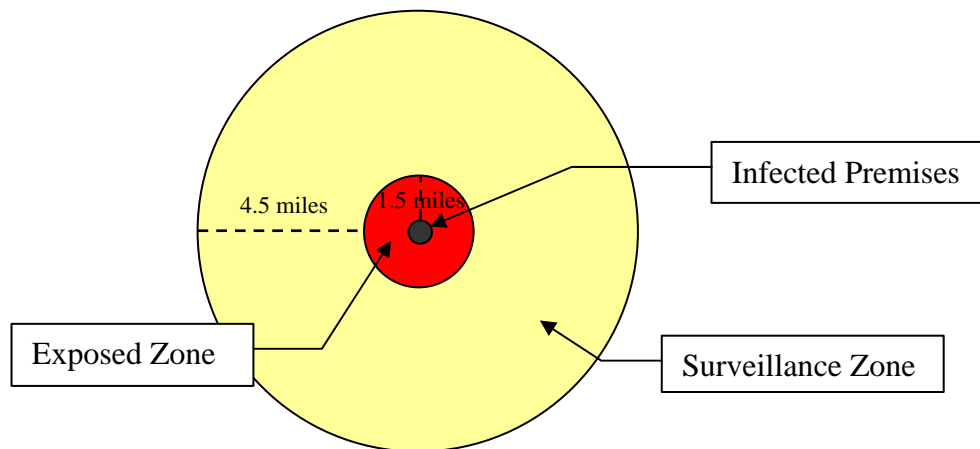
Primary Threat to Livestock: Foot-and-Mouth Disease

America's agricultural landscape, products, and methods are exceptionally diverse--ranging from compact practices to open fields, feedyards, pastures, and public auctions--all of which are virtually impossible to protect from intentional contamination. When considering acts of agroterrorism, agricultural experts are *unanimous* in their assessment that foot-and-mouth disease (FMD) is the most lethal weapon. FMD attacks cloven-hoofed animals (e.g. cattle, sheep, swine, deer, elk, and goats), and it is regarded as the most contagious known virus (20 times more infectious than smallpox) with its up to 50-mile, airborne-transmission capability from animal to animal. FMD results in vesicle formations on the tongue and hooves, and teats causing painful blisters that result in the infected animal's inability to walk, eat, drink, or be milked. Unique characteristics of the FMD virus make it an ideal candidate for use as a weapon of mass destruction which would result in scenes of mass slaughter, funeral pyres, economic

turmoil, emotional trauma, and public chaos. It is an understatement to say that an outbreak of FMD would tax law enforcement resources.

Local law enforcement's *first priority* would be to establish and enforce a strict quarantine area, as defined by animal health officials, around the infected premise. This quarantine area, as shown in Figure 1, would be a six-mile radius surrounding the point of origin (approximately 113 square miles in total land mass). No vehicles, equipment, or persons would be allowed to enter or leave this quarantine area without detailed decontamination and authorization. Approximately 40 roadblocks would be required to secure an entire quarantine area. Inside the quarantine area, an "exposed zone" would be established in which all cloven-hoofed animals would be destroyed.

Figure 1 - Foot-and-Mouth Disease Quarantine Area



Source: Kansas Animal Health Department

Law enforcement's *second or concurrent priority* would be to implement a statewide stop movement order issued by the livestock commissioner. This task, coordinated by the state highway patrol, would involve a series of roadblocks on *all* highways coming into the state.

Agricultural trucks, trailers, and vehicles would be stopped and inspected. Trucks carrying cloven-hoofed animals would not be allowed into the state. Stop movement would be a daunting--if not impossible--task for law enforcement because stoppage of every cattle truck would involve a number of critical variables. Each cattle truck would be diverted to a temporary holding area, allowed to proceed to its intended destination, or returned to its point of origin. The discretion of these three options would depend upon the disease risk presented by each truck carrying livestock.

For law enforcement, quarantines and stop movement orders would present challenges totally different from hostage situations, barricaded suspects, and traffic checkpoints because FMD responses would remain in effect from 30 to 60 days. The length of the quarantines and stop movement orders would depend largely upon the extent and location of the disease. These challenges would be a tremendous drain on resources, and they represent a new mandate for law enforcement.

Identifying the Terrorists/Extremists

There are five different categories of “terrorists/extremists” that could be considered threats to American agriculture:

1. **International terrorists**, such as al-Qaeda, pose the most probable threat for an intentional introduction of a foreign animal disease;
2. **Domestic terrorists**, such as anarchist or anti-government groups, could be motivated to cripple the livestock industry;
3. **Militant animal rights groups** could view an outbreak of a foreign animal disease as a positive event to promote their cause;
4. **Economic opportunists** could financially benefit from a dramatic impact or change in market prices; and
5. **Disgruntled employees** could attack some segment of the livestock industry for revenge.

Economic Impact

Agriculture is a major component of the U.S. economy with 2.1 million farms operating on 939 million acres of land worth \$1.43 trillion. The FMD outbreak in the United Kingdom in 2001 is the only economic model for projecting financial losses from an FMD event in the United States. The U.K. epidemic affected more than 9,000 farms and resulted in the slaughter of 6.2 million animals (Waters, 2005). The immediate loss of exports was the greatest impact on the U.K. economy with estimates of the overall economic impact to the U.K. ranging from \$3.6 billion to \$11.6 billion. The losses experienced by the U.K. pale in comparison to those of a projected outbreak in this country, which could reach as high as \$60 billion. These losses would continue for a number of years until world markets would again allow U.S. meat products to be shipped internationally.

Law Enforcement's Role in Protecting U.S. Agriculture

In the past, law enforcement's only association with agriculture occurred after a crime, in a follow-up investigation, and by arrest and prosecution of suspects. Given the immense, immediate impact of agroterrorism, this traditional, after-the-fact response is inadequate. During this research project, preventive strategies for law enforcement were developed and implemented. The most significant strategy is a neighborhood watch program entitled Agro-Guard. It represents a dynamic partnership between law enforcement and livestock producers, and it is designed to identify suspects, suspicious activities, and threats to agriculture

Figure 2 - AGROGUARD Sign



Source: Ford County Sheriff's Office

before the fact. Agro-Guard encompasses reporting suspicious activity to law enforcement, posting warning signs (shown in Figure 2) throughout the livestock industry, holding community meetings that feature presentations on law enforcement and animal health issues, developing local emergency response procedures, and creating a public-access Web site to publish updates and threat assessments. Finally, Agro-Guard involves stakeholders across the livestock industry. Although this industry is generally viewed as fragmented, various segments often work closely together, such as livestock producers rely heavily on grain producers, and packers rely on truckers.

Beyond the community policing program of Agro-Guard, a number of other law enforcement initiatives were implemented during this research project to help prevent an act of agroterrorism in Kansas. These proactive initiatives include the following:

1. Establishing seven regional response teams of special agents and field veterinarians to be deployed on command of the Kansas Livestock Commissioner if a foreign animal disease is “highly likely,” which is termed level four in the Kansas Emergency Plan for Foreign Animal Disease;
2. Providing training for local law enforcement officers to participate in Smuggled-Food Interdiction Teams (SFIT) designed to identify and seize illegal food products coming into the United States;
3. Establishing interaction between statewide intelligence databases and the Federal intelligence network to assist local law enforcement in dealing with criminal suspects and terrorists targeting agriculture; and
4. Developing baseline data to improve readiness capabilities of law enforcement throughout the state of Kansas.

Conclusions

Based on the findings of this 21-month study, the research team was unanimous in reaching the following conclusions:

1. Agricultural experts are in full agreement in their assessment that foot-and-mouth disease (FMD) represents the greatest threat to America's agricultural economy. An FMD outbreak would result in immediate cessation of beef production and beef exports, economic chaos, loss of public confidence in U.S. food safety, and destruction of millions of cloven-hoofed animals during the eradication process. Recovery could take years.
2. An outbreak of FMD would have catastrophic consequences for law enforcement with its *insufficient* resources and *inadequate* procedures to cope with quarantines, statewide stop movement orders, and criminal investigations. Quarantine of infected premises and stop movement orders would remain in effect for a minimum of 30 days, presenting a nearly insurmountable task for law enforcement.
3. Law enforcement has remained primarily in a reactive, if not passive, mode in acknowledging agroterrorism as a serious threat. With the exception of a few county sheriffs, law enforcement has not developed preventive strategies to protect agriculture, nor have they developed coordinated emergency response plans to deal with a foreign animal disease outbreak.
4. Law enforcement intelligence concerning threats to agriculture is virtually non-existent. At this time, state and federal intelligence networks are receiving little, if any, criminal information from local law enforcement concerning suspects and suspicious activity related to the agriculture industry.
5. Given the dire economic consequences, the United States cannot afford an outbreak of a foreign animal disease, particularly FMD. The most effective deterrence in preventing an act of agroterrorism would be the development of new partnerships between law enforcement and agriculture. Much like the concept of community policing that emerged

in the early 1990s, law enforcement should work with members of the agriculture industry to understand early warning signs, develop proactive measures, and develop information sources who would report suspicious activity, potential criminal activity, including possible threats of terrorism.

6. Numerous research articles, publications, and academic papers were found on the subject of agroterrorism. However, published information was limited to discussions on animal health diseases/viruses, threats to agriculture, veterinary medicine, and the economic impact of agroterrorism. Law enforcement's role in protecting American agriculture was seldom mentioned and never received serious consideration.

Recommendations

1. Agroterrorism is a phenomenon that *cannot* be resolved by local, state, or federal law enforcement operating independently. Rather, it represents a threat to our national economy and, as such, should be treated as a priority within our nation's homeland security strategy. In keeping with Homeland Security Presidential Directive-9 (HSPD-9), it is recommended that law enforcement become a *full* partner in providing protection against a successful attack on American agriculture and its food system. As directed by President George W. Bush in HSPD-9, the Department of Homeland Security (DHS) should provide leadership to counter the serious threat of agroterrorism by developing a comprehensive, fully-coordinated national strategy to protect American agriculture.

From a law enforcement perspective, DHS should provide the following coordination:

- a. Provide overall coordination of proactive initiatives developed and implemented by local, county, state, and Federal law enforcement;
- b. Establish and maintain a public-access Web site to serve as a current source of information focusing on law enforcement and animal health issues associated with agroterrorism;

- c. Provide advanced levels of training and educational symposiums on complex issues associated with agroterrorism; and
 - d. Serve as a clearinghouse for proactive initiatives that addresses the threat of agroterrorism.
2. Local law enforcement should address agroterrorism by initiating preventative strategies within their respective communities. During this research project, a series of proactive measures were developed and implemented on a trial basis, and are now being recommended for implementation by agencies throughout the United States. These strategies include:
 - Agro-Guard is a community policing partnership between agriculture and law enforcement featuring the reporting of suspicious activity, posting warning signs throughout the livestock industry, and holding community meetings with presentations on law enforcement and animal health issues;
 - Regional Response Teams are comprised of KBI and FBI special agents and KAHD and USDA field veterinarians. These specially-trained teams combine the expertise of criminal investigators and veterinary medicine in responding to threats targeting the livestock industry; and
 - Smuggled-Food Interdiction Teams are comprised of local law enforcement officers and USDA inspectors. These interdiction teams conduct investigations to identify and seize illegal food products being smuggled into the United States and sold at local markets and outlets.
3. It is recommended that preventive initiatives developed by local, state, and federal law enforcement addressing agroterrorism be properly funded by Federal appropriations designated within the Department of Homeland Security's annual budget.
4. It is recommended that USDA pursue additional funding for the Animal and Plant Health Inspection Service (APHIS) to expand its Safeguarding Interdiction and Trade Compliance (SITC) capabilities. SITC was established to reduce un-inspected food products being smuggled into the United States (i.e., meat products such as sausage and

bologna which could be contaminated with an FMD virus). Despite being seriously under-funded, SITC has been effective to date in its interdiction efforts.

5. As an effective investigative tool for law enforcement and animal health epidemiologists, it is recommended that the National Animal Identification System (NAIS) be implemented on a nationwide basis as a mandatory requirement. Currently, NAIS is a voluntary practice. It would be difficult to conduct a criminal investigation and trace the origin of an outbreak of a foreign animal disease without the assistance of a national identification system.
6. The National Counter Terrorism Center (NCTC) serves as the primary terrorism-intelligence database for law enforcement. In order for this database to be meaningful, criminal information relating to suspects and suspicious activity must be channeled by local law enforcement to state and federal authorities for analysis. Therefore, it is recommended that local law enforcement commit to the aggressive development of information sources concerning criminal threats to agriculture.
7. It is recommended that the Office of Community Oriented Policing Services (COPS) of the U.S. Department of Justice authorize an agroterrorism awareness training program for law enforcement officers. This national training program, to be funded by Office of Domestic Preparedness (ODP) grants from DHS, could be administered by the Regional Community Policing Institute (RCPI) through its 29 regional offices at no cost to local law enforcement.
8. In keeping with the principles of community policing, local law enforcement should develop working relationships with the agriculture industry to address problems, enhance security, and increase the awareness and reporting of suspicious activity.

INTRODUCTION

Background of Research Project

America's food supply is among the most vulnerable and least protected of all potential targets for terrorism. Clearly, one of our softest targets lies in America's livestock industry: Fields and feedlots are readily exposed to a potential attack using a biological agent. One of terrorism's primary objectives is to destroy America's economic base and diminish our national security. As the United Kingdom painfully discovered in 2001, an outbreak of a foreign animal disease (FAD) resulted in the destruction of 6.2 million animals, cost the U.K. in excess of \$20 billion, and terminated its agriculture exports for years to come. Whether the FAD outbreak is intentional or accidental, the result will be the same---economic disaster. Agroterrorism is not about threatening individual lives; rather, an attack on agriculture is about "*terror, money, and mass slaughter*" (Breeze, 2004).

Risks for America. A strong consensus among agriculture experts exists that the single greatest threat to our nation's agricultural economy is foot-and-mouth disease (FMD). This highly contagious viral disease attacks cloven-hoofed domesticated animals (e.g. cattle, swine, and sheep) as well as wildlife such as deer and elk. Dr. Jerry Jaax, a research veterinarian at Kansas State University with extensive military experience in biological warfare, has presented compelling testimony to the U.S. Congress that outlines biological threats to agriculture: "*Any outbreak of FMD would mean the destruction of thousands of animals and create severe financial losses in only a matter of days*" (2001).

In support of Federal legislation to protect America's agriculture industry, Senator Pat Roberts (R-KS), chairman of the Senate Foreign Intelligence Committee, stated, "*We know that the former Soviet Union had developed tons of biowarfare agents that were to be aimed at the*

North American agriculture machine. Many of these agents are still housed in unsecured facilities, and many of the scientists are unemployed and willing to work for the highest bidder. We also know several of the September 11 hijackers had agriculture training and that it would be very easy to attack our unprotected feedlots” (2001). Figure 3 illustrates the openness of cattle feedyards. Senator Roberts added, “The importance of agriculture to our economy and our national security cannot be underestimated. We must take steps to protect our agriculture producers and food supply” (2001).

Figure 3 - Western Kansas Feedyard



This feedyard houses some 55,000 head of cattle and shows the exposed vulnerability for the intentional introduction of a foreign animal disease. Within the state of Kansas, there are 462 licensed feedlots in full operation. While cattle are in a feedyard, each animal will consume approximately 30 pounds of feed product per day until reaching a weight of 1,200 pounds. (Photograph provided by Danny Herrmann.)

Projecting the economic loss for the United States from an FMD outbreak is a complex task involving a number of variables, and the loss would not be a one-time event because agricultural exports would be halted for an extended period of time. With this understanding,

Dr. Nevil Speer, a nationally-recognized agriculture economist from Western Kentucky University, estimated that a nationwide stoppage could cost America's economy between \$750,000 and \$1 million per minute for each operating business hour from the cattle industry alone. This staggering economic impact, coupled with the "openness" of American agriculture, lends credence to a troubling public statement made by Secretary Tommy Thompson, U.S. Department of Health and Human Services, on December 4, 2004. *"I, for the life of me, cannot understand why the terrorists have not attacked our food supply because it would be so easy to do. And, we are importing a lot of food from the Middle East, and it would be easy to tamper with that,"* he stated during his final news conference upon leaving office in Washington, D.C. (Speer, 2004).

There are many reasons to believe that terrorists and extremist groups might prefer to use agricultural biological weapons against the United States rather than to mount another attack targeting people in American cities. First, the technology involved is far less sophisticated, and there is much less risk to the individuals developing the biological agents, (i.e. it's easier and safer for the perpetrator). In military jargon, food animals in the U.S. represent soft targets since they are largely unprotected, vulnerable to attack, and there is reduced risk of any act of retaliation. There are also fewer ethical issues for those who might hesitate to kill people randomly and indiscriminately. This last matter may not be an issue for hard-core terrorists, but it might influence domestic radical groups committed to disrupting America's livestock industry. *"One vial containing pathogens for foot-and-mouth, bovine tuberculosis, or cowpox could be devastating. The vision of National Guard troops having to machine-gun tens of thousands of diseased cattle in Kansas' feedlots doesn't present a pretty picture,"* Dr. Jon Wefald, President

of Kansas State University, told the Senate subcommittee during the Congressional hearing on bioterrorism threats to American agriculture (1999).

Challenges for law enforcement. Law enforcement must respond to the following questions:

1. What should be the role of law enforcement in regard to agroterrorism?
2. Does law enforcement have a clear understanding of the threats and vulnerability of our livestock industry?
3. Can law enforcement help prevent an attack?
4. To what extent is law enforcement responsible for the protection of the livestock industry?
5. Is law enforcement prepared with an emergency response plan?
6. Are law enforcement resources adequate to enforce a *long-standing* quarantine effectively?
7. Is there a computerized database or network that allows law enforcement agencies to share criminal intelligence concerning terrorist threats to agriculture?

A National Institute of Justice (NIJ) in-depth study was initiated in 2003 to provide answers to these questions. A diverse research team was established, comprised of subject-matter experts from law enforcement, animal health, agriculture economy, criminal intelligence, law enforcement training, and academic research. Through a series of focus-group meetings, the research team enlisted input from key members of the livestock industry, representing ranchers, producers, feeders, processors, cooperatives, and transportation. Based on their findings, the research team recommended specific responses for law enforcement in order to enhance its capacity to address the complex subject of agroterrorism.

Terrorist Threat to American Agriculture

The ability to feed its population effectively has always been a significant factor in the prosperity of a society. In fact, a persuasive case can be made that the United States, in part, owes its pre-eminent place in the hierarchy of world economic powers to its tremendous ability to produce and distribute food that is plentiful, inexpensive, and safe. Economists have calculated that U.S. wage earners spend approximately ten percent of earned income to purchase food. Citizens of other countries cannot duplicate that efficiency and spend a proportionately larger amount of their income on food. The savings on food costs generate personal discretionary spending that propels our high national standard of living. Consequently, a significant attack on agricultural infrastructure could have potentially dire economic consequences, with a ripple effect that would go far beyond the direct cost of goods lost.

Federal responsibility for protecting our agricultural equities falls to the Animal Plant and Health Inspection Service (APHIS) and the Plant Protection and Quarantine Service (PPQ) of the United States Department of Agriculture (USDA). Although there have been occasional serious outbreaks of new or emerging plant or animal agricultural diseases, the USDA has been largely successful in its mission. Significantly, existing programs of inspection and surveillance were largely designed to prevent and/or counter the accidental or inadvertent introduction of plant or animal pathogens into the country. In the world prior to September 11, 2001, this equation seemed to be sufficient. However, the security paradigm shifted radically in the turbulent days and weeks following the attacks on the World Trade Center Twin Towers and the Pentagon. The nationally traumatizing events of 9/11 fundamentally changed the general public's awareness and perception of collective vulnerability to terrorists in general, and specifically, the anthrax and ricin toxin letter attacks dramatically revealed our vulnerabilities to microbes or toxins that

might be used as weapons. The attacks starkly revealed the real and potential dangers of bioterrorism to human populations, and national biodefense and biosecurity programs are emerging in response. Unlike other potential weapons of mass destruction (nuclear and chemical weapons), replicating agents (biologic organisms) pose a unique challenge. Would-be terrorists might have the capability to “reload” and perpetrate repeated attacks that could potentially overwhelm defensive or security measures and our public health infrastructure and capabilities.

One of the most complex and important tasks facing U.S. planners involves meaningful assessments of the risk from biological threat agents. The dimensions of the threat involve many variables that can drastically alter the possible consequences of a bioterrorist event. Perhaps the most important variable is the agent used in an attack. Each potential biological agent or class of biological agents is different, for each has characteristics that make defensive measures or strategies change from agent to agent. For example, the problems posed by a smallpox-infected terrorist traveling in the United States would be completely different from those posed by an aerosol attack with anthrax spores in a large city. These problems would be completely different from those posed by a foot-and-mouth disease (FMD) outbreak. The method of delivery is also a critical factor for assessing the risk of an outbreak. Some potential bioterrorist agents, such as anthrax, would require specialized preparation techniques that are not widely known outside of state-sponsored biowarfare programs, while others, such as the highly contagious viruses like FMD, have the ability to infect and spread easily without technical assistance from a perpetrator.

Another important factor in risk or vulnerability assessments involves the intended target of a possible attack. Most of the classic biowarfare agents from state-sponsored offensive programs were zoonotic in nature, meaning that they could affect both man and animals. Primarily, they were intended to sicken or kill people, even though they could potentially also

affect animals as collateral damage. Significantly, a number of these same Cold War offensive biowarfare programs invested considerable resources in developing, weaponizing, and testing agents that would affect agricultural targets, both plant and animal. Of course, the ultimate target of a biological attack on our agricultural infrastructure would be our economy and our national psyche.

Primary threat to agriculture: Foot-and-mouth disease. Risk assessments following the attacks of September 11, 2001, revealed stark vulnerabilities. Our agricultural landscape, products, methods, and programs are exceptionally diverse, ranging from compact, intensive practices that lend themselves to control and security measures (i.e. poultry, swine) to open fields, pens, and pastures that would be virtually impossible to protect from intentional contamination. Consequently, there are many individual targets and threats to consider, each with its own set of potential challenges and countermeasures. For the sake of this report, we will concentrate on foot-and-mouth disease (FMD), the agricultural pathogen that has long been the most feared by U.S. authorities in the event of an accidental or purposeful introduction.

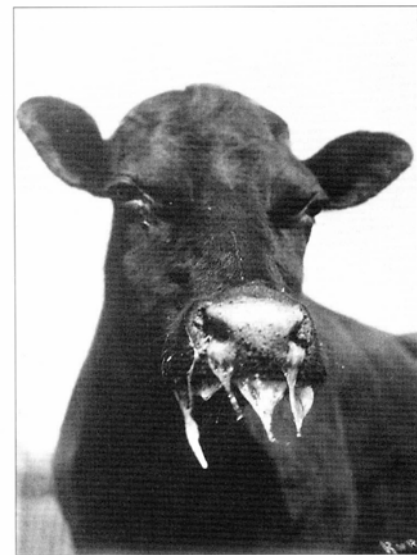
FMD is caused by a member of the picornaviridae family and is a serious disease of cloven-hoofed animals (e.g. cattle, sheep, swine, deer, and goats). The United States has been “FMD free” since 1929. Although it is possible for the virus to infect humans, clinical disease is very rare and symptoms are generally mild. Consequently, FMD is not considered a threat to humans and would not normally pose a personal health risk for perpetrators during handling the agent.

Disease characteristics. FMD is considered the most contagious virus known (some 20 times more infectious than smallpox virus) with reports of airborne transmission from animal to animal of up to fifty miles. This remarkable characteristic makes control of the agent in the

presence of susceptible populations of animals especially daunting. The virus is also reported to be highly persistent in the environment, remaining viable in contaminated fodder or frozen animal tissues for months. Characteristic lesions of FMD involve blistering and vesicle formation on mucous membranes of the mouth and nose (see Figure 10), on teats, and between the “claws” of the feet. Blisters rupture and become painful erosions in affected areas. Affected animals cannot walk, eat, drink, or be milked. FMD does not routinely cause high mortality (death) in infected adult animals but typically infects a high percentage of animals that are susceptible to disease. This infection results in decreased weight gains and milk production (mastitis), abortions, increased juvenile mortality, and hoof sloughing and deformation. In developing countries such as Afghanistan, endemic FMD can have a considerable negative economic and public health impact on those populations that heavily rely on domestic animals for nutrition and livelihood.

Availability. Since FMD occurs naturally in cloven-hoofed animals in parts of Africa, Asia, the Middle East, and South America, with sporadic outbreaks in FMD-free areas, the virus is readily accessible to would-be terrorists. In the context of potential threats to U.S. interests, the ready availability of FMD-infected animals (a viable source of the virus) in many regions, including Southwest Asia, the Middle East and Afghanistan, greatly complicates strategies for protecting our national food animal herds.

Figure 4 - FMD Symptoms
In developing countries such as Afghanistan, endemic FMD can



Early warning signs of foot-and-mouth-disease (FMD) include excessive salivation, smacking of lips, severe lameness, fever, and loss of appetite. (Photograph courtesy of USDA.)

Extent: Weapon of mass destruction. The unique characteristics of the FMD virus make it an ideal candidate for use as a weapon of mass destruction. Although it is not a human disease hazard, the economic, psychological, and symbolic effects of the intentional introduction of FMD would have the potential to be a national disaster. Fortunately, our agricultural programs are exceptionally productive and diverse, making it highly improbable that availability of enough food to feed our citizens would be a concern. The benefit for terrorists would be the scenes of chaos, mass euthanasia, funeral pyres, economic turmoil, and visual evidence of physical and emotional trauma to U.S. citizens on wall-to-wall media coverage.

Agriculture accounts for approximately 17% of the U.S. Gross National Product (GNP), and even a limited outbreak of FMD in the United States would have a dramatic effect on the food animal industry and the economy. However, a widely dispersed outbreak perpetrated by terrorists could be disastrous on a number of levels. The national stock and commodities markets would likely tumble, regional unemployment would soar, regional agricultural interests heavily invested in the cattle or swine industry would be decimated, and allied agricultural and banking industries would suffer. The cost and effort required to kill and dispose of at-risk food animals would be immense. Additionally, there is the possibility that the virus could become established in such wildlife as deer, buffalo or elk, greatly complicating eradication. Dramatic images of a U.S. disaster (e.g. mass slaughter of animals and distraught owners) would likely achieve the symbolic or political goals of potential terrorists.

Vulnerabilities. U.S. agriculture excels at producing food that is safe, inexpensive, and plentiful as a result of many factors, including intensive industry practices that promote maximum efficiency. Although this a great advantage for the country and consumers, these production methods can greatly increase vulnerabilities to attack. The cattle industry is an

extreme example of this vulnerability. As Figure 5 shows, a relatively compact geographical area of southwest Kansas, the Oklahoma panhandle, and north Texas accounts for 80% of the “fed” cattle in this country. These concentrations of millions of cattle in unprotected pastures and feedyards greatly increase our vulnerability to attack with a disease as deadly as FMD.

Delivery. FMD is easily obtained in many of the countries where opponents of U.S. interests declared and policies, such as Al-Qaeda, live and operate. The virus needs no complex technical weaponization and delivery systems. Consequently, technical capabilities that are problematic for many classical biowarfare or

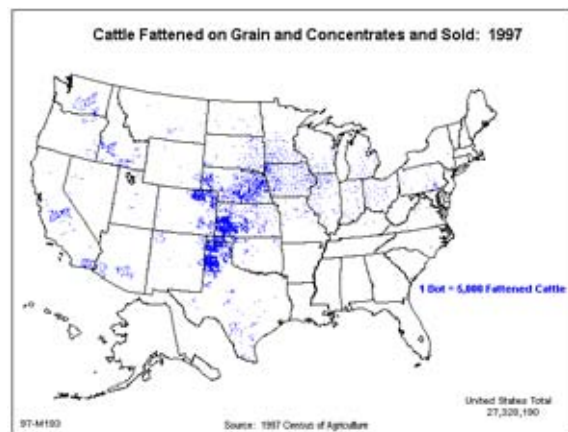
bioterrorist agents, such as anthrax and plague, are irrelevant for FMD. No technical

capability is required. All that is needed is one infected animal and the intent to collect, transport, and use the virus to infect animals in another location. With current technologies and procedures, detection or interception of infectious materials at entry into the United

States is exceptionally challenging and

virtually impossible in the face of repeated attempts. Once in this country, the infectious virus would easily overwhelm susceptible animals. Because of the exceptionally contagious nature of the virus, infected animals become a low-tech, but highly efficient, delivery system. With little strategic forethought, a terrorist could easily use the mobility of animals in our production systems to maximize terrorist goals by ensuring that the disease occurs in multiple locations throughout the country.

Figure 5 - Feedyard Locations in the U.S.



Countermeasure: Vaccination. FMD has seven immunological distinct serotypes and up to seventy subtypes. Although a number of different vaccines are available for FMD (the United States does not currently produce any FMD vaccines), different vaccines do not cross-protect against all serotypes and subtypes. Significantly, current vaccines may create a persistent carrier state in cattle that is indistinguishable from natural infection with the virus. Therefore, domestic use of current FMD vaccines as a preventive or deterrent could have the dramatic economic effect of immediately halting meat exports to FMD-free countries such as Japan. The use of available vaccines to help control an outbreak does have utility in a limited outbreak. However, the benefit of vaccination-control strategies is greatly reduced in the face of intentionally caused, widely spread outbreaks that could deplete available supplies of vaccine. Obviously, the vaccines that are available for use must be the right vaccine for the FMD serotype or subtype causing the disease.

Countermeasure: Quarantine, isolation, and slaughter. The current national strategy for responding to an FMD outbreak involves isolation of affected animals and systematic slaughter of at-risk animals. Table 1.0 provides an understanding of the sequence of events following an outbreak or suspected outbreak of a foreign animal disease in Kansas. Rapid containment, quarantine, and euthanasia is essential to prevent the spreading of highly contagious diseases such as FMD. This strategy is primarily designed to respond to an accidental introduction that would hopefully be limited in scope, and current technologies exist to execute this strategy. However, in the context of bioterrorism with potential for massive outbreaks of affected animals in the tens of millions, long-term reliance on such a countermeasure is highly problematic and flawed.

Table 2 - FMD Response Sequence

Foot-and-Mouth Disease (FMD) Sequence	
Timeline: 0 – 4 hours	
<u>Initial Symptoms of FMD</u>	
Field Veterinarian responds:	collects animal tissue sample;
Alerts Livestock Commissioner:	notifies Governor & USDA;
Regional Response Teams deploy:	secure crime scene; conduct criminal investigation;
Sheriff on site:	coordinates limited quarantine;
Animal tissue sample:	flown to the DHS Laboratory at Plum Island (NY) for analysis;
Public Information Team:	activated.
Timeline: 4-12 hours	
<u>Local Emergency Plan Activated</u>	
FAD Incident Team:	prepares for deployment;
Public Health Team:	prepares for deployment;
Stop Movement/Roadblock Plan:	1--reviewed for implementation; 2--marshal resources;
Livestock Commissioner:	1--impact assessment; 2--livestock industry consulted.
Timeline: 12 – 24 hours	
<u>Positive FMD Virus Confirmed by DHS Laboratory</u>	
State & Federal Responders:	deploy;
State & Federal Emergency Plans:	activated;
Public Information:	released;
Beef Exports:	immediately halted.
Timeline: 24 – 36 Hours	
<u>Local, State, and Federal: State of Emergency Declared</u>	
Livestock Commissioner duties:	1--Quarantine Plan implemented; 2--Stop Movement implemented; 3--Burial pits approved; and 4--Euthanasia Plan implemented.
Law Enforcement duties:	1--Assist Livestock Commissioner; 2--Quarantine Plan enforced; 3--Stop Movement Order enforced; 4--Criminal investigation; and 5--Conflict resolution.
Note: The Stop Movement Order, Animal Quarantine Plan, and Animal Euthanasia Plan will remain in effect until modified or cancelled by the Livestock Commissioner (Kansas Emergency Plan, 2005).	

Source: Kansas Animal Health Department

Profiling the terrorists. Several categories of “terrorists” could be considered threats to the agricultural infrastructure. Although separated by motivation, ideology, and resources, each category of terrorists could be considered potential perpetrators of an agricultural event. Since formal state sponsorship is not a technical or political necessity, the threat of foot-and-mouth disease will be an enduring one for the United States.

There are four categories of potential terrorists:

1. International terrorists. Based on numerous threats and Intelligence, international terrorists such as Al-Qaeda pose the most probable threat for introduction of a foreign animal disease.
2. Economic opportunists. An FMD outbreak in the U.S. would have a dramatic effect on markets and make virus introduction for the manipulation of markets for personal economic gain a possibility.
3. Domestic terrorists. Domestic terrorist groups could view the introduction of FMD as a blow against the Federal Government. In addition, an unbalanced individual or a disgruntled employee with many possible motivations could be the perpetrator of an attack.
4. Militant animal rights activists. Some animal rights activists believe that the use of animals for food is immoral. Militant elements, such as the Animal Liberation Front (ALF), could view an attack on the food animal industry as a positive event.

Terrorists have declared their intention to attack the United States in ways that were previously thought to be improbable, a declaration which has prompted both an evaluation of possible targets for terrorists and significant planning to protect those equities deemed at risk. Clearly, our agricultural infrastructure and food supply could be opportune targets for terrorists. FMD is by most accounts the most problematic of these threats. For many reasons, current strategies for countering an outbreak of FMD are inadequate, leaving this important component of our economy and national infrastructure vulnerable. In light of these vulnerabilities, the U.S. must develop new response strategies and countermeasures to reduce the risk that terrorists could significantly damage it using FMD as a weapon.

American consumers enjoy the world's safest and most abundant food supply, spending only 10% of their average disposable income on food items (Economic Research Service [ERS]). Those benefits are largely the result of the U.S. food industry's efficiency and productivity. Indeed, one of the U.S.'s economic strengths is directly related to our agriculture and food industries. The efficiency of this system has enabled American agriculture to provide an abundant, safe, and affordable food supply for U.S. citizens and to be a dominant supplier of food and fiber to the rest of the world (Collins, K., 2001).

Research Project: Goals and Objectives

Because of our vulnerabilities to agroterrorism and its dire economic consequences, this research project was initiated with the overall goal of, first, understanding potential threats, and second, developing proactive strategies to help protect our agriculture economy. The concern is not about a terrorist attack on agriculture but rather the economic impact and disruptive consequences. From the outset, the research team recognized the need to establish a strong partnership between law enforcement and the livestock industry in order to accomplish our goal. Indeed, such a partnership was forged between law enforcement and livestock professionals through combined ownership of the research task, mutual respect for each other's expertise, and a genuine commitment to address jointly the threat of agroterrorism. The result of this new partnership was an understanding of the complex nature of the research task and the detailed coordination required to achieve our overall mission.

Four specific objectives were established for this research project:

1. Identify bioterrorism vulnerabilities of America's livestock industry;
2. Identify proactive measures by law enforcement needed to help protect the nation's livestock industry from agroterrorism;

3. Identify the emergency response procedures and resources required by law enforcement to respond to an act of agroterrorism; and
4. Develop a standardized training module for law-enforcement agencies interested in addressing agroterrorism.

LITERATURE REVIEW

Pre-9/11 Research

While there is considerable background material on the topic of foreign animal diseases and other viral threats to our livestock industry, research regarding the subject of the potential for terrorist attacks or deliberate harm directed at American agriculture, specifically the livestock industry, is slim. In fact, it wasn't until recently that the term "agroterrorism" was formerly coined and became accepted terminology in the animal health community.

One of the first public officials to raise the possibility of terrorists using pathogens to attack American agriculture was Wefald, current President of Kansas State University. Back in 1999--some two years before the 9/11 attacks on the World Trade Center in New York and the Pentagon in Washington, D.C.--Wefald testified before the U.S. Senate Emerging Threats Subcommittee. He warned of the potential for terrorist strikes against America's food supply. In describing our agriculture industry as a "soft" target for terrorists, Wefald detailed several scenarios that, if successful, would have severe consequences for America's food supply and economy. One such scenario involved the simple transportation and delivery of a vial containing a pathogen for foot-and-mouth disease (FMD). This highly-contagious, debilitating virus would spread rapidly through herds of cloven-hoofed animals (cattle, sheep, and pigs), until the outbreak was brought under control through drastic eradication measures and long-term quarantines. Any outbreak of FMD in this country would result in a devastating impact on America's food supply, as well as its agriculture exports (Wefald, 1999).

At the conclusion of his Congressional testimony in October, 1999, Wefald issued a strong warning: "I trust that we have alerted the Subcommittee to the gravity of the threat that looms over the nation's food supply--indeed, it is a threat that looms over the world's food

supply and the global economy. America has the capacity to meet and defeat this threat, but the time for concerted action is now.” Although on a different front, Dr. Wefald became a soothsayer only 23 months later with the terrorist attacks on September 11, 2001.

One of the purposes of the presentation by Wefald and his team of agriculture experts before the U.S. Senate in 1999 was to obtain support and funding for establishing an agriculture biosecurity and research center at Kansas State University. The proposed center was not approved by the U.S. Senate at that time. However, following the terrorists attacks on September 11, 2001, Congress approved funding for the National Agricultural Biosecurity Center (NABC), and the center was established at Kansas State University in 2002. The current mission of the NABC is to work jointly with the U.S. Department of Agriculture and other land-grant universities in a strategic partnership to address threats to the nation’s agricultural economy and food supply. The NABC is now working with local, State, and Federal law enforcement in a dynamic partnership to help protect America’s farms and feedlots.

