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Food for Thought: Efforts to Defend the Nation's Agriculture and Food

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Chairman Donovan, Ranking Member Payne, and Members of the House Subcommittee on Preparedness, Response, and Communications, my name is Doug Meckes and I am the State Veterinarian and the Director of the Veterinary Division in North Carolina's Department of Agriculture and Consumer Services. The Division includes 150 employees that serve the poultry industry and the livestock industry, that manage and operate the State's four veterinary diagnostic laboratories, and that are charged with oversight of 866 kennels and shelters caring for companion animals in North Carolina. Thank you for the opportunity to speak about matters of concern in North Carolina's ongoing efforts to prepare for, respond to, and communicate with stakeholders during agricultural emergencies.

North Carolina enjoys a robust agriculture and agribusiness industry which contributes nearly $80 billion on an annual basis to North Carolina's economy; 66% of that figure is associated with animal agriculture and North Carolina ranks second in hog production and third in overall poultry production in the Nation. On an annual basis, the industry accounts for 17% of the State's income and employs 16% of the workforce. (1) North Carolina's agriculture/agribusiness industry is part of the greater Food and Agriculture Sector (FA Sector), designated by Homeland Security a critical infrastructure sector in 2003 thus recognizing it's significant contribution to national security and the economy.

The FA Sector is composed of complex production, processing, and delivery systems and has the capacity to feed people and animals both within and beyond the boundaries of the United States. These food and agriculture systems are almost entirely under private ownership, operate in highly competitive global markets, strive to operate in harmony with the environment, and provide economic opportunities and an improved quality of life for American citizens and others worldwide. The FA Sector accounts for roughly one-fifth of the Nation's economic activity. In 2012, total agricultural product sales amounted to $400 billion, with crops and livestock each accounting for roughly half of those sales. One-fifth of U.S. agricultural production is exported, generating $144.1 billion in 2013, creating a positive trade balance of roughly $40 billion, and thereby fueling the U.S. economy. (2)

In January 2004, Homeland Security Presidential Directive-9 (HSPD-9) "established a national policy to defend the agriculture system against terrorists attack, major disasters and other emergencies." Included in HSPD-9 were eighteen "line items" which provide guidance to address then-identified gaps in the Nation's ability to defend agriculture and food. Twelve years later, progress has been made in addressing some of the gaps including a star in the crown of agriculture and food defense: Line Item 24 in HSPD-9 – the design and initiation of construction for "safe, secure, and state-of-the-art agriculture biocontainment laboratories that research and develop diagnostic capabilities for foreign animal and zoonotic diseases," the National Agro-Biodefense facility in Manhattan, Kansas. This achievement notwithstanding, other gaps in HSPD-9 have not been sufficiently addressed.

In the interest of full disclosure, prior to accepting my position in North Carolina, I was fully engaged in "providing oversight and management of the Department's (DHS') implementation of HSPD-9" in my role as Branch Chief, Food, Agriculture and Veterinary Defense Branch of the Office of Health Affairs, Department of Homeland Security. Thus, through my experiences with DHS and now as State Veterinarian, I have gained unique insight into what is/should be required at the State level to defend agriculture and food. I will speak to three of North Carolina's concerns today: Federal, State, and local response capabilities, availability of vaccine for Foot-and-Mouth disease and National Animal Health Laboratory Network resources.

Line Item 14 of HSPD-9 directs the participating Departments/Agencies to 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." Even before HSPD-9, members of the North Carolina Department of Agriculture and Consumer Services (NCDA&CS), my predecessors, recognized the need for such a capability. Today, as the North Carolina State Veterinarian, I am the fortunate benefactor of their insight, vision, and planning to prepare for and respond to agriculture and food incidents of any magnitude. The need for this capability was precipitated by a series of events in the State, in the Nation and internationally. In September 1999, Hurricane Floyd made landfall in North Carolina. The hurricane, and associated weather conditions before and after, resulted in the most severe flooding and devastation in North Carolina's history. That flooding resulted in an estimated $813 million in agricultural losses affecting 32,000 farmers. In addition to crop losses, livestock losses – almost 3 million poultry,

