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Safeguarding American Agriculture in a Globalized World

Promoting Agrosecurity and Ensuring Preparedness and Response Capability to Animal Disease at the State and Local Level

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Chairman Roberts, Ranking Member Stabenow, and Members of the Committee on Agriculture, Nutrition, and Forestry, I am Dr. Doug Meckes, and I serve as the State Veterinarian and the Director of the North Carolina's Department of Agriculture and Consumer Services' (NCDA&CS) Veterinary Division. The division includes 150 employees that serve the poultry livestock industries, manage and operate the state's four veterinary diagnostic laboratories, and are charged with implementation of the Animal Welfare Act in 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 $84 billion annually to North Carolina's economy, more than 17% of the state's gross domestic product, and accounts for 17% of the state's employees. North Carolina's agriculture/agribusiness industry is part of the greater Food and Agriculture Sector (FA Sector), designated a critical infrastructure sector in 2003 by the Department of Homeland Security (DHS) thus recognizing its significant contribution to national security and the economy. This 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.

North Carolina's animal agriculture industry, comprised of livestock, dairy, and poultry, accounts for 68% of farm cash receipts. North Carolina ranks second in hog production and third in overall poultry production in the nation. Maintaining production at these levels is dependent upon ongoing access to export markets. In any given year the pork industry exports 26-28% of product, the poultry industry exports 18%, the beef industry 14-16%, and the dairy industry 14% of production. Raising healthy animals, free of disease, ensures competitiveness of North Carolina's animal agriculture products in the international marketplace. The Veterinary Division stands in support of efforts by the animal agriculture industry to achieve that end through the implementation of appropriate agrosecurity and ongoing efforts to prepare for and respond to animal disease.

Prior to accepting this position in North Carolina in 2014, I spent seven years in Washington, DC, with the Office of Health Affairs (OHA) within DHS. For five and a half of those years, I was fortunate to serve as Branch Chief of the Food, Agriculture and Veterinary Defense Branch. The Assistant Secretary for Health Affairs served as the designated DHS official accountable for implementation of the department's responsibilities for veterinary, food, and agriculture security and also coordinated the department's responsibilities outlined in Homeland Security Presidential Directive 9 (HSPD-9), Defense of United States Agriculture and Food. Both tasks fell to the Food, Agriculture and Veterinary Defense Branch.

Today, as we consider our topic, Safeguarding American Agriculture in a Globalized World, a revisit of HSPD-9 is surely worth the effort. Released in January 2004, HSPD-9 "established a national policy to defend the agriculture system against terrorist attack, major disasters and other emergencies." Included in HSPD-9 were 18 "line items" which provide guidance to address then-identified gaps in the nation's ability to defend agriculture and food. Thirteen 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 called for 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," which has become the National Bio and Agro-Defense Facility in Manhattan, Kansas. The success of this project is testament to the dedication and determination of the Office of National Laboratories (ONL) in the Science and Technology Directorate (S&T) of DHS, and their colleagues at the United States Department of Agriculture (USDA). This achievement notwithstanding, other gaps in HSPD-9 have not been sufficiently addressed.

Of greatest concern to state animal health officials is the absence of vaccine for use in response to the introduction of a foreign animal disease. That is certainly the case in North Carolina, home to nine million pigs east of I-95. HSPD-9 Line Item 18(a) called for "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." We have not yet achieved this goal. Our animal agriculture industry remains as vulnerable to foreign animal diseases today as it was 13 years ago; particularly concerning is Foot-and-Mouth Disease (FMD). In the event of an FMD outbreak in the US, the North American Foot-and-Mouth Disease Vaccine Bank would be "triggered." The vaccine bank is a shared resource among the US, Canada, and Mexico, containing those types or subtypes of virus thought to be a threat to the US. However, the quantities of antigen available would yield only enough vaccine (2.5 million doses of any type/subtype) to respond to a small, confined outbreak.

The size, structure, efficiency, and extensive movement that is inherent to the nation's livestock industry will present unprecedented challenges in the event of an FMD outbreak. No country with a livestock industry comparable to that of the US has had to deal with an outbreak of FMD, and the impact would extend far beyond animal agriculture. On any given day, approximately 400,000 cattle, one million swine, and 25 million poultry are on the road, in movements to other stages of production or processing. Of particular concern to North Carolina are requirements, in modern swine production, for extensive animal movement. The identification of FMD in the United States would bring about an immediate stop-movement of all animals until the extent of the outbreak is better understood. Such a stop-movement could necessitate the euthanasia of animals for welfare reasons because facilities which house animals would quickly become overcrowded.

An FMD outbreak in a livestock-dense area of the US cannot be controlled without immediate access to millions of doses of FMD vaccine. Currently, availability of that amount of vaccine would require weeks to months to produce, depending on type/subtype of virus. The trade implications of such an event are staggering. Trading partners of the US would cease the import of beef, dairy products, and pork the day the virus is identified in the US. In 2011, Dr. Dermot Hayes and colleagues at Iowa State University published "Economy Wide Impacts of a Foreign Animal Disease in the United States." Hayes' group estimated that over 10 years, the cumulative loss due to an uncontrolled FMD outbreak in the United States would be $199.8 billion. It is time to move forward with the development of a more robust US FMD vaccine bank.

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." We are fortunate in North Carolina, for even before HSPD-9, members of the NCDA&CS recognized the need for such a capability in response to several local, national, and international events. 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 three million poultry, 28,000 swine, and 600 cattle – created problems associated with disposal of the carcasses of the animals.

At the national level, the attacks of 9/11 and the subsequent 2001 anthrax attacks, also known as Amerithrax, brought new concerns of attacks to the United States' agricultural economy. 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.