In 2000, one year after Wefald’s warning to Congress, academic researchers began to take notice of the potential impact of a terrorist attack on American’s agriculture. At this point, the term “agroterrorism” began to appear in print (Kohnen, 2000).

Presenting a discussion paper at the John F. Kennedy School of Government, Harvard University, on October, 2000, Kohnen was perhaps the first researcher to specifically refer to the term agroterrorism. She urged the USDA to pursue federal funding for disease detection and the development of surveillance technologies to thwart an attack on American agriculture. Kohnen also recommended the USDA upgrade its Animal Disease Center at Plum Island, New York.

Kohnen specified four specific prevention levels at which America could counter the agroterrorism threat:

1. The **Organism Level**, through animal or plant disease resistance;
2. The **Farm Level**, through facility management techniques and physical security measures designed to prevent disease introduction or transmission;
3. The **Sector Level**, through USDA disease detection and response procedures; and
4. The **National Level**, through policies designed to minimize the social and economic costs of a catastrophic disease outbreak.

Kohnen cited foot-and-mouth disease (FMD) as the most serious biological threat, along with bovine spongiform encephalopathy (BSE), also known as “mad cow disease.” Throughout this paper, no reference was made to law enforcement and its role in agroterrorism.

Post 9/11 Research

Background: Agroterrorism. Since 1912, there have been 12 documented cases involving biological agents used against agriculture and food sources (Carus, 2002). In his research at the National Defense University in Washington, D.C., Carus conducted a series of case studies describing every identifiable instance in open-source materials in which a perpetrator(s) used, acquired, or threatened to use a biological agent. He researched over 270 alleged cases involving biological agents but identified only 12 cases that involved agriculture and/or food sources (see Table 3.1).

Only 2 of the 12 incidents could be termed as acts of terrorism. The first occurred in Kenya in 1952, when a group of Mau Mau insurgents poisoned 33 steers using a toxic plant known as African milk bush. The Mau Mau inserted the latex of the plant into incisions cut into the skins of the animals. As a result of this biological attack, 8 animals died, 6 within five days. Through the early 1950s, the Mau Mau initiated a series of attacks on British farmers and the British government in colonial Kenya as part of an unsuccessful revolution. The use of toxins by

the Mau Mau insurgents in 1952 in Kenya was perhaps the first act of agroterrorism directed against a government (Carus, 2002; Kohnen, 2000).

Table 3 - Confirmed Cases of Agriculture and Food Bioterrorism in the 1900s

Year	Bioterrorism Incident	Alleged Perpetrators
1997	Hemorrhagic virus spread among wild rabbit population in New Zealand	New Zealand farmers
1996	Food poisoning using shigella in a Dallas, Texas hospital	hospital lab employee
1995	Food poisoning of an estranged husband using ricin in Johnson County, Kansas	Kansas physician
1984	Food poisoning of public salad bars using salmonella in The Dalles, Oregon	Rajneeshee Cult
1970	Food poisoning of four college roommates using parasite-contaminated food	college roommate
1964	Food poisoning in Japan using salmonella and dysentery	Japanese physician
1952	African milk bush used to kill 33 head of livestock in Kenya	Mau Mau insurgents
1939	Food poisoning in Japan using pastries contaminated with salmonella	Japanese physician
1936	Food poisoning in Japan using cakes contaminated with salmonella	Japanese physician
1916	Food poisoning in New York City using arsenic to kill wife's parents	New York dentist
1913	Food poisoning in Germany using cholera and typhus to kill family members	German chemist
1912	Food poisoning in France using salmonella and poisonous mushrooms	French druggist

Source: Carus, 2002; Chalk, 2004.

The second bioterrorism attack occurred in 1984, when the Rajneeshee Cult contaminated public restaurants (salad bars, coffee creamers, and salad dressing) with salmonella in The Dalles, Oregon. A total of 751 persons became ill from this biological attack which was designed to “make people sick so they could not vote” (Carus, 2002). The Rajneeshee Cult had sought to gain control of the Wasco County Commission when two of the three commissioners were up for re-election. During the investigation of the incident, a secret “germ warfare”

laboratory was located, operated by the Rajneeshee Cult. The attempted sabotage of the county election was unsuccessful, as the victims became ill *after* election date and were able to participate in the county-wide election.

There have been criminal acts involving the use of biological agents, but the incident in Oregon is the only confirmed instance of biological terrorism to ever occur in the United States, according to the FBI (Carus, 2002).

In this research (2002), Carus developed a working definition of “bioterrorism”: The threat or use of biological agents by individuals or groups motivated by political, religious, ecological, or other ideological objectives. He noted that any definition that focuses on political intimidation fails to capture two significant motivations for the use of bioterrorism: terrorists are attracted to biological weapons because pathogens have the capacity to inflict mass casualties on an unprecedented scale; and terrorists recognize that biological agents are a unique, covert tool for achieving specialized objectives, such as the destruction of a government’s economic base.

Socioeconomic costs. In his book Hitting America’s Soft Underbelly, Chalk, a researcher from the RAND Corporation, defined agroterrorism as “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.” What could be the motivation for such an attack? “Depending on the disease agent and pathogenic vector chosen,” Chalk continued, “agroterrorism is a tactic that can be used either to cause mass socioeconomic disruption or as a form of direct human aggression” (2004).

Chalk described (2004) three expected levels of socioeconomic costs that would result from an act of agroterrorism:

1. Direct losses resulting from the eradication or depopulation of disease-ridden animals;

2. Indirect losses in revenue incurred by other industries, such as tourism, as a result of trip cancellations following enforced quarantines; and
3. Losses in exported agriculture products when protective embargoes are imposed by other countries.

Economic losses incurred as the result of a foreign animal disease, either accidental or intentionally introduced, can be staggering. Chalk cited the United Kingdom as the most recent example. Following the outbreak of foot-and-mouth disease (FMD) in 2001, the U.K. paid \$1.6 billion in compensation to farmers for the 3.3 million FMD-exposed cattle that were destroyed. The U.K. tourism industry suffered losses amounting to \$4 billion from travel restrictions, cancelled reservations, and farm quarantines, all in that same year. Concerning lost imports, California's Department of Food and Agriculture (CDFA) conducted a study in 2000 and concluded that each day of delay in instituting disease eradication and immediate control measures for an FMD outbreak would cost \$1 billion per day in trade sanctions.

Chalk presented specific policy recommendations that focused on the need for the United States government to consider agroterrorism a serious threat to our economy and to our country's infrastructure. As a proactive measure, he suggested a more coordinated and standardized link between our agricultural and intelligence communities. In his only reference to law enforcement, Chalk stated attention must be directed to issues of law enforcement and the use of forensic investigation to determine whether disease outbreaks have been intentionally introduced or accidentally/naturally occurring.

Based on his research on biological assaults against agriculture, Chalk (2004) concluded that "the impact of bio-assaults on livestock, although significant, is delayed and lacks a single focal point for media attention. More specifically, there is no drama of the sort that results from suicide bombing or a September 11-style attack, which is absolutely essential to creating the

hostility and panic that such acts are designed to elicit.” However, he also stated that biological attacks targeting livestock and a country’s food chain provide terrorists with the ability to employ cheap, unsophisticated means of undermining a government’s economic base. Such attacks provide an attractive cost-to-benefit payoff for any terrorist organization so motivated.

Veterinary concerns. Because animals serve as possible sentinels for human diseases resulting from a bioterrorism attack, veterinarians have been alerted to disease symptoms in animals (including family pets) that may indicate the presence of a biological threat to humans. Technical articles have recently been authored for veterinarians in order to educate these animal health professionals about the early warning signs of bioterrorism. *The ABCs of bioterrorism for veterinarians, focusing on Category A agents* by Davis appeared in the Journal of the American Veterinary Medical Association in 2004. In this article, Davis indicated that the human disease SARS (Severe Acute Respiratory Syndrome), which erupted in China in 2002, may have first been present in domestic cats and dogs, bats, snakes, monkeys, and wild pigs. SARS resulted in the infection of 8,437 humans and 813 deaths.

Veterinarians in the United States have been alerted to 6 biological agents identified by the Center for Disease Control and Prevention (CDC) as representing the most serious biological threats to humans and animals. The six agents and associated diseases are the following:

1. *Bacillus anthracis* which causes Anthrax;
2. *Clostridium botulinum* (toxin) which causes Botulism;
3. *Yersinia pestis* which causes Plague;
4. *Variola major* which causes Smallpox;
5. *Francisella tularensis* which causes Tularemia; and
6. *Ebola and Lassa viruses* which cause Viral hemorrhagic fever.

Of these 6 diseases, anthrax is the most recognizable bioterrorism threat, and perhaps it is the most feared. In 2001, the postal mailings contaminated with *Bacillus anthracis* forced the American public to realize that bioterrorism is a real threat, and that an effective attack could be carried out through very simple means (Davis, 2004).

Recognizing the key role that local veterinarians play in the early detection of a foreign or exotic animal disease, Spickler, DVM, Ph.D., and a team of veterinarians published a teaching text in 2004, Emerging and Exotic Diseases of Animals to refresh practicing veterinarians on the importance and potential impact of emerging exotic diseases. The author detailed technical information related to clinical signs, incubation period, etiology or causes of the disease, diagnostic procedures, and quarantine and disinfection, and recommended actions to be taken. This technical data is repeated for 77 animal diseases, including African horse sickness; anthrax; bovine spongiform encephalopathy; foot-and-mouth disease; and West Nile encephalitis. These 77 animal diseases, according to the U.S. Department of Agriculture, pose the greatest potential threats for acts of agroterrorism in the United States.

Spickler and this team researchers, centered at Iowa State University's College of Veterinary Medicine, concluded that our society is directly linked to agriculture and animal health. Indeed, the statistics presented in support of this conclusion are staggering:

1. American agriculture is a **\$1.5 trillion** business that employs 17% of the workforce in the United States;
2. Americans spend **12.3 cents** out of every dollar on food; and
3. Americans depend on **98 million** cattle, **439 million** chickens, and **60 million** pigs annually for meals and for generating export revenues.

Spickler provides practicing veterinarians with the core principles for understanding the emergence of exotic diseases, essential preventive measures, and the benefits of early detection

and notification for effective control of foreign animal disease. In this textbook, no reference is made to law enforcement and its role in agroterrorism.

There are numerous organizations that maintain active web sites dedicated to the preservation of animal health. These web sites provide the very latest information concerning animal diseases, preventive measures, and quarantines, as well as official “disease-free” zones.

The leader and most relied upon organization on animal health issues is the World Organization for Animal Health (OIE), an organization that was formerly known as the Office International des Epizooties. OIE is an international animal health organization that coordinates animal disease information in order to decrease the potential for epidemics throughout the world. As a global organization, the OIE has expanded from its original membership of 24 countries in 1924 to its current nation membership of 166. OIE maintains a web site, www.oie.int that is updated daily for the primary benefit of veterinarians worldwide.

The stated objectives of the OIE web site are,

1. To collect, analyze, and disseminate scientific veterinary information;
2. To provide an immediate warning system, within 24 hours, of the first outbreak of an infectious disease that could have serious repercussions on public health or on the economy of animal production;
3. To safeguard world trade by publishing health standards for international trade in animals and animal products;
4. To provide worldwide veterinary services;
5. To better guarantee the safety of animal origin food; and
6. To promote animal welfare (www.oie.int).

Beginning in 1995, OIE established requirements for food safety and animal/plant health as they relate to world trade. One of the important functions of OIE is to publish a current list of countries and zones that are free of certain animal diseases, specifically foot-and-mouth disease

(FMD), which directly impacts international trade. In order to be included on OIE's disease-free list, a country must provide specific supporting documentation. Consequently, policies and decisions by the OIE have severe consequences for international trade.

Preparedness. Congressional researchers have begun to publish more information related to threats of terrorism within the United States, with particular attention being given to potential targets and preparedness. Agroterrorism: Threats and Preparedness, a report released in 2004, detailed possible pathogens in an agroterrorist attack, necessary counter measures, and recommendations/issues for Congress (Monke, 2004). In concert with other researchers who have written on this topic, Monke agreed that the major threat to American agriculture is foot-and-mouth disease (FMD). He cited FMD as being a catastrophic threat due to its ease of use, ability to spread rapidly, and potential for great economic damage. As an example of its potential economic impact, Monke cited testimony of McGinn from the North Carolina Department of Agriculture when he described a simulation of an FMD attack by a terrorist at a single location: "Only after the 5th day of the attack would the disease be detected, by which time it may have spread into 23 states. By the 8th day, 23 million animals may need to be destroyed in 29 states."

As a means of deterrence and prevention, Monke (2004) suggested that law enforcement and intelligence agencies collect information about biological weapons that could be used against U.S. agriculture, and develop a strong partnership among the livestock industry, USDA, DHS, and local law enforcement so that agriculture is not overlooked compared to other infrastructure and human targets. He also cited several appropriation bills being considered by Congress, and noted how the USDA is specifically designated for additional funding for counter-agroterrorism measures under the Food and Agriculture Defense Initiative.

When addressing the topic of agroterrorism, authors often cite the economic and emotional impact of the FMD outbreak in the United Kingdom in 2001 as a reason for preparedness in the U.S. This accidental outbreak affected 9,000 farms, and resulted in the destruction of four million animals with an overall economic loss of \$25 billion. In a recent article concerning biodefense strategies, Breeze (2004) was extremely critical of the U.S. policy regarding the planned response to an outbreak of a foreign animal disease in America: “U.S. policy to counter agroterrorism is fatally flawed because it mistakenly conflates the threats of inadvertent and purposeful disease introduction. If we try to counter deliberate assaults the same way, it will be the U.S. government, not a terrorist gang that is killing, burning, filling mass graves, and wreaking economic havoc nationwide.” Breeze clarified, “Terrorist attacks on U.S. agriculture are not about imperiling our food supplies; they are about terror, money, mass slaughter, and funeral pyres all day every day on CNN and al Jazeera.”

Rather than a national strategy of mass destruction to eradicate a foreign animal disease such as FMD, Breeze recommended:

1. Rapid, on-farm diagnostic tests;
2. A real time, internet-based communication system to coordinated federal, state, and local responses;
3. A differential test that discriminates vaccinated animals from those that have recovered from the disease yet might still be infectious to others; and
4. Tracking and identification systems to follow animals and products from farm-to-table through the entire production and processing chain.

Breeze (2004) stated that the technology to combat FMD (i.e. on-site diagnostics, vaccines, differential tests, and tracking systems) is currently available, but it is not included in the USDA’s response policy: “Our current deficiencies are not biological; they are in policy and

in the tools of command, control, and communication.” In this article, no reference was made to law enforcement and its role in agroterrorism.

In March, 2005, GAO issued a report for the purpose of examining the federal agencies’ roles and responsibilities to protect against agroterrorism, the steps that agencies have taken to manage the risks of agroterrorism, and the challenges and problems that remain. In this study, GAO’s summary recommended that:

- USDA examine the costs and benefits of developing stockpiles of ready-to-use vaccines; and
- DHS and USDA determine the reasons for declining agriculture inspections.

In assessing the threat of agroterrorism, GAO’s report focuses primarily on “after-the-fact” issues, such as efforts to respond to an FMD outbreak, rapid diagnostic tools, stockpiling vaccines to control the spread of a foreign animal disease, and emergency response procedures. GAO’s study is silent on law enforcement’s role and responsibilities in helping to prevent an act of agroterrorism “before-the-fact.”

Law enforcement. In his book entitled *Law Enforcement Intelligence: A Guide for State, Local, and Tribal Law Enforcement Agencies* (2004), Dr. Carter, a professor/ researcher/author who specializes in community policing and law enforcement intelligence, offers insight on the complex computerized intelligence network that supports local law enforcement. He clearly defined “law enforcement intelligence,” a term which is used synonymously with “criminal intelligence”: “law enforcement intelligence, therefore, is the product of an analytic process that provides an integrated perspective to disparate information about crime, crime trends, crime and security threats, and conditions associated with criminality.” He also emphasized that information gathered from diverse sources (e.g. wiretaps, informants, banking records, or

surveillance) is simply raw data which has limited meaning. Raw data becomes intelligence once it is subjected to a comprehensive analysis process. A vigilant process must be in place to ensure that operational decisions are made on objective, informed criteria, rather than on presumed criteria.

Carter (2004) described the overall network that delivers criminal intelligence to state and local law enforcement agencies throughout the country. One such system, Automated Trusted Information Exchange (ATIX), was developed in 2003 as a means of providing local law enforcement with access to homeland security, disaster, and terrorist threat intelligence. ATIX is informative, user-friendly, and an important resource for law enforcement agencies of any size. Another system, Joint Regional Information Exchange System (JRIES), is the secure collaborative system used by the Department of Homeland Security (DHS) to collect information and disseminate criminal intelligence between DHS and Federal, State, and local law enforcement involved in counterterrorism. This communications capability delivers to states and major urban areas real-time interactive connectivity with the DHS Operations Center and strengthens the flow of real-time threat intelligence.

Carter cited three challenges that relate to today's law enforcement executives preventing an act of agroterrorism:

1. To recognize that *every* law enforcement agency, regardless of size or location, has a stake in global law enforcement intelligence and, as such, must develop some form of an intelligence capacity;
2. To increase information sharing with the broader public safety and security sectors; and
3. To ensure that non-law enforcement government officials (i.e., animal health, public health, emergency management, and county extension agents) and the community (i.e., veterinarians, livestock producers, feedlot managers, and meat processors) understand what law enforcement intelligence is and the importance of their role in the intelligence function.

Congressional field hearing. Because of the emerging threat to America's agriculture economy, a Congressional field hearing was held on August 20, 2002, at the Eisenhower Presidential Library in Abilene, Kansas. During this hearing a number of experts in the field of veterinary medicine, animal health, and law enforcement provided sworn testimony concerning the threat of agroterrorism.

Presentations at this Congressional hearing dealt with the spectrum of central issues: background, socioeconomic costs, veterinary concerns, preparedness, and law enforcement.

Jaax, Associate Vice Provost for Research at Kansas State University, testified that a biological attack against agricultural targets or food supply would assault the economy, and so lead to a significant decrease in production, compromise of exports, and loss of confidence in the safety of America's food supply. He stated that there would be dire regional and national economic consequences. Jaax identified the most worrisome biological agent as foot-and-mouth disease (FMD) because of its highly contagious agricultural pathogens. He cited the staggering economic losses from a FMD outbreak in the United Kingdom (calculated at 25 billion pounds) as evidence of the potential impact of a biological disease.

Teagarden, Kansas Livestock Commissioner, testified that the annual value of livestock in Kansas is \$10.6 billion, so an FMD outbreak would cause tremendous economic harm. He too cited the economic losses incurred in the U.K. in 2001. Teagarden illustrated the vulnerabilities of the livestock industry, and cited that Kansas has 462 feedlots, 104 meat processing plants, and 57 livestock sale markets, each readily accessible to the public. He stressed the need for coordination and cooperation from all levels of government and experts within the livestock industry to protect Kansas farms and fields from harm.

Knowles, Deputy Director of the Kansas Bureau of Investigation (KBI), testified concerning law enforcement's role in protecting Kansas agriculture. Aside from the need to be prepared for an emergency response *after* an outbreak of a foreign animal disease, he cited the more critical need to *prevent* an act of agroterrorism. He urged that a national criminal intelligence system be implemented as a proactive measure to help prevent an attack on American agriculture. He described the statewide computerized database--KsLEIN (Kansas Law Enforcement Intelligence Network)--being developed by the KBI to include intelligence data related to agroterrorism threats. This system will be accessible to Kansas law enforcement: It will list potential threats and suspects, and suspicious activity related to agroterrorism.

Lane, Undersheriff for the Ford County Sheriff's Office in Dodge City, Kansas, described the complex movement of cattle in the livestock industry. He presented the new term "agromovement," the continuous cycle of movement required in farm-to-fork food production, including the transportation of animals as well as finished products destined for distribution throughout the world. For example, in southwest Kansas alone, hundreds of semi-trucks transport thousands of animals daily to beef processing plants. At the end of a day, hundreds of semi-trucks depart southwest Kansas with finished beef products for distribution throughout the United States and for export to over 50 countries around the world. Any disruption of this daily process equates to "million dollar minutes" in terms of economical loss to the livestock industry. Undersheriff Lane concluded his testimony by emphasizing the need for local governments to develop comprehensive plans for prevention which should include every facet of the community: law enforcement, private industry, emergency management, animal health, public health, and the media.

The overriding theme of the Congressional hearing at Eisenhower Presidential Library in Abilene was the need for developing new partnerships, full coordination, and improved communication in addressing terrorist threats targeted against American agriculture.

Homeland Security Presidential Directives. Beginning on October 29, 2001, President George W. Bush issued a series of Homeland Security Presidential Directives (HSPDs) designed to establish homeland security policies within the United States.

On 2/28/2003, HSPD-5 was issued by the president to enhance the government's ability to manage domestic incidents by establishing a single, comprehensive national incident management system. Within HSPD-5, the National Interagency Incident Management System (NIIMS) was drafted to provide all levels of government a consistent approach for emergency response to domestic incidents, regardless of cause, size, or complexity.

On 12/17/2003, HSPD-7 was issued by the president to identify and prioritize United States critical infrastructure and key resources, and to provide protection for these assets from terrorist attacks. HSPD-7 did not specify agriculture as a critical infrastructure.

On 2/3/2004, HSPD-9 was issued by the president as an enhancement to HSPD-7 by establishing a national policy to defend the agriculture and food system against terrorist attacks and major disasters. Under HSPD-9, the Secretary of Homeland Security is responsible for coordinating the overall national effort to protect American agriculture and its food system as an identified critical infrastructure. Further, the Secretary of Homeland Security is directed to work with private sector entities to establish an effective information sharing and analysis mechanism to protect agriculture and food system.

IACP issues critical report. On 5/17/2005, the International Association of Chiefs of Police (IACP) released a report stating that the nation's current homeland security was

“fundamentally flawed” for failing to incorporate the advice, expertise or consent of state, tribal, and local public safety organizations. The report identifies five (5) principles that are key to developing a successful homeland security strategy (IACP, 2005).

These five principles are:

1. All Terrorism is Local. Regardless of the delivery or scale of an attack, all terrorist acts that occur within the United States are inherently local crimes that require the immediate response of state, local, or tribal authorities. The IACP believes homeland security proposals must be designed at the local level of government since local authorities have the primary responsibility for preventing, responding to, and recovering from terrorist attacks.
2. Prevention is Paramount. Prevention of terrorist attacks must be viewed as the paramount priority in any national, state, tribal, or local homeland security strategy. The IACP believes that the vast majority of federal homeland security efforts have focused on national capabilities to respond to and recover from a terrorist attack.
3. Hometown Security is Homeland Security. Throughout the United States, there are more than 700,000 commissioned officers who patrol highways, and respond to calls for service within communities. The IACP believes that state, tribal, and local law enforcement officers are situated to identify, investigate, and apprehend suspected terrorists. Accordingly, local law enforcement is the cornerstone of any successful crime or terrorism prevention effort. Loss of federal funding in a number of public safety programs (Local Law Enforcement Block Grant Program, Edward Byrne Memorial Grant Program, and the Community Oriented Policing

Services Program) has reduced the ability of law enforcement to combat both crime and terrorism.

4. Homeland Security Strategies Must Be Coordinated Nationally, Not Federally.

The IACP believes that state, tribal, and local law enforcement should be afforded the opportunity to participate as full and equal partners in the design and development of policy. This collaborative partnership will allow for a freer flow of critical information between all levels of government in the development of homeland security strategy and policy.

5. The Importance of Bottom-Up Engineering. The IACP believes that it is essential

that a baseline capability be established in all communities, not just urban areas.

A truly successful national strategy must recognize, embrace, and value the vast diversity that exists among law enforcement, and that all public safety agencies, at all levels of government, must work together in a noncompetitive, collaborative fashion to protect U.S. communities.

RESEARCH DESIGN, METHODOLOGY, RESULTS AND DISCUSSION

Overview

The study used both qualitative and quantitative methods of data collection, including in-depth and focus groups interviews, document reviews, surveys, and simulation exercises. Since several groups were involved in the study, requiring different types of information, multiple data collection and analysis strategies were deemed the best approach to data collection.

Phase one. The initial phase of the project encompassed three main activities. First, a focus group discussion session was conducted with invited participants from the livestock industry, local law enforcement, and other public officials from Dodge City, Kansas. Likewise, several representatives from State and Federal law enforcement and animal health participated in the day long event. The focus group format allowed people from similar backgrounds and experiences to discuss issues related to agroterrorism. The overall objective was to gain insight and collect data produced by the interaction between participants, thereby enabling the research team to gain a large amount of information in a short time.

The agenda included the following:

1. Discussing a particular program of activities to deter, prepare for, and respond to acts of terrorism to the agricultural industry in Kansas;
2. Developing questions or concepts for questionnaires and semi-structured interview guides to be used to collect comments and attitudes of other stakeholders (not involved in focus groups); and
3. Developing an understanding of assessment needs and policy concerns.

Although it was understood that group research is open-ended and cannot be entirely predetermined, a list of questions and comments that directly aligned with the goals of the

research were developed and mailed to the participants prior to the focus group meeting. Also, an informed consent was provided to fulfill procedural obligations established in Title 28, Volume 2, Part 46, of the Code of Federal Regulations and to ensure the protection of human subjects.

Discussion topics included understanding and identifying vulnerabilities and prevention strategies, designing a written policy and procedures for law enforcement to respond to an act of bioterrorism, training issues, and local planning and partnering.

Once the focus groups were concluded, a synopsis report was completed and mailed to the participants. Participants were encouraged to review the report and email comments to the research team.

The second data collection activity in this phase of this study involved mailed surveys. While focus group information was helpful in understanding local law enforcement in Ford County, Kansas, we also had to inquire about the current readiness level of all local law enforcement in the State of Kansas. Therefore, a questionnaire was developed to gather data from Kansas Sheriffs, who are required by law to respond when a foreign animal disease is suspected by the livestock industry.

The survey and cover letter were reviewed by the project Institutional Review Board and approved for dissemination. Survey methodology, results, and discussion are provided later in this section. A second focus group was conducted to discuss the findings of the sheriffs' survey and to re-evaluate data collection strategies and other research activities.

The final data collection activity in the initial phase of the project involved conducting a simulation exercise in Dodge City, Kansas. This table-top exercise, *Sudden Impact*, was designed to test the collaborative effort of law enforcement, public health, emergency managers, animal

health, and others when given a scenario related to bioterrorism. A report of the major findings of the two simulation exercises is provided later in this section.

Phase two. In the second phase of the project, two data collection activities occurred. First, a questionnaire was developed and mailed to 400 members of livestock associations in Kansas, Oklahoma, and Texas. The objective of the survey was to understand potential threats to the cattle industry. Again, survey methodology, results, and discussion are provided later in this section. A focus group was convened of key livestock industry personnel to discuss the findings.

Another simulation exercise, *Endangered Species*, was then conducted in Hutchinson, Kansas, to provide insight into the relationship between intelligence and prevention. This table-top exercise provided an evaluation of the participants' ability to receive and gather information, assess the level of threat from the information, and refine the information into useful intelligence. A report of the major findings of the simulation exercise is provided later in this section.

Focus Groups

The first focus group meeting featured representatives from within the livestock industry, veterinarians, animal health officials, and county and State law enforcement. Four states were represented at this meeting--Kansas, Oklahoma, Texas, and Nebraska. During this first meeting, background information was provided about agroterrorism threats, including possible scenarios, targeting the livestock industry. Discussion centered around three topics related to acts of agroterrorism:

1. Vulnerabilities
2. Proactive or Preventive Measures
3. Emergency Response and Training

Vulnerabilities. There was consensus that America's livestock industry represents a "soft" target for terrorism given that fields and feedlots are readily exposed to a potential biological attack. The livestock industry is vulnerable to the intentional introduction of a foreign animal disease at virtually any point from cattle production to meat processing. This point was underscored by the staggering statistics associated with cattle, which include the following:

1. A single feedlot handles as many as 55,000 head of cattle at any one time, or 124,000 per year;
2. There are 462 feedlots registered in Kansas;
3. As many as 400 truck loads of cattle (40 to 100 head per truck) move daily throughout western Kansas; and
4. Feed consumption at feedlots require 36 truckloads which carry 1.6 million pounds of feed commodity each day.

There was agreement that the single greatest threat to our nation's agriculture economy is an outbreak of foot-and-mouth disease (FMD), such as that which occurred in the United Kingdom in 2000. FMD is a highly contagious viral disease that attacks cloven-hoofed domesticated animals (cattle, swine, sheep), as well as wildlife such as deer and elk. Whether it is intentionally introduced or caused by carelessness or accident, the result of FMD would be the same -- the immediate termination of movement of cattle, production, and exportation.

Several comments were made that centered on differences between a terrorist attack from an outside source (e.g. terrorism as a means of political expression) and terrorism introduced from inside the industry (e.g. disgruntled employee). Several questions were raised concerning the sources of an attack: What are the reporting mechanisms available to the industry to alert law enforcement of an internal problem? What are the "seasonal influences" on the cattle industry numbers?

Groups also expressed concern about the following other contributing factors affecting the vulnerability of the livestock industry:

1. Ease of movement of cattle throughout the country;
2. Lack or shortage of supervision in the feed yards;
3. Inconsistent handling of health papers for cattle;
4. Difficulty in monitoring or closing access and egress roads; and
5. The “openness” or “exposure” of livestock production, movement of cattle, and public sales.

Prevention. Discussion centered on awareness in terms of criminal penalties as a deterrent. Education was seen as central to any prevention strategy. Several comments suggested the need for a publication to communicate with cattle producers and others in the industry in order to regularly inform them of possible threats.

Does local law enforcement regularly interact in a proactive manner with the livestock industry? Do officials in the livestock industry work closely with law enforcement? Contact with law enforcement does not usually occur until after the fact when an incident has taken place. One of the purposes of community policing is to develop preventive relationships.

Questions relative to prevention in law enforcement included the following:

1. Does law enforcement have the human and material resources to respond to an outbreak of a foreign animal disease?
2. Is the current communications system adequate to deal with an attack on our livestock industry?
3. What is law enforcement’s role in dealing with a crime scene in an outbreak of FMD?
4. Can veterinarians be trained to assist law enforcement in the forensic examination of a crime scene involving a foreign animal disease?

5. Can law enforcement actually stop the movement of all livestock in Kansas in the event of a FMD outbreak?
6. Is the Sheriff's Office the appropriate site for a command post?

Focus groups sought to answer the question of who is actually in charge during an emergency incident. In the event of an outbreak of a foreign animal disease, the Kansas Livestock Commissioner would be empowered by the Governor to take command of the emergency response. By statute, the Commissioner has full command authority to deal with any outbreak of a foreign animal disease.

There was discussion about the need to develop countermeasures for FMD and other bioterrorism threats to American agriculture. Currently there are no preventive vaccines to protect cattle against foreign animal diseases such as FMD. Three universities (Kansas State, Purdue, and Texas A&M) are currently engaged in a federal program to develop preventive measures and research other topics related to the consequences of a foreign animal disease.

There was general agreement that the local veterinarian would be the first person to be aware of any foreign animal disease (FAD). FMD in the United Kingdom spread for nearly three weeks before any action was taken to stop the spread of the disease.

The groups also focused on matters of intelligence gathering. Much like in the illegal manufacture of methamphetamine, can we identify precursors or indicators of criminal intent involving threats to the livestock industry? There also was in-depth discussion about the need for law enforcement to have the capacity to receive and properly handle reports of suspicious activity and suspicious persons. There was general agreement that little or no effort is being devoted to identifying and forwarding intelligence information from law enforcement to the livestock industry. If intelligence is to be meaningful and properly acted upon, it is essential that it be disseminated on a timely basis.

Emergency Response and Training. The focus groups also provided attention to the following matters:

1. Field exercises are being held due to threat of FMD to our livestock industry.
2. The Kansas Animal Health Department has held numerous “town hall” meetings to explain emergency response procedures and the consequences of an FMD outbreak.
3. There is an emergency response plan for the state, but only a few counties, one being Ford County, actually have a formal emergency response plan in place.
4. A need to coordinate response procedures with the surrounding states was discussed, and field exercises are beginning to involve adjacent state authorities.

Field Surveys

Many of the ideas and comments developed in this first focus group meeting were used to develop two surveys. The first survey was designed to collect data from Kansas Sheriffs. The second was a survey of representatives in the livestock industry. In the next section we discuss the methodologies used and subsequent findings of these data collection efforts.

Survey of Kansas Sheriffs. Below is a discussion of survey methodology and survey results.

Methodology. This section of the report gives a detailed explanation of the methods used to collect and analyze data gathered from Kansas Sheriffs. It includes a description of the design and procedures, sample, and data analysis plan.

Design and procedures: Data for this study is drawn from self-administered surveys. Each survey uses the same data collection instrument, and data files have the same variables and record layout. A total of 25 items were included in the questionnaire. Survey items one, two,

and three requested information pertinent to each law enforcement agency's size, jurisdiction, and support. Items 4 through 25 explored the attitudes of sheriffs about their agency's readiness to respond to an act of bioterrorism.

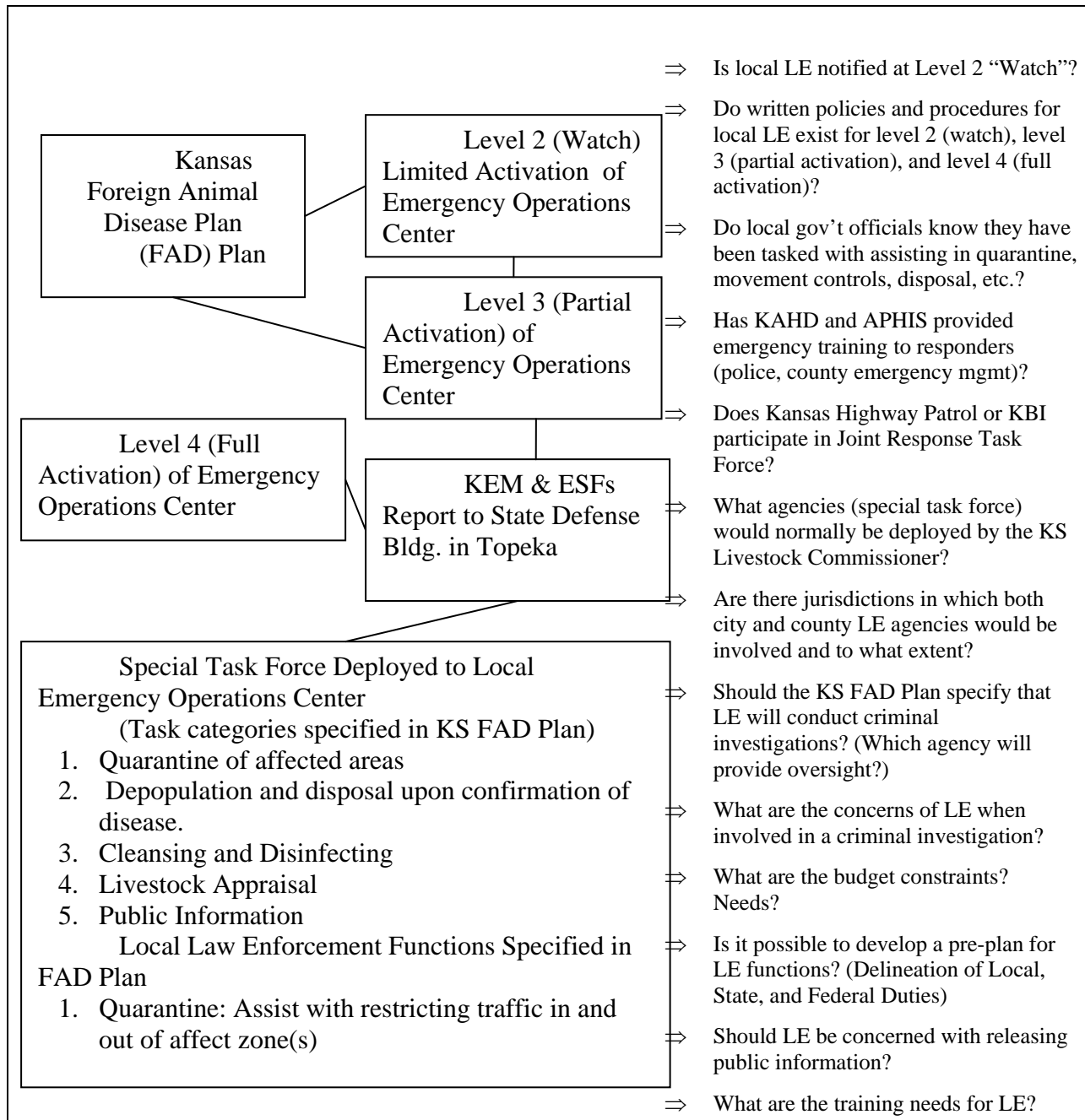
Questionnaire development was a collaborative effort between focus group participants who met in Dodge City, Kansas, on October 23, 2004. The focus group was comprised of persons now working in occupations directly related to the livestock industry, law enforcement, and other public service agencies. The participants included the following:

1. Local, State, and Federal law enforcement personnel;
2. Local and State veterinarians and other animal health services persons;
3. Local producers, feed yard managers, processors, and other agricultural personnel;
and
4. Local and State public officials and/or their representatives.

