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# HIGHLY PATHOGENIC AVIAN INFLUENZA: THE IMPACT ON THE U.S. POULTRY SECTOR AND PROTECTING U.S. POULTRY FLOCKS

## HEARING

BEFORE THE

## COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY UNITED STATES SENATE

ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

JULY 7, 2015

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# HIGHLY PATHOGENIC AVIAN INFLUENZA: THE IMPACT ON THE U.S. POULTRY SECTOR AND PROTECTING U.S. POULTRY FLOCKS

**Tuesday, July 7, 2015**

UNITED STATES SENATE,
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY,
*Washington, DC*

The committee met, pursuant to notice, at 3:02 p.m., in room 328A, Russell Senate Office Building, Hon. Pat Roberts, Chairman of the committee, presiding.

Present or submitting a statement: Senators Roberts, Cochran, Boozman, Hoeven, Ernst, Perdue, Tillis, Grassley, Thune, Stabenow, Brown, Klobuchar, Bennet, Donnelly, and Casey.

**STATEMENT OF HON. PAT ROBERTS, U.S. SENATOR FROM THE STATE OF KANSAS, CHAIRMAN, U.S. COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY**

Chairman ROBERTS. Good afternoon. I call this meeting of the Senate Committee on Agriculture, Nutrition, and Forestry to order.

We are here today to learn from the stakeholders on highly pathogenic avian influenza, the impact on the U.S. poultry sector. Thank you to our witnesses for sharing their experience with highly pathogenic avian influenza, or HPAI. I know several of you have had infected farms and others have been on the front lines of this response.

I commend the U.S. Department of Agriculture, the State Departments of Agriculture, and the impacted sectors for their coordination and diligence in addressing HPAI. If it were not for the rapid response by all involved, including impacted producers, the virus could have caused much more damage. The rapid response demonstrated by government and industry alike is the kind of coordinated effort that will ensure the U.S. poultry sector weathers the storm.

I am also pleased to share that many of the first farms hit with HPAI in the Upper Midwest have begun repopulating their farms. This is a critical step because it enables these farms to begin generating income again.

As we will hear from experts today, it is important to emphasize the fact that this outbreak of HPAI poses no food safety risk—no food safety risk—nor does it pose any public health risks. While this outbreak has caused severe disruption to the U.S. poultry sec-

tor and to its retailers, it is important to reiterate the fact there has been no impact on human health or food safety. Nevertheless, this has been and continues to be an incredible taxing and trying situation for the individuals and industries that are represented and are here today.

Agriculture is a high-risk business, and our poultry and egg producers are experiencing firsthand the damaging tolls some of these risks take on their operations. Many of the impacted farms employ dozens, or in some cases hundreds, of people. These businesses are often the backbones of rural communities that dot the American countryside, and the ripple effect that HPAI has had on these rural communities is dramatic and widespread.

It is critical that we hear some of the lessons learned from the impacted industries and from the animal health experts at the Department of Agriculture. We need to identify improvements that must be made to both our national animal health infrastructure and biosecurity measures on farms to ensure the U.S. poultry and livestock sectors are protected from future disease threats.

In 2013 and 2014, the U.S. pork sector was plagued with a similar devastating virus. Now, in 2015, we are experiencing HPAI, which has resulted in depopulation of ten percent of egg-laying hens and three percent of turkeys now produced in the United States. Both of these experiences have emphasized the importance of bolstering our animal health infrastructure and foreign animal disease preparedness here in the United States.

U.S. businesses such as food producers and restaurant owners want to ensure that disease threats like HPAI do not continue to cause the extreme price volatility they have been working hard to manage. It is critical that we take the lessons learned from this outbreak and put them to good use. We need to take a good hard look at the animal health infrastructure here in the United States so we have the proper measures in place to continue to protect poultry, livestock, and, thus, the global food supply.

U.S. agriculture has a long history of providing the safest, must abundant food supply in the world. That is due to the strength and dedication of our producers. I am confident that even in the face of today's challenges, our farmers will continue to deliver safe, affordable, and abundant products.

I now recognize the distinguished ranking member, Senator Stabenow.

**STATEMENT OF HON. DEBBIE STABENOW, U.S. SENATOR FROM THE STATE OF MICHIGAN**

Senator STABENOW. Well, thank you very much, Mr. Chairman, for holding this very important and very timely hearing, and thank you to all of our witnesses for testifying today. We look forward to hearing your perspectives this afternoon.

We meet today because American poultry and egg producers are experiencing an unprecedented animal health crisis, as the Chairman has said. Since December 2014, avian flu has affected more than 48 million birds—it is stunning when you think about that, 48 million birds—in 15 states, causing economic hardship for producers, driving up the cost of food for consumers, and threatening international trade.

As a sign of the difficulties producers are facing, this year is the first year in more than a decade that the United States will import eggs from European markets to help make up the shortage from the millions of birds lost to the outbreak.

Members of the committee know these facts especially well. Senators Grassley and Ernst and Klobuchar's home states of Iowa and Minnesota have experienced the worst of the crisis, and my thoughts are with the producers in your states.

Addressing avian influenza and the variety of challenges it presents requires all stakeholders, both public and private, to work together. Since the start of the outbreak, the U.S. Department of Agriculture, alongside state governments, have moved swiftly to help producers, and I join with the Chairman in applauding those efforts. That work and continuing a close collaboration with industry is essential to moving forward in a way that maximizes the effectiveness of relief efforts while helping our producers on the path to recovery. That teamwork also sends a strong signal to customers at home and abroad that America's poultry sector remains open and eager for business.

I look forward to working with you, Mr. Chairman and members of the committee, as we move forward to do whatever we can to support this important industry. Thank you.

Chairman ROBERTS. I thank the Senator.

Before we welcome our first panel of witnesses, is Congressman King from Iowa in the audience? We would welcome him here. Perhaps he will appear later.

Our first witness is Dr. John Clifford, Deputy Administrator Animal and Plant Health Inspection Service, Veterinary Services, the U.S. Department of Agriculture here in Washington. Dr. Clifford has played a key role in safeguarding U.S. animal health since he started his career at APHIS in 1985. Dr. Clifford has been Deputy Administrator of APHIS's Veterinary Services since May of 2004, and prior to that, he served as the Associate Deputy Administrator. In those roles, Dr. Clifford has led the Veterinary Services efforts to protect, sustain, and improve the productivity, marketability, and health of the nation's animals.

Before beginning his work with APHIS, Dr. Clifford was a private veterinarian in a mixed animal practice. He received a Doctorate in Veterinary Medicine from the University of Missouri, home of the Tigers, formerly of the Big 12——

[Laughter.]

Chairman ROBERTS. I am pleased to welcome you to the committee today, Dr. Clifford.

Then our second witness is Dr. David Swayne, who will be introduced later by Senator Perdue. No, I beg your pardon. You are going to introduce him right now.

[Laughter.]

Senator PERDUE. Very good. Thank you, Mr. Chairman.

Mr. Chairman, I am honored to introduce Dr. David Swayne. Dr. Swayne, I appreciate you appearing today before this Agriculture Committee. We are certainly honored to have what many would consider the foremost authority on avian influenza in the country here for this very important hearing. Thank you for being here.

Dr. Swayne received his Ph.D. from the University of Georgia in 1987 and has been Director of the National Poultry Research Center in Athens, Georgia, since 1994. Although it took a few years to get him back to Georgia, we are proud he has been leading research in this area that is so crucial to my state's economy for the past two decades.

Dr. Swayne's personal research has focused largely on the control of avian influenza in poultry. He has served on the World Organization for Animal Health, Committee on the Terrestrial Animal Health Code, and he currently serves as the Chair of the United Nations Food and Agricultural Organization.

In addition to his Ph.D. from the University of Georgia, Dr. Swayne holds a Doctorate of Veterinary Medicine from the University of Missouri and is a board certified specialist in veterinary pathology.

On a personal note, Dr. Swayne knows the devastating impact of HPAI and Georgians' concerns about what could happen if poultry stock was exposed in our state to this devastating strain of bird flu. He has worked closely with people in the state to make sure information about biosecurity best practices is made available.

Dr. Swayne, thank you for being here. Welcome. I certainly appreciate your insights on this important issue and we all look forward to your testimony. Thank you.

Chairman ROBERTS. I thank the Senator.

Dr. Clifford, would you please address the committee.

**STATEMENT OF JOHN R. CLIFFORD, D.V.M., DEPUTY ADMINISTRATOR, ANIMAL AND PLANT HEALTH INSPECTION SERVICE, AND CHIEF VETERINARY OFFICER, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, DC**

Dr. CLIFFORD. Thank you, Mr. Chairman, and I am sorry I cannot do anything about what conference Missouri is in. I liked it better, personally, when it was the Big Eight.

[Laughter.]

Chairman ROBERTS. We share the same view.

[Laughter.]

Dr. CLIFFORD. Thank you again, Mr. Chairman and members of the committee, and thank you for the opportunity to testify before you today on behalf of the United States Department of Agriculture.

In recent weeks, the number of new detections of highly pathogenic avian influenza found at U.S. poultry farms has slowed considerably. In fact, it has been over two weeks since we found a case in Iowa, and probably approaching three weeks and approaching four weeks, if not there, for—already over four weeks, I believe, since we found the last case in Minnesota. So, these are bright spots in the largest animal health emergency in our country's history.

While encouraging developments, the impact of this unprecedented disease outbreak is still being felt throughout our industries. Trading partners have restricted U.S. poultry exports. The risk of the disease reemerging in the fall or spring is significant.

Our hearts go out to the affected producers, their employees, and the communities they live and support. I assure you that this dis-

ease has the USDA's fullest attention and we are committing to standing with our producers and industry to get them back on their feet.

The Secretary of Agriculture is leading efforts to respond to this virus, assist producers, and maintain trade markets. As we look to the fall, we will be ready for the challenge.

More than 400 USDA staff and over 2,000 USDA contracted personnel have been working around the clock in every affected state on this response. We have delivered over $180 million in indemnification payments to producers to control the spread of the disease and to help them recover. All told, USDA has committed over $500 million, an amount more than half of APHIS's yearly budget, in responding aggressively to this outbreak. We can and will request additional funds, should we need to.

We have carefully studied and assessed the epidemiology of the virus as well as our response efforts in conjunction with our state and industry partners. We know that while birds brought this disease to the Western U.S. in late 2014, as the birds and virus moved into the Midwest, we saw point source introductions as well as farm-to-farm spread of the virus.

Although we cannot point to a single specific practice that caused this, our epidemiological reports suggest that lapses in biosecurity were a contributing factor. We have talked at length with the state and industry partners about our findings and the need for all of us to think more comprehensively about on-farm biosecurity.

We all agree we are in this fight together. We have a shared interest in eradicating this disease and getting the poultry industry back on its feet. Last week, we met with the industry and state officials to ensure that we have a high level of preparedness to deal with the reemergence and possible spread of the virus come fall. We have encouraged our partners to review the existing Avian Influenza Response Plan so that they understand what we will expect and what actions we will need them to take should the disease strike.

We are also urging states and industry to develop site and country-level specific depopulation plans for landfilling or composting birds. Our experience in the Midwest showed us the biggest roadblock to efficient depopulation is the lack of ready sites to receive and process dead birds.

For our part, we are taking proactive steps to be ready for the fall. We are identifying staffing needs and hiring more than 450 additional temporary employees, including 210 animal health technicians and 90 veterinary medical officers. We are also developing a potential vaccine strategy. Should we decide to use vaccines to address the outbreak, we will have the systems in place to do so. As part of our planning, we are also working with our partners to increase surveillance of wild bird populations. We need to be able to identify the virus as present as quickly as possible to stamp it out.

Later this month, we will be meeting directly with state veterinarians and industry to discuss the need for more biosecurity. The meeting in Des Moines will help ensure that our collective biosecurity is more stringent and that we are prepared as we again prepare for the fall.

I want to thank all of our partners in the industry and the states for their cooperation in this process. Their efforts and willingness to work with us are appreciated and will help us as we plan for the fall.

Mr. Chairman, this concludes my testimony.

[The prepared statement of Dr. Clifford can be found on page 52 in the appendix.]

Chairman ROBERTS. Well, Dr. Clifford, thank you so much. You are right on time.

We turn now to Dr. Swayne.

**STATEMENT OF DAVID SWAYNE, D.V.M., LABORATORY DIRECTOR, SOUTHEAST POULTRY RESEARCH LABORATORY, AGRICULTURAL RESEARCH SERVICE, U.S. DEPARTMENT OF AGRICULTURE, ATHENS, GEORGIA**

Dr. SWAYNE. Chairman Roberts, Ranking Member Stabenow, and members of the committee, I am the Laboratory Director of the Southeast Poultry Research Laboratory, which is part of the Agricultural Research Service's U.S. National Poultry Research Center in Athens, Georgia. ARS is committed to eradicating the HPAI virus at the center of the current North American outbreak through providing cutting-edge research and diagnostics, molecular epidemiology, pathology, and vaccinology.

In response to the first detections of HPAI in the United States, ARS refocused its HPAI research program to the most imminent research needs. Within weeks, a rapid molecular test was developed to detect the Asian H5 HPAI virus, which quickly differentiated it from the North American low path AI viruses. This test was transferred to the National Vet Services Laboratory of APHIS and is the core test in the diagnostic effort to rapidly identify vaccinated flocks.

We conducted studies to understand how the early HPAI viruses infected and caused disease in birds. In chickens and turkeys, high-exposure doses were needed to produce infections, and bird-to-bird contact transmission was inefficient. But all infected chickens and turkeys became ill and died. By contrast, domestic ducks and mallards became infected with low doses of virus and had more efficient contact transmission, but they did not become ill or die.