28,000 swine, and 600 hundred cattle – created problems associated with disposal of the carcasses of the animals. (3) In February 2001, an outbreak of foot-and-mouth disease in the United Kingdom caused a crisis in British agriculture and tourism. This epizootic saw 2,000 cases of the disease in farms across most of the British countryside. Over 10 million sheep and cattle were depopulated in an eventually successful attempt to halt the disease. By the time that the disease was controlled, in October 2001, the crisis was estimated to have cost the United Kingdom over 6 billion US dollars. Finally, the attacks of 9/11 and the subsequent 2001 anthrax attacks, also known as Amerithrax, brought new concerns of attacks on our agricultural and food systems. The likelihood of "agroterrorism," "the deliberate introduction of an animal or plant disease for the purpose of generating fear, causing economic losses, or undermining social stability," took on new meaning.

In the midst of these events, the Director of the Veterinary Division in NCDA&CS took on the task of developing capabilities to better protect North Carolina's animal health and to formulate a plan to meet the challenges of agriculture and food in the 21st century. The sum of the Director's efforts in this regard created the Emergency Programs Division within the Department. The mission of the Division is to: "Reduce the vulnerability and minimize the impact from any natural or man-made disaster, disease outbreak, or terrorist attack for the Department, the people and the agricultural interest of the State and to facilitate a rapid return to normalcy." Obviously, given the possible origins of a disaster, a broad spectrum of multi-hazard events must be considered.

In 2002, the Agricultural Emergency Operations Center (AgEOC) was completed and four primary activities were identified:

1. Continuation of the threat assessment and threat reduction efforts within the department and the agriculture community.
2. Training of AgEOC staff in operations and conduct of exercises for Multi-Hazard events.
3. Completion of the Multi-Hazard Response Plan.
4. Securing adequate funding for the continued development of the Multi-Hazard Threat Database (MHTD), and full implementation of the NC Threat Reduction Plan.

The MHTD built by and for the use of the NCDA&CS, is a collection of both secure and public facing web based applications. It provides detailed situational awareness in all events; examples would include: flooding and wind projections during hurricanes for the FA Sector; visualization of disease spread; premises and facility locations for isolation/quarantine within a control area; vehicle routing during disease outbreaks; and food and feed firm's activities during recalls/food illness outbreaks. Additionally, the MHTD facilitates and supports all activities associated with strategic planning, emergency response, incident command structure, and resource management during events. NCDA&CS is currently in the process of developing a 5 year plan to retool and bolster the effectiveness and complete integration of MHTD into the North Carolina FA Sector; the end-product of this effort – a MHTD tool capable of successfully guiding North Carolina through any all-hazards event and returning/restoring the economy, the environment, and the citizens to pre-event status.

Today, the Emergency Programs Division (EP Division) has reached maturity and its sphere of operation is considered All-Hazards in nature; as such, the EP Division is actively engaged in the support of other divisions within the Department, collaborates and coordinates with other departments and agencies across local, state, and Federal government, with industry and academia, and has rendered assistance to other states in a variety of instances. The EP Division's mission and goals are now well defined.

Mission:

The NCDA&CS Emergency Programs Division's mission is to reduce the vulnerability to or the impact from, any disaster, disease or terrorist attack on the agriculture community of North Carolina. The Division serves in a leadership capacity within the Department and works closely with local communities to support agrosecurity, agricultural emergency preparedness and recovery, and rapid response technology efforts. The EP Division establishes public-private partnerships between vital government agencies, industry, and volunteers to carry out this mission.

Goals:

- Preserve the ability of the NC agriculture community to produce stable supplies of food and other agricultural products.
- Diagnose and investigate infectious animal and livestock diseases, intentional plant pest introductions, unauthorized biological control agent releases, and environmental health problems and health hazards in the NC agriculture community.
- Provide the full resources of the North Carolina Department of Agriculture & Consumer Services to support the State of North Carolina in any emergency situation.
- Reduce the vulnerability of the staff, vital assets, services and operations of the North Carolina Department of Agriculture & Consumer Services.
- Reduce the vulnerability of state animal, livestock, plant, crop, and other beneficial organism populations from the effect of a Multi-Hazard emergency event.
- Support the partners and customers of the North Carolina Department of Agriculture & Consumer Services in reducing their vulnerability to and recovery from the effect of a Multi-Hazard emergency event.
- Inform, educate, and empower people to respond to specific agricultural community issues pertaining to a threatened or actual Multi-Hazard emergency event.
- Enforce laws and regulations that protect public, animal, livestock, plant, crop, and other beneficial organism's health and ensure their general safety in case of a Multi-Hazard emergency event.
- Evaluate the effectiveness, accessibility, and quality of departmental and community-based agricultural services available to respond to a Multi-Hazard emergency event.