Many of the local participants from each workgroup had previously been involved in discussions about potential threats to the cattle industry.

Participants identified several key issues relating to the threat of bioterrorism including potential vulnerabilities of the livestock industry, communication processes, partnerships, and existing prevention strategies. As a result of the focus group meeting, coupled with a review of the Kansas Foreign Animal Disease (FAD) Emergency Plan, the research team was able to develop an incident-based flowchart that concentrated on the current relationship between law enforcement and the agricultural industry. Figure 6 provides a visual representation of the flowchart that provided a basis from which variables could be conceptualized for the development of the questionnaire.

Figure 6 - Incident-based Flowchart



A variables list was constructed after the original draft of the questionnaire. A list of ten items and corresponding statements were developed to ensure proper coverage of the items and non-duplication of statements. Figure 7 provides the variables list that evolved from the incident-based flowchart.

Figure 7 - Variables list and questionnaire statements

Planning (Statements 8, 9)	Training (Statements 6, 11, 12, 24)
Policy & Procedure (Statements 7, 25)	Knowledge (Statements 4, 5)
Resources (Statement 10)	Partnerships (Statement 16)
Communications (Statements 13, 14, 15)	Intelligence (Statements 17, 19)
Willingness to Support Initiatives (Statements 20, 21, 22)	Investigation (Statements 18, 20)

The questionnaire contained 21 statements designed to measure respondents' attitudes toward the preparedness of their agency. More specifically, the questionnaire attempted to describe the current state of affairs of law enforcement in Kansas with respect to the role of sheriff agencies if called upon to respond to a bioterrorism attack on the livestock industry. This objective was accomplished by determining the following:

1. The existence of local-state partnerships;
2. The preparedness of sheriff agencies to respond to acts of agricultural bioterrorism;
3. The level of interest with which sheriffs would engage future preventive measures.

Questionnaires were mailed to all 105 sheriffs listed by the Kansas Sheriff's Association (November, 2003). A cover letter and self-addressed, stamped envelope accompanied the questionnaire. (See appendices.) Of the 105 questionnaires mailed, 87 were returned. Two surveys were excluded because of missing data. Therefore, 85 total surveys were used in the data analysis, which accounts for an 81 % return rate.

Sample: Table 4 - Characteristics of the Survey Respondents (Statewide) provides statewide information to characterize the respondent agencies with respect to department size, sharing jurisdictions with municipal police agencies, and the location of the nearest KBI agent. The sample was predominantly comprised of small sheriff agencies (86%) in which multiple local police departments existed (70%). A majority of the sheriffs (81%) responded that a KBI agent did not live in their county.

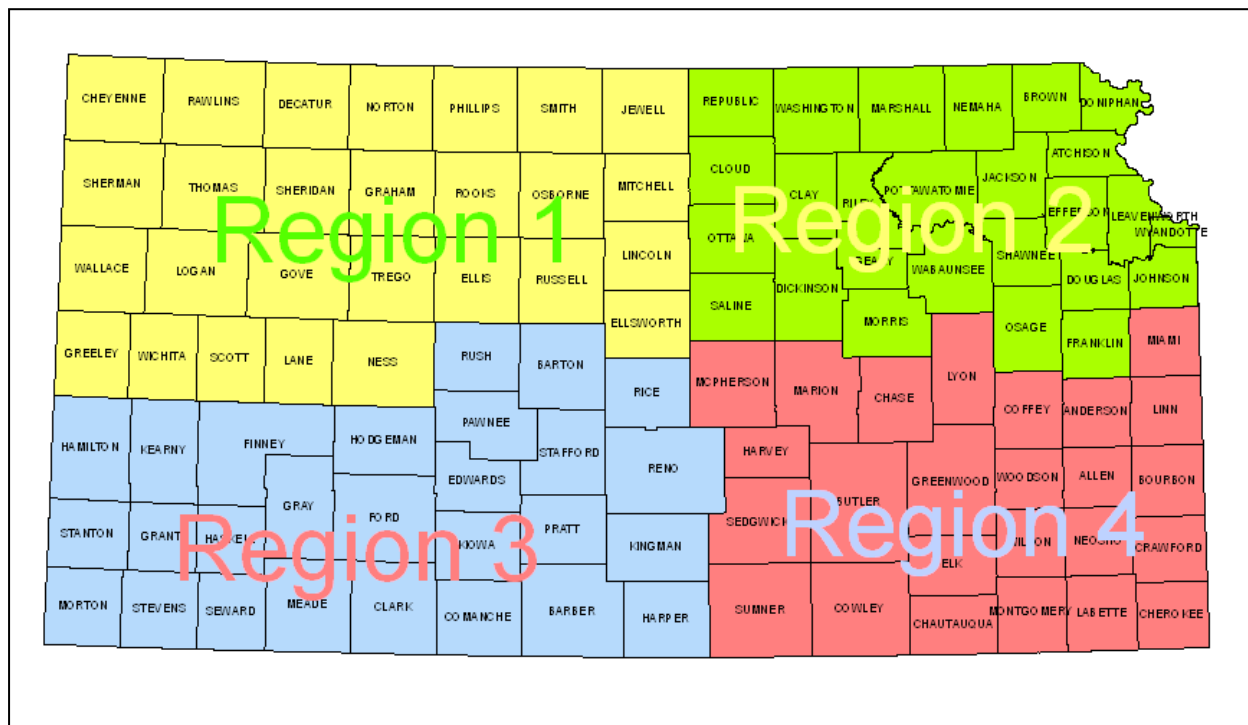
Table 4 - Characteristics of the Survey Respondents (Statewide)

How would you describe the size of your agency?	SMALL	MEDIUM	LARGE
*Approximate number of sworn deputies:	1-30	31-60	61+
*Other full-time support personnel	1-30	31-60	61+
* Reserve Deputies	1-30	31- 60	61+
	73 (86%)	5 (6%)	7 (8%)
Are there multiple <u>local</u> law enforcement agencies in your county?		YES	NO
* If YES, how many? _____		70 (82%)	15 (18%)
Is there a KBI Agent located in your county?		YES	NO
* If NO, how far away is the nearest agent? ____miles		16 (19%)	69 (81%)

n = 85

While the target population included all sheriffs in Kansas, geographical boundaries were drawn to allow for group comparisons by regions within the State. The regions included group A northwest, group B southwest, group C northeast, and group D southeast region. Figure 8 - Sheriff Survey Regions by Kansas Counties provides a map of Kansas with distinctions made regarding the assigned regions. Also, each county within the regions is noted.

Figure 8 - Sheriff Survey Regions by Kansas Counties



Analysis: Data from the sheriff surveys were analyzed through the use of descriptive statistics. A Likert-type scale was established for the questionnaire, and data were coded to standardize response categories in the questionnaires. Respondents assigned each statement one of five points on the scale that ranged from strongly agree (coded 1) to strongly disagree (coded 5). Graphical, tabular and non- parametric descriptions are used to summarize the data. Also,

cross-tabulations were conducted to determine whether geographical location and/or agency size influenced sheriffs' responses to the survey.

Results and Discussion. In Kansas, livestock businesses such as cattle producers, feed yards, and processing plants, operate throughout the State and in nearly every county. Statutory law requires that Kansas Sheriffs serve as the lead law enforcement agency if a foreign animal disease event occurs in their jurisdiction. As the goal of this research was to measure Kansas Sheriffs' attitudes toward the preparedness of their law enforcement agencies to respond to an act of terrorism against the livestock industry, a mailed, self-administered survey was deemed a prudent means to collect the data. Given that 85 of the 105 county sheriffs responded, we are confident that data findings presented in this report provide a suitable picture of the current relationship between law enforcement and the livestock industry.

In this first section, we provide descriptive statistics for the overall, combined responses by Kansas Sheriffs. Data are separated into categories to allow some distinctions to be made regarding variables. These categories are consistent with items noted earlier in the variables list. (The table is divided into sections based on the variables and statements used in the questionnaire.) While tables reflect all possible responses (i.e. "strongly agree," "agree," "don't know," "disagree," and "strongly disagree"), for the purposes of reporting the survey findings here, the responses of "strongly agree" and "agree" have been combined and are described as "agree." Likewise, "disagree" and "strongly disagree" have been combined and are referred to as "disagree" responses.

The results indicate that Kansas Sheriffs are generally concerned about the threat of bioterrorism, but they have not addressed specific issues that relate to their agency's role if an act were carried out against the livestock industry. Most sheriff agencies lack written policies and

procedures that specifically address such events, and their law enforcement personnel are not familiar with the Kansas Emergency Plan for Foreign Animal Disease. However, the survey data show that some of the important functions of emergency preparedness and management are already present within these law enforcement agencies. Moreover, the results are encouraging with regard to Sheriffs' attitudes toward developing strategies to confront new demands placed upon them in their efforts to effectively deal with the terrorist threat in their jurisdictions.

An initial objective of the survey was to gain an understanding of Sheriffs' attitudes toward planning and forming partnerships to combat the threat of bioterrorism. It has been suggested that forming partnerships is a necessary first step toward becoming better informed about vulnerabilities that exist in a community. Also, by bringing stakeholders to planning sessions, more complete and accurate information can be obtained that may prove successful in preventing terrorist attacks. Survey results for the present study indicate that most Sheriffs in Kansas have conducted critical response planning in their agencies. Likewise, Sheriffs are regularly involved with their local planning commissions and retain a good relationship with the Kansas Highway Patrol. Therefore, it appears that sheriffs in Kansas are knowledgeable about emergency management planning and have participated in other types of local planning sessions.

Data show that respondents' ratings were consistently high when considering statements that addressed partnerships, planning, and willingness to support initiatives. Note in Table 5 that agreement was highest when respondents considered their relationship with the Kansas Highway Patrol. Nearly all sheriffs agreed (92%) that, when requested, the Kansas Highway Patrol responds quickly (Mean = 1.95, SD = 0.63). Planning was the next category to receive high ratings in the survey. Sheriffs overwhelmingly responded (90%) that their agencies participated in local planning committees, advisory boards, and other official coalitions. Likewise, they

agreed (89%) that their agencies were involved with critical response planning. The final category to receive the highest ratings was willingness to support initiatives. Eighty-three percent of the Sheriffs responded that they would be in favor of participating in annual field exercises to test their agency's capability to respond to bioterrorism threats. They also strongly favored (81%) the creation of a system to monitor foreign students, as well as a long-term research and development program to counter terrorism.

Table 5 - Response Ratings for Statements Relating to Partnership, Planning and Willingness to Support Initiatives

Variable Category	Measurement/ Value Code	Frequency	Percent	Mean	Standard Deviation
<i>Partnerships</i>					
When my agency requests assistance, the Kansas Highway Patrol responds quickly.	SA (1)	15	18	1.95	0.63
	A (2)	63	74		
	DK (3)	3	4		
	D (4)	4	5		
	SD (5)	0	0		
<i>Planning</i>					
My agency participates in local planning committees, advisory boards and other official coalitions.	SA (1)	15	18	2.02	0.76
	A (2)	61	72		
	DK (3)	1	1		
	D (4)	8	9		
	SD (5)	0	0		
My agency is involved in critical response planning.	SA (1)	12	14	2.05	0.71
	A (2)	64	75		
	DK (3)	2	2		
	D (4)	7	8		
	SD (5)	0	0		
<i>Willingness to Support Initiatives</i>					
My agency would be in favor of participating in annual field exercises to test capabilities to respond to bio-terrorism threat or crisis.	SA (1)	14	16	2.07	0.75
	A (2)	57	67		
	DK (3)	9	11		
	D (4)	4	5		
	SD (5)	1	1		
My agency favors the creation of an effective system for	SA (1)	23	27	2.01	0.88
	A (2)	46	54		

monitoring the status of foreign students.	DK	(3)	9	11		
	D	(4)	6	7		
	SD	(5)	1	1		
My agency favors establishing a long-term research and development program to counter terrorism.	SA	(1)	15	18	2.05	0.69
	A	(2)	54	64		
	DK	(3)	13	15		
	D	(4)	3	4		
	SD	(5)	0	0		

n = 85. Note: SA = strongly agree; A = agree; DK = don't know; D = disagree; SD = strongly disagree. Percentages rounded to the nearest whole number.

Table 6 provides the findings for statements relating to intelligence. Respondents gave moderately high ratings when replying to the two survey statements. Sixty-four percent responded that their agency was certified to use the Kansas Intelligence Network (KSLEIN). Also, 61 % of the respondents acknowledged that their agency has access to terrorism-related information published by the FBI. Of concern however, was that nearly one-fourth (24%) of the sheriffs responded that they did not know if their agency received terrorism-related information from the FBI.

Table 6 - Response Ratings for Intelligence Statements

Variable Category	Measurement/ Value Code	Frequency	Percent	Mean	Standard Deviation	
<i>Intelligence</i>						
My agency is certified to use the Kansas Law Enforcement Intelligence Network.	SA	(1)	11	13	2.55	1.13
	A	(2)	43	51		
	DK	(3)	9	11		
	D	(4)	17	20		
	SD	(5)	5	6		
My agency has access to terrorism-related information collected by the FBI	SA	(1)	6	7	2.49	0.89
	A	(2)	46	54		
	DK	(3)	20	24		
	D	(4)	11	13		
	SD	(5)	2	2		

n = 85. Note: SA = strongly agree; A = agree; DK = don't know; D = disagree; SD = strongly disagree. Percentages rounded to the nearest whole number.

The collection and assessment of information about crimes and crime enterprises are basic and essential functions of law enforcement. In Kansas, the Kansas Bureau of Investigation provides support to local law enforcement by obtaining crime-related information, assessing its usefulness, integrating the information with intelligence information, and making it available to law enforcement. If Kansas Sheriffs are to be better prepared for attacks by internal groups, sympathizers, extremists, or any other person or group that has in mind a bioterrorism act against the livestock industry, all Sheriffs should have access to the Kansas Law Enforcement Intelligence Network (KsLEIN). This access is especially important for sheriff agencies in the southeast region of the State. Moreover, sheriff agencies should have access to the Federal Bureau of Investigation's Law Enforcement On-Line (LEO), an Intranet exclusively for the law enforcement community. LEO provides a communications mechanism to link all levels of law enforcement throughout the United States, and so supports broad, immediate dissemination of information concerning the best technologies and practices in law enforcement. LEO is an important tool in equipping officers to counter crimes that involve a coordinated effort across several law enforcement agencies. Sheriff agencies should also examine the Regional Information Sharing Systems (RISS) program's Anti-Terrorism Information Exchange (ATIX). The ATIX is a secure World Wide Web site located on the RISS network. It is designed to provide law enforcement agencies at all levels access to homeland security information. Law enforcement agencies also can use ATIX to distribute security alerts to private-sector organizations and public officials who lack security clearances.

Communication systems are a key factor for prevention strategies to be put into place. The survey sought to examine the existing level of communications and intelligence sharing by sheriffs agencies in Kansas. Survey results suggest that most Sheriffs are satisfied that their agency communications systems allow for the quick dissemination of emergency information to county officials and other law enforcement agencies. However, even though most sheriff agencies issue public announcements when conditions exists that pose significant risk to the public, only a small number of agencies maintained a Web site for citizens to access information. These appear to be the large sheriff agencies, located primarily in the northeast region of the state. Table 7 provides the results of Sheriffs' ratings when considering the present state of communications within their agencies. While 89% of the respondents agreed that their communication system(s) allowed for quick dissemination of information to county officials and other law enforcement agencies, only 29% responded that their agency maintained a Web site for citizens to access public information. Also, 66% of the sheriffs responded that their agencies issued public announcements about conditions that pose significant risk or disruption to citizens.

Table 7 - Response Ratings for Statements Relating to Communications

Variable Category	Measurement/ Value	Frequency Code	Percent	Mean	Standard Deviation
<i>Communications</i>					
My agency's communications systems allow for quick dissemination of emergency information to county officials and other law enforcement.	SA	(1)	13	15	2.06
	A	(2)	63	74	
	DK	(3)	0	0	
	D	(4)	9	11	
	SD	(5)	0	0	
My agency issues public announcements about conditions that pose significant risks to citizens.	SA	(1)	5	6	2.56
	A	(2)	51	60	
	DK	(3)	6	7	
	D	(4)	22	26	
	SD	(5)	1	1	

My agency maintains a web-site that citizens can access to obtain public information.	SA	(1)	3	4	3.41	1.08
	A	(2)	21	25		
	DK	(3)	8	9		
	D	(4)	44	52		
	SD	(5)	9	11		

n = 85. Note: SA = strongly agree; A = agree; DK = don't know; D = disagree; SD = strongly disagree. Percentages rounded to the nearest whole number.

Another area of information sharing that may prove helpful to Kansas Sheriffs is the development of internet Web sites by their agencies. Establishing an internet presence is likely to better inform and educate the public, increase individual awareness levels, and provide realistic instructions for citizens to follow should a bioterrorism event occur.

Training is one of the more important areas of interest in determining the level of readiness of law enforcement to respond to acts of bioterrorism. The survey consisted of more statements about training than any other variable. Table 8 shows that responses were mixed with regard to the four statements pertaining to training. Sixty-seven percent of the respondents agreed that their agency received training on the subject of non-conventional weapons such as chemical or biological agents. A little more than half of the Sheriffs (51%) reported that their officers have been trained to recognize and respond to weapons of mass destruction. When asked to respond to emergency management training, 80% of the Sheriffs reported that their agency participated in this type of training, and 62% reported that their agency participated in field exercises to evaluate tactical emergency management training.

These results indicate that most sheriff agencies participated in emergency management training. Also, with the exception of the northeast region of the state, most sheriffs participated in training on the subject of non-conventional weapons such as chemical or biological agents. Only about one-half of the sheriff agencies in the northeast region received such training. On the

matter of WMD training, only one-half of all sheriff agencies have received training in the recognition of and response to weapons of mass destruction. Moreover, written policy or directives for responding to a WMD event are virtually nonexistent.

Sheriffs should continue to pursue opportunities to engage in practical exercises and training in as realistic an environment as possible. Doing so will allow sheriffs to evaluate existing policy and procedures in real-time, thereby enhancing first responder capability.

Table 8 - Response Ratings for Statements Relating to Training

Variable Category	Measurement/Value Code		Frequency	Percent	Mean	Standard Deviation
<i>Training</i>						
My agency has received training on the subject of non-conventional weapons such as chemical or biological agents.	SA	(1)	6	7	2.58	1.03
	A	(2)	51	60		
	DK	(3)	4	5		
	D	(4)	22	26		
	SD	(5)	2	2		
My agency participates in tactical emergency management training.	SA	(1)	8	9	2.32	0.95
	A	(2)	60	71		
	DK	(3)	2	2		
	D	(4)	12	14		
	SD	(5)	3	4		
My agency has participated in field exercises to evaluate tactical emergency training.	SA	(1)	7	8	2.71	1.16
	A	(2)	46	54		
	DK	(3)	3	4		
	D	(4)	23	27		
	SD	(5)	6	7		
The commissioned officers in my agency have been trained in the recognition of and response to WMD events.	SA	(1)	5	6	2.91	1.12
	A	(2)	38	45		
	DK	(3)	4	5		
	D	(4)	35	41		
	SD	(5)	3	4		

n = 85. Note: SA = strongly agree; A = agree; DK = don't know; D = disagree; SD = strongly disagree. Percentages rounded to the nearest whole number.

Data also show mixed findings when respondents considered investigation. Seventy percent of the respondents thought their agency was prepared to conduct a criminal investigation should a bioterrorism attack occur. Even though the results indicate that a KBI agent is not located in most counties, sheriffs were generally confident that in the event of a bioterrorism attack their agency was prepared to conduct a criminal investigation. Only 41%, however, responded that their agency has seen an increase in computer crimes. Data findings here are important in respect that terrorist activities involve illegal computer operations (i.e. cyber-terrorism).

Table 9 - Response Ratings for Statements Relating to Investigation

Variable Category	Measurement/Value Code	Frequency	Percent	Mean	Standard Deviation
<i>Investigation</i>					
In the event of a bioterrorism attack, my agency is prepared to conduct a criminal investigation.	SA (1)	7	8	2.42	0.93
	A (2)	53	62		
	DK (3)	8	9		
	D (4)	16	19		
	SD (5)	1	1		
My agency has seen an increase in the number of crimes involving computers.	SA (1)	13	15	2.78	1.22
	A (2)	31	36		
	DK (3)	7	8		
	D (4)	30	35		
	SD (5)	4	5		

n = 85. Note: SA = Strongly Agree; A = Agree; DK = Don't Know; D = Disagree; SD = Strongly Disagree. Percentages rounded to the nearest whole number.

Respondents' ratings were lowest when addressing statements that pertained to policy and procedure, knowledge, and resources. Many of the Kansas sheriff agencies are not familiar with the Kansas Foreign Animal Disease (FAD) Plan and most do not have written policy and procedure that coexist with the FAD plan. More collaboration needs to exist between Kansas Sheriffs and the Kansas Animal Health Department to ensure that state regulations are

understood and law enforcement agencies have clear and concisely written policies and procedures to follow in the event of a bioterrorism attack on the livestock industry. Policy and procedure as well as training that address WMD need attention.

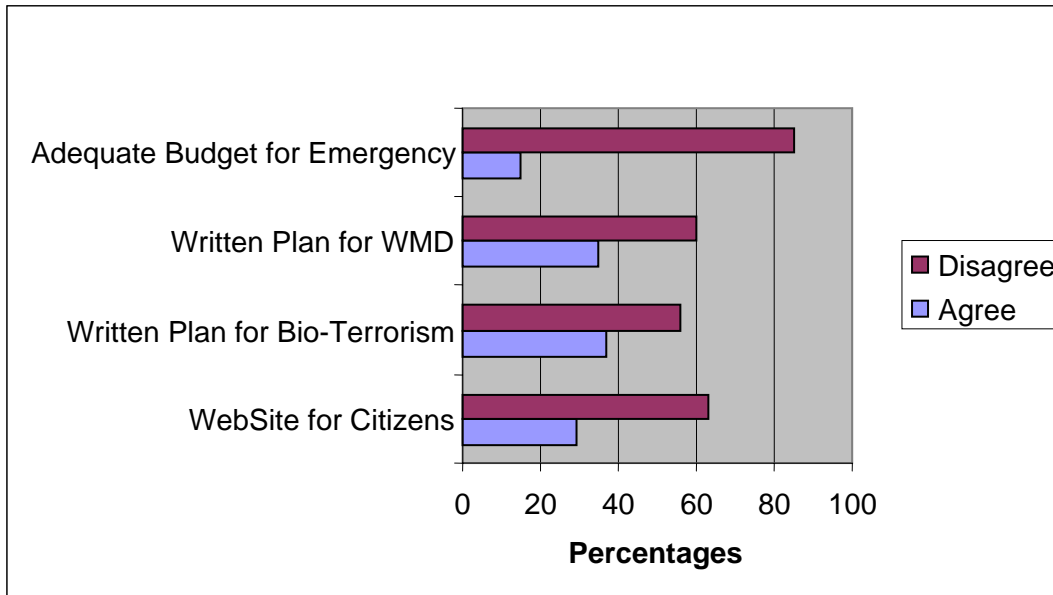
Table 10 - Response Ratings for Statements Relating to Policy, Knowledge, and Resources

Variable Category	Measurement/ Value Code	Frequency	Percent	Mean	Standard Deviation
<i>Police & Procedure</i>					
In the event of a bioterrorism attack, my agency has written plans to assist with the quarantine, movement & disinfecting of livestock.	SA (1)	7	8	3.20	1.21
	A (2)	25	29		
	DK (3)	6	7		
	D (4)	38	45		
	SD (5)	9	11		
My agency has written policy or directives for responding to a WMD event.	SA (1)	3	4	3.27	1.06
	A (2)	26	31		
	DK (3)	5	6		
	D (4)	47	55		
	SD (5)	4	5		
<i>Knowledge</i>					
My agency is deeply concerned about the threat of bioterrorism industry.	SA (1)	17	20	2.07	0.78
	DK (3)	11	13		
	D (4)	6	7		
	SD (5)	0	0		
My agency personnel are familiar with the Kansas Emergency Plan for Foreign Animal Disease (F.A.D.)	SA (1)	4	5	2.95	1.06
	A (2)	34	40		
	DK (3)	12	14		
	D (4)	32	38		
	SD (5)	3	4		
<i>Resources</i>					
My agency's budget includes funds to be available in the event of a major disaster or emergency.	SA (1)	3	4	4.13	1.10
	A (2)	9	11		
	DK (3)	2	2		
	D (4)	32	38		
	SD (5)	40	47		

n = 85. Note: SA = strongly agree; A = agree; DK = don't know; D = disagree; SD = strongly disagree. Percentages rounded to the nearest whole number.

Results in Table 10 show that while 80% of the Sheriffs reported concern about the threat of bioterrorism and security of the livestock industry, only 45% of the Sheriffs agreed that their agency's personnel are familiar with the Kansas emergency plan for Foreign Animal Disease.

Figure 9 - Graph of selected sheriff responses



Also, when asked about a written plan to assist with the quarantine, movement control, and cleansing of affected livestock, only 37% of the Sheriffs agreed that their agency has such a plan. Likewise, only 35% of the respondents agreed that their agency has a written policy for responding to a WMD event. Finally, only 12% of the Sheriffs reported that their agency's budget included funds to be available in the event of a major disaster or emergency (Mean = 4.13, SD = 1.10). Figure 9 presents a line graph of the state-wide responses by Sheriffs regarding budget, written plans, knowledge of the F.A.D. Plan, and concern about the threat of bioterrorism.

These results clearly show that, local funding for sheriff agencies in Kansas to respond to a major disaster or emergency is virtually nonexistent. It's possible that law enforcement agencies cope with the financial obligation attached to catastrophic events by reallocating resources within existing budgets and heavy reliance on anticipated disaster relief funding from Federal sources.

Kansas sheriff agencies may consider addressing their needs by drawing from a number of sources, including direct appropriations from State and local legislatures, Federal grants, foundation grants, in-kind efforts and private sector partnerships. A good source for Sheriffs to pursue funding is grant programs administered by the Office of Justice Programs (OJP) in the U.S. Department of Justice. OJP resources that can be used by local jurisdictions to prepare and respond to domestic terrorism are available primarily through four OJP components: the Office for Domestic Preparedness (ODP), the Bureau of Justice Assistance (BJA), the National Institute of Justice (NIJ), and the Office for Victims of Crime (OVC).

Cross tabulations were conducted to determine whether geographical location influenced the Sheriffs' ratings. As noted earlier, all returned surveys were separated into four regions to allow for a comparative analysis of the data. Rating scores were recoded by combining "strongly agree" with "agree" and "disagree" with "strongly disagree." Pearson's Chi-Square was then applied to test the statistical significance of the relationship between variables.

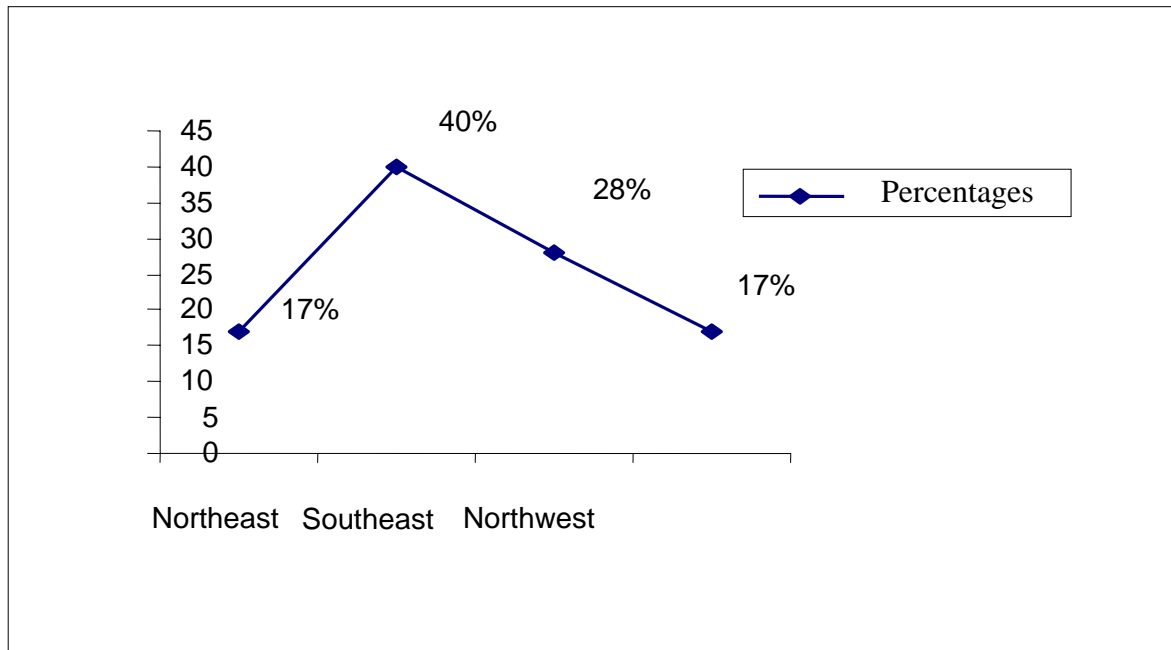
Generally, Sheriffs' responses were consistent no matter the geographical location. However, a few exceptions are worth noting. First, communications was significant in the context of statement 15 of the questionnaire. Most Sheriffs (57%) in the northeast region of Kansas responded that their agencies maintain a web-site that citizens can access to gain public information. In comparison, only 17 % of the Sheriffs in the northwest region, 16% of Sheriffs in

the southwest region, and 17% of the Sheriffs in the southeast region maintain such a Web site ($\chi^2 = 14.12, p < 0.01$).

Another important finding was the differences in regional responses when Sheriffs were asked if their agency personnel were familiar with the Kansas Emergency Plan for Foreign Animal Disease (F.A.D.) Sixty-two percent of the Sheriffs in the northwest and 56% of the Sheriffs in the southwest region of Kansas responded that their personnel were familiar as compared to only 34% of the Sheriffs in the northeast and 30% of the Sheriffs in the southeast regions. While statistically not significant, the data suggests that sheriff agencies in the western regions of the state are more familiar with the Kansas Emergency Plan for Foreign Animal Disease.

An analysis of the data with regard to using the Kansas Law Enforcement Intelligence Network (KsLEIN) yielded some interesting results. Nearly 40% (9 of 23) of the Sheriffs in the southeast region reported that their agencies were not certified to use KsLEIN. In comparison, only 17 % of the Sheriffs in the southwest and northeast regions and 28% of the Sheriffs in the northwest region responded that their agencies were not certified to use this law enforcement intelligence system. Figure 16 provides a visual presentation of the number of Sheriffs (by region) that responded negatively to statement 17 of the survey.

Figure 10 - Sheriff agencies not certified to use KsLEIN



Cross tabulations were also conducted to see whether size of the agency influenced the Sheriffs' responses. Significant findings were noted when comparisons were made between the 7 large agencies and 78 small and medium agencies. First, 83 % of Sheriffs from large agencies reported that they maintain a Web site that citizens can access to gain public information. In comparison, only 27 % of all other Sheriffs' agencies maintain such a Web site ($\chi^2 = 8.25, p < 0.01$).

Investigation was significant with respect to responses made to statement 20 of the questionnaire. All of the Sheriffs from large agencies responded that they have seen an increase in the number of crimes involving computers. Only one-half of the Sheriffs from the small and medium sized agencies reported increases ($\chi^2 = 5.94, p < 0.25$).

Finally, the variable of policy and procedure was significant in the context of statement 25 of the survey. More than 70% of the Sheriffs from large agencies reported that their agencies

have a written policy or directive for responding to a WMD event. In comparison, only 33 % of all other Sheriffs have WMD policies or directives ($\chi^2 = 4.10, p < 0.05$).

Survey of Livestock Industry. Below is a discussion of survey methodology and survey results.

Methodology. This section of the report gives a detailed explanation of the methods that were used to collect and analyze data gathered from persons working in the livestock industry in Kansas, Oklahoma, and Texas. It includes a description of the design and procedures, sample, and data analysis plan.

Design and procedures: The data for this study is drawn from self-administered, mailed surveys. A 15-item questionnaire was developed using information provided by cattle producers, livestock feed yard managers, meat processing plant managers, veterinarians, and other animal health services personnel in the Ford County, Kansas area. These persons had previously been involved in focus group discussions about potential threats to the cattle industry.

The questionnaire contained structured and open-ended statements and questions designed to assess the attitudes of respondents with regard to vulnerabilities, prevention strategies, and working relationships with public officials and other livestock industry affiliates. Statements 1-6 were designed to solicit respondents' opinions and knowledge about workplace security, policy development, practice, training, and relationship with law enforcement. Statements 7-11 allowed for respondents to rank order responses that addressed the variables of workplace security, threat awareness, responsibility for prevention, and reporting. Finally, survey items 12-15 asked respondents to provide a commentary answer to questions pertaining to technologies, information sharing, practice, and partnerships. A variables list was constructed after the original draft of the questionnaire to ensure proper coverage of the items and non-

duplication of statements. Figure 11 provides the variables list and corresponding survey statements.

Figure 11 - Variable list and questionnaire statements

Variable list and questionnaire statements			
Vulnerabilities			
* Workplace Security/Threat	Statements		1, 7, 9
Prevention Strategies			
* Written Policy	Statement		3
* Practice	Statements		4, 14
* Training	Statements		5, 6
* Awareness and Reporting	Statements		8, 10, 11
* Technologies	Statement		12
* Information Sharing	Statement		13
Working Relationships			
* Partnerships	Statements		2, 15

The questionnaire was pre-tested to determine strengths and weaknesses of the survey format. Five members of the livestock industry were administered the survey without instruction. Upon completion of the survey, the participants were asked to explain their reactions to question form, wording, and order. As a result of their comments, one question was re-written. The surveys used in the pretest were excluded from the results.

Sample: Contact was made with the Kansas Cattlemen's Association (KCA), Kansas Livestock Association (KLA), Oklahoma Cattlemen's Association (OCA), Texas and Southwestern Cattle Raisers Association (TSCRA) and Nebraska Livestock Association (NLA) to assist with the distribution of the survey to their membership. The sampling frame was designed to reach 500 persons involved with the livestock industry in the largest cattle-producing states in the country. However, the Nebraska Livestock Association declined to participate in the

survey. Therefore, a total of 400 surveys were mailed. Table 4.8 provides a brief description of the livestock agencies that administered the surveys.

Table 11 - Description of Livestock Associations

Livestock Association	Membership	Mailed/Returned
Kansas Cattlemen's Association	6500 Members	100 / 41
Kansas Livestock Association	6000 Members	100 / 42
Oklahoma Cattlemen's Association	4000 Members	100 / 29
Texas and Southwestern Cattle Raisers Association	10000+Members	100 / 17

n = 129

A cover letter and self-addressed, stamped envelope accompanied the questionnaire (see appendices for a copy of cover letter and questionnaire). A total of 140 surveys were returned within one month; however, 11 questionnaires were deemed unusable. Therefore, 129 total surveys were used in the data analysis, which accounts for a 33 % return rate. No second mailing occurred.

Analysis: Descriptive statistics were used to analyze data from the livestock surveys. A Likert-type scale was established for the structured statements, and data were coded to standardize response categories whenever possible. Content analysis was applied to the responses of the open-ended questions. To reduce the number of different responses and to make comparisons easier, we categorized the responses making certain that response categories were not over-simplified during coding.

In the results section, we describe the overall findings of the survey responses. Emphasis is given to presenting the overall, combined responses from all of the livestock associations. Graphic displays, accompanied by an explanation of the results for each variable tested, are used

to present data. We also present the findings from cross-tabulation analyses that compare the results against the respondents' affiliation with a particular livestock association. The objective here is to report differences in attitudes about bioterrorism that may exist between KCA, KLA, OSC, and TSCRA. Lastly, we combined data KLA and KCA so that comparisons could be drawn between responses from Kansas, Oklahoma, and Texas.

Results and Discussion. An initial objective of the survey was to gather data about the respondents' attitudes toward vulnerabilities at the workplace. The results of the survey indicate that vulnerability at the workplace is not a concern to the livestock industry. Most of the respondents were satisfied with security at their workplaces, even though a vast majority of the workplaces did not have written policy for responding to an agroterrorism event. Moreover, respondents were not interested in receiving assistance with the development of such a policy.

Table 12 provides the findings for statements that measured the attitude of respondents about workplace security and threat. Respondents generally rated the current state of security at the workplace as sufficient. Fifty-five percent reported that security was adequate and 6 % replied more than adequate.