Subsequent experiments using later Midwest HPAI viruses required less virus to infect chickens and contact transmission occurred more easily, this indicating the later HPAI viruses had changed and were more easily transmitted to and among chickens and turkeys.

In extending the laboratory data to the field situation, ARS researchers teamed up with APHIS virologists and epidemiologists as well as field and university poultry veterinarians by providing them with genetic analysis of HPAI viruses in order to focus the epidemiologic investigations. Genetic analysis supported a point source introduction from infected waterfowl to poultry in the Pacific flyway and the early cases in the Midwest area. However, the later Midwest viruses showed evidence of common source introduction for outbreaks supporting farm-to-farm spread.

In the United States, there is no vaccine approved or currently in use in commercial poultry for high path AI. While some nations

have attempted to utilize vaccine to protect poultry against H5N1 HPAI virus, a primary focus on vaccination for control has not led to immediate eradication. Ninety-nine percent of the HPAI vaccine has been used in China, Egypt, Vietnam, and Indonesia, where H5N1 HPAI is endemic. In these countries, prolonged vaccination use has been associated with vaccine failure and emergence of vaccine resistance, necessitating continued surveillance for vaccine-resistant strains and periodic change of the vaccine seed strain to more closely match the circulating HPAI field viruses.

In support of APHIS, ARS conducts HPAI vaccine seed strain development and testing as a routine research activity, but it does not manufacture vaccines nor decide when or if vaccines should be used in the field. The licensing and use of vaccine is determined by APHIS. Currently, ARS has developed a new vaccine seed strain for inactivated vaccines and is conducting protection studies in chickens and turkeys. If viable, the vaccine seed strain will be transferred to a commercial vaccine manufacturer. In addition, ARS is evaluating registered AI vaccines for protection in chickens and turkeys against current outbreak viruses.

Vaccination can play a helpful role in disease eradication if properly implemented, but globally, vaccination has negatively impacted poultry exports, which is a crucial part of the U.S. poultry industry. Efforts to mitigate the effect of vaccination on exports include identifying infected poultry within vaccinated populations through reliable and cost effective serological and virological testing. Such a strategy is often termed DIVA testing, development and validation of DIVA vaccination strategies is a research priority.

In conclusion, the current HPAI outbreak presents unique and unprecedented challenges to the U.S. poultry industry and ARS and collaborators immediately shifted their research programs to high-priority areas: One, infectivity and transmission studies in poultry and wild birds; two, rapid diagnostic test development for detecting Asian H5 HPAI virus; three, molecular epidemiologic studies on virus spread; and four, development of efficacious vaccines and an effective vaccination strategy.

Thank you again for the opportunity to testify and for Congressional support as we continue to fight this virus.

[The prepared statement of Dr. Swayne can be found on page 87 in the appendix.]

Chairman ROBERTS. Well, thank you both, again, for taking the time to join us today. We appreciate you sharing your expertise and your firsthand experience managing this outbreak.

For both of you, please describe as quickly as you can, but also be thorough, which I know you will, some of the protocols that are in place to ensure the safety of the food supply and public health. We will start with you, Dr. Clifford.

Dr. CLIFFORD. Thank you, Mr. Chairman. With regards to highly pathogenic avian influenza, this virus, because it kills birds, and then the way we eradicate this virus, none of these birds go to slaughter, and if they did go to slaughter, they would be condemned at slaughter because of the virus itself and the destruction this virus causes in the bird itself. So, it would never—this virus would not be entering the food supply.

Having said that, the virus itself does not cause any particular concern at this time to the Centers for Disease Control and Health and Human Services. We monitor that very, very closely with them. We provide the virus sequences to CDC on an ongoing basis.

We do that as active surveillance continually, not just in this occurrence, but in other occurrences. We follow these viruses. As Dr. Swayne indicated, we also monitor the wild bird surveillance. We also have swine surveillance in this country that we also monitor so that we can be proactively protecting public health as well as animal health.

Chairman ROBERTS. Dr. Swayne, anything you would like to add, sir?

Dr. SWAYNE. I think it was adequately covered.

Chairman ROBERTS. Dr. Swayne, outside of the current research being done on the two circulating strains of HPAI H5N2 and H5N8, what additional research do you think is needed in order for the industry and government to combat this virus?

Dr. SWAYNE. Research on vaccines is an important part of control programs globally, and our lab as well as other labs in the U.S. have done work to help other countries, such as Egypt, Indonesia, Vietnam, in combating their own problems with high path AI, and our neighbor to the south, Mexico. Additional work on H7N3, which is a big threat in Mexico, is needed, and it is always a concern for us here in the United States that that virus could move north across the border.

Chairman ROBERTS. Dr. Clifford, avian influenza has left many wondering about the vulnerabilities that may exist within our national animal health protection infrastructure. Foreign animal disease threats, such as foot and mouth disease, could have widespread impacts. So, let us look forward. What additional steps could be taken to ensure we are ready to manage a disease like foot and mouth, should it appear in the U.S.?

Dr. CLIFFORD. Well, there are actually several things on that front. Let me first by saying we need to have adequate personnel to be able to address these issues. Since the beginning of sequestration, APHIS has lost about $430 million and about 800 positions.

Of that, within Veterinary Services alone, to date, we have lost $36 million and 225 positions. But, at the beginning of this, we had lost initially $54 million and 250 positions. With the high path AI situation that we are faced with, we have limited field support. I have a total of about 1,800 people in my organization to respond and to prepare.

With regards to foot and mouth disease—with all of these diseases, it is a shared effort and it has to be a shared effort between the industry and the states and the federal government. With regards to things like foot and mouth disease—and I would like to even address this, if I could, and take a moment to expand it to high path AI and other diseases—we in the world, worldwide and internationally, have to stop eradicating diseases through the total destruction of animals and depopulation of animals.

We need to find new ways to save animals and that protein for their families, for the owners, for the companies, for trade, for a lot of reasons, economics, and it is also a waste of protein. The only way we can do that is to put new tools in our toolbox and to effec-

tively develop new strains of vaccine or other types of treatment to be able to address these issues.

In the case of foot and mouth disease, we need an appropriate level of vaccine bank. Our previous vaccine bank was based upon an eradication, go in and kill, approach. It was not based upon a vaccine to live or a vaccine to kill approach. Besides the resource needs, we would need adequate levels of vaccine. The National Veterinary Stockpile, which, when it was started quite a few years ago, the idea was for it to have $20 million to help support these efforts. It is funded, I believe, to date, at $4 million for the National Veterinary Stockpile.

The same way with high path AI. We have got to find out better ways and better tools to control this disease. We have got to have facilities—and I do not have a problem with integrated facilities or outdoor birds. This virus does not care which way it is. But, if we are building facilities, we have to build facilities that will protect one house from another house, so if you get the disease in one house, we can destroy 100,000 birds, not three million.

Chairman ROBERTS. I thank you, Dr. Clifford.

Dr. Swayne, would you like to add anything, with apologies to my colleagues for going overtime.

Dr. SWAYNE. I think the issue for us is the same as APHIS, is that our funding level has required us to reduce staffing over the last 12 years from 35 staff members who worked full time on avian influenza down to 20, and so with immediate research response in an outbreak like that, we have a limited number of staff and also aging facilities.

We appreciate the Senate obligating in fiscal year 2014 $45 million, which is to be used to upgrade some of our existing facilities, and there is a request in the budget for 2016 for the final piece of that budget, $113 million, the final upgrade of all facilities, and that is needed for us to be able to respond quickly and carry on the experiments we need to do to support the poultry industry.

Our handicap in the size of our facilities and the aging facilities has restricted the type of studies we can do. So, for example, we cannot do studies in 12-week-old turkeys or older, which are a critical part of the outbreaks in both Minnesota and Iowa.

Chairman ROBERTS. Thank you, gentlemen.

Senator Stabenow.

Senator STABENOW. Well, thank you very much, Mr. Chairman.

Just along the size of what you just indicated, the ongoing concern that I have in a number of fronts is that we are penny-wise and pound-foolish as we look at various things, where we need to be getting ahead of it in terms of prevention, and we wait until we are in this crisis and do not have the tools, Dr. Clifford, as you were talking about, to make sure we are saving as many birds as possible or getting ahead of this.

That is an ongoing concern that I have in general about the way we are budgeting and lack of really strategically thinking things through in terms of what is a smart way to provide funding.

Specifically on the avian influenza, when we look at the fact that this popped up very quickly in the spring in the Mississippi flyway, and when we are talking about how quickly you had to move—and again, congratulations to everyone working as a team to respond to

this crisis—when you look going forward, what are the lessons you learned from the spring in terms of being effective, timely mitigation, and when you look going forward from here, what do you think in terms of a government response has positioned you for a potentially difficult fall?

So, what have you learned to this point? What does it mean in terms of responding going on into the fall?

Dr. CLIFFORD. So, I will hit a couple of those areas. I think, initially, our response, while we were onsite rapidly, it is key to put birds down quickly, and in some cases, there were delays in doing that for a multitude of reasons. We have got to not allow that to occur, because the longer birds live, the more virus production and, therefore, the more likelihood of more environmental contamination, more spread. So, that is one lesson learned.

Now, we rapidly caught up to that after a while in Minnesota and were able to get the turkeys down pretty quickly after we caught up, got the kind of crews available, but there are other issues here that need to be through the planning process. I mentioned in my testimony about disposal. We had to go for quite some time—in fact, we had to initiate and call in Secretary Vilsack and the Governor of Iowa to address issues of landfill use in the State of Iowa while the state itself had already preplanned and had some of these things lined up.

But when it comes to the actual outbreak, people get concerned. There are perceptions about these types of things, and they are concerned about their own livelihood and the way it is going to be viewed by others. It is the same way as a brand name. It was hard to break down some of those barriers initially.

In addition, we have got to find a better way to get these birds euthanized properly, killed properly, humanely, but in these larger facilities, we have got to do it in a more timely way, and we are having some more of the discussions around that particular topic, as well. We are going to be meeting—a group of veterinarians will be meeting with the AVMA this coming weekend in Boston to discuss some of those strategies and to get the support of the American Veterinary Medical Association for some of that.

Senator STABENOW. Thank you.

Dr. Swayne, did you want to respond to that, as well?

Dr. SWAYNE. Yes, just briefly. I think for us and our lab, we will be concentrating on a couple of things as research between now and the fall. One is assisting APHIS in some of the epidemiologic studies to try to identify risk factors that may be associated with movement of these viruses onto farms, and hopefully through that process, that will help the companies and the farmers to reestablish their biosecurity strategies to reduce any potential entry of that virus back into the farms.

Also, we will be spending the next several months concentrating most of our laboratory research efforts on vaccines, but also vaccination protocols and how realistic they could be for use in the fall.

Then we will be working closely with colleagues on the wildlife health side in identifying the viruses that might be in wild waterfowl and determining if they are more adapted to waterfowl or if

they are similar to the Midwest poultry adapted viruses, and that will determine the strategy for prevention in the fall.

Senator STABENOW. Thank you.

Finally, just very quickly, Dr. Clifford, because this is a team effort between the public and the private sector, just wondering, when you think about potential cases or suggestions or concerns, how does that go from farm to the offices at APHIS?

Dr. CLIFFORD. Well, it is about communication and working together. So, I think in this particular outbreak situation, we had some issues initially, in the beginning of this, and we continued to improve communication until right now, it is really about working very closely with the industry and the states. We have held a meeting with the industry and states about a week ago to bring together—we brought together about 90 people.

I had an international meeting held in Baltimore, or we did, to talk about the actions the U.S. were taking, talking about what other actions the other countries were taking and how to collaborate and address some of these issues, such as the use of vaccines.

So, we began some of those discussions there with the industry, states, and other countries. So, we are hearing the concerns from the industry and we will be incorporating those into our action plans for the fall.

Senator STABENOW. Thank you, Mr. Chairman.

Chairman ROBERTS. Senator Perdue.

Senator PERDUE. Thank you, Mr. Chairman.

I really appreciate you guys being here. This is a critical thing for my state, as it is a lot of states right now. The Midwest has already seen major difficulties, obviously, and poultry producers nationwide are scrambling for answers and for help.

Dr. Clifford, as you said in your testimony, people have lost their jobs and seen their livelihoods put in grave danger by this outbreak. You are exactly right. Georgians are fearful right now about what could happen to them in this next flyway season. I applaud the timely and coordinated efforts of USDA and Georgia agricultural officials as well as the University of Georgia scientists, but Georgians still eye the fall migration season warily, wondering what they can do to protect themselves.

But, Dr. Swayne, as we look at this flyway season that is upcoming, I am searching to see what might be different. We had a question about best practices and what we learn, but I am also concerned about the strain of this influenza. You have successfully determined the strain, I think, that is causing the current outbreak. Do you see an evolution of this disease that is causing you concern right now about the upcoming season and next year, and is there a point at which the biosecurity best practices today will not be enough to contain future AI infections?

Dr. SWAYNE. Those are excellent questions, and as scientists, we do not have all the answers. But, we do have a body of research data, some generated by the University of Georgia, on wild bird ecology with influenza viruses, and I know that that particular group, the Southeast Cooperative Wildlife Disease Study, is specifically working on trying to identify the viruses that might come back in the migration in the fall. That impacts not only Georgia, but all the Southeast and the Atlantic Coast flyways.

That would be the first step, is the identification of the potential virus in those flyways, and from that, the information should be disseminated out through the poultry industries to tell the farmers that we do have a higher risk situation and they should reevaluate their biosecurity practices.

That being said, the biosecurity practices sometimes are difficult to do, but they take deliberateness in making sure that they are practiced to the highest level and that any weak points that could be identified before such an event and be corrected will help the industry keep the virus out if it does occur in wild birds in the Atlantic flyway.