And finally, an international example of the vulnerability of our agricultural economy was the February 2001 outbreak of FMD in the United Kingdom. This caused a crisis in British agriculture and tourism. Over 10 million sheep and cattle were depopulated in an eventually successful attempt to halt the disease, but at an incredible cost to the UK agricultural community and overall economy. By the time the disease was controlled, in October 2001, the crisis was estimated to have cost the United Kingdom $16 billion (US$).

In the midst of these events, between 1999 and 2002, 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 those efforts was the creation of the Emergency Programs Division (EP 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 interests of the state and to facilitate a rapid return to normalcy.” The Emergency Programs Division, which is a unique operating entity in North Carolina (few other states have copied this model), is a vital partner to the Veterinary Division in preparing for and responding to agricultural disasters throughout the State of North Carolina. Additionally, because of its unique mission, NCDA&CS’s Emergency Programs Division is fully integrated into the State Emergency Management Division’s operational structure (when response at the state level involves agriculture issues). That integration ensures engagement at the local level during incidents as well. At the federal level, North Carolina preparedness and response capabilities are well recognized, and during catastrophic events North Carolina and

our federal emergency response colleagues seamlessly engage to manage incidents of great consequence.

The continued refinement of preparedness and response capabilities over the years has resulted in a team of agricultural and emergency management personnel ready to respond to any incident, fully engaged at the federal, state, and local level. In years past, the EP Division has participated in response to animal disease, food illness outbreaks, wildfires, and, of course, hurricanes. Today's response capabilities stand in sharp contrast to the department's abilities prior to 2002. In October 2016, Hurricane Matthew made land-fall in Eastern North Carolina with flooding greater than what occurred during Hurricane Floyd, and with more livestock on the ground than 1999. However, as a result of the EP and Veterinary divisions' preparedness efforts, the losses were significantly less: 2,800 pigs, 1.9 million poultry, and only a few cattle. All carcasses were properly managed, facilitated by $3 million in Public Assistance Grants from FEMA for the purchase of carbon source for use in composting. This was the first time FEMA supported such an effort in a mass animal mortality incident, and there were no environmental consequences or public health concerns associated with agricultural impacts of the storm. Additionally, members of the EP and Veterinary divisions have deployed in a variety of other incidents around the country to assist our state agriculture colleagues. In the most recent of such activities, depopulation teams went to Minnesota and Iowa during the 2015 Avian Influenza outbreak, emergency planning teams were sent to Texas to assist in Hurricane Harvey response, and emergency planning teams were deployed to Puerto Rico and the US Virgin Islands to assist in Hurricanes Irma and Maria response.

Today, the EP Division has reached maturity and its sphere of operation is considered All-Hazards in nature, and as such, the division is actively engaged in the support of other divisions within the department. EP

collaborates and coordinates with other departments and agencies across local, state, and federal government, as well as with industry and academia. 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. This relatively small investment over the years has brought the vision of HSPD-9's Line Item 14 fully to fruition in North Carolina. With additional funding targeted for such programs, similar capability could be developed in other states.

Finally, I will address 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 lab 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 assures international trading partners of that status.

NAHLN’s importance was amply demonstrated during the highly-pathogenic avian influenza outbreaks when thousands of samples were tested within hours to ensure depopulation of infected flocks. NAHLN performed surveillance in surrounding areas to halt disease spread, to test premises to determine freedom of disease before repopulation could occur, and to allow resumption of international trade.

As one of the 12 original NAHLN laboratories, North Carolina’s Rollins Veterinary Diagnostic Laboratory in Raleigh is designated as a core laboratory. A core member laboratory receives significant infrastructure support from USDA – USDA-National Institute of Food and Agriculture’s (NIFA) Food and Agriculture Defense Initiative, and USDA-Animal and Plant Health Inspection Service (APHIS) – 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. In addition, the Rollins Laboratory receives state-appropriated funds for salaries and expenses, operations, and maintenance.

Safeguarding American agriculture in a globalized world remains as much a concern now as it was in 2004 with the release of HSPD-9. I have spoken here today of three HSPD-9 Line Items that are of importance to North Carolina. The first, 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…” 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. Through floods, fires, animal disease, human disease, food contamination,

drought, and hurricanes, our Emergency Programs Division has been on the forefront of them all, and we have been well-served by their efforts. This asset was created for a relatively small investment over the years. Going forward, continued state and federal funding will be necessary to maintain current capability, develop new capability, train and exercise, and replace equipment as needed. Unfortunately, funding for this program 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 animal diseases, of which FMD stands alone as the most consequential. The pork industry, the economy, communities, businesses, and families in North Carolina would be devastated by an FMD outbreak. Recovery, if a recovery is even 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 the US Foot-and-Mouth Disease Vaccine Bank to protect American animal agriculture.

Finally, Line Item 8(c) 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."

In closing, let me say that while I have addressed only three Line Items of HSPD-9, several others are worthy of another look. But in speaking with many of my state animal health official colleagues, particularly those in animal agriculture-dense states, I believe the issues addressed above to be of immediate concern and worthy of our attention. As I am certain you all are aware, numerous animal agriculture groups, animal science organizations, and veterinarians support a new Animal Disease and Disaster Prevention Program for inclusion in the 2018 Farm Bill. This program, which speaks specifically to ensuring fully-trained,

appropriately-equipped, response-ready teams at the state level (not unlike the Emergency Programs Division that exists here in North Carolina), and increased support for the NAHLN laboratory system to enhance the nation's animal disease prevention efforts. Additionally, a proposal for establishing and funding a robust US Foot-and-Mouth Disease Vaccine Bank for inclusion in the 2018 Farm Bill is considered a top priority by many in the animal agriculture industry.

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.