Table 12 - Responses to Statements Relating to Workplace Security

When I think about biosecurity concerns, I would assess the current state of security at my workplace as:

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
Less Than Adequate:	14 (34%)	16 (38%)	9 (31%)	6 (35%)	34%
Adequate:	23 (56%)	23 (55%)	17 (59%)	8 (47%)	55%
More Than Adequate:	1 (2%)	3 (7%)	2 (7%)	3 (18%)	6%
No Answer:	3 (7%)	0 (0%)	1 (3%)	0 (0%)	3%

At my workplace, I am concerned that an act of agroterrorism has the potential to be carried out by: [Mean scores for rank ordered responses from most concern (1) to least concern (5)]

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
*the introduction of a diseased animal.	2	2	2	2	2
*an act of sabotage by a disgruntled employee.	3	4	4	3	3.5
*the introduction of toxic feed or other materials.	2	2	2	2	2
*an international terrorist group like Al-Qaeda.	3	4	3	3	3.25
*domestic extremist groups like Posse Comitatus, Animal Rights Group, etc.	2	3	2	3	2.5

In the event of an agroterrorism event at my workplace I am concerned with: [Mean scores for rank ordered responses from most concern (1) to least concern (5)]

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	
<u>COMBINED</u>					
* workplace safety	2	2	2	2	2.0
* limiting production	3	3	3	2	2.75
* the adverse affect on the community	2	2	2	3	2.25
* the negative economic impact	2	2	2	2	2.0
* the inventory	2	3	3	3	2.75

KCA (n= 41); KLA (n= 42); OCA (n= 29); TSCRA (n=17); COMBINED (n=129)

When asked to rank order responses that relate to the potential of an act of agroterrorism being carried out at the workplace, respondents reported that they were most concerned with the introduction of a diseased animal and toxic feed or other material ($\bar{x} = 2.0$). Respondents were equally concerned with the negative economic impact of an agroterrorism event as well as workplace safety ($\bar{x} = 2.0$). In contrast, when respondents considered an agroterrorism event at the workplace, they were least concerned with the adverse effect on the community and inventory ($\bar{x} = 2.75$).

The questionnaire contained several statements that sought to obtain information regarding respondents' attitudes about prevention strategies. Table 13 provides descriptive statistics for responses to statements that addressed written policy and practice. Data suggest that the majority (88%) of the respondents' workplaces did not have a written policy for responding to an agroterrorism event. Moreover, when asked if they would like to have assistance with the development of a policy, only 23% responded favorably.

When asked if problems tracing animal origin are a major inhibitor to the prevention of agroterrorism, the overall findings were mixed. Forty-one percent thought it an inhibitor while 42% responded either negatively or didn't know. Data showed, however, that members of TSCRA were most concerned about problems that arise when tracing animal origin. Eighty-two percent of the TSCRA felt that problems tracing animal origin were a major inhibitor to prevention while the others rated it lower (KCA 49%, KLA 55% and OSC 55%). In the other area of practice, only 28% of the respondents thought that law enforcement should take a more active role in patrolling workplaces associated with the livestock industry.

Table 13 - Responses to Statements Relating to Written Policy and Practice

My workplace has a written policy or directive for responding to an agroterrorism event.

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	
<u>COMBINED</u>					
True:	2 (5%)	7 (17%)	2 (7%)	0 (0%)	8%
False:	38 (93%)	35 (83%)	25 (86%)	15 (88%)	88%
No Answer/Don't Know:	1 (2%)	0 (0%)	2 (7%)	2 (12%)	4%

* If not, would you like to have assistance in developing a policy?

Yes:	14 (37%)	9 (26%)	5 (20%)	2 (13%)	23%
No:	14 (37%)	15 (43%)	14 (56%)	9 (60%)	40%
No Answer:	10 (26%)	11 (31%)	6 (24%)	4 (27%)	31%

Problems that arise when tracing animal origin are a major inhibitor to the prevention of agroterrorism.

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	
<u>COMBINED</u>					
True:	20 (49%)	23 (55%)	16 (55%)	14 (82%)	41%
False:	16 (39%)	19 (45%)	11 (38%)	2 (12%)	37%
No Answer/Don't Know:	5 (12%)	0 (0%)	2 (7%)	1 (6%)	5%

Do you think that local law enforcement should take a more active role in patrolling your workplace? Why or why not?

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	
<u>COMBINED</u>					
Yes	8 (19%)	15 (33%)	7 (21%)	8 (47%)	38 (28%)
No	31(72%)	24 (53%)	19 (59%)	7 (41%)	78 (57%)
No Answer/Don't Know	4 (9%)	6 (13%)	6 (19%)	2 (12%)	18 (13%)

KCA (n= 41); KLA (n= 42); OCA (n= 29); TSCRA (n=17); COMBINED (n=129)

Emergency preparedness training is an integral component of any prevention strategy, especially a strategy that seeks to contain an act of terrorism. Therefore, two items on the survey measured the extent to which persons working in the livestock industry have received such training. Again, responses were not favorable. Data showed that most (94%) respondents

received little to no training on biosecurity preparedness. As evidenced in Table 14, only 5% of the respondents have participated in simulation exercises.

Most of the respondents ranked law enforcement as the group responsible for the prevention of agroterrorism. They also reported that if an agroterrorism attack were suspected they would

Table 14 - Level of Training Received by Personnel in the Livestock Industry

Within the past 12 months, employees at my workplace have received an average of _____ training hours on biosecurity measures/preparedness.

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
0:	35 (85%)	32 (76%)	25 (86%)	15 (88%)	83%
1-2:	1 (2%)	7 (17%)	2 (7%)	1 (6%)	8%
3-5:	1 (2%)	2 (5%)	0 (0%)	1 (6%)	3%
5-10:	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0%
>10:	1 (2%)	1 (2%)	0 (0%)	0 (0%)	1%
NO ANSWER:	3 (7%)	0 (0%)	2 (7%)	0 (0%)	4%

I have participated in agroterrorism simulation exercises with local emergency responders.

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
True:	2 (5%)	4 (10%)	0 (0%)	0 (0%)	5%
False:	36 (88%)	38 (90%)	29 (100%)	17 (100%)	93%
No Answer:	3 (7%)	0 (0%)	0 (0%)	0 (0%)	2%

KCA (n= 41); KLA (n= 42); OCA (n= 29); TSCRA (n=17); COMBINED (n=129)

notify law enforcement before they notified the local veterinarian. Table 15 provides the findings for statements that measured the attitudes of respondents with regard to awareness and reporting. While data suggest that law enforcement is perceived to be the group that has the most responsibility for prevention (\bar{x} = 1.75), veterinarians were ranked as the least responsible for prevention (\bar{x} = 3.0). When asked who are most likely to notice a potential threat at the workplace, respondents made no distinction among line workers, supervisors, guards, and

administrators (\bar{x} = 1.0). The findings also indicated that if an agroterrorism act were suspected most would notify law enforcement (\bar{x} = 1.25) first, followed by the local veterinarian (\bar{x} = 2.0).

Table 15 - Respondents' Attitudes Toward Awareness and Reporting of Suspected Agroterrorism

The group that has responsibility for the prevention of agroterrorism is: [Mean scores for rank ordered responses from most responsible (1) to least responsible (5)]

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
* Veterinarians	3	3	3	3	3.0
* Law Enforcement	2	2	2	1	1.75
* Producers	2	2	3	3	2.5
* Feed Yard Managers	2	3	3	2	2.25
* Processors/Packers	3	3	3	2	2.75

At my workplace, it is likely that the person/group to notice that a potential agroterrorism threat exists is: [Mean scores for rank ordered responses from first to notice (1) to last to notice (5)].

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
*line workers.	1	1	1	1	1.0
*supervisors.	1	1	1	1	1.0
*administrative personnel.	1	1	1	1	1.0
* guard force.	1	1	1	1	1.0
* veterinarian.	2	2	1	2	1.75

If an agroterrorism attack were suspected I would notify: [Mean scores for rank ordered responses from notify first (1) to notify last (5)]

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
* Law Enforcement	1	1	1	2	1.25
* County Extension Agent	4	4	4	3	3.75
* USDA	3	3	3	3	3.0
* Local Veterinarian	2	2	2	2	2.0
* Other Agricultural Industry Persons (Peers)	3	3	3	3	3.0

Technologies and information sharing were the last items on the survey to address prevention. Data provided in Table 16 show that only 38% of the respondents agreed that surveillance equipment, alarm systems, and electronic detection devices for biological agents helped to deter agroterrorism. Similarly, 38% thought technologies would not help deter acts of agroterrorism.

Table 16 - Use of Technologies to Deter Agroterrorism

It has been suggested that technologies (e.g. surveillance equipment, alarm systems, electronic detection devices for biological agents, etc.) would help deter acts of agroterrorism. Would you agree?

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
* Agree	24 (54%)	12 (28%)	9 (29%)	6 (35%)	51 (38%)
* Disagree	13 (29%)	22 (51%)	13 (42%)	3 (35%)	51 (38%)
* No Answer/ Don't Know	7 (16%)	9 (21%)	9 (29%)	5 (29%)	30 (22%)

Have measures been taken at your workplace to install such equipment?

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
* No Measures	17 (47%)	16 (39%)	17 (51%)	7 (41%)	57 (45%)
* No Answer/ Don't Know	18 (50%)	24 (58%)	15 (45%)	10 (59%)	67 (52%)
* Alarm System/ Surveillance	1 (2%)	0	1 (3%)	0	2 (1%)
* Security/ Watchman	0	1 (2%)	0	0	1 (1%)

In your opinion, what's the best way to disseminate information to the public, media, producers, processors and the transportation industry should an agroterrorism threat exist?

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
* Radio/TV/Newspaper	49 (57%)	40 (42%)	34 (50%)	9 (29%)	132 (47%)
* Police/Emergency Broadcast System	13 (15%)	7 (7%)	7 (10%)	3 (9%)	30 (10%)
* No Answer/Don't Know	5 (5%)	2 (2%)	7 (10%)	7 (22%)	21 (7%)
* Other (Email, USDA/NCBA, Civil Defense, Veterinarian)	18 (21%)	46 (48%)	20 (29%)	12(38%)	96 (34%)

When comparisons were made based upon livestock association membership, agreement was significant. Fifty-four percent of the respondents affiliated with KCA agreed that technologies would help deter agroterrorism. In contrast, only 28% of KLA, 29% of OCA, and 35 % of TSCRA respondents agreed that technologies could help deter agroterrorism ($\chi^2 = 7.93$, $p < .05$). A follow up question asked respondents if measures had been taken to install such equipment at the workplace. Response data suggested that only 2% of the respondents' workplaces had such security equipment in place.

Respondents were asked to describe the best way to disseminate information to the public. Overall, most (47%) responded with the answer of radio and television. Only 10% of the responses included a reference to police or the emergency broadcast system. Thirty-four percent of the survey participants provided other responses such as email and notice by local veterinarian. Responses from KLA members were significant with regard to this "other" category. Forty-eight percent of KLA responses were described as "other". In comparison, only 21% of KCA, 29% of OCA, and 38% of TSCRA members provided other methods to disseminate information to the public ($\chi^2 = 16.53$, $p < .25$).

The questionnaire contained two statements that measured respondents' attitudes toward community partnerships. Table 17 provides data regarding working relationships with local law enforcement and the formation of ad-hoc groups. Overall, respondents indicated that the relationship between the ag-industry and local law enforcement was positive. Sixty-six percent of all respondents assessed the relationship as good and 20% rated the relationship as excellent. KCA members were most likely (22%) to assess the relationship between the ag-industry and law enforcement as poor. When the response categories of good and excellent are collapsed and compared to poor, the findings are significant ($\chi^2 = 9.25$, $p < .05$).

When asked about developing local ad-hoc groups between public officials and private ag-industry personnel, results were mixed. Fifty-one percent responded that such relationships were possible. Conversely, 32% responded that these relationship were not feasible and 18% did not answer or didn't know.

Table 17 - Community Partnerships

I would assess the relationship between the ag-industry and local law enforcement as:

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
POOR:	9 (22%)	2 (5%)	1 (3%)	3 (18%)	11%
GOOD:	22 (54%)	33 (79%)	20 (69%)	11 (65%)	66%
EXCELLENT:	8 (20%)	7 (17%)	8 (28%)	3 (18%)	20%
NO ANSWER:	2 (5%)	0 (0%)	0 (0%)	0 (0%)	1%

Developing local ad-hoc groups comprised of public officials and private industry personnel has been identified as a possible way to help prevent agroterrorism. Is it feasible to develop such groups where you operate your business?

	<u>KCA</u>	<u>KLA</u>	<u>OCA</u>	<u>TSCRA</u>	<u>COMBINED</u>
Yes	22 (53%)	24 (57%)	11 (38%)	9 (53%)	66 (51%)
No	14 (34%)	15 (36%)	8 (28%)	4 (24%)	41 (32%)
No Answer/Don't Know	5 (13%)	3 (6%)	10 (34%)	4 (23%)	22 (17%)

KCA (n= 41); KLA (n= 42); OCA (n= 29); TSCRA (n=17); COMBINED (n=129)

Overview of Simulation Exercises

An important source of data collection for this research project was the use of simulation exercises. These field exercises gave researchers an opportunity to better understand the effectiveness and the shortcomings of emergency policies and procedures, and to grasp the complexities of a terrorist event. The exercises also provided participants with an opportunity to test their skills and capabilities in a simulated emergency scenario that creates stress in a realistic situation. In the case of the simulated agroterrorism event, first responders are required to work closely with industry professionals to identify technological and procedural flaws that could hamper an actual response. Additionally, the problems that first responders deem insurmountable

may be resolved easily by the industry or vice-versa. When developed and conducted effectively, these field exercises provide participants with the necessary knowledge to plan for emergency situations. Likewise, they provide first responders with an opportunity to relate to peers and industry professionals.

Two simulation exercises were developed, conducted, and evaluated in this research project. The first, *Sudden Impact*, took place in Dodge City, Kansas, on January 20, 2004. The purpose of this exercise was to assess the response capability of law enforcement, public health, emergency management, and others, by testing the formal emergency response plan that had been developed by the Ford County FAD sub-committee. The FAD Response Plan serves as a model for Kansas.

The sub-committee partners local government and key representatives from the livestock industry. This partnership incorporates expertise from all disciplines including veterinarians, feed-yard managers, ranchers, transportation experts, animal health professionals, meat processors, law enforcement, and other first response agencies. The end result is a diverse team in combating the threat of agroterrorism in western Kansas.

Based on the findings of *Sudden Impact*, a second exercise, code-named *Endangered Species*, was developed to test law enforcement's capacity to receive and analyze threat information and take preventive action. Since public events are likely targets of terrorism, a scenario was designed that called for participants to identify and prevent a terrorist threat at a state fair. The dire consequences of the first exercise shaped a second exercise to measure law enforcement's capacity to prevent an act of terrorism. *Preventative* measures were designed to reduce the potential economic impact to the community and to eliminate the need for resources required for an emergency response.

Through these two simulation exercises, the research team collected meaningful data concerning the capability to *respond* to an act of agroterrorism, and the capacity to *prevent* an act of agroterrorism. When it comes to any act of terrorism, the emphasis should be on prevention rather than response. Findings and recommendations for each of these exercises are detailed in the following summaries.

Simulation exercise: *Sudden Impact*. Due to the strong agriculture demographics in western Kansas, officials in Ford County made emergency preparedness a priority and developed a dynamic response plan to protect citizens from an agroterrorism attack, specifically an intentionally-introduced foreign animal disease (FAD). As of January 1, 2004, Ford County's livestock inventory was valued at \$142.4 million, according to the USDA. The annual gross cash receipts for Kansas livestock industry are \$6.4 billion. An act of agroterrorism, particularly an outbreak of foot-and-mouth disease, would decimate the economic foundation of Ford County.

As a means of testing its FAD Response Plan, Ford County conducted an advance level simulation exercise on January 29, 2004, in Dodge City Kansas. This simulation exercise, *Sudden Impact*, was evaluated by three academic researchers who are experienced in this particular method of field testing.

Exercise objectives. The exercise included the following objectives.

1. Identify issues evolving from a zoonotic foreign animal disease, a genetically-engineered variant of Vesicular Stomatitis (VSv)
2. Assess the effectiveness of public health quarantines resulting from an outbreak of VSv
3. Identify conflict issues for local, state, and federal law enforcement.
4. Observe changes/improvements in the communication and coordination of agencies in emergency operations center (EOC) from the previous exercise

Exercise scenario. A college dropout finds employment at a livestock auction in Dodge City Kansas where he becomes increasingly sympathetic to the large volume of cattle being sold and slaughtered. He becomes an active member of an animal rights group called POPIA (Peoples Organization for Protecting Innocent Animals) and begins planning an event to stop the slaughter of cattle. His plan involves the intentional introduction of a foreign animal disease, Vsv, into a small herd of cattle in Ford County, and then the selling of these animals to further spread the FAD. As a zoonotic disease, Vsv can be spread to the human population from contact with cattle and may be spread among humans by person-to-person contact. This disease can be fatal to those with compromised immune systems, such as infants or the elderly. In cattle, VSv presents symptoms associated with FMD.

In this exercise, the disease spread from the cattle to humans resulting in sickness and death. Quarantines, both for animals and for humans, were required in order to contain and eradicate the disease. Law enforcement was faced with a number of conflict issues related to public and animal quarantines, and the challenge of conducting a criminal investigation to determine potential suspects. The exercise concluded with the collection of evidence at several crime scenes and the arrest of the primary suspect in this case.

Findings and recommendations. During the simulation exercise, several observations were noted by the evaluators. An After-Action-Report was written that included the following findings and recommendations:

1. Representatives of the media must be included in preparedness planning and become members of the emergency planning committee.
2. As a proactive public education measure, a Web site should be established to provide the public with current FAD information, quarantine procedures, and updates from the livestock commissioner.

3. A criminal intelligence database for local law enforcement should be established in order to identify suspects, assess suspicious activity, and organizations that pose an agroterrorism threat.
4. Regional Response Teams, consisting of the expertise of field veterinarians and criminal investigators, should be established in order to deal with the complexities of FAD outbreak, particularly the processing of crime scenes.
5. Lessons learned from *Sudden Impact* should be widely disseminated to law enforcement, animal health, and public health officials.
6. Recommendations of *Sudden Impact* should be incorporated into the overall findings of the NIJ research project on agroterrorism.

Simulation exercise: *Endangered Species*. If *Sudden Impact* emphasized response, *Endangered Species* focused on prevention. This second simulation exercise was conducted in Hutchinson, Kansas, on October 6, 2004, to examine law enforcement's capacity to prevent the introduction of a foreign animal disease at a major public event, such as the annual state fair.

Through proactive measures, intelligence databanks and analytical centers are now in place to track suspects, protest groups, and suspicious activities to alert local authorities to potential threats of agroterrorism. The purpose of this network is to provide law enforcement officers with advanced warning so that they can take proper action in dealing with threats, including acts of agroterrorism.

Prevention of any FAD is based on law enforcement's ability to analyze a series of seemingly unrelated suspicious events, link these separate events, and correctly disseminate threat intelligence to the Joint Terrorism Task Force (JTTF) for appropriate action. To facilitate the development of law enforcement intelligence and its rapid dissemination to all police agencies, a computerized network has been implemented at the state and federal levels. This intelligence network includes the following systems:

- State: **KsLEIN** -- Kansas Law Enforcement Intelligence Network

KsTIC -- Kansas Threat Integration Center

- Federal: **TSC** -- Terrorist Screening Center

TTIC -- Terrorist Threat Integration Center.

In this exercise, a series of events required local, State, and Federal law enforcement agencies to closely coordinate their efforts to identify the suspects, detect their criminal intent, and implement a prevention strategy. One hundred and seven individuals, representing forty-seven different agencies from three states, participated in exercise *Endangered Species*. One of the secondary goals of this simulation exercise was to further develop the partnerships between law enforcement, animal health, emergency management, and public health.

Exercise objectives. The exercise included the following objectives.

1. Measure law enforcement's capacity to receive, refine, and report intelligence data;
2. Measure law enforcement's capacity to respond to early warning signs that indicate the presence of a serious threat;
3. Identify weaknesses in the intelligence network that is designed to analyze criminal information, link suspicious activities, and disseminate a potential threat to law enforcement for appropriate action; and
4. Strengthen law enforcement's awareness and response to early warning signs of an emerging threat for the purpose of safeguarding targets.

Exercise scenario. A 24-year-old male suspect with extremist views and linked to an international terrorist organization attempts to disrupt the upcoming national election with the intentional introduction of a FAD at a public event (state fair). The scenario centers on a series of suspicious activities that take place in Texas, Missouri, Oklahoma, and Kansas, which have been linked by analysts to one suspect. As events unfold, the participants are challenged to identify potential threats and place safeguards at targeted events.

Findings and recommendations. During the simulation exercise, several observations were noted by the evaluators. An After-Action-Report was written that included the following findings and recommendations:

1. Clear communication is the key to the successful resolution of any multi-agency crisis, and this exercise was no exception. Confusion arose throughout the exercise with the lack of understanding and misinterpretation of terms, acronyms, and language usage by the various agencies.
2. Rumors, half truths, and speculation must be eliminated at the outset of any crisis. Disruption at a public event has great potential for causing panic and over-reaction by the public. Agencies must understand and address crisis communication.
3. Law enforcement should develop partnerships with the media to develop proactive techniques to effectively manage public information when a threat of terrorism.
4. A common dictionary for terms and acronyms should be developed and published for the benefit of first-responding agencies.
5. The communication gap between agriculture and law enforcement should be closed to promote information sharing, reporting of suspicious activity, and understanding the role of law enforcement in preventing agroterrorism.
6. More education is needed for local law enforcement to understand and utilize state and federal computerized databanks such as KsLEIN, KsTIC, TSC, and TTIC.
7. All levels of law enforcement must make a commitment to the aggressive recruitment of human intelligence sources to prevent criminal acts, including agroterrorism.

Livestock Traffic Movement in Kansas

Overview. Agromovement is defined as the continuous, cyclical movement of farm-to-fork food product, including all aspects of cattle transportation and the processing and distribution of beef throughout the world. (Lane, 2002). If strategies are to be developed to prevent agroterrorism, the patterns of livestock movement that occur during agromovement need to be understood. To that end, one of the objectives of this research project was to obtain a rudimentary snapshot of the traffic flow of cattle trucks in Kansas. Our purpose was to better

understand the extent to which an outbreak of foreign animal disease would interrupt the normal movement of livestock.

Methodology. To understand the amount of livestock movement in Kansas, we hired several off-duty sheriff deputies to observe and count the number of cattle trucks in Ford, Finney, Seward, and Lyon Counties. The counts occurred on June 23, 2004 and September 23, 2004, during a 16-hour period. In each county, two deputies observed for four consecutive hours

Figure 12 - Time and location of cattle truck counts

Ford County	June 23, 2004	6:00 a.m. - 10:00 a.m.
Finney County	June 23, 2004	10:00 a.m. - 2:00 p.m.
Seward County	September 23, 2004	6:00 a.m. - 10:00 a.m.
Lyon County	September 23, 2004	10:00 a.m. - 2:00 p.m.

and the period of observation rotated between the jurisdictions. Figure 12 provides a chronology of the observations. Time frames were chosen to parallel the slaughter schedule of the beef processing facilities in the participating counties.

Observers were assigned to specific street intersections that are commonly used to route cattle truck. The number and type of trucks observed during the observation period was recorded and submitted for compilation by the research team. The following criteria were used for identifying vehicle to include in the count:

1. Semi-Tractors with livestock trailers.
2. Semi-Tractors with hopper trailers.
3. Semi-Tractors with trailers hauling by-products such as tallow, hides, manure, etc.
4. Pick up trucks with livestock trailers or small trucks with stock racks.
5. Feed delivery trucks associated with on-farm delivery.

Results. Table 18 shows the findings of the traffic count. A total of 735 vehicles were recorded during the 16-hour observation period. Nearly 70% of these recording were made in Ford and Finney Counties. Lyon County had the fewest number of recordings.

In Ford County, the number of semi-tractors with livestock trailers was highest among all counties. Deputies recorded 120 trucks in this category compared to 79 trucks in Finney County, 25 trucks in Lyon County, and 41 trucks in Seward County. The number of semi-tractors with livestock trailers in Finney County accounted for 45% of all recordings in this category.

Data suggest that Finney County had the highest volume (68%) of all hopper trailer traffic. There, 112 trucks were recorded during the observation period. Seward County appears to have the next highest number of hopper trailers, with 68 trucks being recorded. Finally, observers recorded 43 hopper trailers in Ford County and 23 hopper trailers in Lyon County.

Table 18 - Traffic counts of cattle trucks in Ford, Finney, Lyon, and Seward Counties

<u>CATEGORY</u>	<u>COUNTIES</u>				TOTAL
	Ford	Finney	Lyon	Seward	
Semi-Tractors with Livestock Trailers	120	79	25	41	265
Semi-Tractors with Hopper Trailers	43	112	23	0	178
Semi-Tractors with By-Product Materials	85	15	0	68	168
Pick-Up Trucks with Livestock Trailers	29	4	21	35	89
Feed Delivery Trucks	17	7	10	1	35
TOTAL	294	217	79	145	735

There were a total of 168 recorded observations of semi-tractors hauling by-product materials. Data suggest that the highest number of observations of trucks in this category occurred in Ford County (85) and Seward County (68). Combined, these counties accounted for 91% of trucks observed to be transporting by-products.

Twelve percent of all recordings were for observations of pick-up trucks with livestock trailers. Of the total 89 observations, Ford, Lyon, and Seward Counties had similar numbers of recordings in this category (i.e., 29, 21, 35 respectively). However, deputies observed only 4 of these small trucks in Finney County.

The category with the least amount of observations was feed delivery trucks. Only 35 feed delivery trucks were recorded, which accounts for 4% of all observations. The data suggest that trucks transporting cattle (532) outnumbered the number of trucks transporting feed by a ratio of 15 to 1. Also, the number of trucks hauling by-product outnumber the feed trucks, nearly 5 to 1.

Discussion. In Kansas, if a highly-contagious disease is suspected, animal health officials take samples from the animals and send them to Plum Island, New York, where the Department of Homeland Security's foreign animal disease diagnostic laboratory evaluates the sample and determines the type of disease. If the sample test is positive, a stop movement order will be issued by the State Livestock Commissioner. Stop movement orders mandate that all industry related traffic be *stopped* and *evaluated* by law enforcement and/or animal health officials.

Stop Movement orders as a rule will include *all* agriculture-related vehicles. Several factors make it difficult, if not impossible, to understand the magnitude of an order's effect on all agriculture-related movement and on law enforcement. First, rural areas where large numbers of

animals are housed in feeder facilities are generally sparsely populated, so they have limited law enforcement resources. To determine the required manpower to enforce a stop movement order, an evaluation of the road system within the jurisdiction must be completed. For example, if an entire county or state is placed under a stop movement order, all law enforcement resources, local and state, would be required to stop traffic for evaluation. The enormity of this task can be understood only when the number of agriculture-related vehicle traffic is quantified. This task will be nearly impossible in small counties where there may only be three or four law enforcement officers. To compound the problems, there are limited supporting resources such as physical barricades, signs, and other highway personnel who could assist law enforcement. Secondly, in Kansas, the sheriff is charged with enforcing quarantine orders for specific facilities.

While seasonal movement may greatly impact the amount of law enforcement resources required to affect the stop movement order, the present study indicates that law enforcement will be required to stop and evaluate an average of nearly 50 vehicles per hour in the first day of a stop movement order. During the stop movement, law enforcement will be required to interview drivers to determine points of origin and destinations. In certain cases, cattle destined for slaughter will be allowed to travel directly to their destination. In other cases, livestock trucks may be re-routed to alternate destinations or returned to their place of origin. A significant number of “in-transit” animals will travel from state-to-state to backfill feeder facilities near the processing plants. These animals may be required to be temporarily housed at local sites, thus requiring care, feed, and water.

Given the complexities of activities involved with a stop movement order, each sheriff should develop a stop movement plan for his/her county, based on local conditions and available

resources. This plan should include a detailed map that identifies federal and state highways, high-traffic county roads, and minimal-traffic roads. An evaluation of the plan should be conducted with the state patrol and adjoining police agencies, so that specific tasks can be assigned in advance. The plan should also address the points of origin and destination requirements of a stop movement order. The Kansas Animal Health Department has developed specific forms designed to assist law enforcement to understand the requirements. These forms have been field tested with local and state law enforcement and the cattle transportation industry.

ECONOMIC IMPLICATIONS

The U.S. farm economy is comprised of 2.1 million farms operating nearly 939 million acres (National Agricultural Statistic Service [NASS]), with approximately \$1.4 trillion in assets. Farm receipts in 2004 equaled \$211.6 billion, while the total value of farm sector production (receipts plus secondary income generated by business activities) neared \$270 billion (ERS). Direct production activity also spills over into supporting industries, and farm production expenditures approached \$199 billion in 2004 (ERS). Most importantly, the food and fiber system's total economic contribution nears \$1.25 trillion, accounting for over 12% of the nation's gross domestic product, while providing employment for 23.7 million workers (ERS). Lastly, agriculture is very important with respect to global trade. Agriculture exports totaled over \$62 billion and achieved the distinction of being the nation's only industry to maintain a positive trade balance, equaling nearly \$10 billion in 2004 (ERS).

Cattle and cattle products represent the single largest contributor to the overall farm economy, comprising over 20% of agriculture's economic output (ERS). Moreover, the sector has consistently increased in importance in recent years. Given 2004's total agriculture receipts (~\$212 billion), gross output from cattle production equates to \$42 to \$44 billion. At that level, production stemming from the cattle sector generates an additional \$155 billion of economic output within the economy (adapted from Lawrence & Otto, 2003). Therefore, the cattle industry, in terms of direct and indirect economic activity (strictly from a production standpoint, not including beef sales), approaches \$200 billion. Lawrence and Otto (2003) also detailed that the industry, on a nationwide basis, supports nearly 1.4 million full-time equivalent positions (FTEs) with 212,000 jobs directly associated with the industry and 1.2 million jobs related to or supported by cattle production. Additionally, the beef industry generated nearly \$79 billion in

2004 beef expenditures (NASS), and sales of byproducts were estimated to be an additional \$3 billion (adapted from Livestock Marketing Information Center [LMIC]). Therefore, the beef industry's total economic production equates to approximately \$82 billion. At that level, with utilization of an economic multiplier of 2-to-3, the U.S. beef industry's total economic output likely generated in excess of \$300 billion in 2004.

Agriculture's importance to the American economy requires special attention regarding terrorism threats and subsequent erosion of national security. Senator Collins (R-ME) noted, "In the war on terrorism, the fields and pastures of America's farmland might seem at first to have nothing in common with the towers of the World Trade Center or busy seaports. In fact, however, they are merely different manifestations of the same high-priority target, the American economy" (2003). Similarly, Franz, Director of the National Agricultural Biosecurity Center, explained, "Agroterrorism is not about killing cows. It's about striking at the fundamental heart of our economy" (Nelson, 2004). Given agriculture's economic importance, any type of terrorist attack could deal a crippling blow to both the U.S. and world economy (Polyak, 2004).

The Congressional Research Service recently noted that a terrorist event does not need to inflict human casualties for it to be effective or cause significant economic consequences (Monke, 2004). Turvey et al. further explained, with reference to agriculture, that if "the objective is to kill humans, then it is unlikely that the food system would be used as a vector since more powerful biological agents (e.g. anthrax, plague, small pox) than food-borne illnesses or zoonoses are available [and thus] agroterrorism can be distinguished from bioterrorism in that the former is directed towards economic damage while the latter is a direct assault on human life," (2003). Economic destruction and disruption make attacks against the agriculture industry an effective and preferred method (Davis, 2003). The resulting economic damage caused by

dismantling agriculture's infrastructure and its core competencies must be taken seriously, especially in the world after 9/11.

Economic Implications. From a broad perspective, a terrorist attack upon agriculture would create economic costs on a number of fronts. Direct costs include the following:

1. Disruption of the food production's supply chain;
2. Disruption of export markets and/or imposition of trade sanctions;
3. Quarantine and eradication costs;
4. Disposal of contaminated products and/or destroyed animals; and
5. Subsequent law enforcement and situational logistics.

Indirect costs are more difficult to ascertain. These costs are primarily associated with the demand side of the price equation and are largely dependent upon projected consumer behavior and international response. The effect upon domestic consumers is especially important. In general, consumers will experience a relative loss of income upon onset of an agroterrorism event due to the decline of available food supplies and the subsequent rise in costs (Schweikhardt, 2004). From an industry perspective, longer lasting effects must be considered with respect to consumers--namely the potential for hysteria (Turvey et al., 2003). Consumer fear impacts the agriculture economy in two ways. First, the original shock causes a downward shift in the demand curve, lowering demand across the board. Second, enhanced risk perception causes demand to become more inelastic, resulting in consumers becoming more resistant to price decreases that could restore demand to a pre-attack level. Thus, the primary concern is whether it would even be possible to regain domestic confidence in the affected food products, and if so, how much time such a recovery would require.

International markets also present great challenges. Restoring confidence among foreign customers in food security and safety would be a daunting task. Export markets will be immediately eliminated at the outbreak of any foreign animal disease. Alternatively, foreign restrictions, even once export embargoes are removed, could impact long term the way business is conducted and may impose costly safeguards before commerce is resumed (National Research Council [NRC], 2003).

If one focuses only on the direct effects of terrorism, potential ripple effects, such as long-term shifts in commerce, may be overlooked. From an indirect-cost perspective, both domestically and globally, it is possible that producers of all commodities may experience diminished independence following an agroterrorism attack. It should be noted that some producers of substitute products might temporarily benefit from increased demand, but in the long run, the above-mentioned response within the food industry is more likely. Lastly, intangible effects surrounding world politics must also be considered. Aside from economic considerations, a successful terrorist attack could overwhelm law enforcement while simultaneously undermining public confidence in the U.S. government (RAND, 2003).

The most appropriate example of potential effects from a commerce perspective is the recent discovery of a single case of bovine spongiform encephalopathy (BSE), popularly referred to as Mad Cow Disease, in the United States on December 23, 2003. Despite domestic demand remaining robust in 2004 (CBB, 2005), the BSE incident cost the U.S. beef industry approximately \$3.5 billion in 2004, those losses directly attributable to the closure of foreign markets. More difficult to assess are the ongoing costs associated with increased monitoring, investigative science, establishment of new safeguards, efforts to reopen export markets, and opportunity costs as a result of the single BSE case. In addition, the industry's commerce

patterns have shifted as a result of trade disruption, making business decisions difficult (Speer, 2004) and creating increased market volatility (Speer, Jan. 2005).

Agriculture's interdependent structure results in all stakeholders being affected, either directly or indirectly, including livestock producers, agribusinesses and employees, trucking companies, retailers, and all businesses associated with food production. Moreover, foreign businesses are impacted by not having access to U.S. beef products: "The Japan Koran Barbecue Restaurant Association has reported that 2,000 of its members have actually closed since Japan banned U.S. beef in late 2003" (Smith, 2005). Such incremental effects are difficult to measure but have certainly impacted the beef industry. For example, the most immediate aftershock has fallen upon smaller beef processing companies. The Iowa Quality Beef Supply Cooperative (Tama, IA) closed its packing operations in August 2004, attributing many of its problems directly to the shift in market conditions stemming from the BSE case (Lucas, 2004). Similarly, Creekstone Farms Premium Angus terminated 150 employees in December 2004, citing lost revenue due to the Japanese beef trade cessation (Hegeman, 2004).

Foot-and-mouth disease: Response. The deliberate introduction of FMD poses the most catastrophic and immediate threat to agriculture, both biologically and economically. FMD is highly virulent and extremely contagious. The virus could be introduced and subsequently dispersed throughout the American food production system:

1. Animals carrying the virus are introduced into susceptible herds;
2. Animals are exposed to contraband materials such as food, hay, feedstuffs, hides, or biologics contaminated with the virus;
3. People wear contaminated clothing and/or using contaminated equipment (including tractors and/or trucks) to transmit the virus to susceptible animals; and
4. Contaminated facilities (including feedyards, sale barns, and trucks) are used to hold and/or transport susceptible animals.

The potential simplicity of introduction, FMD's epidemiology, and the industry's infrastructure all combine to make the virus a serious threat. The consequences of introduction could be nothing short of a pandemic.

Once an attack by FMD has been confirmed, response would necessitate much complication and expense to contain and control the result. First, immediate containment and quarantine of all livestock would occur within a specified radius around the infected area. Second, all other areas considered at risk for infection, or as primary conduits for further infection, would also be put under a stop movement order. An identifiable region would also be closed (such as those enclosed by interstates and/or landmarks), and there may be a need for an entire state to close its borders to all livestock transportation. The duration of these orders would be determined by the severity of the outbreak and the perceived threat of non-containment. Third, all animals from infected herds would require depopulation. Fourth, following an outbreak, infected premises would be "disinfected" after all animals have been destroyed, a minimum of 30 days before herds could be restocked.

Foot-and-mouth disease: Economic impact. Many scenarios potentially play out in the case of FMD. The United Kingdom's FMD outbreak in 2001 serves as the only economic model for a potential, widespread FMD event in the United States. The U.K. epidemic affected more than 9,000 farms and required destruction of more than four million animals. Accurately assigning economic costs to such a pandemic event is difficult to assess: "FMD is a disease that is almost defined economically, yet even the British could not identify the true costs or their impact. Mitigating losses in an American context demands that these costs be identified and attributed so that steps can be taken to minimize them. Much more work needs to be done to

understand the potential financial impacts of FMD across the whole economy so that such important policy is not based on anecdotal information” (Breeze, 2004).