Senator PERDUE. Do we have any information from the Midwest in this latest outbreak about bird-to-bird infection versus human transfer and the communicable dimension of that? Do we have any information yet on that, either one of you?

Dr. SWAYNE. I think we understand the basic principles of the epidemiology, and Dr. Clifford had in his written testimony listed that environmental contamination is probably the biggest issue that allows the virus to move around. That may have been initially in the Pacific flyway from wild birds contaminating the environment and that tracked in potentially around farms where birds may have been there eating residual feed that was spilled or having ponds too close to houses, that it made it easier to be tracked in.

After the virus adapted in parts of the Midwest, then that contamination was in the barns and then more likely to have the tracking between barns by human activity—not that humans are affected, because they are not infected, but they can carry it on shoes, clothes, hands, and equipment that might be shared between farms.

That is the challenge for all farmers, is to look at their comprehensive biosecurity plan, identify the weak points, and then take measures to prevent introduction, such as a better cleaning and disinfection program for maybe shared equipment, like manure spreaders or tractors, et cetera.

Senator PERDUE. Thank you.

Dr. Clifford, very quickly, I am concerned about trade, as well, and the possible vaccination. Aside from the difficulties of inoculating a flock from the practical standpoint, do we have any evidence right now that our trading partners will really put a quiet stop to any export? I mean, broilers—in the State of Georgia, I think we are the largest producer of broilers, but I am really concerned about the—we also—that is our largest export, and I am very concerned about our ability to actually trade in this protein.

Dr. CLIFFORD. We, in May, when I was at the World Organization for Animal Health, discussed this with a number of our trading partners, and three or four of our trading partners indicated that they would definitely shut us off, the entire country, initially, until they had a chance to review the actions we were taking, why we were taking them, and what our plans—exit strategy for the use of vaccine was. So——

Senator PERDUE. Was that independent of inoculation?

Dr. CLIFFORD. That was independent, yes. I mean, that was if you use it, period. Now, one of the reasons for that is because

worldwide, people look at the use of vaccine at times as the inability to control the spread of the disease. At the international meeting that we had, we pleaded with the countries to basically—we, as all countries internationally, need to allow all tools to be used in the toolbox, but that means use them appropriately for that task.

So, our plans are—is to lay out the strategy for use, if we decide to use it. We will be meeting with our major trading partners, showing them that, and then seeing how they react to it before we make any final decisions.

Senator PERDUE. Thank you. Thank you, Mr. Chairman.

Chairman ROBERTS. Senator Klobuchar.

Senator KLOBUCHAR. Thank you very much, Mr. Chairman, and thank you for holding this important hearing. As you probably know, Minnesota has the greatest number of turkeys produced in the country, and as a result, we were actually the hardest hit for turkeys, although I know Iowa was hard hit for laying hens and others.

But, we are the hardest hit for turkeys and it is really—I have met with these producers, and as you know, Dr. Clifford, from visiting our state, it is not only an economic issue, it is an emotional issue for people that have really devoted their lives to this business and then suddenly to lose, really, their livelihood for a period of time, but also animals that they have been raising and it was really a difficult thing.

So, some of the first farms affected by avian influenza in Minnesota have recently begun the process of restocking the barns with turkeys. It is great news. But cleaning and disinfecting, environmental sampling and a 21-day idling period before restocking can feel like an eternity to producers who have lost birds. I have heard from a few producers in Minnesota about the criteria for repopulating their flocks.

Dr. Clifford, as more farms become ready for restocking, is USDA equipped to process the necessary paperwork in a timely fashion in order to get these farmers back in production, and can you provide an update on the USDA's efforts to develop and communicate a consistent disinfection and repopulation timeline for producers.

Dr. CLIFFORD. So, there are two things here that slow this process down. There is when we go in to depopulate a flock, which we have speeded up that process based on a presumptive positive, not based on a confirmed positive, and we immediately do an assessment of the number of birds present on that farm.

Senator KLOBUCHAR. Right.

Dr. CLIFFORD. Then they have to do a flock plan which they have to sign. As far as the flock plan, once that is signed, indemnity is paid.

The cleaning and disinfection component—in the turkey situation, we are usually composting in-house, which is the litter and the turkeys and the birds are composted in-house. The house is then cleaned and disinfected after the compost period, which is about 14 to 21 days now, and we have adjusted that down.

Senator KLOBUCHAR. Yes.

Dr. CLIFFORD. So, once that is done and removed, the house is cleaned and disinfected, they start a 21-day countdown. Twenty-

one days from that point of cleaning and disinfection, we go in and sample——

Senator KLOBUCHAR. Okay. So, you think you are ready to process, because in our state alone, we have had 108 farms that have had to destroy their birds, so——

Dr. CLIFFORD. Yes.

Senator KLOBUCHAR. Okay. The virus has impacted many different types of farms with varying repopulation timelines. For example, egg-producing farms proceed on a much longer timeline than that of broiler or turkey farms. What steps has the USDA taken to ensure that the indemnity formula is providing all types of producers affected a fair market value for their losses?

Dr. CLIFFORD. All right. So, we have redone the calculator at the request of the egg industry, because they wanted us to go from 80-week production to 90-week production. We have done that. We have also—trying to update all the data. We are currently in the final steps of doing that and we will be reimbursing producers the difference between the new calculator and the old calculation.

There is, though, a request for egg producers by the industry to pay producers for their actual downtime because of the length of time it takes to repopulate these facilities in an egg-laying situation. They have to stage these birds. They cannot fill every house——

Senator KLOBUCHAR. Right.

Dr. CLIFFORD. —immediately. So, it takes probably 18 months or longer to repopulate these facilities. That question still remains. The Secretary has the authority to do that and we are still evaluating that internally.

Senator KLOBUCHAR. Okay. So, we will continue to work on that. I just hope we can come up with a pragmatic solution.

Last, while this outbreak of avian influenza does not pose any threat to human health, which we make very clear to people all the time, it is hurting poultry producers and costing consumers more money in the grocery store. We all know that. In the 2014 farm bill, before this happened, I actually worked to include a provision requiring a feasibility study for ensuring turkey and chicken producers against catastrophic losses. I understand that that report is due to be released later this year. Do you have any updates on the time frame for when we can expect a final report?

Dr. CLIFFORD. I do not think so, Senator.

Senator KLOBUCHAR. Okay.

Dr. CLIFFORD. We will have to get back to you on that, but we will.

Senator KLOBUCHAR. Okay. You know, what I was trying to do when we did that provision before we even knew about this——

Dr. CLIFFORD. Yeah.

Senator KLOBUCHAR. —was try to build in some program that would work. Again, I share Chairman Roberts' view that you have been—the USDA and Secretary Vilsack have been incredibly responsive to our calls and requests about this, so this is in no way critical of the treatment and we really appreciate what you have done. But, I am just trying to look at if there is something we could do for the long term that would work better.

Dr. CLIFFORD. You know, I think insurance-type policies have been looked at in the past for other animal health issues. I realize it is difficult. Most of the time, they are very expensive.

Senator KLOBUCHAR. Yes.

Dr. CLIFFORD. So, if we could have something like that, it would be good for the industry itself to help protect them and their livelihood.

Senator KLOBUCHAR. Thank you very much, Dr. Clifford.

Dr. CLIFFORD. Thank you.

Chairman ROBERTS. Senator Ernst.

Senator ERNST. Thank you, Mr. Chair, thank you, Ranking Member, for holding this very important hearing today.

This has had a horrible, horrible impact on Iowans, and Dr. Clifford, I know you have been extremely involved in Iowa. Thanks for sending Dr. Shere to us. We appreciate that very much.

I can tell you, it has been trying for everybody—our producers, our growers, their families, their employees, everyone. We have fielded a number of calls in our offices, between the good senior Senator from Iowa and myself, and many of these impacted farmers have told me that just the process of gaining approval for the depopulation, the disposal, repopulating, and the indemnification has really been very complicated. It has been so frustrating for them, very slow. I know you have been working with that. Could you explain some of the processes that you have now put in place just to make that red tape a little less red for some of our producers in the State of Iowa?

Dr. CLIFFORD. So, we are trying to provide personnel to assist in the actual agreements, what we call compliance agreements for cleaning and disinfection. Part of the issue is, it is really negotiating with each producer. They have a choice. We can do the cleaning and disinfection, which we pay contractors and others to do that. Or, they can do it themselves. The benefit of them doing it themselves, frankly, is to help their own employees, who are out of work now, to have work and some pay, and I understand that. But, it is also agreeing upon the cost of that.

We are looking at different things for the future. I do not know that we can come up with it, but something like a per house cost basis that is fair, equitable for some of these facilities, because in the layer industry, it is extremely costly and a long period of time to be able to address this issue. So, we are trying to break down some of those things, and right now, what we are trying to do is provide the expertise to them individually to work through these things faster.

Senator ERNST. We cannot go back and make it any faster in the past, but moving forward, is there a guide or an SOP, standard operating procedures, that APHIS can put out in a little pamphlet or just an easy way for our folks to know where to go, who to talk to?

Dr. CLIFFORD. Senator, that is exactly what we want to do. In addition, the other things we want to do is assign a person to each flock that is affected, or each facility that is affected, that can basically be that go-to person for the entire length of time for that outbreak and its impact on that flock, so they have got one person to

communicate, and then that person would communicate back with us and it would make their lives a lot simpler and easier.

Senator ERNST. I think that would be a great step going forward.

Given the epidemiological study that showed wind was maybe a likely contributor towards the spread or the transmission of the disease, or the virus, is it possible that delays in the response time from APHIS contributed to the transmission of the disease across Iowa?

Just to set the stage, I had a producer that I visited with over the phone and it took nine days from the time she had called USDA until the time that they actually responded. In that nine days, 90 percent of her flock was gone, and in the meantime, we could have wind transmitting, we could have human transmission. Do you think that delay might have contributed to some of the outbreaks that we saw in Iowa?

Dr. CLIFFORD. Let me answer that this way, and I am not evading the question. Any delay in putting birds down puts more virus into the environment. So, the more virus in the environment, the more likelihood of spread for everyone. It does not matter whether it is a contractor or an APHIS employee, a state employee, or the producers themselves or their employees. It increases the level of risk. So, we all collectively need to go forward and work to quickly do these things. We totally agree it is too long.

But, one of the things we have to address that we are going to need the support of a lot of people on is how we put these birds down in the future, because we cannot go in and remove—you can only take out about 100,000-plus birds a day out of one house and CO2 those. If that house—if you have got three million birds on that facility, you are talking huge numbers of personnel, huge numbers of work.

The people themselves—and I am sorry I am going over, but the people themselves that come out of those houses, they can only work in there for about 30 minutes because of the heat. They have to come out. They have to rehydrate. The Tyvek clothing and things fill up huge amounts of biobags—huge amounts—because they are going in, they come out and rest for about ten minutes, they have to re-put the clothing back on, go in for another 30 minutes.

It is—this is huge. You are talking about manure and birds and product that can be literally miles long and four or five feet wide and six or eight feet tall. It is—this is not an easy task. Some of these pits underneath some of the layer houses have not been—the manure has not been removed out of there for years and it is massive.

Senator ERNST. Thank you. I appreciate it, Dr. Clifford. Thank you very much Mr. Chairman.

Chairman ROBERTS. Senator Brown.

Senator BROWN. Thank you, Mr. Chairman.

Dr. Swayne, thank you for joining us. Thank you for your service at one of the largest universities in America at Ohio State a couple of decades ago. I hope Congress will provide your lab with the necessary funding to do the research and product development that is necessary to protect our nation's agriculture.

My question is this. It is my understanding that this strain of avian flu is not currently transmissible to humans, as you have said. However, there is some risk, if it were to become prevalent in the swine population, it could mix and do a strain that is potentially dangerous to human health. As we know, the concerns with swine flu affecting vulnerable human populations. What is ARS's plan to ensure that every measure is taken to avoid such a crossover?

Dr. SWAYNE. I think there are two issues that are ongoing. One is that ARS is conducting experiments in swine, looking at are these viruses infectious for swine. The second, which Dr. Clifford has already mentioned, that there is surveillance going on in the native swine populations, our production farms, to try to look for this particular virus.

Just like with the human side, where this virus has not been infectious for humans and has an extremely low risk, as CDC has said, also, if we look at the parent viruses that it came from, the H5N1 in Asia, there were just a few cases of swine infections in Asia initially. That is back in 2004, 2005. Since that time, it has been very difficult to find that virus in swine, so that the virus has not gone into swine. That is, hopefully, to our advantage that it has not done this before and we hope that it will also, based upon history, not do it in the future.

But, the surveillance and the research are the two issues that will help us resolve that question.

Senator BROWN. Thank you.

Dr. Clifford, you mentioned in your testimony that migratory bird flyways are closely connected to the spread of this strain of avian flu. What are USDA's plans to prepare other areas of the country, particularly Great Lakes states, for the fall migrations?

Dr. CLIFFORD. So, our plans are comprehensive for all 50 states. In fact, what we are planning is a worst-case scenario that every major poultry producing state in this country for layers, broilers, and turkeys could be affected. So, that is 20 states, and we are estimating 500 cases. Now, that is a worst-case scenario, and do we think that will happen? We pray not, and I do not think that it will because I believe we are taking actions and the industry will take actions to try to beef up our biosecurity for this.

We are also doing wild bird surveillance. We have been doing wild bird surveillance for a long time, since the beginning of the H5N1 in Asia that Dr. Swayne just mentioned. We had higher levels of that sampling in wild birds. We took it down to an appropriate level because of what we felt the level of risk. Now, we are increasing that, and we have increased it since December of 2014. We started increasing the sampling. So, we will be looking at all four flyways in the sampling of that.