The measure of success of the EP Division's efforts to accomplish its All-Hazards Response mission is best characterized by the breadth of its activities.

The Castleberry Food Recall in North Carolina:

On July 18, 2007, Castleberry's Food Company announced that it was voluntarily recalling several products and working with the U.S. Food and Drug Administration (FDA), the United States Department of Agriculture (USDA), and the Centers for Disease Control and Prevention (CDC) to investigate possible contamination of these products with Clostridium Botulinum, a bacterium which can cause botulism, a life-threatening illness. Upon notification of this recall, NCDA&CS Food and Drug Protection Division and Meat and Poultry Inspection Division jointly initiated response actions on July 20, 2007 and began to monitor the situation. At the time there was little data known about the recall. As the seriousness of the situation became clearer through communications with FDA, NCDA&CS initiated the formation of the Castleberry Recall Incident Management Team (IMT) and activated the Joint Food Emergency Operations Command Center. Food and Drug Protection Division became the multi-agency coordinator for North Carolina food defense agencies and set up the command center at the NCDA&CS Constable Laboratory, in Raleigh, N.C. The Director instituted the use of the Incident Command System (ICS) to manage the incident on July 25, 2007 and began development of daily Incident Action Plans. The initial planning process incorporated the Food and Drug Protection Division, Meat and Poultry Inspection Division, Public Affairs Division, Agricultural Statistics Division, and EP Division into the event operations.

The early implementation of the ICS by the NCDA&CS and other State agencies to manage the event was seen by all responding agencies as one of the keys to the overall success of the operation. The activation of the Joint Food Emergency Operations Command Center allowed the various state and local agencies with response authority and capability to act in a uniform and consistent manner, which contributed to the success and positive mission outcomes of the operation. At the end of the recall, over 35,000 cans of product were removed from outlets across North Carolina, more that the total of all products collected by the rest of the United States agencies engaged in the recall.

Evans Road Fire:

In June of 2008 a wildfire broke out in Eastern North Carolina consuming over 40,000 acres. Utilizing the Web-based Emergency Operations Center (WebEOC), EP Division coordinated the NCDA&CS response and support activities for this event. Logistical support was provided in the form of a loan of 320 gallons of fire suppression foam from EP Division's Avian Influenza (AI) response inventory, pumps, and hoses. The Department also provided two trucks for dust abatement as well as personnel from Plant Industries Division. Food distribution was also supplied in the form of two refrigerated trailers to support food service for the fire fighters.

Tomato and Pepper Salmonella Investigation:

The NCDA&CS Emergency Program Division assisted the Food and Drug Protection Division in its response to a national Salmonella outbreak in various fresh produce products in the late summer of 2008. Due to the complexity of the event and potential serious consequences for

consumers and producers alike, EP Division assisted in the establishment of a Multi-Agency Joint Operation Center at the Food and Drug Division's Constable Laboratory. Specifically EP Division: developed and distributed daily Incident Action Plans; refined procedures to address personnel, equipment, and safety issues; facilitated daily conference calls; gathered, recorded, and disseminated event documentation; developed and distributed daily situation reports; provided secure web-based data and information gathering tools to facilitate situational awareness and operational planning processes; implemented a web-based field reporting and time and mileage websites; and acted as liaison to involved agency administrators and North Carolina Emergency Management.

Operation Restore (Peanut Butter Recall):

In the winter of 2009 the US FDA issued a peanut butter recall due to the recent outbreaks of Salmonella linked to peanut paste. The North Carolina Food and Drug Protection Division conducted 569 checks evaluating over 2000 products subject to the recall with an effectiveness rate in excess of 68%. The EP Division supported the Food and Drug Division technologically with the creation of a web-based data entry and reporting tools. These tools allowed inspectors in the field to rapidly upload critical time sensitive data which assisted decision makers, allowing them to make informed choices quickly. Additionally, websites were also developed for workers involved in the recall to record time and mileage, allowing rapid accounting for reimbursement, and an "after action" website to gather feedback from participants.