Assessment of overall economic impact in Great Britain is highly varied, ranging from U.S. \$3.6 – \$11.6 billion (Matthews & Buzby, 2001). Other estimates on a per animal basis range from U.S. \$1,389 – \$4,477 (Consortum, 2003). If an outbreak were to occur in the United States resulting from terrorists targeting areas in which high-valued livestock are concentrated, (e.g. the central plains) feedyard losses alone may run as high as \$12-\$16 billion (USDA, 2004). Secondary effects must also be considered. Reduced livestock populations correlate to diminished quantities of grain demanded, thereby reducing grain prices and negatively affecting grain farmers. Considerations must also be made for supporting industries, such as trucking companies, supplemental feed dealers, auction markets, and implement dealers. Based upon the events that occurred in the U.K., the USDA (2004) undertook a comprehensive analysis to outline the potential economic effect in the U.S.:

A crude estimate of the economic costs of a FAD [Foreign Animal Disease] across the nation is estimated at \$20.5 B assuming the same percentage loss of GDP as experienced in the UK in 2001 when an unintentional outbreak occurred. USDA believes this is a low estimate because of the differences in the economies and livestock industries between the U.S. and U.K. Evaluating potential lost livestock value from targeted attacks on a few high-density states could result in direct animal losses of \$20 billion. Loss of export markets could range up to \$5.5 billion a year. A full analysis incorporating upstream and downstream effects is not tempted. However, applying a reasonable range of multipliers of 2 to 3 to the livestock loss value suggests a national impact of \$40 to \$60 billion.

These estimates are based upon the containment of such an attack within the U.S. borders. However, viral dispersion does not recognize borders. Operation Crimson Sky (ANSER, 2003) estimated that the introduction of FMD into the United States would result in dispersion to 35 states within 10 days. There also exists a high likelihood that the virus could

cross the Canadian border. That occurrence would result in an economic impact exceeding \$25 – \$45 billion and severely hamper the Canadian economy because 1 in 7 jobs are directly related to the food-animal industry (Canadian Animal Health Coalition [CAHC], 2004). Meanwhile, Tong (2004) explained that if an FMD case were to occur in Canada it would be especially damaging to Canada’s economy and have trade complications. As recent BSE events have demonstrated, trade among NAFTA partners would likely be restricted for a period of time, in itself possessing important consequences for agriculture in both countries.

Real-time business effects. Agriculture is a complex industry comprised of a number of contributing sectors, but the cattle industry is the most vulnerable to a potential agroterrorism attack. It is an industry that is highly fragmented, consisting of more than one million total operations (Figure 13 represents the general geographic distribution of the U.S. cattle population), more than 80% consisting of farms and/or ranches that are defined as cow/calf operations. Cattle production depends upon a large, unprotected landmass that is impossible to completely secure and/or protect.

The industry is also highly dependent upon an intricate marketing system in order to facilitate commerce. Comparatively, the swine, poultry, and dairy industries are more concentrated. Their production occurs in smaller areas, it is less dependent upon co-mingling and redistribution, and facilities are much easier to monitor.

Figure 13 - Total Cattle Inventory

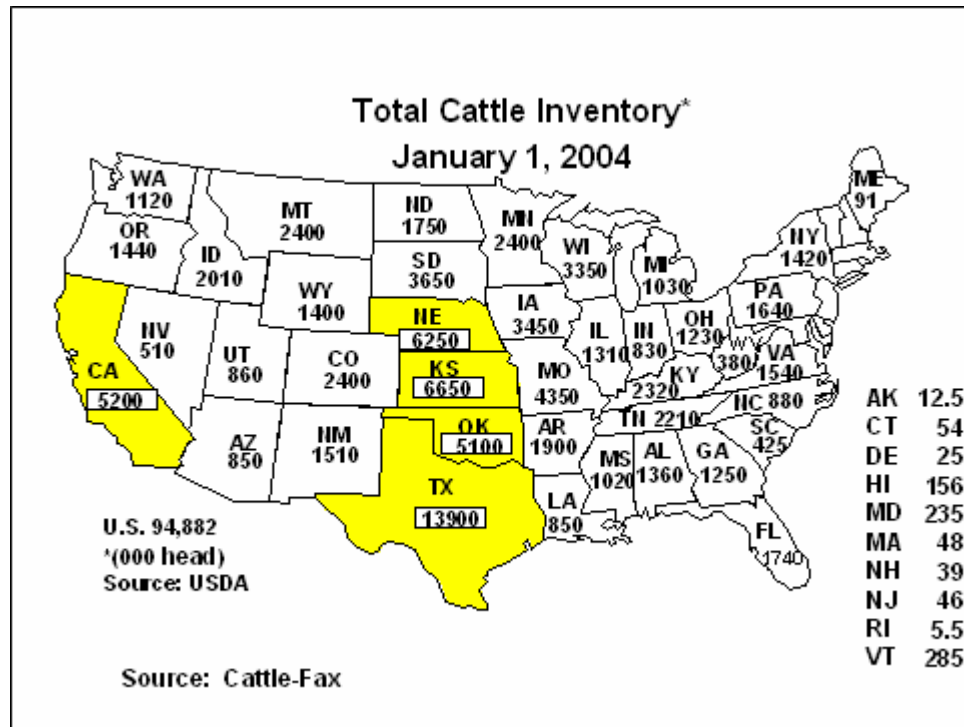


Figure 14 - U.S. Packers

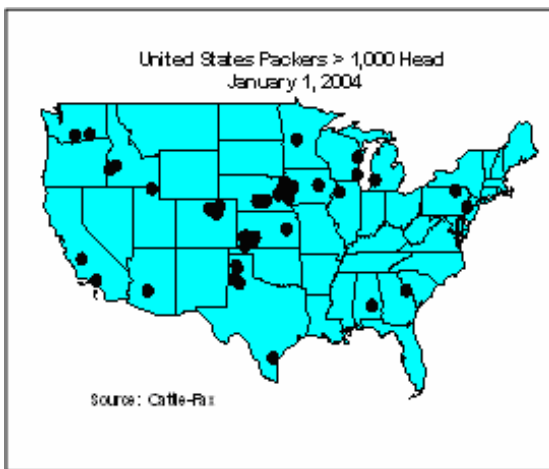
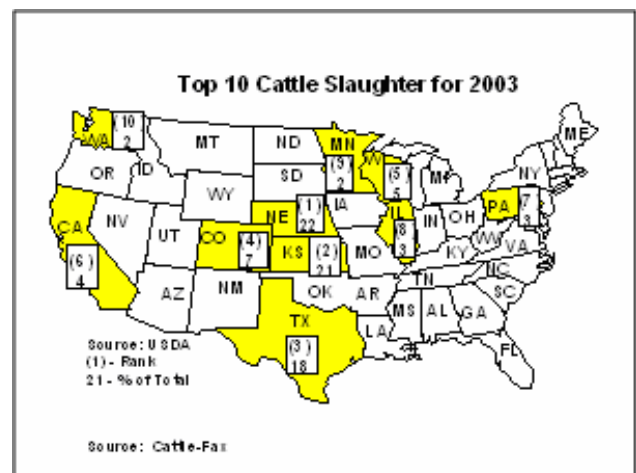


Figure 15 - Cattle Slaughter for 2003



Much of the marketing is centralized in the central plains region with cattle feeding and packing plants located in Texas, Oklahoma, Nebraska, Colorado, and Kansas. Figures 19, 20 and 21

represent relative distribution of feedyards, packers and slaughter in the U.S., respectively. Because of that centralization and the beef industry's economic significance to agriculture, FMD manifested in the central plains would prove very costly. Therefore, with reference to FMD, business implications and case scenarios are most appropriately focused upon the cattle industry.

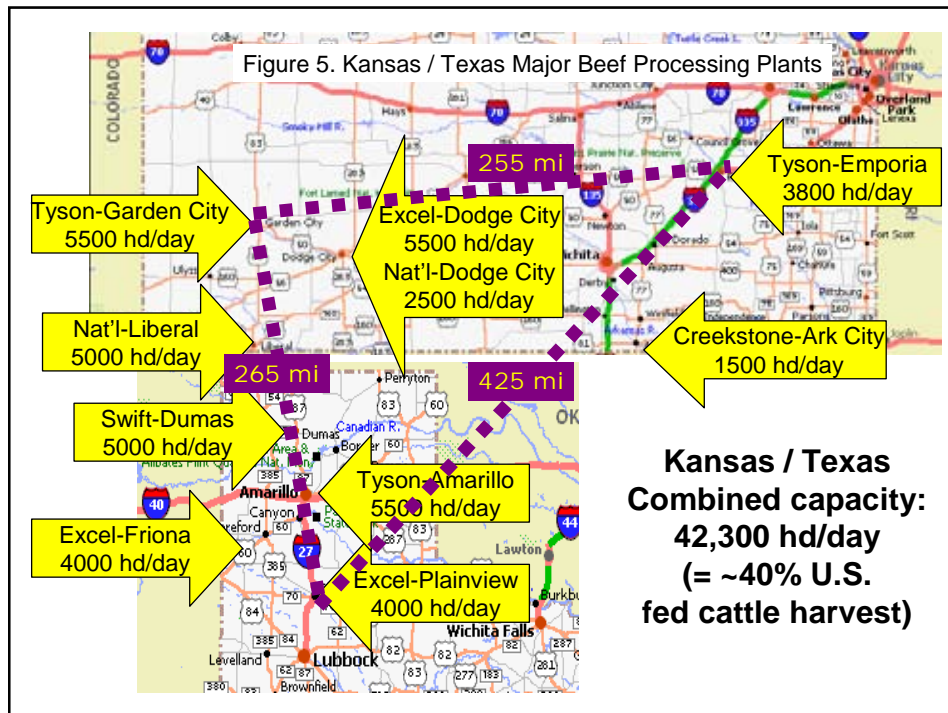
The simplest scenario would be the identification of FMD and the immediate containment at the site of infection. This scenario would likely be considered a failed agroterrorism attempt because the FMD virus would be stopped from spreading. However, it is important to note that it is highly probable such an incident would still possess important outcomes. First, the implementation of all preventive measures would be put into place: These include quarantine, stop movement orders for a period of time, and the destruction of infected animals at the epicenter of infection. Second, foreign trade partners, upon notification of FMD discovery, would implement trade bans against U.S. cattle and cattle products, not unlike the response to bovine spongiform encephalopathy (BSE) on December 23, 2003. The primary economic effect would derive from lost export value. As outlined earlier, the export cessation of beef sales alone has cost the beef industry approximately \$3.5 billion per year (equivalent to ~\$150 per head for all fed cattle harvested in the United States). However, additional products (primarily hides and leather products) typically shipped to foreign countries would also be banned following the identification of FMD. Ray's (2002) analysis of FMD includes foreign export deficits of \$5 billion, a figure in line with U.S.-export cessation stemming from BSE and the assumptions regarding additional products. The application of an economic multiplier of 3.6 (Lawrence & Otto, 2003) translates into an indirect economic cost of ~\$18 billion. As such, a scenario of FMD identification and immediate containment could potentially cost the U.S. economy in excess of \$23 billion over the course of one year.

Conversely, a worst-case scenario would include the FMD virus spreading to multiple states (and potentially Canada) via the industry's marketing system. In addition to export cessation, a widespread FMD outbreak would require extensive destruction of animals. Ray (2002) explains that a reasonable estimate would include destruction of approximately 6.35 million head, and an indemnification cost of \$600/head would cost the U.S. government \$3.81 billion. Additionally, destruction of 6.35 million head would also have a negative impact on corn producers of nearly \$700,000. The direct impact to production agriculture (loss of foreign markets, indemnification, and declining grain prices) adds up to approximately \$10 billion. If one includes economic multipliers, the total economic cost is \$46 billion. However, that figure does not incorporate the cost of secondary effects, including depressed prices from declining demand, the loss of various marketing options, and trade disruption costs for non-infected cattle.

The previous estimates are presented primarily from a macroeconomic perspective. At times, those estimates can be difficult to grasp and are seemingly abstract. In order to put a potential FMD event into specific context several applied business scenarios are outlined below. A stop movement order would be implemented to prevent FMD from spreading. It is possible that this order could span several states, the boundaries likely to be delineated either by state borders or sectors outlined by major natural borders (such as rivers) and/or common highways. These spans would correspond to important regions of commerce. Such orders would shutdown commerce in a geographical region and would possess serious economic consequences. Figure 16 represents the major beef processing plants in the Kansas / Texas region of the United States. If a regional stop movement order were necessary to control the spread of FMD in this geographic vicinity, all transactions among feedyards and packing plants would immediately

cease. These packing plants represent a combined daily capacity of 42,300 head, approximately 40% of U.S. daily slaughter capacity.

Figure 16 - Kansas/Texas Major Beef Processing Plants



In that case, the assumptions of a stop movement order would be as follows:

1. 42,300 head marketed / day
2. 1,250 lb / head average
3. 2004 average price = \$85 / cwt
4. Equivalent of ~\$45 million / day
5. 3.6 multiplier = ~\$162 million / day
6. Total economic impact from lost cattle sales = \$207 million / day

The net cost to the economy would be approximately \$207 million per day as a result of lost revenue stemming from this hypothetical regional stop movement order. More astounding, the shutdown of packer-feedlot transactions, expressed from the perspective of two eight-hour shifts, is the equivalent of \$215,000 per minute.

If the order lasted only several days, some of the lost revenue could be recaptured and the economic impact would be minimal. Conversely, if the stop movement order were extended, the ramifications would be disastrous. Several other business considerations must also be made in the case of a stop movement order of significant duration:

1. Domino effect upon the cattle industry, including shutdown of sale barns and direct sales, would be felt throughout the United States;
2. Law enforcement expenses, including managing road blocks;
3. Costs associated with investigation of terrorist activity;
4. Temporary layoff of meat-packing-plant employees; and
5. Potential for increased crime during this period.

Alternatively, a stop movement order confined simply to a single state is also important, especially an order that is pivotal in terms of agriculture's infrastructure (e.g. Kansas). Such an order would leave a sizeable portion of the beef industry without a product and consumers with diminished purchasing options. As Table 18 indicates, slaughter

Table 19 - Daily Capacity of Processing Plants

<u>Kansas Fed Cattle Processing Facilities, Location and Respective Daily Capacity</u>
<ul style="list-style-type: none"> • Creekstone: Arkansas City (1,500 head) • Excel: Dodge City (5,500 head) • National: Dodge City (2,500 head) • National: Liberal (5,000 head) • Tyson: Emporia (3,800 head) • Tyson: Garden City (5,500 head)

Source: Doud (2005)

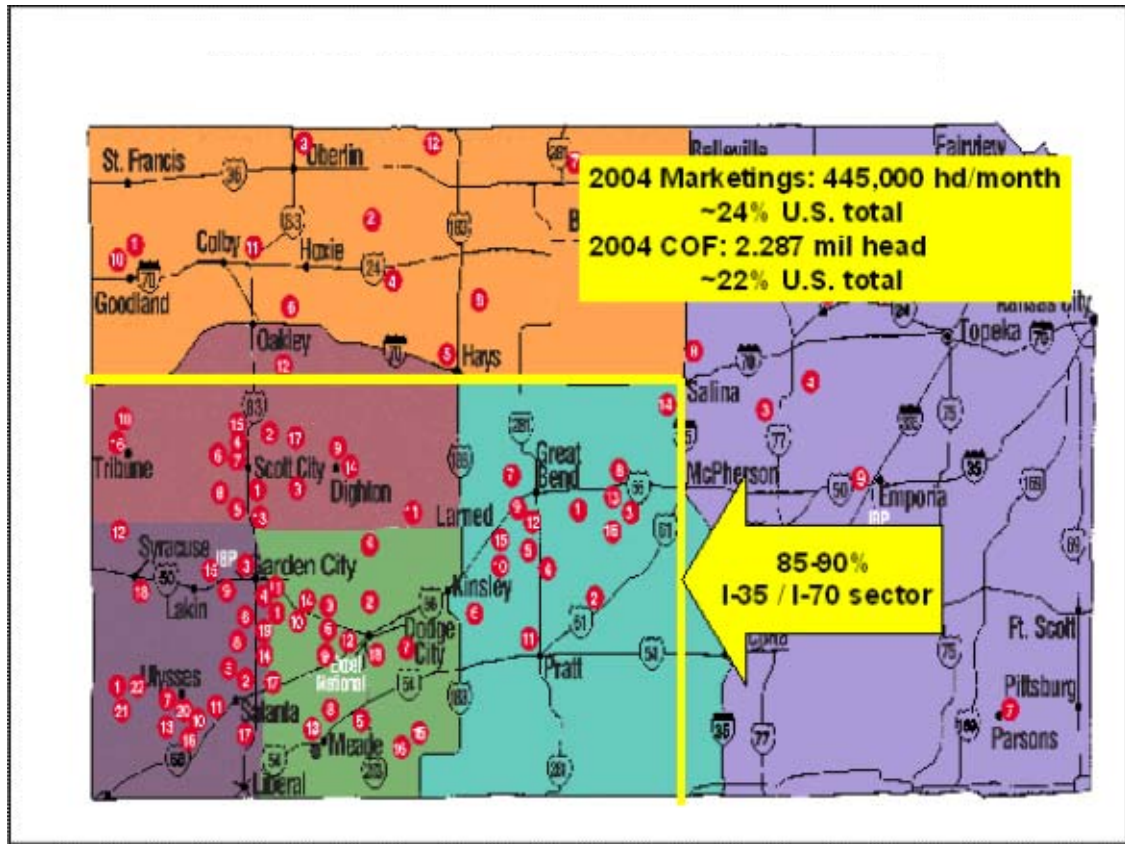
capacity in the state is equivalent to 23,800 head per day. Meanwhile, the beef industry's top five customers combine for sales of over 4.5 billion pounds of beef each year (Doud, 2005):

1. Wal-Mart, 2.0 billion lb / year
2. McDonald's 1.0 billion lb / year
3. Safeway, 0.9 billion lb / year
4. Costco, 0.8 billion lb / year
5. Sam's Club, 0.8 billion lb / year

That level of production requires the harvest of approximately 25,000-30,000 head per business day. As such, commerce shutdown restricted to Kansas is roughly equivalent to cutting out the five largest beef vendors in the country. Business shutdown in Kansas would also leave a sizeable portion of the 18,700 employees associated with the food-processing industry in the state (Kansas Livestock Association [KLA], 2005) without work. If extended, the shutdown would also be a hardship for those who are directly employed within the feedyard industry or who derive income from various support industries.

Most importantly, much of the impact would be focused within a sector bordered by I-35 and I-70. Figure 17 shows that the southwest corner of Kansas is home to nearly 80% of the state's processing capacity and 90% of the state's feedlot cattle inventory.

Figure 17- Kansas Cattle Feeding Industry



Summary. Historically, agriculture has proven itself a very resilient industry. To remain so, with agroterrorism as an emerging threat, the livestock industry will be increasingly forced to shift emphasis towards food security while taking “steps to try to minimize exposure to such [terrorist] risks” (Blandford, 2002). However, that endeavor is a complex process that requires coalitions across multiple disciplines: “Introducing adequate security to protect our food supplies should be a top national priority. There are a number of actions that should be pursued to reduce the risk. First, key relationships need to be strengthened among the constituents throughout the food industries. There have been long-standing tensions among farmers, feedyards, packing companies, food processing plants and retailers as they all jockey to maintain

a piece of the industry's thin profit margins...What is missing is the kind of regular forum where operators meet with security experts as they now do at Logan Airport in Boston" (Flynn, 2004). The threat is an impending one "because there is no enemy government or army to surrender, there can be no clear-cut moment of victory" (Fallows, 2005). For consumers to have continued access to a safe, viable, abundant, and inexpensive food supply, prevention of such an attack is mandatory. Meanwhile, prevention must be relatively non-intrusive for the agriculture industry to maintain its commercial efficiency and productivity.

Clearly, steps to implement preventive measures are far less intrusive than an emergency response to an attack. As such, the industry, in a collaborative effort with all stakeholders, must remain vigilant and emphasize prevention and deterrence--not response. The difference is a matter of economics.

UNDERSTANDING AGROMOVEMENT

The agriculture industry is highly efficient, particularly in the movement of cattle. Livestock production has evolved into a non-stop operation requiring constant uninterrupted movement of live animals, feed supplies, and finished product. Agromovement may represent the greatest terrorism vulnerability to the industry. Preventing, planning for, and responding to an agroterrorism event require an understanding of this complex cycle of movement.

Agromovement is defined as the continuous cycle of movement required in farm-to-fork food production, including all aspects of animal transportation, among them the movement of finished products destined for distribution and consumption throughout the world (Lane, 2002). Like the beef industry, swine, poultry, and even fish rely on a cycle of movement. Likewise, a specific process of movement in grain production directly affects livestock production. This movement varies region to region, based upon the particular feed requirements for livestock. The continued effective movement of pre- and post-harvest products is critical in meeting food product demand.

The beef processors, commonly known as “packers,” generally drive the pace of the industry. These large facilities are typically spread over hundreds of acres, and, in the simplest terms, bring live animals in one end of their facilities and ship finished product from the other end. A typical “large” packer (slaughter capabilities of 1,000 head per day or more) will process animals at a rate of 300 to 350 head per hour. Animals are brought to the packer from feeder facilities typically within 150 miles in semi-tractor trailers, each carrying between 40 and 45 head of cattle. The schedule for processing is generally 16 hours per day, five to six days per week, depending upon a number of production factors including demand and market value of the animals.

Throughout the slaughtering process, nearly all parts of the animal carcass are retained as each has some value as a byproduct. This process leads to shipment of byproducts like tallow, which is used in the production of facial creams and related products. Hides are transported to tanneries in shipping containers for processing into leather products, while other byproducts are shipped by rail. Common beef products, such as hamburger and steaks, are generally shipped by truck. For example, a large packer typically produces 500,000 pounds of hamburger every day, enough to fill more than ten semi-tractor trailers (Schnitker, 2002).

Concentrated Animal Feeding Operations (CAFO), or feedyards, is the primary supplier to the packers. These facilities vary in size and may house 100 head to as many as 100,000 or more, depending upon licensing. On average, most house tens of thousands. Annually, feedyards have a turnover rate equal to 2-3 times their licensed capacity (Herrmann, 2002). Located within proximity of the packers, these facilities are in the business of “fattening” cattle for slaughter. Fattening the cattle requires 30 pounds per day for each animal in order to reach a target weight of 1200 pounds in 150 days (Herrmann, 2002). Feed product is regularly shipped to the feed yards via truck, and seasonal spikes in volume occur, especially during corn harvest. For example, a typical facility housing 50,000 head requires nearly 300,000 tons of feed products annually. The manure byproduct is collected and shipped out by truck, typically for land application. Replacement animals arrive by truck from regions across the United States and Mexico, while “fat cattle” leave for slaughter.

Auctions can be described as the hub of the industry. Typically, these facilities market cattle for producers who take profit. Feedyard operators will buy “feeder cattle” that are normally 700 to 800 pounds. Second, auctions will sell “stocker cattle,” which are best described as being weaned off the cow at about 400 pounds, but not yet at the weight of feeder cattle.

These animals may be bought by producers, including farmers, ranchers, and feedyards, and placed on pasture. Lastly, the auctions will sell heifers, cows, or cow/calf “pairs” for any number of reasons including profit, weather, and age.

Disease management. Transportation also represents a great concern in disease management (Graham, 2002). Live animals are transported for many reasons on a daily basis. Although most are hauled by the producer or by local contract carriers, there is substantial movement from state to state by other carriers (e.g. regional transport companies). Problems result from tracing trucks that haul livestock. However, cattle moved by local producers are more easily traced than those transported by regional companies.

Another transportation problem is that highly contagious foot-and-mouth disease (FMD) may be spread in vehicles that contain animal waste materials (Graham, 2002). Because contract haulers may move animals from one state to another in “dirty” trucks, the opportunity to spread disease is increased. Further, a disease may be moved on a truck or another vehicle that has entered an infected facility. To understand the movement of cattle in the production process, input for this research project was sought directly from transportation personnel. Jane Westerman, a livestock transportation manager in western Kansas, stated, “Our drivers are trained under the Transportation Safety Administration Highway Watch Program which has heightened its awareness to threats and criminal activity. Livestock transportation is a critical component in the food chain and any interruption will cause significant harm to the industry. By recognizing and reporting suspicious activity we will significantly reduce the vulnerabilities associated with moving livestock” (Westerman, 2003).

Agromovement and law enforcement. In addition to challenges in disease management, agromovement-related diseases create problems for law enforcement. In a suspected terrorist event, a truck would be an integral part of the crime scene, requiring law enforcement to process it as evidence, interview the driver, secure evidence, and take action to prevent the vehicle from moving and spreading the disease. What makes this scenario even worse is that incubation periods of highly contagious diseases may take days or even a week or more. Accounting for a particular truck's movement for that period may be difficult or perhaps impossible.

Figure 18 - What is Evidence?

What is evidence?

- Documentation
 - Health Certificates, Scale Tickets, Checks
 - Log Books, Animal History, Contacts
- Electronic
 - Email, Web Sites, Other Communication
 - Surveillance, Visitor Logs
- DNA
 - Human and Animal
- Forensic
 - Fingerprints, Tire-prints, Vials, Syringes, Exams
- Statements
 - Victims, suspects, witnesses

Courtesy: James Lane

The beef industry is just now beginning to adopt biosecurity measures that may give some protection from a terrorist event. Any interruption in the cycle of movement will be economically devastating, especially locally where thousands are employed at processing and feeder facilities. The businesses and industries that rely on these employees will be equally affected.

LAW ENFORCEMENT INTELLIGENCE NETWORK

A brief foundation of specific current issues and trends in law-enforcement intelligence, observations related specifically to agroterrorism in the livestock industry, and “foundation issues” of intelligence may be translated into action steps for those in the law enforcement and non-law enforcement agroterrorism communities.

The Meaning of Intelligence. The phrase “law-enforcement intelligence” is often erroneously equated with information about people, places, or events that can be used to provide insight about criminality or crime threats. A failure to distinguish between “law-enforcement intelligence” and “national-security intelligence” further complicates the situation (Carter, 2002).

Information gathered from diverse sources (e.g. wiretaps, informants, banking records, and surveillance) is simply raw data, which frequently have limited inherent meaning. Intelligence gathering assesses a wide array of raw information for validity and reliability, reviews it for materiality to the issues at question, and gives meaning to it through the application of inductive or deductive logic with respect to the collective inferences and conclusions that may be drawn when the data are integrated. Thus, “intelligence is the product of an *analytic process* that provides an integrated perspective to disparate information about crime, crime trends, crime and security threats, and conditions associated with criminality” (Carter, 2002). In the purest sense, the phrase “intelligence information” is inaccurate since “information” is raw data and “intelligence” is the output of the analytic process.

There are essentially two broad purposes for an intelligence function within a law enforcement agency:

- **Prevention.** This purpose includes gaining or developing information related to threats of terrorism or crime and using this information to apprehend offenders, harden targets, and use

strategies that will eliminate or mitigate the threat. This is known as “tactical intelligence.”

- Planning and resource allocation. The intelligence function provides information to decision makers about the changing nature of threats, the characteristics and methodologies of threats, and emerging-threat idiosyncrasies for the purpose of developing response strategies and re-allocating resources, as necessary, to accomplish effective prevention. This is known as “strategic intelligence.”

Intelligence products. Intelligence and critical information need to be placed in a report format that maximizes the consumption and use of the information. The report should identify the targeted consumer of the information (e.g. patrol officers, administrators, or task-force members), clearly convey the critical information, identify time parameters wherein the intelligence is actionable, and provide recommendations for follow-up. For example, follow-up instructions may direct a patrol officer to complete a field interview card, notify a special unit, conduct surveillance of the suspect, or take safety precautions. Products are a series of regularly produced intelligence reports that have a specific format and type of message to convey.

Intelligence products are most useful when each product has a specific purpose; is in a consistent, clear, and aesthetic format; and contains all critical information the consumer needs. The types of products will vary by the character of the agency (e.g. state/local, urban/rural, or large/small) as well as the collection and analytic capacity of unit personnel. As a general rule, about three products may be needed:

- Reports that aid in the investigation and apprehension of offenders
- Reports that provide threat advisories in order to harden targets
- Reports that provide strategic analysis in order to aid in planning and resource allocation

Without fixed, identifiable intelligence products, efforts will be wasted and information will be shared ineffectively (Carter, 2004).

The subject matter of law enforcement intelligence. The content or subject matter of law-enforcement intelligence can be divided into two broad categories (Carter, 2003). The first category is protocols and methodology of the intelligence process. It includes subjects such as information collection methodologies; laws and regulations associated with intelligence records systems; analytic methods and tools; intelligence-reporting structures and processes; and intelligence dissemination. Essentially, these elements constitute the discipline of law-enforcement intelligence.

The second category is somewhat more amorphous. Broadly speaking, this category is the subject-matter expertise of the intelligence professional. This category includes understanding the motives, methods, targets, and/or commodities of criminal intelligence targets. Intelligence researchers and analysts must have subject-matter knowledge of the types of enterprises being investigated. Whether the target crime is agroterrorism, drug trafficking, money laundering, or the trafficking of stolen arts and antiquities, the intelligence specialist must be a subject-matter expert both on the genre of criminality being investigated and on the unique facts associated with a specific investigation.

For example, an intelligence analyst working on cases of agroterrorism by Islamic extremists needs to understand the substantive distinctions between Shiite and Sunni Muslims, the role of sectarian extremism (notably as related to Palestine), the different Islamic terrorist groups (e.g., al-Qaeda, Hamas, Hezbollah, or Islamic Jihad) and their methods, different leaders, and methods of funding. An effective analyst must have this type of substantive intelligence.

Current state of the art. Interestingly, the public appears to believe that law-enforcement agencies at all levels of government have massive, integrated computer systems that “contain intelligence.” This misperception has been reinforced by fictions in the entertainment media, a misuse of the term “intelligence” in the news media and popular culture, and a different understanding of the concept of law-enforcement intelligence by many within the policing community.

Despite a growing emphasis on the need for law-enforcement intelligence, effective intelligence and analysis, and information sharing, a significant void still exists, notably at the state and local level. A survey conducted by the Federal Law Enforcement Training Center (FLETC) attempted to gain a perspective on the number of state and local law-enforcement agencies that had an “intelligence component” (National Center, 2003). In addition, data were collected on various aspects of training provided for intelligence analysts. Unfortunately, no previous studies make a comparison of changes over the years; nonetheless, the survey provides some insights.

Of the 1,914 agencies responding to the survey, 24.8% (N=475) reported having an intelligence component within their agency. With respect to department size, 20.8% (N=399) of the respondents reported that their agencies had more than fifty sworn officers. While not specifically analyzed in the data, observations based on resource issues lead to the reasonable conclusion that a strong correlation exists between agency size and the presence of an intelligence component. Interestingly, however, a number of larger law-enforcement agencies still appear not to have an intelligence capacity.

The goal of a comprehensive, integrated national law-enforcement intelligence network with the capacity to collect and disseminate information that has value for intelligence analysis

of counterterrorism is a notable distance from attainment. Clearly, important resource-driven factors impede this goal; however, substantive issues related to understanding the law-enforcement intelligence function also need to be visited.

The framework for new initiatives. Since the post-9/11 development of new law-enforcement initiatives, a framework has emerged that attempts to give functional direction to intelligence activities. While not overtly stated in any government document, order, or policy, collectively the goal of these initiatives may be envisioned as follows: “To support effective counterterrorism policies and practices, including prevention through threat assessment; target hardening; disruption of funding and logistical support; and apprehension of terrorists and their criminal conspirators” (Carter, 2004).

An assessment of the various intelligence initiatives leads one to conclude that four clear objectives have emerged to accomplish this goal:

1. Create a common meaning and understanding of the concept and processes of law enforcement intelligence.
2. Develop standards to ensure the highest quality of information collection and analysis.
3. Develop protocols and technologies to maximize intelligence and information sharing between law enforcement agencies at all levels of government, including both classified information and sensitive but unclassified (SBU) information.
4. Develop a culture among all law enforcement agencies at all levels of government that embodies mutual trust, common goals, and integrated practices and that supports a comprehensive approach to homeland security.

Current initiatives. As a result of 9/11, many new and revitalized initiatives in law enforcement intelligence have emerged. Most of these activities are in varying stages of development; however, a quick review of the major initiatives will provide insight about them.

Intelligence-led policing. With funding from the Office of Community Oriented Policing Services (COPS), the International Association of Chiefs of Police (IACP) held a summit in which representatives of diverse agencies at all levels of government discussed every dimension of law-enforcement intelligence: Data collection, analysis, dissemination, training, information sharing, and the protection of civil liberties. The result was a report released at the 2002 IACP meeting that proffered the concept of “intelligence-led policing” (IACP, 2002). Essentially, the plan recommends addressing weaknesses that currently exist in law-enforcement intelligence (e.g. weaknesses in analysis, poor information sharing, degrees of distrust between agencies, insufficient technological capabilities, and insufficient training on the use of intelligence). The report notes, “The most central and enduring element of the Plan advocated by Summit participants is the call for a Criminal Intelligence Coordinating Council. This Council provides an ongoing solution to the identified need for a nationally coordinated, but locally driven, criminal intelligence generation and sharing process for the promotion of public safety” (IACP, 2002).

The plan urges local, State, tribal, and Federal law-enforcement agencies, in conjunction with affinity organizations such as the IACP and the International Association of Law Enforcement Intelligence Analysts (IALEIA), to work cooperatively to remedy weaknesses in the intelligence process. To achieve their goals, the report states, all law-enforcement executives should ask the question, “What should our department or organization do *today* to begin working toward the goals of the proposed National Intelligence Plan?” Although the plan lacks a national mandate--and funding--to propel intelligence-led policing into implementation, it drew attention to important needs in the law-enforcement community with respect to criminal intelligence.

Global information sharing. Though planned at the same time as intelligence-led policing, the Global Information Sharing Initiative, funded by the U.S. Bureau of Justice Assistance, Office of Justice Programs, includes an intelligence component and seeks to accomplish many of the same goals. Global, a more broadly based initiative, embraced the concepts of intelligence-led policing and expanded them. With more funding, Global has developed more concrete plans and a variety of national standards related to intelligence and information sharing. Its early successes are based on the premise that the “key to the process is the efficient leveraging of existing efforts--the commitment to build on, not reinvent, substantial information sharing activities already underway” (Intelligence Working Group, 2003).

RISS.net and LEO. To enhance communication throughout the law-enforcement community about any type of multi-jurisdictional crime issue, two initiatives were independently created. The Regional Information Sharing Systems (RISS) created an Internet-based system, secured via a Virtual Private Network (VPN), called RISS.net. The FBI created a similar VPN-secured Web-based network called Law Enforcement On-line (LEO). Both of these networks urged State and local agencies to post important information that could help identify multi-jurisdictional criminals and further these investigations. The systems also provided secure e-mail as a common tool for communications between agencies regardless of geographic location or level of government. Neither system captured a very large audience, and in most cases each was used for its e-mail capacity more than for posting information. Moreover, the systems were not state of the art and had not been vigorously upgraded.

Because of the new emphasis on increased information sharing and communications among all law-enforcement agencies, the FBI and the RISS Centers integrated RISS.net and LEO, upgraded the technology, and provided more gateways to share counterterrorism

information, including the dissemination of FBI homeland-security information and alerts (IIR, 2003).

FBI intelligence initiatives. In light of the redefined priorities that include, in part, “protecting the United States from terrorist attack” and “supporting federal, state, local, and international partners,” the FBI has been restructured and has developed new services for the law-enforcement community. Among those services related to intelligence are the following:

1. **Office of Intelligence**, a new office at the level of Executive Assistant Director, to increase the volume and quality of intelligence both for law enforcement and for national security;
2. **CT Watch**, a 24-hour counterterrorism watch center, to serve as the FBI's focal point for all incoming terrorist threats;
3. **Communications Analysis Section** to analyze terrorist electronic and telephone communications and identify terrorist associations and networks;
4. **Document Exploitation Unit** to identify and disseminate intelligence gleaned from million of pages of documents or computers seized overseas by intelligence agencies;
5. **Special Technologies and Applications** to provide technical support for FBI field-office investigations requiring specialized computer technology expertise;
6. **Interagency Terrorist Financing Operations Section** to investigate the financial aspects of terrorism and coordinate with the financial services industry;
7. **Joint Terrorism Task Forces (JTTFs)** to partner FBI personnel with hundreds of investigators from various Federal, State, and local agencies in field offices across the country in order to conduct investigations associated with all aspects of terrorism occurring within the FBI field-office service area;
8. **The National JTTF** at FBI Headquarters, staffed by representatives from thirty different Federal, State, and local agencies, to act as a "point of fusion" for terrorism information by coordinating the flow of information between Headquarters and the other JTTFs located across the country and

between the agencies represented on the NJTTF and other government agencies;

9. **JTTF Information Sharing Initiative (JTTF ISI)**, a pilot project with field offices in St. Louis, San Diego, Seattle, Portland, Norfolk, and Baltimore, to integrate extremely flexible search tools that permit investigators and analysts to perform searches on the "full text" of investigative files—not just indices.
10. **The Office of Law Enforcement Coordination (OLEC)** to enhance the ability of the FBI to forge cooperation and substantive relationships with State and local law-enforcement counterparts, and to coordinate also responsibilities with the White House Homeland Security Council;
11. **The FBI Intelligence Bulletin**, a law enforcement journal, disseminated weekly to more than 17,000 law-enforcement agencies and to 60 federal agencies, to provide information about terrorism issues and threats to patrol officers and other local law-enforcement personnel who have direct daily contacts with the general public that could result in the discovery of critical information about those issues and threats (Mueller, 2003);
12. **FBI Intelligence Requirements and Collection Management (IRCM) Process** to direct information collection, analysis, and dissemination. A Field Intelligence Group (FIG) is being created in each FBI Field Office. In addition, the Office of Intelligence is creating a full-time "Customer Response Center" to serve FBI intelligence customers inside and outside the Bureau. The Center may also declassify information as appropriate for more effective use. The process will also prepare State, local and tribal law enforcement agencies to identify "intelligence gaps" and "intelligence requirements" in order to serve their intelligence needs better.