If I may just take a moment to explain something. This is unusual because this—for the first time have we had a high path avian influenza virus to cross from Europe and Asia into North America, the first time ever. The significance of that is this. The H5N1 that this came from originally in Asia is the parent to the H5N8 that has adapted itself to wild waterfowl. If you all would go back and look at the concerns at the time, it was concern that this would be the next human pandemic. We put some money to-

ward trying to address H5N1 in Asia, but we did not put enough. If the world had put more money toward that effort and addressed these diseases in the animals at the time, we would not have this situation today, because that—what occurred in 1997 was the original finding of that virus in China—has caused this outbreak today.

Senator BROWN. So, kind of playing along with that, what is USDA doing to ensure that states have adequate animal health infrastructure to be able to respond to major outbreaks? Are we doing enough investment in the states to do that?

Dr. CLIFFORD. You would have to address that on a state-by-state basis, but I know that a lot of our state animal health officials feel like that they have lost key parts of their infrastructure and their ability to respond. I do not think that is the case of all states, but I know it is the case in——

Senator BROWN. How about from the federal level, from USDA?

Dr. CLIFFORD. We try to help ourselves, but when we are cutting back ourselves, it is more difficult. As I indicated, we have lost quite a bit of resources ourselves, so that impacts the states, as well.

Senator BROWN. So, similar to our investment in everything from NIH and CDC on human health, public health infrastructure, we are under-investing on the state and federal level as we are apparently in animal health infrastructure——

Dr. CLIFFORD. Yes——

Senator BROWN. —true statement?

Dr. CLIFFORD. That is what I—I would say yes.

Senator BROWN. Okay. Same old story. Thanks.

Chairman ROBERTS. Senator Grassley.

## STATEMENT OF HON. CHARLES GRASSLEY, U.S. SENATOR FROM THE STATE OF IOWA

Senator GRASSLEY. Mr. Chairman, first of all, I would like to put a statement in the record, opening statement.

[The prepared statement of Senator Grassley can be found on page 47 in the appendix.]

Senator GRASSLEY. I know that you folks are hit with a big problem that we only appreciate from the standpoint of what our constituents tell us, and I also appreciate a couple briefings we have had from people, including the Secretary of Agriculture, on this issue. So, pass our thanks on to all your staff who have been helping with that.

I want to ask Dr. Clifford about the dissemination of information from USDA to contractors and farmers. I have heard concerns from farmers that they were getting different answers or conflicting answers from contractors and officials during the crisis. So, simply, could you walk us through the process that is used to get information out from APHIS to the farmers who were affected during this crisis of avian flu.

Dr. CLIFFORD. So, Senator, I know early on, we have had issues of communication, and I think one of the things that we have been doing is to, as I indicated in our fall planning, about one person kind of being the liaison for that producer. But, we have shored up that currently, and while it is not one person, it is one person for the three-to four-week rotation of our personnel located there.

We have had some issues with contractors, and where those issues have occurred, we have addressed those specifically with the contractors, and even in some cases we have let those contractors go because we did not feel that their performance was as appropriate and as professional as what we were looking for.

So, the other thing to address that component so that they are not getting misinformation or misguidance is we plan to embed a federal person in each of those contract crews so that we have a person there with oversight, and so that misinformation is not occurring. I know that there was some misinformation.

What we are doing now is we have put in place a lot of documents that we have that we can provide to the states, provide to the industry, and the industry, I know, and the states are using those to get those out to their members. So, whether it is biosecurity to indemnity and all of these things. But, it is still an overwhelming task for everybody, and frankly, I think when you are faced with the devastation that some have been faced with, it is a very difficult situation and it requires a lot of education because they have got a million things going on in their mind, least of which is how to clean up a house.

Senator GRASSLEY. Give me your latest estimate on approval of vaccine. You stated in your testimony, quote, "Only the most efficacious vaccine should be considered for field use as any infection in a vaccinated population would still require the entire barn to be depopulated." How likely do you think it is that a vaccine could be approved for use before this fall that would satisfy USDA's approval criteria?

Dr. CLIFFORD. So, what we would do on vaccine and what our plans are is to stockpile vaccine. We intend to go out for a request for proposal to stockpile vaccine for the fall. That does not mean we are going to use vaccine, but we want it ready to use.

With regards to the effectiveness of the vaccine, any kind of vaccine, you want it to be as effective as possible. But, it has also got—one vaccine—and Dr. Swayne can tell you this—one vaccine may be really effective against this particular virus and another vaccine against another strain. So, you also have to look about how those vaccines are going to be administered, whether they can be administered at the hatchery or whether they actually have to go and inject those birds directly. So, those things and considerations have to be taken.

I want the tool in the toolbox to use if we need it. The limiting factor for the use of that is trade.

Senator GRASSLEY. Okay.

Dr. CLIFFORD. You have to weigh a loss of $3 or $4 billion in trade against the use of the vaccine itself, and it is a difficult situation.

Senator GRASSLEY. Mr. Chairman, I am done. Thank you for holding this hearing.

Chairman ROBERTS. Thank you, and we have next Senator Casey.

**STATEMENT OF HON. ROBERT P. CASEY, JR., U.S. SENATOR FROM THE STATE OF PENNSYLVANIA**

Senator CASEY. Mr. Chairman, thank you very much.

I want to thank our witnesses for your testimony, also for your public service, and especially when it comes to an issue this difficult.

I wanted to, Mr. Chairman, first ask if I can have consent to submit a statement for the record.

[The prepared statement of Senator Casey can be found on page 46 in the appendix.]

Chairman ROBERTS. Without objection.

Senator CASEY. Thank you. Part of that statement will refer to a challenge we had in Pennsylvania when—certainly, it went beyond Pennsylvania—more than 30 years ago where we had a loss of about 17 million birds just in Pennsylvania. They either had died or had to be destroyed. The dollar loss at that time, again, over 30 years ago, about $65 million, and retail egg prices, as you can imagine, skyrocketed. So, we expect that, like so many other states, we will be dealing with this again in Pennsylvania, but we have our own history on the challenges.

Therefore, Dr. Clifford, I wanted to start with you on the issue of resources, which is always an issue that arises, and I know you have been asked related questions. Several of us in the Senate sent letters to the appropriators in support of APHIS's avian health program and the National Animal Laboratory Health Network in May of this year. I would ask you, what further resources do you believe you need in terms of resources needed to detect, monitor, respond, and prevent HPAI?

Dr. CLIFFORD. Senator, the current level of need of resources, we have the ability to take care of that, I think, through the Secretary's ability to request emergency funding and provide that. So, I think that we are equipped. Actually, we just got good news from OMB of another apportionment that would allow us to prepare for this fall and spring. Now, it is not going to address, if an outbreak happens with all the indemnity and C and D and those costs. So, we would have to go back to address that.

But, let me address it in a long term. You know, I think APHIS as an organization and the Department has always been very well prepared for the level of resources that we get. So, from a—these types of events really task us. They strain us extremely. So, as far as the level, I guess the question is, is how much do you want to pay for, and you pay for what you get, so I cannot throw a number out at you, but my budget, my total budget, appropriated budget for veterinary services parts of APHIS is around—I think it is around $250 million, 1,800 people.

Senator CASEY. You said, in terms of personnel, you were, in your opening statement—what were the numbers again in terms of the fall, in terms of hiring? You said you had some capacity to hire temporary——

Dr. CLIFFORD. We actually have approval to hire 460 temps.

Senator CASEY. Temps, okay.

Dr. CLIFFORD. Or term positions. But of those, there will be 300 that will be nothing but responders. So, those are animal health technicians and veterinarians that will be part of the response capability. We plan to start hiring those soon. We have received the resources to do that and they will be staged throughout the U.S.

Senator CASEY. In the remaining time I have, and I just have about a minute, Dr. Swayne, thank you, as well, for your testimony and your work. I wanted to ask you about the vaccine, one of the vaccine questions. If you took into account the concerns that vaccines could affect poultry exports, if you consider that, do you think that we could fully eradicate the outbreak without a vaccine?

Dr. SWAYNE. I think that the current data that APHIS has released, based on the diagnostics that has been going on in the Midwest, is that we have not had an outbreak flock in about three weeks. This would at this point suggest that we are at that point of eradication of the current outbreak of virus that began in December.

I think the next question is, is will it come back with migratory birds in the fall, which would start probably late August in Minnesota would be a potential time, into September into Iowa and on down. So, that will be the big question. Will we will be prepared for a potential onslaught of another wave of outbreaks, and that is the question we have to face.

Senator CASEY. Thank you, Mr. Chairman.

Chairman ROBERTS. Senator Tillis.

Senator TILLIS. Thank you, Mr. Chairman. Gentlemen, thank you for being here.

In your opening statements, Mr. Chairman, you mentioned something I think bears repeating and it has to do with the human health risk here and the CDC's position. This is really about the health of the flock. I think we need to continue to restate that so that we focus on the root problem. We have to also talk about the economic impact. I think in Minnesota and Iowa, we are talking 1.6 billion in economic impact over the past year. That is from at least one report that I read. The job impact, I think, for probably every job lost as a processor, we lose about two more other jobs in the supply chain. So, these communities are very hard hit by this and people are losing their businesses and their mortgages.

I want to talk a little bit more about the way we respond going forward. I contacted my Commissioner of Agriculture, Steve Troxler a month or so ago. He had done some work, and I think we had some of our Department of Agriculture up in Minnesota trying to help out. The question I had for him, and I would like to ask you, Dr. Clifford, is, what work are we doing?

You had said that there were some 20 states and, I think you said, the worst case scenario is 20 states with 500 houses affected. Has there been any work done—assuming we will never have enough money to do everything you would like to do—in trying to create some sort of emergency response network? In the worst case scenario, if all 20 states are affected, then that is a disaster. But, having some way to mobilize resources that may be in the states to the hot spots and have that be at least part of the strategy for dealing with the shortfall in resources that the USDA may have?

Dr. CLIFFORD. Senator, we already do that, okay, so—and actually, in this outbreak occurrence, there have been a number of state—of personnel moved into the outbreak area that have assisted from other places across the country, and we know definitely North Carolina assisted. So, we do that. We also have the National Animal Emergency Response Corps, which uses private veterinar-

ians. So, that process can be a little slow at times, getting those people back on board, and everybody has to be trained. You just cannot bring them on board and put them in work. They have to go through HAZMAT. They have to be fit tested for respirators. They have to go through a medical exam, because this is very difficult work in the field.

Senator TILLIS. Well, really related to, I think, a question that Senator Klobuchar asked, in some of my investigation over the past couple of months of this is just the time between when you suspect you have an outbreak, to the point you have someone there to authorize the depopulation, there seems to be a lag. So, is there a——

Dr. CLIFFORD. There is not a lag now. That was initially. We have—as soon as the presumptive positive, we have somebody there just——

Senator TILLIS. Now, what about the states' responsibilities? I think we have 26 or so depopulation machines in the state. I do not know if that is a high or a low number. It seems reasonably high to me.

Dr. CLIFFORD. You mean defoaming——

Senator TILLIS. Yes.

Dr. CLIFFORD. —or the foamers?

Senator TILLIS. Yes, the foamers. Are there sorts of minimum standards we are setting up for the states to make sure that they are best prepared?

Dr. CLIFFORD. We will be looking at that for the fall. I have alluded to the fact of trying to find new and better methods. We are considering and working with the industry and the veterinary community of considering closing up the houses and turning off the ventilators and heating up the house, because it is the fastest way. It is probably, while some people may have concerns, it is probably the most humane way to take care of this. So, this is what I was alluding to before as far as getting the support——

Senator TILLIS. I am glad to hear you say that, because I know that it is—there is the question on the humane treatment, but if these birds are left in that state for a week or so until you have the approval——

Dr. CLIFFORD. Well——

Senator TILLIS. —it seems to me it is the most expedient and probably facilitates the clean-up.

I want to stay within my time, so I have one question for both Dr. Swayne and Dr. Clifford and it has to do with what more can we do, what constraints have we placed on you, or what things can we do, short of money—I heard that loud and clear—that may make your job easier? Have you given much thought to that, if we could do this or did not have to do that, as a result of decisions we made here in Congress, it could make your lives easier?

[Laughter.]

Dr. SWAYNE. Please do not have another sequestration, because it would shut us down, and we will be in the middle, as far as research, in the middle of all the research that we need to do to finish up the vaccination application and studies. If we have a sequestration, it requires us by law to shut everything down, which means if we have an experiment going, we have to euthanize all the birds. We have to kill all the cultures. We have got to lock

down all of our high path virus, which are select agents. We have to follow the select agent rules to contain those. Send everybody home. If we start back up again, it is the same situation.

Dr. CLIFFORD. I would second that. We cannot send people home and then expect us to respond to an emergency if it occurs.

Senator TILLIS. That goes back to the funding question, and I agree with that. I think sequestration is awful on every count for every agency. But are there other things beyond that that concern you or things that we should be looking at, or is it basically the certainty and the funding you need?

Dr. CLIFFORD. I think those are the primary things. There may be other things, but let us give it some thought and if there is, that there be some way——

Senator TILLIS. I would encourage you to do that as you are going through the process——

Dr. CLIFFORD. —I would appreciate——

Senator TILLIS. —and working with the states to do everything we can to remove any sorts of hurdles that you do not think add value and that are adding costs and time. Thank you.

Chairman ROBERTS. Senator Cochran.

Senator COCHRAN. Mr. Chairman, I am informed that the Department of Agriculture's Agriculture Research Service facility in Athens, Georgia, has isolated a seed strain of avian influenza virus that is infecting U.S. poultry flocks, but no vaccine has yet been approved for use in the United States. What is the reason for that? Why has the Department not been able to go forward?