Emergency Management Assistance Compact (EMAC) requested by the Alabama Department of Agriculture and Industry to assist damaged producer facilities:

A poultry depopulation task force consisting of six NCDA&CS personnel, resources including two foam depopulation units, supplies and materials deployed to Alabama on May 1, 2011. The focus of this event was response to tornado-damaged poultry producer houses. The task force traveled to Decatur, Alabama and reported to its assigned point of contact. Team A encountered water delivery issues which limited operations to one location for the day. This team was operating in concert with a team deployed by others. Two and one-half houses in partial collapse with approximately 24,000 birds were depopulated on this site. Team B was better supplied with water and was able to perform operations on two different farms. Two houses in partial collapse on two sites with approximately 24,000 birds were depopulated. Operations in both cases resulted in 100% depopulation of houses with no injury to personnel or damage to the equipment.

On day three (5/3/2011) the task force was re-assigned to the Alabama Department of Agriculture and Industry. Both teams were directed to a farm on which 4 houses were in total destruction. One pump unit was used to generate foam to depopulate approximately 7,000 birds located in two of the houses.

NCDA&CS Emergency Support Function 11 Hurricane Irene Response:

Hurricane Irene was a large and powerful Atlantic hurricane that left extensive flood and wind damage along its path through the Caribbean, the US East Coast and as far north as Atlantic Canada in 2011.

In North Carolina, tropical storm force winds began to affect the coastal communities and the Outer Banks hours before landfall, producing waves of 6–9 feet. In addition to the gales, Irene spawned several tornadoes early on August 27 while approaching the coast. Precipitation totals from Irene in the region were particularly high, ranging between 10–14 inches.

Prior to landfall and in anticipation of evacuation in select counties, NCDA&CS EP Division opened the Agriculture Emergency Operations Center and formally established its incident command structure on August 25, 2011, which mirrored the NC Emergency Management's activation level. An initial Incident Action Plan was produced and distributed for the operational period beginning at 0700hrs August 26, 2011 by the NC Agriculture Incident Management Team with the pre-landfall focus of actions centered on public information to protect agricultural infrastructure and farms, the safety of NCDA&CS staff and facilities, operational support of sheltering for animals, and planning of proactive coordination of response actions following landfall.

It's important to note that in April 2011, NC Agriculture had another brutal assault by tornadoes that ripped through highly productive crop land which was just being planted. Agricultural structures and equipment were damaged.

These two events in 2011 resulted in estimated damages of over $450 million to crops and infrastructure; much of which was either not insured at all, or underinsured.

2014 NCDA&CS Emergency Programs Division Accomplishments:

- Internal focus on how to be better prepared as a Division to work across lines with sister Divisions and across state borders with other agencies to improve capacity in the event of natural or radiological disasters or a food illness outbreak.
- Internally, the Division identified an Incident Management Team and invited the Food and Drug Protection Division to join in team training specifically to build capability for managing a large event affecting the food supply.
- North Carolina hosted a training with the USDA APHIS National Veterinary Stockpile team to improve collaboration during disease outbreaks.
- Early in the summer, with news of the West African Ebola Virus (EVD) outbreak and the consequences of managing companion animals of infected individuals coming to NC, EP Division began internal discussions while working closely with NC Division of Public Health on a strategy for responding to a mission of this type. Through a formal agreement with NC Department of Public Health, the EP Division is the lead for companion animal care for animals whose owners are exposed to EVD.
- EP Division worked collaboratively with the National Alliance for State Animal and Agricultural Emergency Programs (NASAAEP) and the National Animal Rescue and

Sheltering Coalition to host their annual meeting and to co-join venues with the 11th Annual One Medicine Symposium.

- EP Division staff inspected animal contact exhibits at sanctioned agricultural fairs for compliance with Aedin's Law (4), while also continuing their educational efforts with fair managers and exhibitors regarding non-contact animal exhibits.