Automated Trusted Information Exchange (ATIX). This new program represents a significant counterterrorism upgrade to RISS.net and LEO as a mechanism to exchange information and intelligence. Because of the need for intelligence and information sharing, ATIX includes a bulletin board for posting and discussing sensitive information; a secure ATIX Web site and services for exchanging sensitive information between agencies and personnel and with links to restricted and public Web sites relating to all aspects of homeland security; and secure e-mail notification for distribution of alerts and other sensitive but unclassified

information as well as secure, encrypted e-mail between ATIX users for exchanging information and intelligence.

National Counter Terrorism Center (NCTC) . Based on the concept of a “fusion center,” which fuses diverse information to form a whole picture, NCTC brings together elements from the Department of Homeland Security, the FBI’s Counterterrorism Division, the CIA Counterterrorist Center, and the Department of Defense. Its primary goal is to close the seam between analysis of national-security intelligence and law enforcement intelligence related to terrorism. To accomplish this goal, the NCTC will continue to create a structure that ensures information sharing across agency lines--at all levels of government--and to integrate terrorist-related information collected domestically and abroad in order to form the most comprehensive possible threat picture. The NCTC will also maintain a current database of known and suspected terrorists, which will be accessible to appropriate Federal and non-Federal officials and entities. In order to carry out its responsibilities effectively, the NCTC has (or will have) access to all terrorism-related information—from raw reports to finished analytic assessments—available to the U.S. government (Wiley, 2003). It is noted that the NCTC was formerly named the Terrorism Threat Integration Center (TTIC) and was initially managed by the FBI. However, with the signing of the Intelligence Reform and Terrorism Prevention Act on December 17, 2004, the TTIC was reassigned from the FBI to the National Intelligence Director and renamed the NCTC.

Criminal intelligence systems operating policies, 28 CFR Part 23. Information used for intelligence analysis as well as analytic intelligence reports often deal with sensitive information about an individual. In some cases information is brought to the attention of law enforcement about alleged criminality, and an investigation is initiated to determine the veracity of the

allegation. There is a sliding scale of “proof” wherein judgments have to be made to determine if there is reasonable suspicion of criminality to continue the investigation. Because these grounds are legitimate for investigation, although often short of probable cause for arrest, concern has been raised by privacy advocates and civil libertarians about the kinds of information a law enforcement agency may keep about an individual and how long that information may be kept before it must be destroyed. These grounds underpin 28 CFR Part 23.

This part of the Code of Federal Regulations (CFR) is a guideline for law-enforcement agencies. It contains standards for implementing federally grant-funded multi-jurisdictional criminal intelligence systems. It specifically provides guidance in five primary areas: submission and entry of criminal intelligence information, security, inquiry, dissemination, and the review and purge process. The provision does not provide specific, detailed information about how the standards should be implemented by the operating agency but, instead, provides the ability for each agency to develop its own policies and procedures.

If a law enforcement agency does not have a federally funded intelligence system, it is not required to adhere to this regulation. However, given the public expressions of concern about the types of information maintained by law enforcement agencies, the reliance on 28 CFR Part 23 standards is a prudent decision both in terms of public relations and in order to minimize the chance of a civil rights lawsuit.

Open source intelligence. A rich source of data for background information on groups and, perhaps somewhat surprisingly, people, is referred to as “open source intelligence.” This source includes any type of lawfully and ethically obtainable information that, when integrated and analyzed, provides new insight into intelligence targets. There are two broad types of information in this genre: Analyzed reports documents and raw data.

The main qualifier for classifying information as “open source” is that no legal processes or clandestine collection techniques are required to obtain the data. While open source data has existed for some time, networking has significantly increased its accessibility. The availability of open source intelligence on a wide array of topics via the Internet is striking—and it continues to increase (Carter, 2004).

Intelligence guidebook for State and local law enforcement. Based on a grant from the Office of Community Oriented Policing Services (COPS) to Michigan State University, this project will prepare a document to serve as a toolbox for State and local law-enforcement agencies to direct them toward the development of an effective and contemporary intelligence function. The current plan for the project is to incorporate joint sponsorship among COPS, the FBI, and the Bureau of Justice Assistance (BJA) in order to maximize coordination of all Federal initiatives related to law-enforcement intelligence.

International criminal police organization (Interpol). Located in Lyon, France, INTERPOL is essentially an international clearinghouse of information related to multinational criminality and terrorism (Interpol). In recent years, Interpol has become more proactive by creating an Intelligence Directorate. Because of new demands associated with international terrorism, including its financing and logistics, the role of Interpol has become more prominent. It is of value for U.S. law-enforcement agencies to examine Interpol reports and services. To input information or make a query, all U.S. law-enforcement agencies must contact the Interpol U.S. National Central Bureau.

International Association of Law Enforcement Intelligence Analysts (IALEA). Formed in 1981, IALEIA advances professional standards in law-enforcement intelligence analysis at the local, State, national and international levels. It aims to enhance general understanding of the

role of intelligence analysis, to encourage the recognition of intelligence analysis as a professional endeavor, to develop international qualification and competence standards, to reinforce professional concepts, to devise training standards and curricula, to furnish advisory and related services on intelligence-analysis matters, to conduct analytic-related research studies, and to provide the ability to disseminate information regarding analytical techniques and methods (IALEIA).

The organization has grown significantly and has been active in achieving its goals through partnerships with the IACP and other organizations. It also pursues a publications agenda and holds annual meetings. Any consideration of the current state of law enforcement intelligence must recognize the growth, involvement, and contributions of IALEIA.

Training and Education. Several new training and education initiatives have begun since 9/11.

Drug Enforcement Administration (DEA) Office of Training, Intelligence Training Unit. The DEA has long been recognized for the quality of training it provides through the Intelligence Training Unit of the DEA Academy at Quantico, Virginia. DEA intelligence training focuses on information research and intelligence analysis through the nine-week Basic Intelligence Research Specialist (BIRS) program. The DEA also offers an advanced intelligence training program as well as specialized programs related to the use of different databases and the classified DEA proprietary intelligence computer system, Merlin.

Because of the historic role of DEA working with State and local law enforcement agencies and the inherent need for intelligence in multi-jurisdictional drug investigations, the DEA developed a four-week Federal Law Enforcement Analyst Training (FLEAT) program that is specifically directed to State and local law-enforcement agencies. The program is offered in

different cities throughout the United States to enhance the ability of State and local agencies to send intelligence personnel to this tuition-free program. While the program has historically focused largely on drug enforcement, it is currently being revised to include a component related to both domestic and international terrorism.

Federal Bureau of Investigation (FBI) College of Analytical Studies. Since 9/11, the FBI was mandated by both the Attorney General and provisions of the USA PATRIOT Act to focus on terrorism as its top priority. The mandate necessitated a number of changes in the Bureau, including expanding its law-enforcement intelligence capability and working closely with State and local law enforcement agencies on terrorism investigations through the Joint Terrorism Task Forces (JTTF). The needs precipitated by these changes included developing the ability to educate FBI personnel and State and local JTTF intelligence personnel to analyze intelligence. The FBI's College of Analytic Studies offers a six-week course focusing on intelligence processes, intelligence methods, and specific FBI intelligence systems and practices related to terrorism. Each session of the course has 25% of the course capacity reserved for State and local law-enforcement personnel who have Federal security clearances and are working with the JTTF in their region.

Federal Law Enforcement Training Center (FLETC). Serving 76 Federal law-enforcement agencies, FLETC has a massive training responsibility. For several years, the Financial Fraud Institute (FFI) of FLETC has offered a four-week intelligence course that focused on intelligence theory, research, and analysis. When the new Department of Homeland Security (DHS) acquired a significant intelligence responsibility through its Information Analysis and Infrastructure Protection directorate, the need for revitalizing intelligence training emerged. Moreover, FFI personnel assessed the need for intelligence training and, in light of the

mandate for State and local law enforcement to be involved in counterterrorism efforts, defined the need for intelligence training that focused on various responsibilities for intelligence analysts, managers, and line-level personnel (Manzi, 2003). As a result, the FFI began working with the FLETC National Center for State and Local Law Enforcement Training to conduct a needs assessment among State and local law-enforcement agencies and to develop intelligence courses to meet their needs.

General Counterdrug Intelligence Plan (GCIP). The General Counterdrug Intelligence Plan (GCIP) of February 2000 was revisited in 2002. It once again called for the creation of an interagency-validated, basic law-enforcement analytical course that could be used by law enforcement at all levels of government. This initiative created an intelligence-analyst training curriculum called *The Community Model*. Guiding the process was the Counterdrug Intelligence Executive Secretariat (CDX), with subsidiary working groups representing Federal, State, and local law enforcement.

This curriculum builds on the earlier work of the Generic Intelligence Training Initiative (GITI) developed in 2000-2001 as well as other intelligence training programs, notably those from Federal agencies such as the DEA intelligence analyst and intelligence researcher course, a program developed by the National Drug Intelligence Center, and a course offered by the U.S. Customs Service at FLETC.

Training summary. Law-enforcement intelligence training continues to evolve, and a number of important initiatives are now underway to deliver improved basic and specialized analyst training at the State and local levels. In addition to the programs described thus far, intelligence training initiatives include the National White Collar Crime Center's (NW3C) Analyst Training Partnership, the Regional Counter-drug Training Academy operational

intelligence course, the High Intensity Drug Trafficking Area (HIDTA) program, and a new intelligence-analyst training program offered by the Florida Department of Law Enforcement.

The influence of drug enforcement is unmistakable in these intelligence-training initiatives due to the notable emphasis on drug enforcement beginning in the 1980s after President Reagan declared drugs to be a national-security threat. Of course, today the emphasis on intelligence training is directed at counterterrorism. Despite the changes in subject-matter focus, the methods and processes of the intelligence discipline remain virtually the same except for, perhaps, the rapidly changing technological resources.

Intelligence degree programs in higher education. In recent years, the academic community has increasingly recognized the need for coursework in law-enforcement intelligence that incorporates broad multidisciplinary issues, research, and a philosophical approach. While a number of institutions have sporadically offered courses on the topic, three programs do offer degrees in law enforcement intelligence: Michigan State University, Mercyhurst College in Erie (PA), and the Joint Military Intelligence College (JMIC), located at Bolling Air Force Base.

Training and education conclusions. Law-enforcement intelligence is evolving rapidly. Training standards are emerging, the need for special expertise in intelligence analysis is being recognized, applications of intelligence are increasingly holistic, unprecedented initiatives for information sharing are being undertaken, and significant emphasis is being given both to the analysis of reliable information and to the protection of citizens' rights. Diverse resources are emerging to help usher in changes: Federal agencies are funding developmental initiatives, universities are developing educational programs, and private vendors are creating software and other tools to aid the analytic function. The next challenge is for all of law enforcement to embrace these changes as tools to combat crime and terrorism more efficiently and effectively.

RESEARCH INITIATIVES

Kansas Regional Response Teams

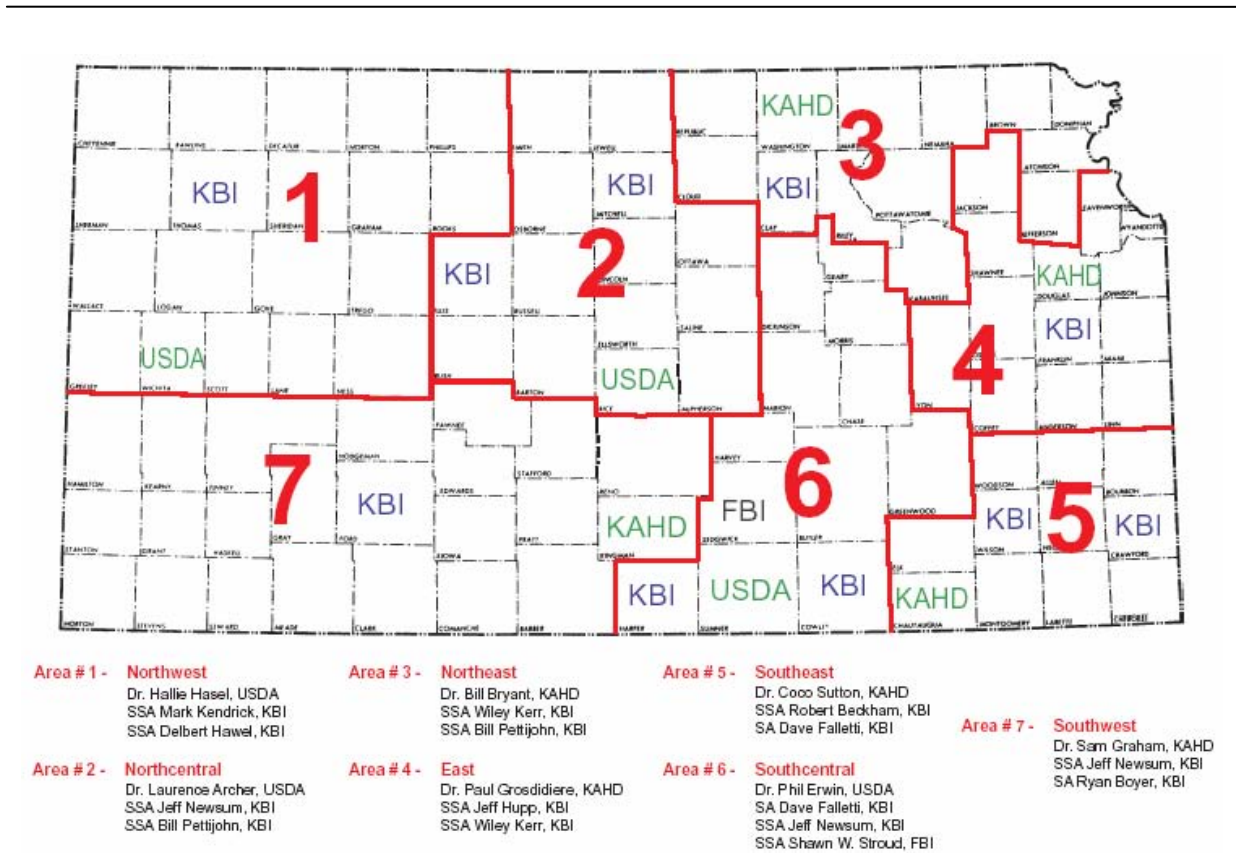
In treating animal health issues as possible acts of terrorism, two basic questions must be answered. First, will veterinarians handle animal tissue samples, blood samples, and disease-related material consistent with evidence-handling procedures required for criminal justice proceedings? Second, will responding law-enforcement officers be capable of dealing with viruses, bacteria, and unfamiliar surroundings associated with an outbreak of a foreign animal disease?

The answer to both questions lies in the creation of unique animal health response teams that combine the expertise of both veterinary medicine and law enforcement. For the state of Kansas, seven regional response teams were established, each one with a field veterinarian from either the Kansas Animal Health Department (KAHD) or the U.S. Department of Agriculture (USDA) and a special agent from either the Kansas Bureau of Investigation (KBI) or the Federal Bureau of Investigation (FBI). This dynamic partnership addresses both animal-health and contamination issues with a focus on maintaining the integrity of a crime scene during a foreign animal-disease outbreak.

It is not enough simply to designate response teams throughout a region and wait for some type of animal-health crisis. The key to making the response successful is full integration of the teams, a task that can be accomplished through training, field exercises, and other events designed to bring about a common awareness of and appreciation for each team's discipline and expertise. One helpful factor in Kansas is that a number of the special agents were raised on farms and are very familiar with the livestock industry and its surroundings.

The first joint training session featured presentations on foreign-animal diseases; on an overview of the livestock industry; and on the collection, documentation, and preservation of physical evidence. Procedures were agreed upon for the transportation of any animal tissues or blood samples for analysis to the Animal Disease Center, Plum Island, New York.

Figure 19 - Regional Response Teams in Kansas



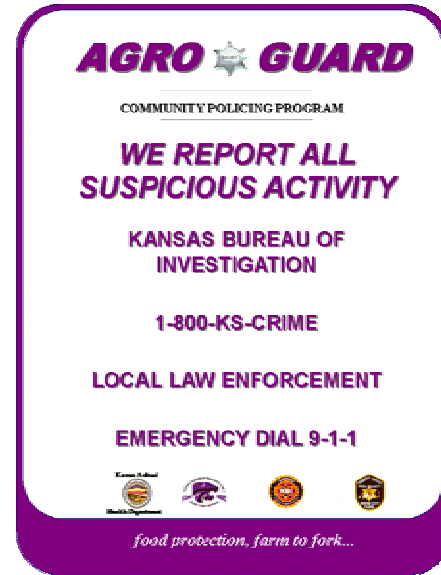
Agroterrorism Regional Response Teams, created in 2004 throughout Kansas, are unique emergency response teams that combine the expertise of law enforcement and veterinary medicine. These teams, comprised of KBI/FBI special agents and KAHD/USDA field veterinarians, will be deployed when a foreign animal disease is determined to be “highly likely” by the Kansas Livestock Commissioner.

Source: KBI and Kansas Animal Health Department

Agro-Guard Community Policing Program

Agro-Guard is a component of the community policing program developed by the Ford County Sheriff's Office in Dodge City, Kansas. Best described as a neighborhood-watch program for the agriculture industry, this proactive initiative is designed to educate front-line employees and stakeholders on the principles of identifying and reporting suspicious events to police. Signs (Figure 26) are posted throughout the livestock industry to indicate the level of alertness in guarding against criminal activity. When employees in the industry are trained on the threats of, vulnerabilities to, and potential costs of agroterrorism, they can apply that kn

Figure 20 – AGROGUARD Sign



Source: Ford County Sheriff's Office

kinds of events that are outside the scope of normal activity. Empowering stakeholders to police the industry, report suspicious activity, and appropriately manage the risk in their facilities makes them active partners in protecting the nation's food supply. The significant communication gap between law enforcement and the agriculture industry must be closed in order to increase the chances of preventing an act of agroterrorism. Agro-Guard can help build a partnership and narrow or eliminate the gap.

U.S. agriculture is globally oriented. Not only do domestic events, both negative and positive, affect the markets, but U.S. markets react to events in Canada, Mexico, and overseas. A human death, believed caused by Creutzfeldt-Jacobs, the human disease form of bovine spongiform encephalopathy (mad cow disease), occurred in Canada in August 2002. Fears that

there would be more related deaths and that the disease might be in the food chain led to the subsequent fall in fast-food stocks prices by as much as 30%. In northeast Kansas in March 2002, rumors of foot-and-mouth disease (FMD) in cattle at a public auction created panic in the industry and eventually found their way to the Chicago Board of Trade, resulting in an estimated \$25 million market loss. Any event of this nature, real or rumored, related to the food chain must be diligently investigated by animal health, public health, and law-enforcement officials in order to protect human lives and reduce the potential economic effects.

Figure 21 - Livestock Stakeholders

Communities close to large food-chain facilities also face challenges. Large processors have commonly located in rural communities with populations of less than 50,000. Larger beef packers may employ nearly 3,000 people. In an agroterrorist event that leads to the industry shutdown, these thousands of employees are without work and on the streets. For law enforcement and first responders, this possibility should be of great concern.

-
- Producers
 - Veterinarians
 - Feeders
 - Packers
 - Extension Agents
 - Aerial/ground Applicators
 - Transportation
 - Cooperatives
 - Retailers
 - Wholesalers

Source: Ford County Sheriff's Office

Finally, long-term costs within the industry derive from having to repopulate animal herds lost to euthanasia in a highly contagious disease event.

Ken Winter, owner and manager of Winter Livestock, pointed out the vulnerability a feeder facility: "My fences were made to keep cattle in, not terrorists out!" This problem is

largely true across the industry. With exception of the large processors, who employ guard services, few have any physical security measures of value. Interestingly, a number of vulnerable feeder facilities are located next to major highways and some even have county roads passing through them. Like most, the Winter facility occupies hundreds of acres, making it virtually impossible to fence it in or place it under video surveillance. From a risk-management standpoint, persons on the ground, employees, and other stakeholders offer the most sensible attempt at securing the sector.

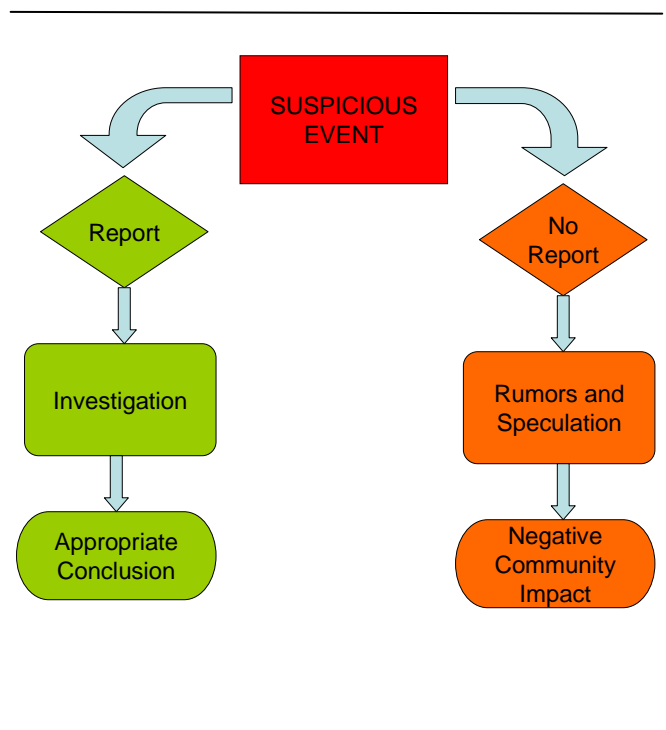
Thus, the roles of industry personnel become important in terms of homeland security. Figure 27 helps us understand who stakeholders are and helps clarify what their roles might be. Industry personnel, cowboys, truck drivers, security guards, aerial applicators, and cooperative employees now become the first line of defense. They must be more diligent in enforcing premise biosecurity and reporting suspicious activity.

Media outlets readily report that international terrorists groups (e.g. al-Qaeda) are interested in damaging the U.S. economy. Shortly after the Afghanistan invasion by the U.S. military after 9/11, laptops were seized that had information related to attacks on U.S. agriculture. Domestic groups that have agendas related to animal-rights or environmental issues may also pose a significant threat. Newkirk, Founder and President of People for the Ethical Treatment of Animals (PETA), openly states that a foot-and-mouth disease outbreak in the United States would be “good for animals, good for human health and good for the environment”(2001). Further, Vlasak, a known advisor to animal-rights groups, offers that killing researchers may lead to saving the lives of millions of animals (2004). Although these groups may not perpetrate an agroterrorist attack, public statements such as these may serve to motivate to others.

Most consider biological agents (e.g. foot-and-mouth disease) to be the greatest threat in agroterrorism. While largely true, these agents and others could be equally damaging to livestock production. Because of their availability in agriculture, chemical agents also represent a significant threat. The industry relies heavily upon herbicides, pesticides, and fungicides to protect the food supply. These chemicals are readily available in certain venues. Applicators of these chemicals commonly store them at facilities that are secured with only a padlock. The introduction of a chemical agent into the feed supply of livestock will result in the loss of a number of animals simply because of the way they are fed. More importantly, the introduction of chemical agents into the human food supply may be even more devastating, especially given the time needed to identify the agent and its origin clearly. Planners also cannot overlook the potential harm of a strategically placed nuclear, radiological, or other incendiary device.

Figure 22 - Report Suspicious Activity

Equal focus on prevention. There have been considerable efforts at planning and exercising response to an agroterrorist event. This practice shows that the costs of response could easily reach billions of dollars, and the required resources in equipment, personnel, and expertise may be in short supply. Further, no one can accurately predict the level of panic that may arise in a large-scale food-chain attack. The value in preventing panic can not be understated.



Prevention also involves reducing opportunity, which happens by promoting and practicing good biosecurity and physical security principles (e.g. locking doors and gates.)

Employees know suspicious and unusual activity in daily routines. Reporting suspicious activity may lead to intervention and subsequent prevention of an attack. Prevention may very well begin with a local police officer's inquiry to the National Crime Information Center as a result of investigating suspicious activity.

Reporting suspicions. Relying on industry personnel to be better policemen of the industry means that they should be trained in identifying suspicious individuals and activity. From a law-enforcement standpoint, a certain amount of data is required to respond to calls for service, including specifics about persons and vehicles, as well as the specific activity and the times and dates of occurrences. Nearly all suspicious activity can be explained if it is reported in a timely manner. As Figure 22 demonstrates, the longer the report is delayed, the less likelihood a reasonable explanation will be uncovered. Speculation that finds its way to the market or the media will likely have some economic effect.

Anything that professionals deem suspicious should be reported. They are the experts. Any validated criminal activity will be entered into a law-enforcement intelligence database and may lead to saving the life of a police officer. Several incidents linked together tell a story that may prevent a criminal act. Preventing thefts or other crime against a facility or its owners and employees is equally valuable. Figure 23 identifies activities that are worthy of reporting to law enforcement. Witnesses are instructed to report crimes in progress to 911 as an emergency and other information to local officials.

Figure 23 - Examples of Suspicious Activity

- Unexplained technology interruptions and vandalism
- Suspicious communications via phone or email
- Unusual signs and symptoms in animals
- Suspicious activity around trucks stops, load out, and scales
- Tests of physical security and unauthorized photography
- Disgruntled employees making threats
- Attempts to purchase veterinary medicines or vaccines
- Attempts to rent chemicals or equipment
- Questions about specific processes
- Animal rights activities

The role of law enforcement. Law enforcement at every level must understand that it has various roles. First, law enforcement must understand that helping to protect the food chain involves taking seriously reports of suspicious activity related to the food chain. There must be an aggressive response to these reports. Law enforcement must also understand that farms, ranches, feedyards, chemical storage facilities, cooperatives, and meat-processing facilities are all integral components of the food chain. Thefts of animals (e.g. cattle, swine, and sheep) must be investigated with new investigative methods that take agroterrorism into consideration. It is plausible that a criminal organization may steal animals with the intent of infecting them and placing them back into the population. Thefts of medicines, vaccines, and any livestock-related equipment should be of concern and carefully investigated. It is critical, too, that law-enforcement officials forward these reports to their states' threat-integration centers or law-enforcement intelligence units or networks.

Law enforcement at all levels must realize the value of intelligence gathering and dissemination. Intelligence information is collected and shared across local, State, and Federal networks. Similar incidents may occur across state lines and, when reported, may lead to a prevention and apprehension strategy.

Information that is shared, both domestically and internationally, makes its way to law enforcement for evaluation. If evaluation of information by the FBI Terrorism Threat Integration Center (TTIC) shows that it meets certain criteria and pertains to terrorism, associated names and vehicles may be entered into the Terrorist Screening Center (TSC) database. In addition, information generated by local police agencies may be evaluated in conjunction with the FBI Joint Terrorism Task Force (JTTF) and forwarded for evaluation for entry into the TSC. Simultaneously, FBI counterterrorist activities and other JTTF and Department of Homeland Security (DHS) activities also may be forwarded for evaluation and subsequent entry. Through queries to the National Crime Information Center (NCIC), a TSC interface may provide local officers with a TSC hit on an individual under investigation for any number of reasons.

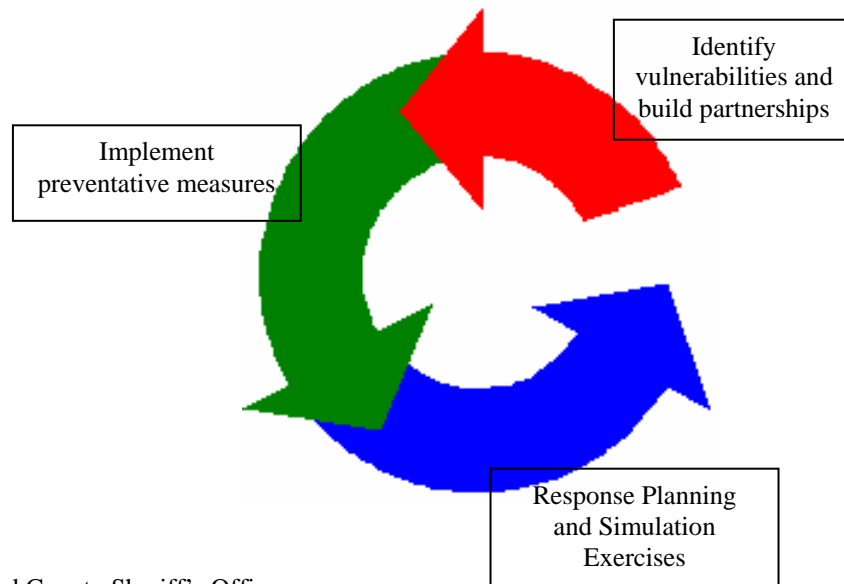
Law enforcement must be able to share information with the industry. Current restrictions on release of information sometimes prohibit daily sharing of general information that might lead to intervention. Specific threat information will be shared with the particular target of the information.

Managing the Risk. What dollar amount can be placed on insuring a safe food supply? Risk management in this case may best be accomplished by the most valuable asset, the employee. The eyes and ears of the industry, linked to aggressive law-enforcement response and investigation, may very well be the most cost-effective measure for securing this soft target and for having any chance of preventing an act of agroterrorism. The value of deterrents cannot be overstated. First and foremost, employees that are safe in their actions, observant, seen and heard by visitors, and inquisitive and vigilant in closing gates and locking doors provide a high level of protection. Agro-Guard signs may also provide a needed deterrent, especially when a clear message is sent to those with questionable intentions who enter food-chain facilities.

Knowledge that their actions are being observed may make those with criminal intent reconsider, and prevention may in fact occur.

Nearly 130 participants evaluated the Agro-Guard concept on December 15, 2004, in Dodge City, Kansas. In Great Bend, Kansas, almost 90 more participants attended the program.

Figure 24 - Cycle of Preparedness



In February 2005, in Emporia, Kansas, a similarly sized audience participated. Industry professionals expressed interest in the program: they were given additional program brochures for their employees and Agro-Guard metal signs for installation at their facilities.

Smuggled-Food Interdiction Teams (SFIT)

Smuggling or trafficking of illegal food product may represent a serious threat to agriculture, especially in communities where a transient labor force that is employed within the industry trades heavily in illegal food products. Agriculture attracts a large number of legal and illegal immigrants, who provide demand for these products, into communities. The U.S.

Department of Agriculture (USDA) implemented the Safeguarding, Intervention, and Trade Compliance (SITC) team through its Animal and Plant Health Inspection Service (APHIS) and Plant Protection and Quarantine (PPQ) programs. SITC officers work across the United States to identify smugglers and confiscate these products. Of great concern to beef and swine producers are meat products that may find their way into the United States illegally. Un-inspected products may harbor diseases or pests that could disrupt the U.S. agriculture industry.

Throughout the animal-health, public-health, and law-enforcement communities, response planning related to the agroterrorist threat is increasing. In the first focus group for this project, smuggling was identified by agriculture industry professionals as a threat, despite the ongoing effort at the U.S. border to identify products being brought into the country that may contain plant or animal pathogens. Any number of pests, noxious weeds, and even animal diseases such as hog cholera--better known as classical swine fever (CSF)--or even foot-and-mouth disease (FMD) can live in these products. For example, Chimex brand bologna has been found to foster the CSF virus. A high death loss, sometimes as much as 60–80%, could occur if the CSF virus entered a healthy swine population (Graham, 2003). It is important to understand that trade agreements allow the entry of meat and other products into the country, but without the inspection process, such a disease might be accidentally or intentionally introduced.

The demand for smuggled products comes mostly from the migrating labor forces that work in industry facilities, and have little awareness of any potential threat it may possess. The labor force of mostly Mexican and Asian backgrounds buy these products on a regular basis. For example, in southwest Kansas, the SITC team has confiscated hundreds of pounds of the bologna destined for those consumers. The product is most likely found in ethnic markets and occasionally in supermarkets that have unknowingly purchased the illegal product.

It is commonly accepted that individuals who purchase these products may carry them into agriculture facilities in their lunchboxes. There is a potential for the disease to live in the product and be introduced either by physical contact with those who have handled the product or by mishandled product packaging. Further, virulent viruses may live in the product packaging materials for a period of time. After being discarded in the trash, this packaging could be moved by domestic or wild animals or the wind into confinement facilities or nearby susceptible species.

Because of the threat to the industry, the USDA implemented SITC teams. One team operates out of a regional office in Ft. Collins, Colorado, with branch offices in Oklahoma City, Oklahoma, and Kansas City, Missouri. The region consists of eight states, including Kansas, Oklahoma, Colorado, Louisiana, Missouri, Nebraska, Iowa, and Arkansas. The team works with animal- and public-health officials in identifying any product that may constitute a threat to the agriculture community. Everything from citrus meat products is inspected by the team and confiscated if illegal.

Agroterrorism Training for Law Enforcement: National Module

Training law enforcement to identify, prevent, and investigate agroterrorism cases has, until recently, received little consideration. However, legitimate and serious concerns about the safety and vulnerability of the food chain beginning with the feed lots all the way through the end product in the grocery store have arisen. Acknowledgement of the issues is only the beginning. Failure to actively include law enforcement has been viewed as being a serious weakness and attempts are currently underway to significantly alter the past shortcomings.

Target- Specific Training for Law Enforcement

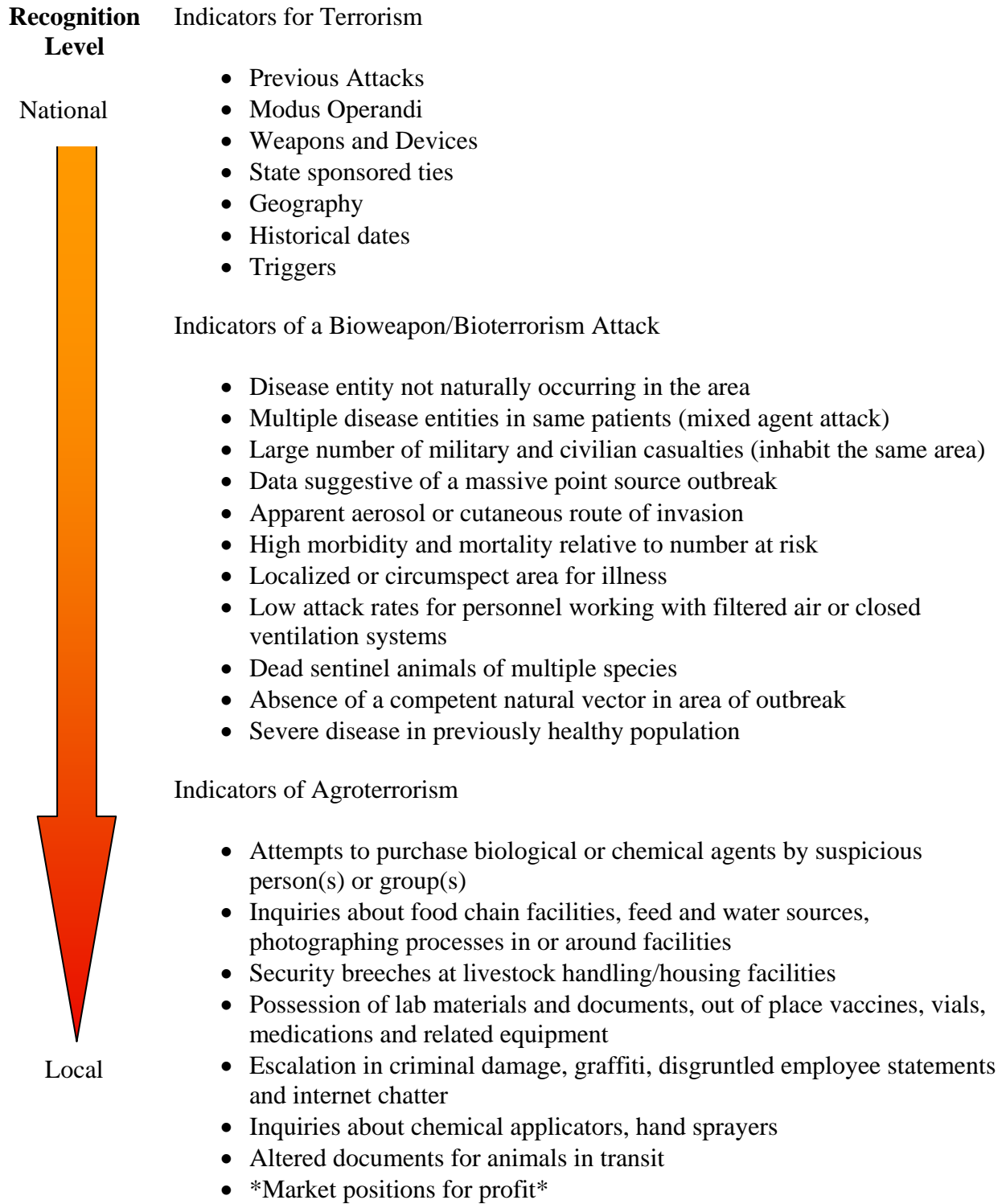
Clearly, training on agroterrorism represents a new challenge for law enforcement. It is important to both identify agencies that may be dealing with such issues and to present a perspective that encompasses the realities of a potential attack. Understandably, not all law enforcement agencies will need to be trained in agroterrorism prevention, detection, and investigations. However, many agencies do not realize the importance of their role, nor do they acknowledge the need for such training.