Dr. CLIFFORD. Well, I will let Dr. Swayne talk about that particular virus and its use in a vaccine. We do not typically use vaccine unless we need it. You need to have an exit strategy. Trade, it will impact trade. We can eradicate this disease without the use of vaccine. If vaccine is used, it does not mean that a particular bird or birds within a single house will not become affected with high path, and if they do, we still will take out the entire flock, even though they are vaccinated.

You can—so, there are pros and cons on the use of vaccine. So, we have to weigh all of those things together. So, it is not a lack of approval of vaccines. It is whether we are going to use them and the impact it has if we do use them.

Senator COCHRAN. Have any of our trading partners indicated that they will be seeking retaliatory trade measures if the U.S. starts vaccinating its commercial birds?

Dr. CLIFFORD. They have not indicated from a retaliation standpoint. They have indicated, though, that they would initially stop all sales out of the U.S., exports to their countries, until they have had adequate time to evaluate our actions.

Senator COCHRAN. Are you running out of money?

Dr. CLIFFORD. No, sir.

Senator COCHRAN. Would you let us know if you need any money?

Dr. CLIFFORD. Yes, sir.

[Laughter.]

Senator COCHRAN. Thank you, Mr. Chairman.

Dr. CLIFFORD. Thank you.

Chairman ROBERTS. He is the man to talk to.

[Laughter.]

Dr. CLIFFORD. Yes, sir.

Chairman ROBERTS. Senator Boozman.

Senator BOOZMAN. Thank you, Mr. Chairman, and thank you and the Ranking Member so much for having this really important hearing, and we do appreciate the hard work that you all are doing.

I think the money, though, is an important question, and you mentioned the $250 million. Is that adequate?

[Laughter.]

Dr. CLIFFORD. Actually, no, it is not adequate.

Senator BOOZMAN. Well, we need to——

Dr. CLIFFORD. But, I cannot——

Senator BOOZMAN. Again, this is——

Dr. CLIFFORD. —you know, it is——

Senator BOOZMAN. I understand the position you are in, but you cannot have it both ways, in the sense——

Dr. CLIFFORD. Also—yes, right. But, also, we have a process that we all follow——

Senator BOOZMAN. I understand that, but like I say, you cannot have it both ways. You cannot complain later on that we are not giving you the funding that you need when you do not—when you are not up front about it. I do understand the process, and again, I do not mean to——

Dr. CLIFFORD. I know——

Senator BOOZMAN. —I am trying to help you.

Dr. CLIFFORD. I know.

Senator BOOZMAN. The other thing is that you mentioned the—as we are doing it now, you talked about any delay, not having delay is so important. Then you outlined a process that it seems like, as you went through it, it is humanly impossible to do. You mentioned the large manure piles and the birds, trying to, people taking breaks and just physically dealing with this. What is the answer to that?

Dr. CLIFFORD. So, I need to separate that into two portions for you. The key part is getting birds dead——

Senator BOOZMAN. Okay.

Dr. CLIFFORD. —because then you do not have virus replication and production and more virus being spread into the environment.

Senator BOOZMAN. Can they spread by the air? Can their feathers——

Dr. CLIFFORD. It can be spread by fomites, by people, by trucks, and there is some indication that wind has played a part, especially in parts of Minnesota, I believe, because of the proximity, the closeness of the lakes, the environmental contamination, and the wind that——

Senator BOOZMAN. Trucking them to kill them or whatever, that could possibly be a—just the birds being transported could be a possibility of spread, as far as the wind blowing their feathers and——

Dr. CLIFFORD. If they are infected, yes.

Senator BOOZMAN. Okay.

Dr. CLIFFORD. Hopefully, we are not moving infected birds. So, that is all—those are all possibilities.

What we have identified is the gaps that we see, and we need to fill and cover as many of those gaps on the biosecurity side as we can, now, realizing that in some cases, it may be cost prohibitive to the industry to fully address it. So, we need to identify those that are highest priority and work down that list and do everything we can to close those gaps.

Senator BOOZMAN. Dr. Swayne, do you see anything in the biosecurity areas that we are doing—would you change anything that we are doing based on your research? Would you add or maybe say some of the things that we are doing were a waste of time, or——

Dr. SWAYNE. I think one of the challenges is that every individual farm has a different risk, and what needs to be done is that individual farms, whether they are broiler farms or layer farms or breeder farms or turkey breeder, turkey meat, turkey farms, needs to do an assessment of where all the entry and exit points are on that farm.

I think that we, as humans—myself included—is that things that we do every day, repetitive, over and over and over again, we kind of forget that they could be risk activities. We tend to look outside ourselves to somebody else being the risk and not myself, and I think that is the challenge that all farmers and the companies have, is to go back and really assess honestly, and sometimes using an outside person who does risk assessment, to say, where are the critical control points?

So, for example, some points that could be high risk is if you have families that have multiple farms and then they end up sharing equipment between the farms to save costs. It makes economic sense. It is a perfect—for example, you may share a tractor or a manure spreader. For example, manure spreaders are really high risk because that is where the virus is, in the manure, and if you move it from one farm to the other without proper cleaning and disinfection, that could be a risk factor that has to be identified and eliminated.

Senator BOOZMAN. As far as the migratory birds, how do they spread it to enclosed flock?

Dr. SWAYNE. That is a really good question, and I think Dr. Clifford made this comment, that all chickens, all turkeys, are all susceptible. It is just a matter of when they get exposure. So, if they are raised outdoors, they could be exposed. If they are raised indoors, they could be exposed. We do not always understand how the virus moves, but it is present in the fecal material and also in secretions from the respiratory tract. So, if you walk through feces from an infected duck and walk into your house, you can deposit it right there where you come in.

In some studies that were identified in Pennsylvania in 1983–1984, they found that in some of those houses, the initial mortality and infections occurred right at the door where the owner walked in, in this case, tracking it in. In the case of Pennsylvania, that was most likely farm-to-farm spread.

So, those are all the critical issues.

Senator BOOZMAN. Good. Thank you very much, and I do appreciate your efforts, and I think I can speak for the whole committee in the sense that anything we can do to help, we certainly will.

Chairman ROBERTS. Senator Donnelly.

Senator DONNELLY. I do not have any questions for the panel, Mr. Chairman.

Chairman ROBERTS. Well, thank you very much.

We are going to move to our second panel, but before that, I would acknowledge the presence of Congressman King, who is here. Congressman, if you would like to stand, to thundering applause, but at any rate——

[Laughter.]

Chairman ROBERTS. You were introduced about two hours ago. Would you please go back to the other body and inform them that we are a little speedier than they think we are.

[Laughter.]

Mr. KING. Thank you, Mr. Chairman.

Chairman ROBERTS. Thank you, Congressman.

Welcome to our second panel of witnesses before this committee this afternoon. I am happy to welcome all of you to the committee.

For our second panel, unfortunately, due to an upcoming vote, we are asking if you could limit your opening statement to four minutes, if possible. Just take a big pencil and cross out two or three paragraphs. You will be find. That is also for members, who I hope will remain, with regards to their questions.

Senator Ernst is going to introduce Mr. Jim Dean, the egg producer from Sioux Center, Iowa, and Chairman of the Board of United Egg Producers, on behalf of the United Egg Producers. Senator Ernst.

Senator ERNST. Thank you, Mr. Chairman.

Chairman ROBERTS. While they are setting up, Joni. While they are setting up.

Senator ERNST. Yes. Thank you so much, Mr. Chairman and Ranking Member, as well, again, for holding this committee meeting today.

I want to start by thanking all the members of the panel as they are setting up. I appreciate their testimony and perspective on this topic, which has impacted each one of you very personally.

The highly pathogenic avian influenza has had a devastating effect on Iowa, claiming the lives of over 31 million laying hens, broilers, pullets, and turkeys from across the state. Economists estimated that the net impact to Iowa will be almost $1 billion. Over 70 family farms in Iowa have been wiped out by this terrible disease and there has been a resulting economic ripple effect in their rural communities.

One of the farmers impacted is Mr. Jim Dean of Sioux Center, Iowa, who is here to testify today, so Jim, thank you for being here today. Mr. Dean is the Chairman of the Board of United Egg Producers, a trade cooperative with membership that represents over 90 percent of the egg industry in the United States. He is a past board member of the Iowa Poultry Association, U.S. Egg Marketers, and Midwest United Egg Producers.

Mr. Dean entered the egg business while in high school, working for a farm located in Pella, Iowa.

After serving in Vietnam from June 1969 to June 1970, he returned to the employment at the egg farm and over the subsequent years was involved in all segments of the business. In 1979, he was invited to become a shareholder in the company, the first non-fam-

ily member to be so honored. After serving the needs of the company for 27 years and becoming Senior Vice President, he elected to sell his one-third stake to pursue other opportunities.

In 2014, Mr. Dean was honored as United Egg Producers' Egg Industry Producer of the Year, and in 2009 was inducted into the Iowa Poultry Association Hall of Fame.

It is good to see you again, Jim, although I wish it were under different circumstances, it is always good to have a fellow Iowan in Washington, DC So, thank you very much for testifying today, and thanks to the rest of you on the panel as well.

Thank you very much, Mr. Chairman.

Chairman ROBERTS. Our second witness is Ken Klippen, President of the National Association of Egg Farmers, Collegeville, Pennsylvania. Senator Casey.

Senator CASEY. Mr. Chairman, thanks very much. I will be brief.

Ken, great to have you here. Ken Klippen, from Collegeville, Pennsylvania, is President of the National Association of Egg Farmers. He spent more than 30 years in the egg industry in capacities including production and processing. Most of that time has been representing egg farmers both nationally here in D.C. and as the Vice President and the Executive Director for Government Relations of the United Egg Producers, and internationally when he was the Director General of the International Egg Commission, headquartered in London, England. He received both a Master's and Bachelor's degree from Michigan State University.

Ken, great to have you here. Thanks very much.

Chairman ROBERTS. Our third witness, Brad Moline, is a turkey producer and owner of Moline Farms in Manson, Iowa, on behalf of the National Turkey Federation.

Senator Grassley, would you please proceed with your introduction.

Senator GRASSLEY. Yes. It is a privilege for me to introduce Brad Moline, a third-generation turkey farmer from Manson. He and his family operate Moline Farms, which producers approximately 155,000 turkeys every year, along with corn and soybeans. His family has been farming in the Manson area since the late 1800s. Brad and his brother formed a farming partnership together after he graduated from Iowa State University in 2002. Today, the Moline Farms employ three owner-managers, four full-time employees, two part-time employees, and another employee who is currently serving in the National Guard.

Brad, we welcome you and thank you for representing the turkey producers here at this very important meeting.

Chairman ROBERTS. Our fourth witness is Rob Knecht. He is President of the Michigan Allied Poultry Industries, Vice President of Operations, Konos, Inc., Martin, Michigan.

Senator Stabenow.

Senator STABENOW. Thank you very much, Mr. Chairman.

First, I have to say, before introducing Rob from Michigan, which is wonderful, but Mr. Klippen, it is nice to have a Michigan State University grad since we just heard from somebody on the other panel from Ohio State, so I feel a little better——

[Laughter.]

Senator STABENOW. —now that we know that we have got Michigan State represented.

Rob Knecht is a third-generation egg farmer and serves as President of the Michigan Allied Poultry Industries and Vice President of Operations at Konos, Incorporated, in Martin, Michigan. Mr. Knecht is also a board member for the United Egg Producers. He holds a Bachelor's degree from Hope College and an M.B.A. from Cornerstone University.

It is great to have you, Mr. Knecht, with us as an important voice from Michigan.

Chairman ROBERTS. Our fifth witness is Dr. Tom Elam, at Farm—and I have "Econ" down there. That means you are an economist, right?

Mr. ELAM. Yes, sir.

Chairman ROBERTS. He is from Carmel, Indiana.

To introduce the witness to the committee, Senator Donnelly.

Senator DONNELLY. Thank you, Mr. Chairman.

Dr. Tom Elam, President of FarmEcon in Carmel, Indiana, is testifying today as a farm economics expert. Dr. Elam has earned his Doctoral degree in agricultural economics from the University of Tennessee-Knoxville and since worked in a variety of roles, serving the public through government, private, and nonprofit positions.

After time at the USDA, Dr. Elam spent over 20 years at Elanco Animal Health. Dr. Elam founded FarmEcon in 2003, where he consults for all dimensions of the U.S. broiler and turkey sectors, and was named one of Poultry USA Magazine's "Top 20 Consultants to the U.S. Poultry Sector" in 2006.

I want to thank him for attending today to share his excellent working knowledge of the relevant areas of finance, agricultural production, and farming economics.

Thank you, Mr. Chairman.

Chairman ROBERTS. Let us start with you, Mr. Dean.

**STATEMENT OF JAMES R. DEAN, CHAIRMAN, UNITED EGG PRODUCERS, SIOUX CENTER, IOWA**

Mr. DEAN. Thank you, Mr. Chairman, Ranking Member Stabenow, members of the committee. Egg farmers appreciate the interest of this committee as we deal with the worst animal health crisis in the nation's history.

About 36 million hens have been removed from the nation's laying flock as a result of the disease. An additional five to six million pullets have also been lost. We and our customers are dealing with the overall loss of 12 percent of the U.S. egg laying flock because most of the egg laying hens that were lost produce eggs for further processing. The loss to that sector is closer to 30 percent.

I would like to publicly thank Chairman Roberts, Ranking Member Stabenow, and their staff, as well as USDA and APHIS for responding to this crisis swiftly and with hard work and dedication.