2015 NCDA&CS Emergency Programs Division Accomplishments:

- Chief among the 2015 accomplishments are the multiple deployments of depopulation task forces to Minnesota and Iowa to assist in the depopulation of poultry infected with Highly Pathogenic Avian Influenza (HPAI). Early in the outbreak of HPAI (March, April, and May of 2015), both states found themselves in desperate straits as the disease spread rapidly throughout their states; North Carolina's assistance was sought and provided and the State's task forces were able to provide capable assistance to aid in the depopulation of infected poultry/infected premise poultry enabling the spread of the disease to be controlled.
- In offering his thanks to North Carolina, the Minnesota Incident Commander stated with certainty that North Carolina's assistance had "saved the poultry industry in Minnesota."

In reference to North Carolina's second concern, Line Item 18(a) of HSPD-9 speaks to the necessity of developing "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."

Foremost in the minds of states in which animal agriculture production is of significant consequence is the possibility of a Foot-and-Mouth Disease (FMD) outbreak. That is certainly the case in North Carolina, home to 9 million hogs.

> Foot and mouth disease is the most important animal disease in the world capable of crossing national boundaries and devastating animal agriculture (a transboundary disease). FMD affects cattle, pigs, sheep, goats, deer, elk and other wildlife. Ninety-six countries are either endemically or sporadically infected with the disease, therefore there is a constant threat that it will be introduced into the U.S. either accidentally or intentionally. FMD is extremely contagious and can spread rapidly with devastating consequences. You probably remember the outbreak in the United Kingdom in 2001 which is estimated to have cost approximately $6 billion. The number of livestock and the agriculture economy is much smaller in the U.K. than the U.S. We learned from their outbreak that we cannot depend on stamping out the disease by killing all infected and exposed animals.

The size, structure, efficiency, and extensive movement inherent in the United States livestock industry will present unprecedented challenges in the event of an FMD outbreak. No country with a livestock industry comparable to that of the U.S. has had to deal with an outbreak of FMD, and the impact would extend far beyond animal agriculture.

Once FMD is detected, an essential tool for control is to stop all animal movement in the affected area. Livestock production in the U.S. depends on extensive movement of animals. Approximately 400,000 cattle and one million swine are estimated to be on the road in trucks each day, either being delivered to packing plants or to other stages of production. Approximately 40 million swine are shipped into a new state each year (~110,000 each day). Many of those cross multiple state lines. In an FMD outbreak, State Animal Health Officials may prohibit animals from an FMD positive area from entering their state. Modern swine production depends on extensive animal movement on a regular basis. If animal movement is stopped, animals will need to be euthanized for welfare reasons because facilities will rapidly become overcrowded.

An outbreak of FMD will shut down exports of fresh beef, pork or dairy products. In 2014, beef exports totaled $7.1 billion, pork exports $6.7 billion and dairy exports totaled $7.1 billion. Approximately 11% of U.S. beef production and 22% of U.S. pork production are exported. In 2003, beef exports dropped due to a single case of mad cow disease (BSE); the cumulative loss in U.S. beef trade is estimated to have been $16 billion. The increasing export of beef and pork products in recent years significantly contributes to the value of cattle and swine. As exports increase, the industry becomes more vulnerable to the sudden and extended loss of exports that would result from an FMD outbreak. The price for pork and beef will drop dramatically due to the excess product on the domestic market. That will also impact the price of poultry products and the price of grain.

In 2011, Dr. Dermot Hayes and colleagues at the Center for Agricultural and Rural Development at Iowa State University published “Economy Wide Impacts of a Foreign Animal Disease in the United States” which had been funded by the National Pork Board. They estimated that over 10 years, the cumulative loss due to an uncontrolled FMD outbreak would be $199.8 billion. Losses estimated include: Pork – $57 billion; Beef – $71 billion; Poultry – $1 billion; Corn – $44 billion; Soybeans – $25 billion; Wheat – $1.8 billion. The impact would likely be larger now because of the increase in the value of exports since 2011. Agriculture is a critical infrastructure in the U.S. and is severely threatened by the potential of an FMD outbreak.

The USDA, along with many state and industry officials, recognized that the approach of stamping out and stop movement of animals is simply not possible given the realities of animal agriculture in the US. The USDA document “Foot-and-Mouth Disease Vaccination Policy in the United States” (September 2014) illustrates the current capacity of the U.S. to effectively implement vaccination strategy for control of different types of FMD

outbreaks (available upon request). It clearly indicates that there is not sufficient vaccine capacity to assist in controlling an FMD outbreak.