As is the case with other types of law enforcement training, it is important to define law enforcement's role and to clearly articulate the benefits of the program and to answer "what's in it for me?" question. Failure to understand the vital role that law enforcement plays undermines the importance of their participation in protecting the food chain.

Training should encompass different levels of the agencies, beginning with the top administrators such as the Chief or Sheriff and trickling down to investigators and line level officers. Oftentimes, law enforcement training first involves a commitment by the top administrators, who in turn, either support or minimize the need for such training. Failure to convince such individuals of the necessity of this particular type of training will most certainly lead to a training program that, although very important, falls on deaf ears or simply falls flat. It is important to realize that training which targets such individuals should not be fraught with minute details, but should be what is deemed more of an awareness program.

The need to provide more in depth training clearly should be reserved for investigators who will be actively involved in the actual case. Training that includes minute details is best reserved for such individuals who will be working side-by-side with animal health experts, feed lot operators, etc.

Figure 25 - Terrorism Indicators



Line level or patrol officers would best be served attending training programs that provide a balance between awareness and vigilance. Being educated about the potential terrorist groups, their motivations, how they typically go about identifying their targets, and lastly, how they conduct acts of terrorism or extremism is of the utmost importance. Knowing what indicators to potentially look for and how to articulate such details to the investigators should take top priority.

Community Training

Identifying the need for law enforcement training on agroterrorism is, simply put, only one part of the puzzle. In fact, community awareness training is, in many cases, as important as law enforcement training. Reliance on the community to aid law enforcement is the backbone of the community policing philosophy. As is the case with any type of criminal activity, understanding the importance of community involvement in the detection and prevention of such acts has been clearly demonstrated. Agroterrorism is no different in terms of the need to actively include and encourage community input, information, and the contribution that may result in the emergence of law enforcement intelligence.

In the case of agroterrorism, the term “community” refers to a variety of potential participants: the feed lot operators and employees, the residential community, and local businesses. Several aspects related specifically to training the community are as follows; fear reduction, development of volunteers, providing citizens with information about agroterrorism and indicators to aid in the prevention, and encouraging reporting suspicious activity to law enforcement.

Immediately following the attacks on 9/11, fear in the United States was clearly at an all time high. The uncertainty of exactly what had occurred and what may still occur quickly

became an overwhelming thought leading to extreme cases of an overreaction by an uninformed public. However, once the information and facts were reliably conveyed to the public, fear reduction and a return to a sense of normalcy began to prevail.

In the case of Agroterrorism training for the community, the ideal situation is prevention. Providing an awareness program to the public in an attempt to prevent such an attack before it occurs is the goal. However, if such an attack were to occur, the focus immediately shifts to the need to provide reliable information to the public to help reduce irrational fear.

It is also important for law enforcement to identify volunteers who would be able to provide their services and/or equipment in case such an attack occurs. Waiting until an attack or perhaps a feedlot occurs is not the right time to start the search for volunteers.

Lastly, the goal of providing an awareness program to the community on Agroterrorism is two-fold. First, it is of the utmost importance that the community is made aware of what constitutes agroterrorism. Providing an overview coupled with practical information regarding what to do if something or someone appears suspicious is vital for the community program. In addition, it is the responsibility of law enforcement to encourage the community to report unusual activity, regardless of whether the information is useful or discarded.

Utilization of the RCPI Network

In 1997, the Office of Community Oriented Policing Services (COPS) of the U.S. Department of Justice funded the creation of the only national training network referred to as the Regional Community Policing Institutes (RCPIs) to provide comprehensive and innovative community policing education, training, and technical assistance to COPS grantees throughout the nation. The role of the RCPIs has expanded significantly since their inception. Training and technical assistance no longer solely targets COPS grantees, but has increased their participant

pool to include those law enforcement agencies that have never received COPS grants as well as representatives of government and community.

Currently, there are total of 28 RCPIs that service the entire the United States. Each RCPI is made up of a partnership with, in most cases, a University or College, a number of law enforcement agencies, and non-profit community organizations. Each Institute is tasked with providing training and technical assistance to a pre-determined region. However, with the expanding role of the RCPIs, training that was once developed and delivered within an RCPI's region exclusively now has the potential to become delivered throughout the entire the network.

The Wichita State University RCPI services Kansas and Nebraska and has provided extensive training to hundreds of law enforcement personnel in both states at no charge. Training has included basic community policing, technology and policing, ethics, domestic violence, racial profiling, basic power Spanish, intelligence, counterterrorism, explosives awareness, and most pertinent to this project, training on agroterrorism for law enforcement. Training focuses on collaborative partnerships and problem-solving strategies for criminal justice practitioners, local and state government officials, business leaders and community leaders.

The precedent for the delivery of law enforcement training throughout the entire United States or particular regions has been set. Training on agroterrorism no doubt is quickly becoming a topic that is recognized not only locally, but at the federal level, as being of unquestionable importance. Admittedly, this type of training is more relevant to particular regions of the country and therefore, envisioning it perhaps being delivered in those areas is a very realistic expectation.

Training Delivery Methods

As a requirement by the COPS Office, the RCPIs deliver training using adult-learning principles via interactive classroom instruction, CD-ROMS, community forums, teleconferences and the Internet and strive to provide a forum in which law enforcement and community members can discuss sensitive issues.

Being acutely aware that certain areas of the region may not have the capacity to support training that is provided in a technical medium, modification of programs to fit the needs and capabilities of each area is not problematic. In fact, the RCPIs have consistently made necessary modifications to adjust to the abilities and needs of agencies, organizations, or community groups without compromising the integrity or content of the program(s) being offered.

On-Line Training

In addition to the delivery of training through the regional COPS facilities, an agroterrorism training video has been produced and is available through TRAIN (TrainingFinder Real-time Affiliate Integrated Network). TRAIN is the most comprehensive training database of nationwide learning opportunities for professionals involved in protecting the public's health and well being. TRAIN, a no-cost training provider, is currently available in 26 states, and can be accessed through www.train.org.

This website facilitates training with a special emphasis on public health issues, public health threats, terrorism/emergency preparedness and response, bioterrorism, and animal health issues. TRAIN, through a program developed by the Columbia University School of Nursing Center for Health Policy, also offers competency training in the field of Bioterrorism and Emergency Readiness. This program is funded by the U.S. Center for Disease Control and Prevention.

A Law Enforcement Training Model

A method that has been shown to be particularly effective is the train-the-trainer model. Training a small cadre of trainers who, in turn, will be responsible for providing training to the rest of the service region has proven to be a consistently useful method. Utilization of such a model for agroterrorism training would be encouraged. However, given the technical and scientific nature of the subject matter it would be necessary to identify individuals who had some basic understanding of the materials ahead of time.

Marketing the training to those most suitable to deliver the training, as in the case of the train-the-trainer, and those who are likely candidates to attend the training is crucial. In addition, developing training programs that fit the needs of the attendees and the agencies they represent (time, personnel, etc.) will improve the chances for holding a successful training session.

This module outlines agroterrorism training requirements for law enforcement officers. This training is mostly directed towards law enforcement officers in rural area's highly reliant upon agriculture, especially the livestock facet, but also includes an overview other law enforcement duties including; traffic movement, evidence collection, crime scene requirements, interview techniques, and most importantly intelligence collection and dissemination. (See Appendix)

External Funding

Given the importance of training on the topic of agroterrorism, seeking external funding to support such a program nationwide is vital. As stated early on, this topic has only recently

gained the attention of agencies that recognize the need for such training and have the dollars to fund such initiatives.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the findings of this 21-month study, the research team was unanimous in reaching the following conclusions:

1. Agricultural experts are in full agreement in their assessment that foot-and-mouth disease (FMD) represents the greatest threat to America's agricultural economy. An FMD outbreak would result in immediate cessation of beef production and beef exports, economic chaos, loss of public confidence in U.S. food safety, and destruction of millions of cloven-hoofed animals during the eradication process. Recovery could take years.
2. An outbreak of FMD would have catastrophic consequences for law enforcement with its *insufficient* resources and *inadequate* procedures to cope with quarantines, statewide stop movement orders, and criminal investigations. Quarantine of infected premises and stop movement orders would remain in effect for a minimum of 30 days, presenting a nearly insurmountable task for law enforcement.
3. Law enforcement has remained primarily in a reactive, if not passive, mode in acknowledging agroterrorism as a serious threat. With the exception of a few county sheriffs, law enforcement has not developed preventive strategies to protect agriculture, nor have they developed coordinated emergency response plans to deal with a foreign animal disease outbreak.
4. Law enforcement intelligence concerning threats to agriculture is practically non-existent. At this time, State and Federal intelligence networks are receiving little, if any, criminal information from local law enforcement concerning suspects and suspicious activity related to the agriculture industry.

5. Given the dire economic consequences, the United States can not afford an outbreak of a foreign animal disease, particularly FMD. The most effective deterrence in preventing an act of agroterrorism would be the development of new partnerships between law enforcement and agriculture. Much like the concept of community policing that emerged in the early 1990s, law enforcement should work with members of the agriculture industry to understand early warning signs, develop proactive measures, and develop informant sources who would report any potential criminal activity, including possible threats of terrorism.
6. Numerous research articles, publications, and academic papers were found on the subject of agroterrorism. However, this published information was limited to discussions on animal health diseases/viruses, threats to agriculture, veterinary medicine, and the economic impact of agroterrorism. Law enforcement's role in protecting American agriculture was seldom mentioned and never received serious consideration.

Recommendations

1. Agroterrorism is a phenomenon that *cannot* be resolved by local, state, or federal law enforcement operating independently. Rather, it represents a threat to our national economy and, as such, should be treated as a priority within our nation's homeland security strategy. In keeping with Homeland Security Presidential Directive-9 (HSPD-9), it is recommended that law enforcement become a *full* partner in providing protection against a successful attack on American agriculture and its food system. As directed by President Bush, the Department of Homeland Security (DHS) should provide leadership to counter the serious threat of agroterrorism by developing a comprehensive, fully-

coordinated national strategy to protect American agriculture. From a law enforcement perspective, DHS should provide the following coordination:

- a. Provide overall coordination of proactive initiatives developed and implemented by local, county, state, and Federal law enforcement;
 - b. Establish and maintain a public-access Web site to serve as a current source of information focusing on law enforcement and animal health issues associated with agroterrorism;
 - c. Provide advanced levels of training and educational symposiums on complex issues associated with agroterrorism; and
 - d. Serve as a clearinghouse for proactive initiatives which addressing the threat of agroterrorism.
2. In keeping with the principles of community policing, law enforcement should address agroterrorism by initiating preventative strategies within their respective communities.

During this research project, a series of proactive measures were developed and implemented on a trial basis, and are now recommended for implementation by agencies throughout the United States. These strategies include:

- Agro-Guard is a community policing partnership between agriculture and law enforcement featuring the reporting of suspicious activity, posting warning signs throughout the livestock industry, and holding community meetings with presentations on law enforcement and animal health issues;
- Regional Response Teams are comprised of KBI and FBI special agents and KAHD and USDA field veterinarians. These specially-trained teams combine the expertise of criminal investigators and veterinary medicine in responding to threats targeting the livestock industry; and
- Smuggled-Food Interdiction Teams are comprised of local law enforcement officers and USDA inspectors. These interdiction teams conduct investigations to identify and seize illegal food products being smuggled into the United States and sold at local markets and outlets.

3. It is recommended that preventive initiatives developed by local, State, and Federal law enforcement addressing agroterrorism be properly funded by Federal appropriations designated within the Department of Homeland Security's annual budget.
4. It is recommended that USDA pursue additional funding for the Animal and Plant Health Inspection Service (APHIS) to expand its interdiction capabilities throughout the United States. APHIS was initially established to reduce un-inspected food products being smuggled into the United States (i.e., meat products such as sausage and bologna which could be contaminated with an FMD virus). Despite being seriously under-funded, APHIS has been somewhat effective.
5. As an effective investigative tool for law enforcement and animal health epidemiologists, it is recommended that the National Animal Identification System (NAIS) be implemented on a nationwide basis as a mandatory requirement. Currently, NAIS is a voluntary practice. It would be difficult to conduct a criminal investigation and trace the origin of an outbreak of a foreign animal disease without the assistance of a national identification system.
6. With the development of the National Counter Terrorism Center (NCTC) as an intelligence-sharing database for law enforcement, it is recommended that criminal subjects and suspicious activity related to agroterrorism be designated as a specific program within NCTC. Local law enforcement relies on databases such as NCTC to make informed judgments when dealing with criminal suspects and potential terrorists.
7. It is recommended that the Office of Community Oriented Policing Services (COPS) of the U.S. Department of Justice authorize an agroterrorism awareness training program for law enforcement officers. This national training program, to be funded by Office of

Domestic Preparedness (ODP) grants from DHS, could be administered by the Regional Community Policing Institute (RCPI) through its 29 regional offices at no cost to local law enforcement.

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APPENDICES

Definition of Terms and Organizations:

Agromovement.

Agromovement is the continuous cycle of movement required in farm-to-fork food production, including all aspects of animal transportation and the transportation of finished products destined for distribution or export throughout the world (Lane, 2002).

Agroterrorism.

1. Agroterrorism is the deliberate introduction of a disease agent either into livestock or 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 upset the physical or psychological equilibrium of a human or to cause mass socioeconomic disruption (Chalk, 2004, p. xi).

2. Agroterrorism is a specific form of bioterrorism in which biological weapons target agriculture to cause economic damage and instability (Spickler & Roth, 2004, p. 8).

Animal and Plant Health Inspection Service (APHIS).

APHIS, a division within the U.S. Department of Agriculture, is responsible for protecting and promoting U.S. agricultural health, administering the Animal Welfare Act, and carrying out wildlife damage management activities. One of APHIS' primary objective is to provide the U.S. with safe and affordable food <<http://www.aphis.usda.gov>>.

Bioterrorism.

1. Bioterrorism is the use or threat of use of biological agents by individuals or groups motivated by a political, religious, ecological, or other ideology to achieve a specific objective or purpose (Carus, 2002, p. 3).

2. Bioterrorism is the intentional use of microorganisms or toxins derived from living organisms or viruses to cause death or disease in humans, animals, or plants in civilian settings. Biological weapons differ from chemical weapons as the latter are human-made poisonous substances that kill or incapacitate (Spickler & Roth, 2004, p. 8).

Crime Triangle.

The crime triangle includes the offender, victim/commodity, and location of a criminal act, including an act of terrorism. Intelligence analysis begins at the most basic level and involves collecting information about the crime triangle (Carter, 2004, p. 58).

Criminal Intelligence.

1. Criminal intelligence is a combination of credible information which has been evaluated and from which conclusions can be drawn, as defined by the International Association of Chiefs of Police (Carter, 2004, p. 11).

2. Criminal intelligence is the collection and analysis of information to produce an intelligence end product designed to inform law enforcement decision-making at both the tactical and strategic levels, as defined by the Global Intelligence Working Group (Carter, 2004, p. 11).

3. Criminal intelligence is “raw” information that is un-evaluated and “finished” intelligence that has had some degree of analysis, both of which focus on those who would do harm in the form of terrorist acts or other crimes as defined by the FBI’s Office of Intelligence (Carter, 2004, p. 13).

Foot-and-Mouth Disease (FMD).

FMD is a highly infectious viral disease that affects cloven-hoofed animals including cattle, swine, deer, goats, and sheep. Spread in aerosols and on fomites such as manure-contaminated tires, boots, and clothing, FMD causes vesicles on the tongue and hoof lesions of cloven-hoofed

animals. The erosions are painful to the animal and cause lameness, a refusal to eat, and weight loss (Spickler & Roth, 2004, p. 51).

Foreign Animal Disease (FAD).

FAD is a transmissible livestock disease believed to be absent from the United States and its territories. Many animal diseases which are considered foreign were present in the U.S. at one time, but they have been eradicated. Foreign animal disease may be referred to as *exotic animal disease* (Spickler & Roth, 2004, p. 4).

Fomites.

Fomites are inanimate objects that carry infectious agents from one animal to another, such as needles, contaminated clothing, boots or shoes, vehicles, or farm equipment, and contaminated food and water supplies (Spickler & Roth, 2004, p. 18).

National Animal Identification System (NAIS).

NAIS is a national program intended to identify all animals from birth to slaughter/death. In April 2004, the USDA announced the framework for implementing NAIS, a system that, when fully operational, will be capable of tracing a sick animal or animals back to the premises that is the most likely source of infection <<http://animalid.aphis.usda.gov/nais/index.shtml>>.

Pig Swill.

Pig swill is a mixture of liquid and waste food, table scraps, or garbage fed to animals, normally pigs. On a large scale, pig swill comes from restaurants and schools. Farmers who use pig swill as animal feed are required to heat the swill in excess of 100 degrees centigrade to kill potential pathogens. Pig swill (untreated food waste from a restaurant) was the source of the outbreak of foot-and-mouth disease in the United Kingdom in February, 2001 (Spickler & Roth, 2004, p.52).

Regional Community Policing Institutes (RCPIs).

Established in 1997, the RCPIs is a national law enforcement training network designed to provide community policing education, training, and technical assistance to local law enforcement throughout the nation. RCPIs are funded by the Office of Community Oriented Policing Services (COPS), U.S. Department of Justice. Presently, there are 28 regional RCPIs in the United States, operating primarily from various colleges and universities. For example, the Midwest RCPI is located at Wichita State University and serves law enforcement in Kansas and Nebraska. <<http://www.cops.usdoj.gov>>.

Safeguarding, Intervention and Trade Compliance (SITC).

SITC is an organizational unit with the Animal and Plant Health Inspection Service (APHIS), and seeks to prevent unlawful entry and distribution of prohibited products that may harbor exotic plant and animal pests, diseases, or invasive species that could seriously damage America's crops, livestock, and environment <<http://www.aphis.usda.gov>>.

Terrorism.

1. Terrorism is the unlawful use of force or violence against persons or property to intimidate or coerce a government, a civilian population, or any segment thereof, in furtherance of specific political or social objectives <<http://www.fbi.gov>>.

2. Terrorism is the calculated use of violence to inculcate fear in order to intimidate governments or societies in the pursuit of goals that are generally political, religious, or ideological (Department of Defense).

Vector.

A vector is a living creature that acquires a pathogen from one living host and transmits it to another (Spickler & Roth, 2004, p. 18).

World Organization for Animal Health (OIE).

Formerly known as the Office International des Epizooties, the OIE is an international animal health organization that coordinates animal disease information in order to decrease the potential for epidemics. As a global organization, the OIE has expanded from its original membership of 24 countries in 1924, to its current nation membership of 166 (Spickler & Roth, 2004, p. 4; <<http://www.oie.int>>).

Kansas Statutes (K.S.A. 47-611 – 47-618)

K.S.A. 47-611

**Chapter 47.--LIVESTOCK AND DOMESTIC ANIMALS
Article 6.--PROTECTION OF DOMESTIC ANIMALS**

47-611. Quarantine and other regulations; notice of quarantine; proclamation by governor; enforcement; direction by governor; assistance of any state agency. (a) When the commissioner determines that a quarantine and other regulations are necessary to prevent the spread among domestic animals of any contagious or infectious disease, the commissioner shall notify the governor of such determination, and the governor shall issue a proclamation announcing the boundary of such quarantine and the orders and rules and regulations prescribed by the commissioner, which proclamation shall be published in the Kansas register, except that the commissioner, if the area affected by the quarantine is limited in extent, may dispense with the proclamation of the governor and give such notice as the commissioner shall deem sufficient to make the quarantine effective.

(b) Upon a determination by the governor that a quarantine or other regulations are necessary to prevent the spread among domestic animals of any contagious or infectious disease, the governor shall direct the commissioner to establish a quarantine pursuant to this section.

(c) The governor may require and direct the cooperation and assistance of any state agency in enforcing such quarantine or other regulations pursuant to subsection (a) or (b).

(d) The commissioner shall establish such quarantine immediately and shall give and enforce such directions, rules and regulations as to separating, isolating, handling and treating, feeding and caring for such diseased animals, animals exposed to the disease and animals within the quarantine which have not been immediately exposed, as the commissioner deems necessary to prevent those classes of animals from coming into contact with one another.

(e) The livestock commissioner or the commissioner's designee is hereby authorized and empowered to enter any grounds and premises to carry out the provisions of this act.

History: L. 1911, ch. 312, § 2; R.S. 1923, 47-611; L. 1981, ch. 324, § 15; L. 1989, ch. 156, § 17; L. 2001, ch. 163, § 1; May 17.

K.S.A. 47-612

**Chapter 47.--LIVESTOCK AND DOMESTIC ANIMALS
Article 6.--PROTECTION OF DOMESTIC ANIMALS**

47-612. Delivery of animals into quarantine; payment of costs and expenses; sale. Whenever the livestock commissioner determines that certain animals within the state are capable of communicating infectious or contagious disease, the commissioner may issue an order to the sheriff of the county or to any agent, inspector or authorized representative of the livestock commissioner in which such animals are found, commanding such individuals to take into custody and keep such animals subject to such quarantine regulations as the livestock commissioner may prescribe, until such time as the commissioner directs such person to deliver such animals to their owner or owners or to the agent of the owner or owners. Before any animals are delivered, there shall be paid by the owner thereof to the livestock commissioner all the costs and expenses of taking, detaining and holding and caring for the animals. In case such costs and expenses are not paid at the time fixed by the livestock commissioner, the officer having custody of such animals shall advertise, in the same manner as

provided by law in case of sale of personal property on execution, that the officer will sell such animals or such portion thereof as may be necessary to pay such costs and expenses, together with the costs and expenses of such sale, and at the time and place so advertised the officer shall proceed to sell as many of the animals as may be necessary to pay for such cost and expenses and the expenses of such sale. Upon such sale the officer shall without delay pay to the owner any amount so received in excess of the legal fees and expenses of such officer, and any officer performing any of the duties directed in this section or any other section of this act shall receive the same compensation therefore as is prescribed by law for similar services. In case such fees cannot be collected by sale of such stock, they shall be paid by the county in which such stock was held.

History: L. 1911, ch. 312, § 3; R.S. 1923, 47-612; L. 1989, ch. 156, § 18; July 1.

K.S.A. 47-613

Chapter 47.--LIVESTOCK AND DOMESTIC ANIMALS Article 6.--PROTECTION OF DOMESTIC ANIMALS

47-613. Quarantine duties of sheriff. The sheriff to whom the existence of any contagious or infectious disease of domestic animals is reported shall proceed without delay to the place where such domestic animal or animals are and examine the same, and shall report immediately the result of such examination to the livestock commissioner. The sheriff shall enforce such temporary quarantine regulations as the livestock commissioner may direct to prevent the spread of such disease, until the livestock commissioner provides and orders suitable permanent quarantine rules and regulations. No sheriff who takes or detains such animals under the provisions of this act shall be liable to the owner or owners of such animals for any damages by reason of such taking or detention or by reason of the performance of any other duties directed by law.

History: L. 1911, ch. 312, § 4; R.S. 1923, 47-613; L. 1989, ch. 156, § 19; July 1.

K.S.A. 47-614

Chapter 47.--LIVESTOCK AND DOMESTIC ANIMALS Article 6.--PROTECTION OF DOMESTIC ANIMALS

47-614. Killing unconfined, diseased or exposed animals. When in the opinion of the commissioner it shall be necessary to prevent the spread of any contagious or infectious diseases among the domestic animals of this state, to destroy animals affected with or which have been exposed to any such disease, or which are unconfined in violation of any quarantine order, he shall determine what animals shall be killed and cause the same to be killed and the carcasses disposed of as in his judgment will best protect the health of the domestic animals of the locality.

History: L. 1911, ch. 312, § 5; R.S. 1923, 47-614; L. 1947, ch. 303, § 1; April 15.

K.S.A. 47-615

Chapter 47.--LIVESTOCK AND DOMESTIC ANIMALS Article 6.--PROTECTION OF DOMESTIC ANIMALS

47-615. Same; appraisal; inventory; payment to owner. Whenever the commissioner shall direct the killing or disposition of any domestic animal or animals, except dogs, it shall be the duty of the commissioner, in conjunction with the chairman of the county board of county commissioners of the county in which the said animals are located, and the owner of the condemned animals, to appraise the animal or animals to be killed or disposed of, and he shall make an inventory of the animal or animals condemned, and in fixing the value thereof the commissioner and chairman shall be governed by the value of such animal or animals at the time of the first appearance of the disease: *Provided*, That unless otherwise expressly provided only one-half of such appraised value of such animals shall be paid to the owner.

History: L. 1911, ch. 312, § 6; L. 1915, ch. 348, § 1; R.S. 1923, 47-615; L. 1947, ch. 303, § 4; April 15.

K.S.A. 47-616

Chapter 47.--LIVESTOCK AND DOMESTIC ANIMALS Article 6.--PROTECTION OF DOMESTIC ANIMALS

47-616. Same; right of indemnity. When any animal or animals are killed under the provisions of this act by order of the commissioner, the owner of such animal or animals shall be paid for such animal or animals such proportion of the appraised value as fixed by the appraisal as provided by law. The right of indemnity on account of animals killed by order of the commissioner under the provisions of this act shall not extend: (a) To animals killed on account of rabies; (b) to the owner of animals which have been brought into the state in a diseased condition, or from a state, country, territory or district in which the disease with which the animal is infected or to which it has been exposed exists; (c) to any animal which has been brought into the state in violation of any law or quarantine regulations thereof, or the owner of which has violated any of the provisions of this act or disregarded any rule and regulation or order of the livestock commissioner; (d) to any animal which came into the possession of the claimant with the claimant's knowledge that such animal was diseased or was suspected of being diseased or of having been exposed to any contagious or infectious disease; nor (e) to any animal belonging to the United States.

History: L. 1911, ch. 312, § 7; R.S. 1923, 47-616; L. 1989, ch. 156, § 20; July 1.

K.S.A. 47-617

Chapter 47.--LIVESTOCK AND DOMESTIC ANIMALS Article 6.--PROTECTION OF DOMESTIC ANIMALS

47-617. Same; payment of indemnity; expenses. When any domestic animal, other than dogs and animals affected with foot-and-mouth disease, is killed by order of the commissioner, the commissioner shall issue to the owner of the animal or animals the certificate showing the number and kind of animals killed, and the amount to which the holder is entitled. Such certificate shall be reported to the board of county commissioners of the county in which the animal was located, and upon presentation of such certificate to the board of county commissioners, such board shall draw its warrant on the county treasurer for the amount therein stated. In case of animals killed or disposed of that are exposed to or afflicted with the foot-and-mouth disease, the appraisement shall be conducted in accordance with the applicable rules and regulations of an applicable livestock indemnity program of the United States government. The state of Kansas shall pay all its expenses incurred in that behalf, and shall pay all its employees necessarily employed therein.

History: L. 1911, ch. 312, § 8; L. 1915, ch. 348, § 2; R.S. 1923, 47-617; L. 1947, ch. 303, § 5; L. 2001, ch. 163, § 2; May 17.

K.S.A. 47-618

Chapter 47.--LIVESTOCK AND DOMESTIC ANIMALS Article 6.--PROTECTION OF DOMESTIC ANIMALS

47-618. Execution of orders of commissioner; fees of officers; arrests; prosecutions. The commissioner shall have power to call upon any sheriff, undersheriff or deputy sheriff to execute his orders, and such officers shall obey the orders of said commissioner, and for performing such services shall receive mileage and fees as is now provided for service in process in civil actions; and in addition thereto shall receive for killing and disposing of diseased animals, in accordance with the rules prescribed by the livestock commissioner, the following fees: For the first animal, not to exceed five dollars (\$5); for each additional animal, not to exceed two dollars (\$2); but in no case shall the amount exceed the actual cost of doing such work; and such fees shall be paid by the board of county commissioners of the county in which the services are rendered. Any such officer may arrest on view and take before any judge of a court of competent jurisdiction of the county any person found violating the provisions of this act, and such officer shall immediately notify the county or district attorney of such arrest, and he shall prosecute the person so offending according to law.

History: L. 1911, ch. 312, § 9; May 22; L. 1974, ch. 446, § 19; July 1.

Homeland Security Presidential Directive/HSPD-9

Subject: Defense of United States Agriculture and Food

January 30, 2004

Purpose

(1) This directive establishes a national policy to defend the agriculture and food system against terrorist attacks, major disasters, and other emergencies.

Background

(2) The United States agriculture and food systems are vulnerable to disease, pest, or poisonous agents that occur naturally, are unintentionally introduced, or are intentionally delivered by acts of terrorism. Americas 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.

Definitions

(3) In this directive:

(a) The term critical infrastructure has the meaning given to that term in section 1016(e) of the USA PATRIOT Act of 2001 (42 U.S.C. 5195c(e)).

(b) The term key resources has the meaning given that term in section 2(9) of the Homeland Security Act of 2002 (6 U.S.C. 101(9)).

(c) The term Federal departments and agencies means those executive departments enumerated in 5 U.S.C. 101, and the Department of Homeland Security; independent establishments as defined by 5 U.S.C. 104(1); Government corporations as defined by 5 U.S.C. 103(1); and the United States Postal Service.

(d) The terms State, and local government, when used in a geographical sense, have the same meanings given to those terms in section 2 of the Homeland Security Act of 2002 (6 U.S.C. 101).

(e) The term Sector-Specific Agency means a Federal department or agency responsible for infrastructure protection activities in a designated critical infrastructure sector or key resources category.

Policy

(4) It is the policy of the United States to protect the agriculture and food system from terrorist attacks, major disasters, and other emergencies by:

(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.

(5) 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.

Roles and Responsibilities

(6) As established in Homeland Security Presidential Directive-7 (HSPD-7), the Secretary of Homeland Security is responsible for coordinating the overall national effort to enhance the protection of the critical infrastructure and key resources of the United States. The Secretary of Homeland Security shall serve as the principal Federal official to lead, integrate, and coordinate implementation of efforts among Federal departments and agencies, State and local governments, and the private sector to protect critical infrastructure and key resources. This directive shall be implemented in a manner consistent with HSPD-7.

(7) The Secretaries of Agriculture, Health and Human Services, and the Administrator of the Environmental Protection Agency will perform their responsibilities as Sector-Specific Agencies as delineated in HSPD-7.

Awareness and Warning

(8) The Secretaries of the Interior, Agriculture, Health and Human Services, the Administrator of the Environmental Protection Agency, and the heads of other appropriate Federal departments and agencies shall build upon and expand current monitoring and surveillance programs to:

(a) develop robust, comprehensive, and fully coordinated surveillance and monitoring systems, including international information, for animal disease, plant disease, wildlife disease, food, public health, and water quality that provides early detection and awareness of disease, pest, or poisonous agents;

(b) develop systems that, as appropriate, track specific animals and plants, as well as specific commodities and food; and

(c) develop nationwide laboratory networks for food, veterinary, plant health, and water quality that integrate existing Federal and State laboratory resources, are interconnected, and utilize standardized diagnostic protocols and procedures.

(9) The Attorney General, the Secretary of Homeland Security, and the Director of Central Intelligence, in coordination with the Secretaries of Agriculture, Health and Human Services, and the Administrator of the Environmental Protection Agency, shall develop and enhance intelligence operations and analysis capabilities focusing on the agriculture, food, and water sectors. These intelligence capabilities will include collection and analysis of information concerning threats, delivery systems, and methods that could be directed against these sectors.

(10) The Secretary of Homeland Security shall coordinate with the Secretaries of Agriculture, Health and Human Services, and the Administrator of the Environmental Protection Agency, and the heads of other appropriate Federal departments and agencies to create a new biological threat awareness capacity that will enhance detection and characterization of an attack. This new capacity will build upon the improved and upgraded surveillance systems described in paragraph 8 and integrate and analyze domestic and international surveillance and monitoring data collected from human health, animal health, plant health,

food, and water quality systems. The Secretary of Homeland Security will submit a report to me through the Homeland Security Council within 90 days of the date of this directive on specific options for establishing this capability, including recommendations for its organizational location and structure.

Vulnerability Assessments

(11) The Secretaries of Agriculture, Health and Human Services, and Homeland Security shall expand and continue vulnerability assessments of the agriculture and food sectors. These vulnerability assessments should identify requirements of the National Infrastructure Protection Plan developed by the Secretary of Homeland Security, as appropriate, and shall be updated every 2 years.

Mitigation Strategies

(12) The Secretary of Homeland Security and the Attorney General, working with the Secretaries of Agriculture, Health and Human Services, the Administrator of the Environmental Protection Agency, the Director of Central Intelligence, and the heads of other appropriate Federal departments and agencies shall prioritize, develop, and implement, as appropriate, mitigation strategies to protect vulnerable critical nodes of production or processing from the introduction of diseases, pests, or poisonous agents.

(13) The Secretaries of Agriculture, Health and Human Services, and Homeland Security shall build on existing efforts to expand development of common screening and inspection procedures for agriculture and food items entering the United States and to maximize effective domestic inspection activities for food items within the United States.

Response Planning and Recovery

(14) The Secretary of Homeland Security, in coordination with the Secretaries of Agriculture, Health and Human Services, the Attorney General, and the Administrator of the Environmental Protection Agency, will ensure that the combined Federal, State, and local response capabilities are adequate to respond quickly and effectively to a terrorist attack, major disease outbreak, or other disaster affecting the national agriculture or food infrastructure. These activities will be integrated with other national homeland security preparedness activities developed under HSPD-8 on National Preparedness.

(15) The Secretary of Homeland Security, in coordination with the Secretaries of Agriculture, Health and Human Services, the Attorney General, and the Administrator of the Environmental Protection Agency, shall develop a coordinated agriculture and food-specific standardized response plan that will be integrated into the National Response Plan. This plan will ensure a coordinated response to an agriculture or food incident and will delineate the appropriate roles of Federal, State, local, and private sector partners, and will address risk communication for the general public.

(16) The Secretaries of Agriculture and Health and Human Services, in coordination with the Secretary of Homeland Security and the Administrator of the Environmental Protection Agency, shall enhance recovery systems that are able to stabilize agriculture production, the food supply, and the economy, rapidly remove and effectively dispose of contaminated agriculture and food products or infected plants and animals, and decontaminate premises.

(17) The Secretary of Agriculture shall study and make recommendations to the Homeland Security Council, within 120 days of the date of this directive, for the use of existing, and the creation of new, financial risk management tools encouraging self-protection for agriculture and food enterprises vulnerable to losses due to terrorism.

18) The Secretary of Agriculture, in coordination with the Secretary of Homeland Security, and in consultation with the Secretary of Health and Human Services and the Administrator of the Environmental Protection Agency, shall work with State and local governments and the private sector to develop:

(a) A National Veterinary Stockpile (NVS) containing sufficient amounts of animal vaccine, antiviral, or therapeutic products to appropriately respond to the most damaging animal diseases affecting human health and the economy and that will be capable of deployment within 24 hours of an outbreak. The NVS shall leverage where appropriate the mechanisms and infrastructure that have been developed for the management, storage, and distribution of the Strategic National Stockpile.

(b) A National Plant Disease Recovery System (NPDRS) capable of responding to a high-consequence plant disease with pest control measures and the use of resistant seed varieties within a single growing season to sustain a reasonable level of production for economically important crops. The NPDRS will utilize the genetic resources contained in the U.S. National Plant Germplasm System, as well as the scientific capabilities of the Federal-State-industry agricultural research and extension system. The NPDRS shall include emergency planning for the use of resistant seed varieties and pesticide control measures to prevent, slow, or stop the spread of a high-consequence plant disease, such as wheat smut or soybean rust.

Outreach and Professional Development

(19) The Secretary of Homeland Security, in coordination with the Secretaries of Agriculture, Health and Human Services, and the heads of other appropriate Federal departments and agencies, shall work with appropriate private sector entities to establish an effective information sharing and analysis mechanism for agriculture and food.

(20) The Secretaries of Agriculture and Health and Human Services, in consultation with the Secretaries of Homeland Security and Education, shall support the development of and promote higher education programs for the protection of animal, plant, and public health. To the extent permitted by law and subject to availability of funds, the program will provide capacity building grants to colleges and schools of veterinary medicine, public health, and agriculture that design higher education training programs for veterinarians in exotic animal diseases, epidemiology, and public health as well as new programs in plant diagnosis and treatment.

(21) The Secretaries of Agriculture and Health and Human Services, in consultation with the Secretaries of Homeland Security and Education, shall support the development of and promote a higher education program to address protection of the food supply. To the extent permitted by law and subject to the availability of funds, the program will provide capacity-building grants to universities for interdisciplinary degree programs that combine training in food sciences, agriculture sciences, medicine, veterinary medicine, epidemiology, microbiology, chemistry, engineering, and mathematics (statistical modeling) to prepare food defense professionals.