Egg farmers have been implementing biosecurity measures for many years, starting after the avian influenza outbreak in Pennsylvania in the 1980s. Biosecurity is also required by the FDA's Egg Safety Rule. The avian influenza outbreak did not catch producers unprepared, but the rapid transmission of the current virus is un-

precedented. Its uncontrolled spread stymied the best effort of both egg farmers and APHIS.

Our farm in Sioux Center, Iowa, received a perfect score from a USDA biosecurity audit less than two months before the outbreak, but that did not prevent the virus from entering our operation. We can do more, and we are doing more.

Avian influenza continues to threaten the rural economy's farms and jobs. In Iowa, the egg industry accounts for 20,000 direct and indirect jobs and generates $6.6 billion in economic activity and more than $500 million in tax revenue.

We are grateful that Congress saw fit to create a system of indemnity payments to cover the value of the birds that must be destroyed and lost egg production, as well as cleaning and disinfecting. For farmers, these indemnities can be the difference between failing and surviving.

We are engaged in respectful dialogue with USDA about the formulas that are used to calculate indemnities for the egg industry. Current regulations require that indemnities reflect the value of egg production, but we are concerned that the specific formulas fail to completely reflect the value. We appreciate very much the Department's openness to consider the data UEP has supplied.

The biggest issue with the current formula is that it does not adequately capture the value of the future stream of egg production associated with the hen. We hope that USDA will agree to make changes in the current formula to better reflect egg production value, and we believe that the existing statutes provide ample authority for the Department to do so.

Furthermore, we support and are engaged in current efforts to investigate the potential viability of a crop insurance-type program for avian influenza and other diseases. These investigations are at early stages and we look forward to exploring this and options that may assist farmers in the future.

The indemnity issue is complex, and I can provide more detail during question and answers. The reason is that hens on egg farms are different ages. Their maturity is deliberately staggered so that, given them, they are collectively producing the right amount of eggs for the market. So, if all of them die at the same time and have to be euthanized at once, we cannot immediately repopulate our farms, but must do it in stages, during which time those barns that remain empty generate zero revenue to pay fixed costs and wages. Retaining our staff and keeping the local communities alive is of paramount importance to the egg producers.

UEP supports continued, perhaps expanded, funding for the State Departments of Agriculture for the affected states to assist with depopulation and expanded education efforts in small backyard flocks on risk assessments and biosecurity.

Mr. Chairman, our farm employees, communities, and customers have suffered an unprecedented blow this year. This cannot happen again. It is vital that all of us work closely with USDA to take every step that we can to prevent harm to our industry as well as to others.

We need and appreciate the support of USDA as well as this committee to move forward. Thank you.

[The prepared statement of Mr. Dean can be found on page 59 in the appendix.]

Chairman ROBERTS. Thank you very much, Mr. Dean, for your efforts to keep this to four minutes. We do have a vote at 5:30, and I know everybody has important questions.

Mr. Klippen, please proceed.

**STATEMENT OF KEN KLIPPEN, PRESIDENT, NATIONAL ASSOCIATION OF EGG FARMERS, COLLEGEVILLE, PENNSYLVANIA**

Mr. KLIPPEN. Thank you, Mr. Chairman, and good to see you again, Ranking Member Senator Stabenow. It is always good to see a fellow Spartan.

The National Association of Egg Farmers formed in 2014, and we represent 278 farmers nationwide. We are composed of a lot of contract farmers. Our smallest manages a flock of about 8,000 birds. We are very small, up to some that have over five million birds.

A group of farmers came together originally under the name of Egg Farmers of America when we opposed the national egg legislation in the 2011 and 2012 Congress, and we want to thank those members here that let the farmers decide how best to care for their chickens while providing the safe and wholesome egg. However, with waterfowl as a source of this disease transmission, we support a policy of producing poultry indoors and not in free-range environments, where the chickens may be exposed to the virus.

Now, this AI is affecting small as well as large, and Mr. Chairman, there was a small flock of ten birds in your state that had to be depopulated because of AI, so it is considered one of the smaller ones, but the larger ones in the State of Iowa and Minnesota took a bad hit.

Amon Baer from Lake Park, Minnesota, who testified before this Congress in the 2012 Congress in opposition to the national egg legislation, is a member of our association and he has also been hit by this avian influenza. He is working hard today to meet a deadline for cleaning and disinfecting his farm by Friday so he can repopulate his birds by August. When he discovered he had avian influenza on his farm, his heart sank, because he knew he would have to destroy all 300,000 of his birds.

Now, because poultry is sold worldwide, this is a worldwide issue. With 20 percent of the broiler meat, 12 percent of the turkeys, and just under five percent of eggs and egg products produced that are being exported to other countries, this disease will impact trade. Eighteen countries have banned all poultry from the U.S., including China, South Korea, South Africa, and Russia. Recently, your fellow Senator Coons from Delaware expressed grave concern about banning eggs in South Africa, as he was instrumental in helping open those markets.

There are 31 countries with restricted trade from infected regions or zones within the U.S., and those countries are—of the 31 represent Canada, Mexico, Japan, and the European Union. There are 48 countries worldwide that are reporting highly pathogenic avian influenza.

Now, in trying to shorten, I think I just cut a couple of sentences out here. Anyway, I will go right to the point here.

We corresponded with APHIS officials back on May 27, providing an indemnity plan for egg producers, and we were citing 9 C.F.R. Part 56(1)(a), which states that for laying hens, the appraised value should include the hens' future egg production. We also provided a five-year average of statistics for APHIS as a means to bring about a fair and speedy appraisal for egg-laying hens. In our written comments, we have provided the details of that particular plan.

Now, whether APHIS indemnifies using the plan we suggested or the one that United Egg Producers is acceptable to us, because both plans are comparable in pricing the value of the chicken and the future eggs produced.

I was glad to hear Dr. Clifford today, because we want to make sure that we have uniformity in these plans, because some farmers are being indemnified when they are destroying their egg cartons, others are not.

Again, we want to thank you, Mr. Chairman, for the opportunity to appear before you today, and I am pleased to answer any questions.

[The prepared statement of Mr. Klippen can be found on page 67 in the appendix.]

Chairman ROBERTS. Mr. Klippen, thank you for your statement and thank you for your plan.

Mr. Moline.

**STATEMENT OF BRAD R. MOLINE, MANAGER, OWNER, MOLINE FARMS LLC, MANSON, IOWA, ON BEHALF OF THE NATIONAL TURKEY FEDERATION**

Mr. MOLINE. Good afternoon, Chairman Roberts, Ranking Member Stabenow, and members of the committee. My name is Brad Moline and I am a third-generation turkey farmer from Manson, Iowa. I am testifying today on behalf of the National Turkey Federation, all of its farmers and processors that have been impacted by this year's high path AI.

I am currently living the avian influenza nightmare. We have already depopulated more than 56,000 turkeys, which totally cleaned out our 12 growing barns. If we are lucky, we will be able to salvage this year with one flock that we hope to repopulate soon. Regardless, two-thirds of our annual income has been wiped out.

Without APHIS indemnification payments, many farmers may have been forced to hang it up. We appreciate Congress and the USDA for their continued support of indemnification. We will depend heavily on these payments until our next flock goes to market somewhere around Thanksgiving.

Before I continue, we would like to extend a thank you to Secretary Vilsack, USDA, and APHIS for their leadership and thousands of hours of service fighting this outbreak. Additionally, I appreciate my home state Senators for raising our concerns during this difficult time, as well.

Since the high path AI outbreak began in late January, there have been 153 cases confirmed in commercial turkey, turkey breeder flocks in eight states, resulting in the loss of nearly eight million turkeys nationwide, with an economic impact estimated at nearly

$500 million. Processors in these areas have laid off more than 400 employees for the lack of turkeys.

We are committed to working with APHIS in five key areas that are critical to eradicating this disease: A faster depopulation; disposal, repopulation strategy; a viable vaccine; and a coordinated, enhanced focus on biosecurity. However, there is no silver bullet, but increased efficiency will require clear communication among all shareholders.

Initially, federal and state governments missed a critical opportunity to sit down with the industry to develop a defined gameplan. This would have avoided the mass confusion that we experienced in Iowa. Having a clear roadmap explained by government officials, not contractors, is a must. We understand contractors play an important role in eradication, but they should have been better trained.

Finally, we recommend that the USDA staff assignments overlap in the field to reduce communication errors.

In order to eradicate high path AI, swift and efficient depopulation is vital. We appreciate the government allowing us to speed up the process of safely depopulating all infected flocks. The goal should be to depopulate all infected birds within 24 hours of a positive confirmation.

Regarding disposal, the industry has been challenged to adjust to the government's ever-changing goalpost. Before fall, we look forward to streamlining the process with the USDA to minimize on-the-fly decision making. To that regard, the NTF is instructing its members to implement contingency plans immediately. Farmers and USDA need to finalize disposal options before fall.

As farmers, biosecurity is something we take very seriously. Could we have all done more to prevent the spread of this virus? Most likely. But, however, I take offense to the notion by some inside and outside the government that the turkey industry was careless or knowingly negligent. We have everything to lose by being sloppy.

Further, APHIS needs to examine its own biosecurity practices, especially those of their contractors. APHIS is doing an excellent job of documenting the transmission of this disease, but to the date, the agency has shared very little information that examines the role that delayed depopulation and biosecurity lapses played in spreading this disease.

As for the NTF, we have initiated a review of our biosecurity best management practices to identify improvements.

All of these efforts will mean little if we cannot restock birds by the end of the year. Farmers were unsure as when they could restock their previously infected farm. Communication with federal and state agencies was difficult and led to confusion. Although we still have concerns over some criteria, we now have a plan to move forward. To truly recover from this devastating chapter, many strategies will be employed. One of the most powerful tools will be a vaccine to fight the virus.

To conclude, continued communication with APHIS must be enhanced to improve biosecurity, depopulation, disposal, repopulation, and vaccine development.

With that, Mr. Chairman, I conclude my testimony and would be happy to answer any questions.

[The prepared statement of Mr. Moline can be found on page 79 in the appendix.]

Chairman ROBERTS. Thank you, Mr. Moline.

Mr. Knecht.

**STATEMENT OF ROB KNECHT, VICE PRESIDENT OF OPERATIONS, KONOS, INC., MARTIN, MICHIGAN, AND PRESIDENT, MICHIGAN ALLIED POULTRY INDUSTRIES**

Mr. KNECHT. Mr. Chairman, Senator Stabenow, and all the members of the committee, thank you for inviting me to testify today on behalf of Michigan Allied Poultry. My name is Rob Knecht and I am an egg farmer, a third-generation egg farmer in Michigan. As I mentioned, I am the President of Michigan Allied Poultry Industries, which represents egg-laying hens, turkeys, and broilers in the State of Michigan.

As the country's seventh-largest producer of eggs and 15th largest producer in turkey production, Michigan's poultry producers took action when highly pathogenic AI hit commercial poultry operations in the Midwest. The overall impact includes almost 51 commercial poultry throughout the U.S. My testimony today describes biosecurity changes that have been made to poultry operations in the wake of the AI outbreak, how the poultry industry in Michigan came together on a biosecurity initiative to protect the state's poultry, and how the APHIS mitigation process for HPAI can work better for producers.

As the number of AI cases grew this spring, companies in Michigan implemented changes to protect the commercial poultry of the state. Today, many poultry companies in Michigan hire crews specifically for completing all of the tasks dedicated to a flock, such as moving birds, vaccinations, and other tasks that require a large amount of labor in a short amount of time. These employees, along with permanent employees who work in the barns, have the closest interaction with the birds and, therefore, need to be the cleanest. Farmers can place a high level of control on these crews, which means a high level of control over on-farm practices that could lead to contamination.

Michigan's poultry farms also engage in different washing strategies. As a short-term measure, some companies have channeled house managers, bird crews, and anyone else in direct contact with birds to nearby hotel facilities where the egg producer covers the cost of a few rooms that serve as a locker room for sanitizing employees and changing clothes. Another short-term strategy includes utilizing mobile shower units which are pulled by trucks, have three stalls where employees can comfortably shower and change their clothes. In the long term, some poultry farms in Michigan are planning on constructing onsite shower and locker room facilities to stop the spread of the virus.

In addition, having only clean vehicles on the premises is vital. There are many operations that have increased the frequency of spraying disinfectant on the wheels and wheel wells of every vehicle that enters a poultry facility. Many operations in Michigan and nationwide are also requiring full truck washes prior to entry onto

the farm, since trucks that are coming into Michigan could easily have been traveling up and down I–80, where AI could be found.

All stakeholders within Michigan's poultry sector have greatly increased communication with one another. Early on in AI outbreaks, MAPI was responsible for coordinating conference calls to discuss best practices and issues involving biosecurity. Through the entire crisis, we coordinated a Michigan-wide weekly call that includes many Michigan poultry stakeholders, including partner industries such as feed companies, Michigan State University's Extension staff, Michigan's Department of Agriculture, and Michigan State Veterinarian.

Also on the topic of outreach, I would be remiss not to mention Michigan State, and they have always made themselves available to discuss biosecurity risk analysis, strategies, and implementation. MSU's Extension program has presented at MAPI's Annual Winter Seminar on biosecurity on multiple occasions, and Dr. Richard Fulton of MSU's Extension program wrote the low-pathogen avian influenza program that is now administered by the state. In fact, when asked to provide this testimony, Dr. Fulton was one of the first people I asked for counsel.

In conclusion, this committee should know that Michigan producers are optimistic, even while they maintain a position of constant vigilance. Our industry will keep a laser focus on biosecurity going into the fall and we intend to document, verify, and validate procedures to ensure a focus on biosecurity for the future. Many of these items discussed here will become and are becoming common practice. While the poultry industry has always cared deeply about biosecurity, the recent AI outbreak has opened our eyes to consider areas of production that were not previously thought to be significant risk.