Fully appreciating the size, structure, efficiency, and extensive movement in the United States livestock industry demonstrates the unprecedented challenges an FMD outbreak would bring about. Control of an FMD outbreak in livestock dense areas without the rapid use of tens of millions of doses of FMD vaccine will be impossible. (5)

That conclusion brings us face-to-face with the dilemma faced by our Nation and our Nation's animal agriculture industry – there are not tens of millions of doses of FMD vaccine available, not anywhere in the world because there is no excess capacity for additional vaccine production – current production capacity meets current day-to-day market needs for FMD vaccine. This same reality was recognized in 2004 when HSPD-9 directed the creation of the National Veterinary Stockpile to respond to the most damaging animal diseases (including FMD) affecting human health and the economy, but NVS has never received sufficient funding to stockpile FMD vaccines.

It is possible to have an FMD vaccine stockpile available for immediate use. However, establishing and maintaining an FMD vaccine bank is complex. There are seven distinct serotypes of the virus that are not cross protective and approximately 65 subtypes. The World Reference Laboratory for FMD recommends that FMD vaccine banks maintain 23 strains of FMD virus in the vaccine bank. Once the virus in the outbreak is isolated, the serotype can be identified and the correct vaccine selected for use.

A plan to ensure that adequate supplies of FMD vaccine with multiple strains of FMD virus are available in the event of an accidental or intentional introduction of FMD virus into the U.S. is urgently needed.

At the request of the National Pork Board, National Cattlemen's Beef Association, and National Milk Producers Federation I produced a white paper entitled "FMD Vaccine Surge Capacity for Emergency Use in the United States" outlining a potential plan to develop a National Veterinary Stockpile (NVS) with sufficient quantities of FMD vaccine to protect U.S. agriculture, food systems, and the economy. The whitepaper is available at: www.cfsph.iastate.edu/pdf/fmd-vaccine-surge-capacity-for-emergency-use-in-the-US. (5)

Finally, I will address North Carolina's third concern, the issue of veterinary diagnostic laboratory capacity in North Carolina and across the Nation. Line Item 8 of HSPD-9 states "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:

(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."

The National Animal Health Laboratory Network (NAHLN) was developed as a result of this directive and is now part of a nationwide strategy to coordinate the work of all organizations providing animal disease surveillance and testing services. NAHLN is an early warning system for emerging and foreign animal diseases and provides surge capacity for the necessary testing during disease outbreaks and during the recovery phase. This surveillance and emergency response system provides critical and ongoing resources for laboratory testing, information management, quality assurance and the development and validation of new tests. During the recovery phase testing is necessary to establish a "disease free status" which also ensures international trading partners of that status.

NAHLN's importance was amply demonstrated during the HPAI outbreaks where thousands of samples were tested within hours in an effort to achieve depopulation of infected flocks within 24 hours. NAHLN performed surveillance in surrounding areas to halt disease spread, to test premises to determine freedom of disease before repopulation could occur, and allow resumption of international trade.

North Carolina's Rollins Veterinary Diagnostic Laboratory, in Raleigh, is one of 12 NAHLN "core laboratories," (so designated because it is one of the original 12 participating laboratories). A Core Member Laboratory receives significant infrastructure support from the US Department of Agriculture (USDA) and conducts fee-for-service testing for USDA. Their funding level enables these laboratories to be fully committed to the NAHLN mission and able to respond to domestic or foreign animal disease emergencies on a 24/7 basis.

NAHLN support comes from USDA-NIFA Food and Agro-Defense Initiative and USDA APHIS. Note: 34 NAHLN labs receive direct state appropriations of $100 million toward total national laboratory operation expenses of $186 million.

As stated at the beginning of the discussion regarding "Efforts to Defend the Nation's Agriculture and Food," I have spoken to three HSPD-9 "line items" that are of importance to North Carolina. The first, concerned Line Item 14 of HSPD-9 which directs the participating Departments/Agencies to ensure "that the combined Federal, State, and local response capabilities are adequate to respond quickly and effectively…" I trust this testimony allows you to appreciate the wisdom of those in North Carolina who had the foresight to develop the capability that has enabled the State to respond to the myriad events that have transpired over the intervening years – floods, fires, animal disease, human disease, food contamination, drought and hurricanes, our Emergency Programs Division has been on the forefront of them all – we have been well served by their efforts. That said, it is also important to note the development of that capability has been funded by the State and through various Federal grants– some $7.3 million in Federal money and $18 million in State money. It is appropriate to note that a remarkable capability, and perhaps a unique capability relative to other states, has been created for a relatively small investment over the years. Consider what similar investments might have meant to states so profoundly affected by HPAI – Iowa and Minnesota experienced as much as $1.6-1.8 billion in economic losses as a result of HPAI on 180 premises. Going forward, continued State and Federal funding will be necessary to maintain current capability, develop new capability, train, exercise, and replace equipment as needed.