(22) The Secretaries of Agriculture, Health and Human Services, and Homeland Security shall establish opportunities for professional development and specialized training in agriculture and food protection, such as internships, fellowships, and other post-graduate opportunities that provide for homeland security professional workforce needs.

Research and Development

(23) The Secretaries of Homeland Security, Agriculture, and Health and Human Services, the Administrator of the Environmental Protection Agency, and the heads of other appropriate Federal departments and agencies, in consultation with the Director of the Office of Science and Technology Policy, will accelerate and expand development of current and new countermeasures against the intentional introduction or natural occurrence of catastrophic animal, plant, and zoonotic diseases. The

Secretary of Homeland Security will coordinate these activities. This effort will include countermeasure research and development of new methods for detection, prevention technologies, agent characterization, and dose response relationships for high-consequence agents in the food and the water supply.

(24) The Secretaries of Agriculture and Homeland Security will develop a plan to provide safe, secure, and state-of-the-art agriculture biocontainment laboratories that research and develop diagnostic capabilities for foreign animal and zoonotic diseases.

(25) The Secretary of Homeland Security, in consultation with the Secretaries of Agriculture and Health and Human Services, shall establish university-based centers of excellence in agriculture and food security.

Budget

(26) For all future budgets, the Secretaries of Agriculture, Health and Human Services, and Homeland Security shall submit to the Director of the Office of Management and Budget, concurrent with their budget submissions, an integrated budget plan for defense of the United States food system.

Implementation

(27) Nothing in this directive alters, or impedes the ability to carry out, the authorities of the Federal departments and agencies to perform their responsibilities under law and consistent with applicable legal authorities and Presidential guidance.

(28) This directive is intended only to improve the internal management of the executive branch of the Federal Government, and it is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity, against the United States, its departments, agencies, or other entities, its officers or employees, or any other person.

GEORGE W. BUSH

Survey of Kansas Sheriffs

KBI Letterhead

December 5, 2003

Dean Bush, Sheriff
PO Box 747
Dodge City, KS 67801

Dear Sheriff Bush:

A research project directed by the Kansas Bureau of Investigation is underway to gather important information about the role of law enforcement should a threat of bio-terrorism occur in the Kansas agricultural industry. All of the sheriffs are being asked to participate in this project.

Enclosed you will find a brief survey containing 25 questions regarding critical response planning, training, communications, and other related issues. You will not find anything unusual about this questionnaire. This is a typical survey that provides you with the opportunity to describe the practices in your agency. Your input will help us to better understand the needs of local law enforcement.

You may be assured of complete confidentiality. As you will note, space is not provided on the questionnaire for you to give your name or address. Also, you'll find a self-addressed, stamped envelope that has been provided for the convenient return of the survey. Please do not place your name or address on this envelope.

I truly appreciate your willingness to participate in this important research study. If you require additional information or have any questions, please feel free to contact me.

Sincerely,

Terry Knowles
Deputy Director

Enclosure

Survey of Kansas Sheriffs

PLEASE CIRCLE THE RESPONSE THAT BEST REPRESENTS YOUR AGENCY

1. How would you describe the size of your agency? SMALL MEDIUM LARGE
 *Approximate number of sworn deputies: 1-10, 11-20, 21- 30 31- 40, 41- 50, 51-60 61+
 *Other full-time support personnel 1-10, 11-20, 21- 30 31- 40, 41- 50, 51-60 61+
 * Reserve Deputies 1-10, 11-20, 21- 30 31- 40, 41- 50, 51-60 61+

2. Are there multiple local law enforcement agencies in your county? YES NO
 * If YES, how many? _____

3. Is there a Kansas Bureau of Investigation Agent located in your county? YES NO
 * If NO, how far away is the nearest agent? _____ miles

4. My agency is deeply concerned about the threat of bio-terrorism and security of the livestock industry.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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5. My agency personnel are familiar with the Kansas Emergency Plan for Foreign Animal Disease (FAD).

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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6. My agency has received training on the subject of non-conventional weapons such as chemical or biological agents.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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7. In the event of a bio-terrorism attack, my agency has a written plan to assist with the quarantine, movement control, and cleansing and disinfecting of affected livestock areas.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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8. My agency participates in local planning committees, advisory boards, and/or other official coalitions.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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9. My agency is involved in critical response planning.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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10. My agency's budget includes funds to be available in the event of a major disaster or emergency.

STRONGLY	AGREE	DON'T	DISAGREE	STRONGLY
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11. My agency participates in tactical emergency and management training.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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12. My agency has participated in field exercises to evaluate tactical emergency and management training.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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13. My agency's communication system(s) allow for quick dissemination of emergency information to county officials and other law enforcement agencies in the surrounding jurisdictions.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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14. My agency issues public announcements about conditions that pose significant risks or disruptions to citizens.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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15. My agency maintains a web-site that citizens can access to gain public information.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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16. When my agency requests assistance, the Kansas Highway Patrol responds quickly.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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17. My agency is certified to use the Kansas Law Enforcement Intelligence Network (KsLEIN).

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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18. In the event of a bio-terrorism attack, my agency is prepared to conduct a criminal investigation.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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19. My agency has access to terrorism-related information once it is collected by the Federal Bureau of Investigation.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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20. My agency has seen an increase in the number of crimes involving computers.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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21. My agency would be in favor of participating in annual field exercises to test capabilities to respond to a bio-terrorism threat or crisis.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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22. My agency favors the creation of an effective system for monitoring the status of foreign students.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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23. My agency favors the establishment of a comprehensive and coordinated long-term research and development program to counter catastrophic terrorism.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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24. The commissioned officers in my agency have been trained in the recognition of and response to Weapons of Mass Destruction.(WMD).

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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25. My agency has a written policy or directive for responding to a WMD event.

STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
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Survey of Livestock Industry

KBI Letterhead
February 18, 2004

Mr. Lee Weide
Nebraska Cattlemen's Association
134 South 13th Street, Suite #900
Lincoln, NE 68508

Dear Weide:

As a follow-up to our telephone conversation, I would like to provide background information concerning the bioterrorism research project that we are involved in, and to request your assistance with a field survey.

The KBI, the National Agricultural Biosecurity Center (NABC) at Kansas State University, and the Ford County (KS) Sheriff's Office are involved in a federally-funded research project aimed at protecting American agriculture from a potential terrorist attack.

The primary objectives of this research project are:

1. identify agriculture vulnerabilities;
2. determine proactive measures to *prevent* an attack;
3. establish a law enforcement response plan; and
4. develop a law enforcement training module.

In order to gather information and suggestions from those who work in the livestock industry, we have designed a 15-question field survey. The individual responses to this survey will remain strictly confidential, and in fact, we request the completed survey forms be returned *unsigned*.

We would like to send 100 of these questionnaires to members of the Nebraska Cattlemen's Association, and have them returned directly to the KBI. Once you have reviewed the enclosed survey, I would like to speak with you to discuss how best to proceed. Thank you.

Sincerely,

Terry Knowles
KBI Deputy Director

Enclosure

Biosecurity Survey of Livestock Industry

Please mark (X) for the one (1) response that best completes the statement and comment whenever possible.

1. When thinking about bio-security concerns, I would assess the current state of security at my workplace as:

- LESS THAN ADEQUATE
- ADEQUATE
- MORE THAN ADEQUATE

Comment: _____

2. I would assess the relationship between the ag-industry and local law enforcement as:

- POOR
- GOOD
- EXCELLENT

Comment: _____

3. My workplace has a written policy or directive for responding to an ag-terrorism event.

- TRUE
- FALSE

(If not, would you like to have assistance in developing a policy?)

- YES NO

Comment: _____

4. Problems that arise when tracing animal origin are a major inhibitor to the prevention of ag-terrorisim.

____ TRUE
____ FALSE

Comment: _____

5. I have participated in ag-terrorisim exercise simulations with local emergency preparedness/responders.

____ TRUE
____ FALSE

Comment: _____

6. Within the past 12 months, employees at my workplace have received an average of _____ training hours on bio-security measures/preparedness.

____ 0
____ 1-2
____ 3-5
____ 5-10
____ >10

Comment: _____

Please provide a ranked-order response for the following questions.

7. At my workplace, I am concerned that an act of ag-terrorism has the potential to be carried out by:

[Please rank order from most concern (1) to least concern (5)]

- _____ the introduction of a diseased animal.
- _____ an act of sabotage by a disgruntled employee.
- _____ the introduction of toxic feed or other materials.
- _____ an international terrorist group like Al-Qaeda.
- _____ domestic extremist groups like Posse Comitatus, Animal Rights Group, etc.

8. At my workplace, it is likely that the person/group to notice that a potential ag-terrorism threat exists is:

[Please rank order from first to notice (1) to last to notice (5)]

If the response category does not exist at your workplace, place a N/A in the space provided.

- _____ line workers.
- _____ supervisors.
- _____ administrative personnel.
- _____ guard force.
- _____ veterinarian.

9. In the event of an ag-terrorism event at my workplace I am concerned with:

[Please rank order from most concern (1) to least concern (5)]

- _____ workplace safety
- _____ limiting production
- _____ the adverse affect on the community
- _____ the negative economic impact
- _____ the inventory

10. The group that has responsibility for the prevention of ag-terrorism is:

[Please rank order from most responsible (1) to least responsible (5)]

- _____ Veterinarians
- _____ Law Enforcement
- _____ Producers
- _____ Feed Yard Managers
- _____ Processors/Packers

11. If an ag-terrorism attack were suspected I would notify:
[Please rank order from notify first (1) to notify last (5)]

- _____ Law Enforcement
- _____ County Extension Agent
- _____ USDA
- _____ Local Veterinarian
- _____ Other Agricultural Industry Persons (Peers)

Please provide a short answer to the following questions.

12. It has been suggested that technologies (e.g. surveillance equipment, alarm systems, electronic detection devices for biological agents, etc.) would help deter acts of ag-terrorism. Would you agree? Have measures been taken at your workplace to install such equipment?

Comments: _____

13. In your opinion, what's the best way to disseminate information to the public, media, producers, processors and the transportation industry should an ag-terrorism threat exist?

Comments: _____

14. Do you think that local law enforcement should take a more active role in patrolling your workplace? Why or why not?

Comments: _____

15. Developing local ad-hoc groups comprised of public officials and private industry personnel has been identified as a possible way to help prevent ag-terrorism. Is it feasible to develop such groups where you operate your business?

Comments: _____

The individual responses to this field survey will remain strictly *confidential*. Once completed, please place the survey --- unsigned --- in the enclosed, self-addressed stamped envelope for return directly to the KBI at Topeka, KS. Thank you for taking the time to complete this field survey, and helping us with this important research project.

Training Module

- I. Overview of the agriculture industry
 - a. Terminology
 1. Food Safety vs. Food Security
 - A. Discretionary spending as a result of safe and plentiful food
 2. Pre-harvest Food Production vs. Post-harvest Food Production
 3. Facets of the industry
 - b. Global food markets impact on local communities
 - c. Industry efficiency
 1. Movement Cycle
 2. Community impact
 - d. Local impact of food processing facilities
 - e. Stakeholders
- II. Vulnerabilities
 - a. Continuum of physical security
 1. Local producers
 2. Processing facilities
 3. Retailers
 - b. Transportation
 - c. Concentrated Animal Feeding Operations (CAFOs)
 - d. Feed and water supplies for livestock
 - e. Accidental or naturally occurring diseases
- III. Threats to the industry: Methods and Motivations
 - a. International Terrorism
 - b. Domestic Terrorism
 1. Right Wing Groups
 2. Animal Rights Groups
 3. Anarchist's
 - c. Disgruntled Employees
 - d. Others
 1. Smuggled Food Products
 2. "Black Market" medications
- IV. Agents
 - a. Weapons of Mass Destruction
 - Chemical
 - Biological
 - Radiological
 - Nuclear
 - Explosive
- V. Planning
 - a. Identifying Stakeholders in the community

1. Plans developed to the extent of the industry footprint in the community
- b. Resource identification
- c. Building Partnerships
- d. Simulation Exercises
- e. Technology
 1. GIS
 2. Industry Food Safety Measures
 3. GPS
 4. Animal Identification
- f. Overview of Response Plans: Roles and Responsibilities
 1. Federal
 2. State
 3. Local
- g. Incident Command System and National Incident Management System
- h. Evidence Collection and Crime Scene Considerations
- i. Vehicle traffic management
- j. Animal and Human Health Quarantines
- k. Crisis Communication
- l. After Action Reporting
- m. Civil Unrest in large scale food chain attacks

VI. Prevention

- a. Physical Security Measures
- b. Industry Responsibilities
- c. Indicators
 1. Agroterrorism
 2. Foreign Animal Disease
 3. Group Violence
- d.. Understanding Triggers, historical dates, and chatter
- e. Intelligence collection and dissemination
- f. Preventive Programs
 1. Neighborhood Watch
 2. Agroguard
 3. Crime Stoppers
- g. Credentialing for Counter-Agroterrorism Practitioners

Grant Timeline

NIJ Research Grant: "Defining Law Enforcement's Role in Protecting American Agriculture from Agroterrorism"

In November 2002, the National Institute of Justice, the research arm of the U.S. Department of Justice, published a Solicitation for Research on Terrorism. The events of 9/11/01, and the bombings of the U.S. embassies in Kenya and Tanzania underscore the urgent need for research on terrorism and the effectiveness of efforts by the criminal justice system to respond to the threat of terrorist events. NIJ defined terrorism as premeditated, politically motivated violence perpetrated against noncombatant targets by sub-national groups or clandestine agents, usually intended to influence an audience.

NIJ asked for research proposals to study high-risk targets that would threaten America's interests, including our economy. Research was requested to determine how law enforcement could interact more effectively with other governmental agencies as well as private industry to detect and prevent future terrorist attacks. Partnerships were encouraged for the submission of research project under this solicitation.

In January 2002, Terry Knowles, KBI Deputy Director; James Lane, Undersheriff for the Ford County Sheriffs Department; and Dr. Ron Trewyn, Vice Provost for Research at Kansas State University; met at Manhattan for the purpose of forming a research team, and outlining a research proposal to NIH. Overall objective of the research project was to determine how law enforcement could help prevent a bioterrorism attack directed at the livestock industry.

Research Timeline

Updated: 6/28/05

On February 10, 2003, with a partnership between the KBI, the Ford County Sheriffs' Department, and the National Agriculture Biosecurity Center (NABC) at Kansas State University, a grant application was submitted to NIH, under solicitation for research on terrorism.

Research project title: *“Defining Law Enforcement in Protecting American Agriculture from Agroterrorism.”*

Research objectives:

- Identify agroterrorism vulnerabilities within the livestock industry;
- Identify proactive measures to prevent an agroterrorism attack on agriculture;
- Establish a law enforcement emergency response plan; and
- Develop a law enforcement training module.

Research project funding: \$233,832.

<u>DATE</u>	<u>EVENT</u>	<u>PERSON(S) HANDLING</u>
2/28/03	NIJ acknowledges receipt (#2003-70713-KS-IJ)	Katherine Darke, NIJ
6/18/03	Grant proposal under review by Office of Justice Programs to determine compliance	Louis Loftin, OJP auditor
9/8/03	Grant approved under project #2003-IJ-CX-1024. Funding approved for \$233,832, with expenditures authorized subsequent to 10/1/03.	Katherine Darke, NIJ
9/11/03	KS Attorney General and KBI Director issue media release re award of \$233,832 grant by NIJ to study bioterrorism threats to agriculture.	AG Phill Kline and KBI Director Larry Welch
9/18/03	Organizational meeting with Research Team at Washburn. Research goals and objectives defined.	Knowles, Lane, and Dr. Gary Bayens
10/13/03	Organizational meeting at Washburn. Research methodology agreed upon. Timeline set.	Knowles, Lane, and Dr. Bayens
10/14/03	Dr. Diana Noone named new NIJ grant manager for this project....e-mail: noone@ojp.usdoj.gov	Dr. Katherine Darke
10/23/03	1 st Focus Group meeting at Dodge City. Four states represented. Reps from livestock industry, veterinarians, animal health officials, and county and state law enforcement. See summary.	Knowles, Lane, and Dr. Bayens
10/31/03	Research Team meeting at KHP Academy; summarize first Focus Group meeting; redefine research goals; and establish timeline.	Knowles, Lane, and Dr. Bayens
12/5/03	Field survey mailed to 105 Kansas Sheriffs	Carrie Clark
12/8/03	Research Team meeting at Topeka	Dr. Bayens and Knowles
12/12-17/03	Memorandum of Agreement signed by the six expert livestock consultants from Dodge City.	Knowles
12/17/03	Summary of first Focus Group meeting mailed to focus group members, and Dr. Diana Noone.	Carrie Clark
12/18/03	89 of the 105 Kansas sheriff have responded to 1 st field survey.	Carrie Clark
1/8/04	<u>Financial Status Report #1</u> submitted to NIJ: \$233,832.00 amount of NIJ grant minus \$ 32,980.14 spent to date \$200,851.86 remaining balance	KBI Business Office: Tara Schmanke & Melinda Hewitt
1/9/04	Field survey training session.	Carrie Clark and Dr. Bayens

1/12-13/04	Research Team meeting at KHP Academy.	Knowles, Lane & Dr. Bayens
1/23/04	<u>Quarterly progress report #1</u> submitted to NIJ.	Director Welch & Knowles
1/28-29/04	Facilitate and evaluate field exercise “ <i>Sudden Impact</i> ” at Dodge City. Recommendations for law enforcement: develop six regional response teams throughout Kansas with a KAHD veterinarian and KBI agent in each team to protect the crime scene; ask Kansas Attorney General to designate an AAG to coordinate legal issues involved during an emergency response in Kansas.	Lane, Knowles & Dr. Bayens
1/29/04	2 nd survey field tested with representatives from livestock industry (feedyard manager, veterinarian, meat processor, trucking supervisor) at Dodge City.	Dr. Bayens
2/18/04	Letters requesting permission to send surveys to 100 members sent to following associations: Letty Meek, Kansas Livestock Association; Sata Ellicott, Kansas Cattlemen’s Association; Lee Weide, Nebraska Cattlemen’s Association; Larry Gray, SW Cattle Raisers Association.	Knowles
3/3/04	100 copies of #2 field survey hand delivered to Ms. Letty Meeks, 785-273-5115, at the Kansas Livestock Association (KLA) which she will mail out on a random basis to 100 KLA members.	Knowles
3/4/04	100 copies of #2 field survey mailed to Ms. Sara Ellicott, 1-877-694-2906, at the Kansas Cattlemen’s Association (KCA) in Brewster, KS, which will mail on random basis to 100 KCA members.	Carrie Clark
3/10/04	2 nd Focus Group meeting at Dodge City. Law enforcement issues addressed. KS Attorney General’s Office and FBI (SAC and staff) in attendance.	Knowles and Lane
3/15/04	Discussion with Larry Gray, 1-800-242-7820, SW Cattle Raisers Assn, Ft. Worth, TX, to determine mechanics for mailing 2 nd field survey to 100 members in both Texas and Oklahoma.	Knowles
3/22/04	Discussion with Lee Weide, 402-475-233, Nebraska Cattlemen’s Assn, Lincoln, NE, to determine decision of their Board of Directors concerning the availability of 100 addresses.	Knowles
3//23/04	100 copies of #2 field survey mailed to Oklahoma Livestock Producers.	Carrie Clark

3/24/04	100 copies of #2 field survey mailed to Texas Livestock Producers.	Carrie Clark
3/25/04	Conference at Kansas State University with NABC re site visit from Dept. of Homeland Security staff re ag bioterrorism.	Dr. David Franz (NABC), Lane, and Knowles
4/1-2/04	Research team meeting at Salina.	Lane, Dr. Bayens, Knowles
4/8/04	PowerPoint presentation on Agro Terrorism made to the Governor's Bioterrorism Coordinating Council at Topeka	Knowles
4/9/04	Dilman's Total Design System: (follow-up letters to original survey mailed to 100 livestock Producers in Oklahoma and Texas)	Carrie Clark
4/15/04	Regional Agro-Terrorism Response Team concept discussed with Kansas Livestock Commissioner. He liked the idea of combining animal health and law enforcement expertise into a response partnership involving KAHD, USDA, and the KBI. Teagarden suggested seven (7) response teams be established around the state of Kansas.	Commissioner George Teagarden and Knowles
4/16/04	Meeting at KBIHQ to discuss capabilities of current intelligence databank (KsLEIN) and to consider other analytical databanks such as: (1) "National Criminal Intelligence Sharing Plan," (2) "Protect American" by CellExchange, (3) Multistate Anti-Terrorism Information Exchange (MATRIX), (4) Joint Regional Information Exchange System (JRIES).	KHP Captain Mark Bruce, KBI SA Scott Ferris and Knowles
4/16/04	Letters of invitation mailed to 21 participants for the 3 rd Focus Group, 4/28/04, at Dodge City.	PJ
4/18/04	<u>Financial Status Report #2</u> submitted to NIJ: \$ 233,832.00 amount of NIJ grant minus \$ 53,477.98 spent to date \$ 180,354.02 remaining balance	KBI Business Office: Tara Schmanke & Melinda Hewitt
4/22/04	Agro-Terrorism presentation to <i>North Central Regional Homeland Security Conference</i> at Omaha, NE.	James Lane
4/28/04	3 rd Focus Group meeting at Dodge City. <i>Vulnerabilities</i> of livestock industry identified. Results of field survey to livestock producers in KS, OK, and TX presented.	Dr. Bayens, James Lane, and Knowles

4/28/04	Regional Agro-Terrorism Response Teams established between KAHD, USDA, and KBI. These seven (7) regional teams will combine the expertise of veterinarians and special agents in responding to reports of an foreign animal disease outbreak when the level reaches " <i>highly likely</i> ."	George Teagarden and AD Bob Blecha
5/11-12/04	Research team meeting at Salina. Discussion with Dr. Sam Graham re Training for <u>Regional Response Teams</u> (RRT) made up of one special agent and one veterinarian in the seven regions for the state of Kansas.	Dr. Bayens, James Lane, and Knowles
5/14/04	Budget review for NIJ research project	Melinda Hewitt and Knowles
5/20/04	Meeting with SAC Kevin Stafford at Kansas City FBI Office re national agro-terrorism conference. Decision made to hold this conference in 2005.	Knowles
5/24/04	Preliminary Report for " <i>Sudden Impact</i> " field exercise with abstract and executive summary distributed to participants and attendees. Final report will have full details.	Carrie Clark and Candi Carroll
5/26-27/04	NIJ Grantee Terrorism Workshop at WDC. Agro-Terrorism is one of 13 research projects funded by NIJ. Agro-terrorism PowerPoint presentation made to other NIJ researchers.	Dr. Diana Noone, Lane and Knowles
5/28/04	Meet with SSAs Carl Benoit and Luis Quesada at the FBI's Terrorist Screening Center (TSC) at Crystal City, VA (703-418-9253) TSC provides law enforcement with identity of possible terrorists via NCIC. TSC is 24/7 and provides specific guidance on interviewing/detaining/arresting terrorists.	Lane and Knowles
6/7-8/04	<i>Agricultural Terrorism Conference</i> Rhatigan Student Center, Wichita State University. <u>Presentations:</u> (1) findings of NIJ agro-terrorism research project; (2) terrorism databases and regional response teams for evidence handling; and (3) lessons learned from field exercise " <i>Sudden Impact</i> ."	Heather Joyce, Regional Community Policing Institute, Lindsey Schull, U.S. Attorney's Office in KC; Lane & Knowles

6/23/04	<p>Research team meeting at Abilene.</p> <p><u>Topics:</u></p> <p>(1) research assignments;</p> <p>(2) planning re field exercise <i>Endangered Species</i> scheduled for Hutchinson in Sept or October;</p> <p>(3) literature review format and assignments;</p> <p>(4) identify subject-matter experts for field interviews;</p> <p style="padding-left: 40px;">Possibilities: Dr. Peter Chalk, Dr. Tom Mars, Dr. Lyle Jackson, & UC Davis Vet School</p> <p>(5) monitor Vehicle Traffic Assessment;</p> <p>(6) distribution of full report on "<i>Sudden Impact</i>,"</p> <p>(7) firm up timeline for balance of 2004.</p>	Dr. Bayens, Knowles, and Lane.
6/23/04	<p>First phase of Vehicle Traffic Assessment at Ford, Finney, Seward, and Lyon Counties. Sheriff deputies will identify the number of agriculture vehicles that would be affected by a "<i>stop movement order</i>" issued in the event of an outbreak of any foreign animal disease.</p>	Lane
6/28/04	<p><u>Semi-annual progress report #2</u> submitted to NIJ</p>	Director Welch & Knowles
6/28-30/04	<p>Letter sent to heads of agencies at local, county and state government, and leaders in private industry asking for list of changes implemented since 9/11 to guard against agro-terrorism in Kansas.</p>	Clark and Knowles
7/13/04	<p>Meeting at Hutchinson to firm up details for field Exercise "<i>Endangered Species</i>."</p>	Lane and Reno County Sheriff Randy Henderson
7/23/04	<p><u>Financial Status Report #3</u> submitted to NIJ:</p> <p style="padding-left: 40px;">\$ 233,832.00 amount of NIJ grant</p> <p style="padding-left: 40px;">minus \$ 62,429.96 spent to date</p> <p style="padding-left: 40px;">\$ 171,402.04 remaining balance</p>	KBI Business Office: Tara Schmanke & Melinda Hewitt
7/29/04	<p>Training session for local law enforcement (Ford, Finney, Lyon & Kiowa County SOs, Dodge City and Emporia PD) in identifying illegal food products being smuggled into the U.S. and sold through black-market outlets. Local law enforcement will work with USDA interdiction teams to confiscate illegal food products that pose an animal health threat to our livestock industry.</p>	Blaine Powell, USDA, and Lane

7/30-31/04	Exercise “ <i>High Plains Guardian</i> ” at National Agriculture Biosecurity Center (NABC). This tabletop exercise is designed to define the mission and needs of the Kansas National Guard (KNG) in the event of a foreign animal disease outbreak.	Dr. Marty Vanier and Lt Col Craig Beardsley
8/2/04	Research team meeting at Dodge City. <u>Topics:</u> update on “ <i>Endangered Species</i> ” (Lane); update on changes made since 9/11 (Knowles); update on intelligence network; and update on field surveys (Dr. Bayens).	Dr. Bayens, Knowles, and Lane.
8/3/04	Research team meets with livestock industry consultants at Dodge City to discuss and validate findings developed from field surveys and focus group meetings.	Dr. Bayens, Knowles, and Lane.
8/10/04	Training session at Kansas State University for Kansas Cattle Haulers to assist in reducing the risk of animal disease transmission, enhance safety and quality of meat products derived from transported cattle.	Dr. Tim O’Byrne (785-532-5569) Lane and Jane Westerman
8/26-27/04	Research team meeting at Salina. <u>Topics:</u> update on “ <i>Endangered Species</i> ” (Lane); update on interdiction of meat products (Lane); update on Regional Response Teams (Knowles); update on intelligence network; and update on sheriff surveys (Dr. Bayens).	Dr. Bayens, Knowles, and Lane.
8/30/04	Meeting at KAHD to determine training methods and instructors for the Regional Response Teams	George Teagarden, Dave Cudmore, Knowles
9/18/04	Training: <i>Response to Terrorism & Emerging Threats to Agrobusiness</i> . Garden City, KS.	Dr. Lori Bergen, Dr. Jerry Jaax, Dr. Curtis Kastner, James Lane
9/25/04	Training: <i>Response to Terrorism & Emerging Threats to Agrobusiness</i> . Hays, KS.	Dr. Lori Bergen, Dr. Jerry Jaax, Dr. Curtis Kastner, James Lane
9/29/04	Training session for Regional Response Team members at KHP Academy in Salina re crime scene management, animal health threats, WMD, and hazardous materials.	George Teagarden, Dr. Sam Graham, Lisa Burdett, Dave Cudmore, Mike Miller, and Knowles
10/2/04	Training: <i>Response to Terrorism & Emerging Threats to Agrobusiness</i> . Emporia, KS.	Dr. Lori Bergen, Dr. Jerry Jaax, Dr. Curtis Kastner, James Lane

10/4/04	<p>Site visit & audit by NIJ project manager.</p> <p><u>Findings:</u></p> <p>Dr. Woerle approved a 90-day extension for the research project making the initial report due at NIJ on 4/1/05, with the final report due 7/1/05.</p> <p>Dr. Woerle recommended wide dissemination of our findings and recommendations for law enforcement agencies in other states.</p> <p>Dr. Woerle recommended that we submit a revised budget to reflect our anticipated expenses from 12/1/04 to the end of the project, 7/1/05.</p>	Dr. Sandra Woerle, NIJ, Washington, D.C.
10/5/04	Briefing for field exercise “ <i>Endangered Species</i> ” at Hutchinson Community College	Lane
10/6/04	Foreign Animal Disease (FAD) field exercise “ <i>Endangered Species</i> ” held at Justice Theatre, Hutchinson Community College in Hutchinson, KS.	Lane, Knowles, and Dr. Bayens
10/7/04	De-briefing, lessons learned from field exercise “ <i>Endangered Species</i> ” at Hutchinson.	Lane, Dr. Bayens, Knowles, and Dr. Sandra Woerle
10/15/04	<p><u>Financial Status Report #4</u> submitted to NIJ:</p> <p style="padding-left: 40px;">\$ 233,832.00 amount of NIJ grant</p> <p style="padding-left: 40px;">minus \$ 75,391.37 spent to date</p> <p style="padding-left: 40px;">\$ 158,440.63 remaining balance</p>	KBI Business Office: Tara Schmanke & Melinda Hewitt
10/21/04	Meeting at Agricultural Economics Department Kansas State University concerning economic impact of a foreign animal disease.	Dr. Barry Flinchbaugh, Dr. Jim Mintert, Lisa Burdett, and Knowles
10/22/04	Presentation to agriculture security directors concerning agroterrorism threats and preventive measures at Lincoln, NE.	James Lane
11/1/04	Personal briefing on status of NIJ research project at Dodge City with Senator Pat Roberts and staff. Outline findings and preventive measures.	Senator Pat Roberts
11/5/04	Request for 90-day, no-cost extension submitted to NIJ (Dr. Sandra Woerle) for approval. If granted, the final report to NIJ would be due on 6/30/04.	Knowles
11/15/04	90-day extension formally granted by NIJ by letter. Final report to NIJ due on or before 6/30/05.	Dr. Sandra Woerle
11/15/04	1 st training session re AGRO-GUARD project Ford County Fair Grounds Building, Dodge City.	Lane, Dr. Graham, and Commissioner Teagarden

12/2-3/04	Attend Kansas Livestock Assn. annual conference at Wichita, KS. Review ag economic presentations by Dr. Nevil Speer, Western Kentucky University; and Dr. Keith Collins, U.S. Dept of Agriculture.	Knowles and Lane
12/5-8/04	Agroterrorism Intelligence Training at Atlanta, GA	SA Scott Ferris, SAC Rick Sabel, and Karen Tyrell, KHP
12/23/04	Revised detail budget worksheet submitted to NIJ	Knowles and Melinda Hewitt
1/6-7/05	Research team meeting at KCI. <u>Topics:</u> Discussion re economic impact with Dr. Speer; Report-writing assignments for NIJ report: Dr. Jerry Jaax: Threats to Livestock; Dr. Marty Vanier: Role/Research of NABC; Approved addition of two experts to the project: Dr. David Carter for Intelligence Systems; Dr. Andra Bannister for Training.	Knowles, Lane, Bayens, Speer
1/7/05	AGRO-GUARD brochures ordered from State Division of Printing. Proofs will be ready 1/14/05, and final brochure will be ready by 1/21/05.	Patti Stirrett 785-296-0533 State Printer Order # 84352
1/12/05	AGRO-GUARD signage ordered (#04-0299R) from KCI at a cost of \$7,400. Approval sought 913-727-3249 for purchase of AGRO-GUARD decals from private sign company (Schurle Signs, Inc.)	Debra Gillespie & Rod Crawford
1/14/05	Meeting at Wichita State University to discuss development of national training module for law enforcement agencies re agroterrorism.	Lane, and Bannister
1/19/05	<u>Financial Status Report #5</u> submitted to NIJ: \$ 233,832.00 amount of NIJ grant minus \$ <u>134,775.72</u> spent to date \$ 99,056.28 remaining balance	KBI Business Office: Tara Schmanke & Melinda Hewitt
1/20-21/05	Project Team Meeting at KCI	Knowles, Bayens and Lane
1/25/05	2 nd training session for AGRO-GUARD project at Great Bend, KS.	Lane, Dr. Sam Graham, Knowles, Sheriff Buck Causey
2/3-4/05	Project Team Meeting at KCI	Knowles, Lane and Bayens

2/10/05	3 rd training session for AGRO-GUARD project at Emporia, KS.	Lane, Dr. Sam Graham, Knowles, Sheriff Gary Eichorn
2/11/05	Project Team Meeting at KCI	Knowles and Speer
2/16-17/05	<u>Focus Group Summary Workshop</u> at KSU Alumni Center, Manhattan, KS. Present findings to Focus Group; With input from Focus Group, confirm and refine findings; and develop final recommendations.	Crystal Danker (785-532-5071)
2/17/05	Present Agro-Guard Neighborhood Policing Sign (18" x 24") to Dr. Jon Wefald President, Kansas State University	Knowles and Dr. Ron Trewyn
2/28 – 3/4/05	Report Writing Session at Topeka	Knowles, Lane, Bayens, Speer
3/7 – 11/05	Edit and organize draft of final report	Knowles, Lane, Bayens
3/16-30/05	English Department at Washburn University reviews draft of Final Report to NIJ for: (a) continuity of presentation; (b) grammatical correctness; (c) compliance with APA writing style, format, and references	Dr. Robert Stein, Dr. Mary Sheldon, Dr. David Weed, Mr. Paul Fecteau
3/21-31/05	Corrections made and draft report organized into final report format (184 pages).	Clark and Knowles
3/31/05	WU English Team completes revisions	Dr. Robert Stein
3/31/05	Draft of Final Report submitted to NIJ at WDC, via FedEx (3 hard copies and 3 CDs).	Knowles
4/1/05	NIJ begins peer review process of 1 st draft. E-mail sent to research team to suspend further expenditures in order to audit NIJ research budget and determine balances for each of the programs.	Dr. Sandra Woerle, NIJ, Knowles, Hewitt
4/13/05	Presentation to 87 th Annual Kansas Transportation Engineering Conference at KSU Student Union concerning implementation of an FMD quarantine and stop movement order.	Knowles
4/14/05	Inventory conducted of all property purchased through NIJ research grant.	Carrie Clark
4/18/05	<u>Financial Status Report #6</u> submitted to NIJ: \$ 233,832.00 amount of NIJ grant minus \$ 185,092.35 spent to date \$ 48,739.65 remaining balance	KBI Business Office: Tara Schmanke & Melinda Hewitt

5/3-5/05	International Agroterrorism Conference (IATC) sponsored by the FBI scheduled at Westin Crown Center, Kansas City, MO. Results of the NIJ research project presented to 815 representatives from 42 states and 7 countries.	FBI, Lane, & Dr. Woerle
5/10/05	Midwest Crime Laboratory Director's Conference at Kansas City (KS). Threats of agroterrorism presented to crime laboratory directors representing eleven (11) states.	Knowles
5/26-27/05	Midwestern States Agroterrorism Conference to coordinate state emergency response procedures and stop-movement orders. (KCI Airport Marriott).	George Teagarden & Knowles
6/7/05	Training session at KSU Student Union for Kansas Voluntary Veterinary Corps re: FAD outbreak procedures and quarantines.	Teagarden, Lisa Burdett, and Knowles
6/8/05	Review of draft report with recommended changes.	John Guido, Texas A&M
6/9/05	Financial Status Update: Total Spent to Date: \$ 198,034.01 Obligated: \$ 29,815.17 Balance: \$ <u>5,982.82</u> Total Grant \$ 233,832.00	KBI Business Office - Melinda Hewitt
6/13/05	Agroterrorism awareness training taped for online presentation via KDHE's program: KS-TRAIN. Accessible at http://ks.train.org	Lane and Knowles with Debbie Nickles (785-291-3457)
6/13/05	Discussion with NIJ concerning results of peer reviews of draft report submitted 3/30/05, and her preliminary recommendations.	Dr. Sandra Woerle 202-616-9030
6/14-15/05	Revisions made for the final report to NIJ. Changes include: new cover, insert graphs, and additions (HSPD #9) to the addendum.	Lane, Knowles, and Carl Anderson
6/28/05	Final report delivered to State Printer for printing and binding. 200 copies ordered.	Patti Stirrett and Lynda Carter (785-296-0533)
6/28/05	Discussion with NIJ concerning grant close-out procedures and reporting requirements: 3 copies of the final report and PDF version of the final report. NIJ checklist discussed. Final expenditures must be obligated by 6/30/05, with final payments and final financial report due within 120 days or by 10/31/05.	Dr. Sandra Woerle 202-616-9030
6/28/05	Final research report electronically sent to NIJ via PDF. Hard copies to follow by mid-July.	Knowles