I am confident that Michigan and the U.S. poultry will build its resilience during this difficult period and be stronger for when the next challenge comes.

Mr. Chairman, Senator Stabenow, and the rest of the committee, I appreciate the time and look forward to answering your questions.

[The prepared statement of Mr. Knecht can be found on page 75 in the appendix.]

Chairman ROBERTS. Thank you, Mr. Knecht.

Dr. Elam.

**STATEMENT OF THOMAS ELAM, PRESIDENT, FARMECON LLC, CARMEL, INDIANA**

Mr. ELAM. Thank you, Chairman Roberts and Ranking Member Stabenow, Senator Joe Donnelly from the great State of Indiana, and other members of this committee. I am Dr. Tom Elam, President of FarmEcon LLC, an agricultural economics consulting company in Carmel, Indiana. My specialty is poultry.

I would like to summarize some findings that are in my written testimony and make two recommendations for your consideration.

For the past several months, I have made a running analysis of the economic effects of HPAI and with dismay have closely followed these outbreaks as they spread from the Pacific flyway into the

Upper Midwest, and we have seen damage increase to record levels.

As an economist, I deal with hard numbers routinely, but as an individual—and, by the way, economists are people, they do have feelings, regardless of what you may have heard. The hard realities faced by these producers and many others is very difficult to imagine and put yourself in their position.

But, back to the hard numbers. Based on pre-outbreak wholesale prices, my preliminary estimate of producer direct loss arising from the destroyed turkey and egg production that we have heard about today is about $1.57 billion, $530 million for the turkey industry and a little over $1 billion for layers.

By design, these estimated impacts exclude the substantial price increases that have occurred since the outbreak hit the Upper Midwest. That estimated loss also does not include the cleanup, bird restocking costs, higher costs to consumers from post-outbreak price increases, or any further production losses beyond what we know about today. Also not included is approximately $1.2 billion in lost export value, mostly broiler chicken meat, and broiler producers were not really significantly affected at all by this outbreak.

The economy-wide loss for the just destroyed production to date is conservatively estimated at about $3.3 billion, and that is just for the production losses at pre-outbreak prices. The larger number is based on an earlier University of Minnesota piece of research. It includes estimated losses past the producer and wholesale level and into our retail food stores, restaurants, and other food service outlets. All of these production losses are concentrated among relatively few farms, representing only 223 turkey and layer production sites.

As bad as it is for consumers facing higher prices and possible product shortages, especially in the egg industry, those affected producers have experienced catastrophic losses. What is even more important is that there is a very real possibility of another outbreak this fall and maybe even next spring.

The first recommendation I have has already been sufficiently covered in these hearings, and that is APHIS funding. This committee and the House Committee on Agriculture need to make sure that APHIS has sufficient resources to address the remnants of this outbreak and any future outbreaks. If we get an infected broiler farm in the State of Georgia or North Carolina or Alabama and that starts to spread like wildfire like this one, the losses will be in order of magnitude larger than we are talking about here today. It is going to take a public and private partnership to make that happen, and I hope that the APHIS is ready to play its role.

The second is more contentious. I think this Congress needs to look at the enabling legislation for indemnification payments in light of what we have talked about today, and ensure that USDA is interpreting those measures appropriately and making appropriate indemnification payments that offset the losses experienced by these producers, especially in the egg and turkey business. The loss of future production, I do not believe, based on my conversations, has been adequately compensated.

Thank you, Mr. Chairman, and I will remain here for questions.

[The prepared statement of Mr. Elam can be found on page 64 in the appendix.]

Chairman ROBERTS. Dr. Elam, I am going to ask you the first question that I have. Have you done any forecasting to determine what the impact on consumer spending for turkey and egg products has been due to the recent outbreaks of HPAI, and have you been able to determine what the loss of certain export markets has meant for U.S. poultry producers?

Mr. ELAM. Yes, sir, I have made some preliminary estimates based on current prices and price expectations for consumers. About 50 percent of roughly $3 billion in increased expenditures by consumers will be necessary as a result of higher egg and turkey prices, to a lesser extent chicken prices, as a result of this outbreak.

On the exports, that is a little more complicated. I mentioned about $1.2 billion in lost chicken exports, but a substantial amount of that product will be sold on the domestic market, so it is not a loss of production, but it is a loss of export value and it does affect our balance of payments.

Chairman ROBERTS. Thank you, sir.

Mr. Dean and Mr. Klippen, indemnity payments for egg farmers. As you described, the indemnity calculation for egg-laying hens is different than indemnity calculation for birds raised for the meat they produce. Would you describe, to the best of your knowledge, some adjustments or improvements that could be made to the indemnity calculation for egg-laying hens that would be more adequate.

Mr. Dean.

Mr. DEAN. Yes. When the indemnification was put in place, I think, in 2002, I do not think it fully recognized the length of time that is needed to restock these layer farms. We are in a unique situation where it takes us actually 20 weeks to raise a day-old baby chick before she is a performing layer. So, we have that 20-week lag time of raising that bird before she is productive.

Then we have to stagger in the amount of time, because in our facilities, we generally have four pullet—or one pullet house to four layer houses. So, it is not a one-to-one ratio of pullet houses to layer houses. So, by the time that you start restocking the layer buildings, you have to go through the cycle of the pullet building. So, it could take up to two years to fully populate the farm, and like I said in my testimony, we need a steady supply of eggs to supply our customers and we cannot just completely depopulate a farm and continue our supply. So, that is why the system is set up for a constant rotation.

Chairman ROBERTS. Thank you, sir.

Mr. Klippen.

Mr. KLIPPEN. Thank you, Mr. Chairman. There is a difference between meat birds, the broilers and the turkeys, and egg layers, because the true value of an egg layer are the future eggs it would have produced. I have in front of me 9 C.F.R. 56.4(a)(1). It says, in part, for laying hens, the appraised value should include the hens' projected future egg production. That is the true value, and that is what we are trying to help provide APHIS with these different formulas so that they recognize it is not just the bird value,

but all the eggs that bird would have produced. We have provided statistics from Iowa State University to help APHIS understand those values.

Chairman ROBERTS. I appreciate that.

Senator Stabenow.

Senator STABENOW. Well, thank you very much, Mr. Chairman, and I am going to ask just one two-part question so we make sure colleagues have the opportunity to ask questions before the vote today.

Mr. Knecht, thanks again for your testimony and all the witnesses that are with us. As you are watching confirmed cases emerge in our neighboring states, I am wondering what advice you are giving Michigan poultry farmers going into the fall. Then, secondly, as we see more cases pop up in Michigan, are there any specific changes that you would like to see from APHIS that would make the agency's mitigation efforts more effective?

Mr. KNECHT. So, two parts, the first part being the—oh, help me on the first one.

Senator STABENOW. Advice to poultry farmers——

Mr. KNECHT. Ah, the advice. Yes. Well, this is what we have been talking about all along, is the increased emphasis on biosecurity. We want to continue to talk to, amongst, across industries, layers, turkeys, and broilers to make sure everybody is doing things the right way, because if it is coming through the air or being transmitted person-to-person, you want to protect each other, and with the west side of Michigan being where the vast majority of the population of all poultry is in the State of Michigan, we are all very close to each other, similar to the way it is in Iowa. We want to continue to preach biosecurity, the showering in, showering out, clean vehicles and all of those things, and even going so far as the smaller things—communicating with your employees, having meetings and keeping everybody updated on what is going on.

Specifically, as far as if something were—hopefully, nothing happens in Michigan, but if something does happen, we are trying to get better from a biosecurity perspective. We want to be constantly vigilant. But Senator Ernst talked a little bit earlier about that lag time from when something is detected to when something is—when the birds are moved off, and my fear is—that is my fear for producers in Michigan, is that the time is what, if you have two turkey farms on the same road that are maybe a quarter-mile apart or a half-mile apart, that those people can be affected because of that lag time. I am not saying that we can get it down to zero, but let us reduce it.

Senator STABENOW. Okay. Thank you. Thank you, Mr. Chairman.

## STATEMENT OF HON. JOHN THUNE, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Senator THUNE. Mr. Chairman, I have got to a meeting, probably will not be able to be back before the votes. I have got a statement and questions I would like to submit for the record, if that would be okay.

[The prepared statement of Senator Thune can be found on page 48 in the appendix.]

Chairman ROBERTS. Without objection.

Senator THUNE. Thank you, Mr. Chairman.

Chairman ROBERTS. Are you going to remain for questions, or——

Senator THUNE. No, I am not. I am sorry. I said I will submit them for the record. I do not want to cut the line here.

Chairman ROBERTS. All right. Senator Ernst.

Senator ERNST. Thank you, Mr. Chair and Ranking Member.

Mr. Dean and Mr. Moline, again, thank you very much for being here today. Just one thing, in the interest of time, maybe, that APHIS could do better going forward, and then, also, maybe what the producers could do, as well, if you were empowered to do so, if there was something that you could do to help the situation.

Mr. MOLINE. Thank you, Senator Ernst. What APHIS can do and the government can do with producers and growers, number one, the two things that have to be done is clear communication start to finish. When we get that presumptive positive on the farm, we need to be contacted immediately by the USDA.

On our farm, we broke on a Tuesday morning. Our first contact with the USDA was Thursday and we did not depopulate until Saturday. With the clear communication, one area that was improved is when the USDA and APHIS sent Dr. Shere out to Iowa. He straightened up a lot of the miscommunication that was coming from the contractors and straightened up a lot of the other things that were getting misconstrued and just blatantly false.

The second area that APHIS needs to improve on is the paperwork that is for these farmers and producers that we have to do moving forward. We want to keep all of our employees employed. We do not want them going to the unemployment lines. So, I, myself, have over 40 hours of paperwork involved with our three sites that were infected. Those hours could have been better utilized cleaning buildings, removing litter, disinfecting.

By streamlining the paperwork end of things, it is going to allow the producers to have a clear road map of exactly what they are going to get paid and it will allow them to make the decisions almost immediately, because they know that they will be getting paid for everything they do and it will encourage them to do it themselves and will save the government money because you will rely less on outside contractors.

Senator ERNST. So, empowering the producers to do more of the work, which I think is——

Mr. MOLINE. Absolutely. Encourage the producers to do more work.

Senator ERNST. —is an effective way to do it.

Mr. MOLINE. We are doing our own. We have one site that has been environmentally tested and cleaned. We have two sites that will be done shortly. We look to repopulate as soon as possible, looking at the end of July or early August.

Senator ERNST. Thank you.

Mr. Dean.

Mr. DEAN. Yes, I agree with Mr. Moline's, all of his comments. The process can be streamlined. Dr. Shere came into a horrible situation when he was given the assignment in Iowa and he was com-

pletely behind the eight ball, a lot of miscommunication. I think it can be streamlined.

One of the requirements is that you must have a signed document before they can start, which has been a delay in the process, to get somebody out and actually have that signature and have it signed, because there has been a lot of confusion. I think that can be streamlined and I think Dr. Shere is streamlining that.

I also agree that there should be a greater incentive for the producer to do the clean and disinfectant, because they can do it a lot quicker and a lot more economical than what APHIS can do. APHIS is limited by their federal contractors, what they can do. They have got to suit up in the HAZMAT suits.

For example, when we were depopulating our farms, our people were pulling out four birds to one of APHIS's birds—or not APHIS, but the contractor. APHIS was not doing the work, but the federal contractor was. We were pulling out four to one, and I have heard several cases of that from other producers that are in the same situation. So, I think that process can be streamlined.

As far as stopping the spread of virus, like it was talked about, killing fans immediately. We have actually tried to save birds by killing fans before we even had a presumptive positive, because we could tell by the clinical signs that we had it. So, we wanted to protect other people, other farmers around us, and protect our own flocks from the spread in the large.

So, I think we have learned a lot of lessons going forward in this process that I think will improve the system.

Senator ERNST. Thank you very much. I do think this is an area that if we are encouraging our producers to take more of that on their own shoulders, they know their buildings, they know their operations best, and I think it does save dollars in the long run for use within APHIS to hopefully prevent the spread of this disease in the future.

So, again, thank you both for being here. We appreciate it. Thank you to the panelists for joining us today. Thank you, Mr. Chair.

Chairman ROBERTS. Senator Donnelly.

Senator DONNELLY. Thank you, Mr. Chairman, and I also will just ask one question or so in the interest of time so everybody has a chance, and that would be for Dr. Elam.

As an economist, every impact creates a ripple that causes effects throughout the economy. So, this virus has not impacted just those producers that have directly experienced a loss, but has impacted the entire industry and consumers. Could you elaborate a bit on the impacts the outbreak has had on producers, even those who have not experienced a loss, and how it will impact consumers in the long term.

Mr. ELAM. Certainly. The producers who have not experienced any of the loss, and that would be the vast majority of them, are seeing higher prices as a result of their neighbors' bad fortune. So, they are getting a bit of a windfall, a profit gain, from this outbreak.

But, at the same time, some of them have lost export business, as well, particularly in the broiler business. We have lost approximately $1.2 billion worth of broiler exports that these companies

are now going to have to divert into the domestic market. This is causing them an enormous amount of pain, even though they had no production loss.

For the consumer, the loss is going to be higher prices, and you have got to keep in mind here that some people might say, well, you have prices go up, therefore, the value of this production has gone up, but that is not true. Just because something has a higher price does not mean it has a higher value.

Think about an automobile, for example, which the cost of producing automobiles have gone up because of the fact we have added all these safety and convenience features to them, all the cameras and the USB ports and all of this, and the safety features, the airbags and so forth. That all costs money and the consumer gets a benefit from that. He drives a safer, more convenient car.