Unfortunately, funding for North Carolina's Emergency Programs Division continues to decline and places the State's preparedness and response capability at risk.

Of greatest concern for North Carolina is the matter of Line Item 18(a) which speaks to the necessity of developing a National Veterinary Stockpile (NVS) containing sufficient amounts of animal vaccine, antiviral, or therapeutic products to appropriately respond to the most damaging animal diseases – FMD stands alone as North Carolina's greatest threat. The pork industry, the economy, communities, businesses, and families of North Carolina would be devastated by an FMD outbreak; recovery, if a recovery is possible, would be years in the making. A cooperative, collaborative effort, which includes all stakeholders – industry, Federal, State, and academic partners, must be initiated in short order to develop and implement a plan for establishing an effective FMD vaccine stockpile to protect American agriculture.

Lastly, Line Item 8 of HSPD-9 directs the responsible departments and agencies "to 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." North Carolina's Veterinary Diagnostic Laboratory System, as a part of the NAHLN, effectively surveilles for and diagnoses animal and zoonotic diseases. However, State and Federal support of and full funding for the Nation's NAHLN laboratory system are necessary to optimize service to stakeholders and the Nation. The absence of full funding was recently noted in the *BIPARTISAN REPORT OF THE BLUE RIBBON STUDY PANEL ON BIODEFENSE*. The Report states "The National Animal Health Laboratory Network (NAHLN), an effort to detect biological threats to the Nation's food animals, is necessary for effective biosurveillance. The NAHLN is a public-private cooperative effort between the USDA, the American Association of Veterinary Laboratory Diagnosticians, and publicly funded state veterinary diagnostic laboratories. The collective and integrated work of its members allows for improved detection of emerging and zoonotic diseases, which helps protect animal health, public health, and the food supply. The veterinary diagnostic labs that are members are quite literally on the front lines of disease detection. Established in 2002, the NAHLN is funded through a combination of grants, fee-for-testing services, and administrative support from USDA. It has struggled to maintain even $10 million worth of annual funding, its appropriations cut over the years to pay for other programs. As a result, the laboratories are unable to meet the threat and have at times eliminated positions and testing capacity for foreign animal diseases. Ten million dollars is a very small price to pay to protect one of America's major industries and portals for disease emergence. After the NAHLN struggled for years to obtain sufficient funding, in 2014 Congress authorized a specific funding line at $15 million per year. NAHLN must be funded to this authorized level in order to meet the need." It is important to note that $5 million was added to NAHLN's budget in 2016 to aid in the response to HPAI; that additional funding was not in the proposed budget for 2017. The request for NAHLN in 2017 remains at $10 million.

Thank you for the opportunity to speak today, on behalf of North Carolina, about issues of concern related to the defense of agriculture and food. I am happy to address any questions you might have.

(1) Mike Walden, Reynolds Professor and Extension Economist, NC State University's College of Agriculture and Life Sciences

(2) Food and Agriculture Sector-Specific Plan (SSP) 2015

(3) North Carolina State Animal Response Team (SART) Animal Burial Guidelines 2003

(4) After a 2004 outbreak of E. Coli affected 27 people at the North Carolina State Fair, North Carolina legislators passed Aedin's Law, which placed new regulations on petting zoos and animal contact exhibits at agricultural fairs.

(5) Testimony submitted to the U. S. House of Representatives Agriculture Subcommittee on Livestock and Foreign Agriculture: "Impact of an Outbreak of Foot and Mouth Disease (FMD) in the United States and the Urgent Need for an Adequate Stockpile of FMD Vaccine." Submitted by James A. Roth, DVM, PhD, Director of the Center for Food Security and Public Health, College of Veterinary Medicine, Iowa State University, February 11, 2016