That has not happened in the egg and turkey business. These products have not changed. Their prices have gone up, but we have not really added any real value to these products. We have added cost to the consumer, for which they are paying more and actually getting less. The consumer is going to suffer from this to the tune of about $3 billion in increased food expenditures that could have gone for other things in their budget.

Senator DONNELLY. Thank you, Mr. Elam. Thank you, Mr. Chairman.

Chairman ROBERTS. Senator Grassley.

Senator GRASSLEY. My first question was already asked by my colleague from Iowa, but if there are any of you that want to expand on any of those things that you think that the federal government needs to do when responding to these outbreaks, you can have a little bit of my time to do it. But, I think it has been pretty well covered. But, does anybody have anything to add?

[No response.]

Senator GRASSLEY. Okay. Then, I will ask——

Mr. MOLINE. I do, Senator Grassley.

[Laughter.]

Mr. MOLINE. Sorry to interrupt you. We have talked a lot about biosecurity today, and I think the point that all of us producers are trying to get out of APHIS and the USDA, our own research and just our own findings on the farm, is we talked about biosecurity. Biosecurity costs money. It takes time. We are more than happy to do it. My brooder houses are shower-in, shower-out facilities. My finisher barns, they are wide open curtain barns.

We need some help identifying what areas of biosecurity we need to improve on. So, my recommendation is we need research dollars through the USDA, ARS, and let us find out everything we can about this virus so we can improve our biosecurity and spend our money where it needs to be spent, as well as the government's money. We lost 56,000 birds and two-thirds of our income this year.

We need—there are many producers like myself that will not have the money to spend a lot on upgrading barns and facilities. So, we need the government and the USDA to tell us, or help us identify areas that we can efficiently spend money on and improve not only our own facilities, but the whole industry in the turkeys and as well as our neighbors and friends in the chicken business.

Thank you, Senator Grassley.

Senator GRASSLEY. My last question would deal with whether you would like to see a vaccine available, and in answering that question, take the trade implications into consideration.

Mr. MOLINE. Speaking for the turkey industry and myself as a producer, one of the first things that we asked right away, when it—we were one of the last farms infected by the avian influenza—we were asking, how soon can we vaccinate? We had friends and neighbors in Minnesota, Northern Iowa, our friends in the chicken industry were breaking right and left. We asked as soon as we could, can we get our pullets vaccinated at the hatchery? We would gladly vaccinate every turkey coming out of the brooder house at five weeks. As a grower that owns his own turkeys, we would do anything possible.

So, yes, we vaccinate for a lot of things already and we want a vaccine and we would be more than glad to do it, whether it is at the hatchery or on the farm or both. Thank you.

Mr. DEAN. The layer side of it, if I may expand on that, the layer side of it gets—we have got mixed feelings on vaccines, not only from the trade issue, which is more a broiler issue, but in the layer side of it, since our bird is in production for a substantially longer period of time, it would require a vaccination at the hatchery and then would require two booster shots while that bird is in production.

That would mean a lot of people going into the buildings to do vaccination. You have to handle that bird while she is actually in production. You would actually—it is estimated that you would knock production about ten percent. It then puts the producer that has to vaccinate at an unfair disadvantage as far as the productivity of the operation if they have to vaccinate.

I, just speaking as an egg producer and not as United Egg Producers, as an egg producer, I would just as soon see an effective stamp-out program and eradicate the disease rather than a vaccination program.

Senator GRASSLEY. I am done. Thank you.

Chairman ROBERTS. Senator Hoeven.

Senator HOEVEN. Thank you, Mr. Chairman.

I just kind of want to follow up along the lines of Senator Grassley. A lot of the discussion has been about what USDA needs to do, has been doing, and also, of course, what APHIS is doing and should be doing. My question is more focused on what do you think the Congress should do specifically that would help both now and to prevent future influenza-type outbreak. Focus more from what you perceive the Congress needs to be doing in addition to any of the steps that USDA has taken or is taking, or that APHIS has or is taking, and I would ask that for each of the witnesses, kind of a wrap-up.

Mr. DEAN. I will take it first, since I am first in line. I think Congress can help develop some sort of an insurance program similar to federal crop insurance, on those same lines. I have been involved in several meetings as far as that goes, and I think that is something that would be needed that I think we could ask Congress for help. It sounds like it was introduced in the 2014 farm bill to already look at that program and look at something. We think that

is something that would be extremely important for the industry in the future, to have that type of insurance program available.

Senator HOEVEN. Let me ask you a question right there. Have you talked to RMA or Brandon Willis about something like that? Has there been any discussion of any kind of insurance product along those lines?

Mr. DEAN. Yes. In fact, Congressman King organized a committee and asked producers to come together in Iowa, and some of those people were at that meeting from USDA and so forth to look at those type of products and pattern something similar to the crop insurance. It is going to be extremely difficult to try and get private insurance companies to want to insure those type of products since we are in the middle of a disaster and the worst animal health issue that we have ever experienced in this country. It is going to be hard to get it done from private insurance companies.

Senator HOEVEN. Have you seen Congressman King around anywhere so that you could ask him, like, the status of that, or——

[Laughter.]

Senator HOEVEN. So, anyway, there has been some preliminary work done, and there had been some—because something like that, I think, you would want to start with some serious discussions with RMA and with somebody like Brandon Willis——

Mr. DEAN. I think they are already in the process of doing the studies, and UEP has offered to help as far as what we needed to get producers' input and involvement as far as being able to do the risk assessment and so forth.

Senator HOEVEN. But, it is something that some people in the House, Congressman King and others, are starting to look at?

Mr. DEAN. I do not know whether it is at the House level. It is Congressman King that started that because he saw a need of that type of program, and then I think it gets handed off to other agencies to do the work and develop that type of product.

Senator HOEVEN. Okay. Mr. Klippen.

Mr. KLIPPEN. I agree with Mr. Dean. We have had discussions about insurance. Back in January, we had a group of different groups of people that represented different industries within the poultry industry, whether it was game birds or whether it was ducks or geese or—and we did talk about trying to look into insurance. Of course, that was in January. Had we known, we would have been a lot further along. But, I think that is an important first step, perhaps a crop insurance program of sorts. So, definitely.

Senator HOEVEN. Mr. Moline.

Mr. MOLINE. I agree, also, with what Mr. Dean said earlier on the insurance end of things. Also, in future farm bills, I would ask Congress to possibly look at updating the indemnity for more coverage on the turkeys maybe along with that, with an insurance program of some sort, and also factor in loss of production due to cleaning and things like that, as well. You know, not only did we lose the birds, we lost at least one more flock and possibly two, and I know many other producers are in the same boat. Thank you.

Senator HOEVEN. Mr. Knecht.

Mr. KNECHT. I was on a conference call with RMA not that long ago, I think it was about a month ago or so, right in the heat of all of this, and I think one of the challenges with the crop insur-

ance program is the timeline for which it would be implemented. It sounded like it was a ways off in terms of actually having a product for egg producers to be able to purchase. I would take this opportunity—I know you do not want to go back to APHIS, but I would take this opportunity to voice support for a major overhaul or addition to the indemnity program for the real value of ag production.

Mr. ELAM. I think it was mentioned earlier by the gentleman from USDA that is there anything beyond the truly innovative beyond the current policies of vaccination and depopulation that could address these issues longer term, truly innovative animal health solutions beyond the current measures, whether they involve genetic engineering, which I understand could be somewhat controversial, or other things maybe we have not even thought of today that could help. I am talking about some very basic R&D here beyond what USDA has currently charged APHIS—or what the Congress has currently charged USDA with.

Senator HOEVEN. Thank you. I think you bring up some interesting points. I mean, that kind of goes to the whole GMO aspect, but that science has prevented a lot of disease in a lot of crops and a lot of animals——

Mr. ELAM. Exactly.

Senator HOEVEN. —so I think you bring up a very important point. Thank you very much.

Chairman ROBERTS. I want to thank each of our witnesses for sharing your experiences related to highly pathogenic avian influenza and its impact on the U.S. poultry sector. Your firsthand experience with this devastating virus has been invaluable to the committee as we look to ways to ensure the health and safety of America's poultry and livestock.

With regard to asking Congress what you need, I would only respond, ask not from Congress what you can do, but what you can do for your Congress.

[Laughter.]

Chairman ROBERTS. To my fellow members, we ask that any additional questions you may have for the record be submitted to the Committee Clerk five business days from today, or 5:00 p.m. next Tuesday, July 14.

That concludes our hearing.

[Whereupon, at 5:19 p.m., the committee was adjourned.]

# A P P E N D I X

JULY 7, 2015

**Senate Committee on Agriculture, Nutrition & Forestry**
**Hearing on Highly Pathogenic Avian Influenza: The Impact on the U.S. Poultry Sector and Protecting U.S. Poultry Flocks**
**July 7, 2015**
**Statement for the Record**

**Senator Robert P. Casey, Jr.**

Mr. Chairman and Madam Ranking Member, thank you for holding this hearing.

Pennsylvania's poultry industry is incredibly important to the State's economy so we need to be prepared.

According to the U.S. Poultry and Egg Association, the poultry industry contributes more than $13 billion in total economic impact to Pennsylvania, including more than 53,000 jobs paying $3.2 billion in wages. Pennsylvania ranks fourth in the Nation for egg-laying hens. Lancaster County is home to more laying hens than any other county in the Nation. Pennsylvania also ranks in the top ten for turkeys raised.

Fortunately and unfortunately, Pennsylvania has experience in dealing with highly pathogenic avian influenza. The Commonwealth has learned from that experience. Prior to the current outbreak in the Midwest, the largest domestic outbreak of avian flu occurred in 1983-1984 in the mid-Atlantic, severely affecting Pennsylvania. In the Commonwealth, 17 million birds died or had to be destroyed, at a loss of $65 million, and caused retail egg prices to increase by more than 30 percent. Over 15 months, the virus spread to four states and led to an 11-month quarantine that covered all of Lancaster County, as well as parts of Berks and Chester Counties.

The Pennsylvania Department of Agriculture has briefed my staff on its planning efforts, which have been underway since February. I have been assured that the Commonwealth is working with industry, academia, and the Federal government to monitor the spread of the disease nationwide, develop a response plan, and identify and secure the necessary resources to deploy once the disease is found in Pennsylvania.

We must remain vigilant and ready to respond.

Thank you Mr. Chairman and Madam Ranking Member.

**Opening Statement**

Thank you, Chairman Roberts for agreeing to hold this important hearing. Iowa has been hit harder than any other state by this disease accounting for nearly two-thirds of the 48 million birds that have been affected to date.

The economic effects of this disease are being felt across our state as well. Not only have the poultry and egg industries been affected with supply disruptions and job losses, but feed demand for corn and soybeans is also dropping as a result of the sudden reduction in bird numbers.

The current Avian Influenza outbreak, and the PED virus that affected the swine industry during 2013, serve as a reminder that we must be better prepared to handle large scale disease outbreaks in this country.

This hearing offers us a chance to learn what programs and policies are working, and where blind spots remain for dealing with large animal disease outbreaks.

**SENATE AGRICULTURE, NUTRITION, AND FORESTRY**

**FULL COMMITTEE HEARING**

**"Highly Pathogenic Avian Influenza: The Impact on the U.S. Poultry Sector and Protecting U.S. Poultry Flocks"**

**Tuesday, July 7, 2015 – 3:00 P.M.**

**Russell 328 – Ag Committee Hearing Room**

**Opening Statement by Senator John Thune**

- Chairman Roberts and Ranking Member Stabenow thank you for holding this hearing today on Avian Influenza.
- We are at a critical juncture in the battle against avian influenza in this country – as we approach 50 million head of poultry lost on account of this disease in just a few short months.
- Even though South Dakota's poultry losses at 3million birds is far less than our neighboring states of Iowa and Minnesota, unfortunately, my state's poultry producers as well those in other states don't know what the future holds.

- Warmer summer weather has dramatically diminished the spread of the avian influenza, this fall when temperatures cool down and the bird migration once again occurs it appears we can expect further outbreaks of avian influenza.
- The greatest assistance this Committee can provide to our nation's poultry producers is to ensure that USDA is providing timely and adequate assistance to them – and that indemnity payments are fair and equitable.
- Furthermore, based on today's testimony I think there is progress to be made by USDA in assisting producers with effective practices to stop the spread of avian influenza, especially among neighboring facilities.

- It also appears there is much more to be done in the development of vaccines that not only are effective but also put our trading partners at ease so we don't harm our critical poultry and poultry product export markets.
- For poultry operations that have been forced to depopulate due to avian influenza, how long before they become operational once again is likely the most critical element to their recovery.
- Based on testimony provided today, there are discrepancies and inconsistencies by USDA in its administration of the depopulation, disposal, disinfecting, and approval processes for repopulation.

- We've also learned that it is imperative that USDA keep open communication with members of the poultry industry, especially the growers and laying house managers and owners in order to learn best practices and administer those practices so impacted facilities can resume normal operations more quickly and efficiently.
- Even though none of us knows what the poultry industry will be faced with this fall as the potential for further spread of avian influenza will likely increase, I hope this hearing raises an awareness of what needs to be done moving forward in the battle against avian influenza.
- Thank you Chairman Roberts and Ranking Member Stabenow and now I have a few questions for our panelists.

**Statement of Dr. John Clifford**
**Deputy Administrator**
**Veterinary Services**
**Animal and Plant Health Inspection Service**
**U.S. Department of Agriculture**

**Before the**

**Senate Committee on Agriculture, Nutrition, and Forestry**

**July 7, 2015**

Chairman Roberts, Ranking Member Stabenow, and Members of the Committee, thank you for the opportunity to testify today on behalf of the U.S. Department of Agriculture (USDA). I serve as the Deputy Administrator for USDA's Animal and Plant Health Inspection Service (APHIS). In this capacity, I am the Chief Veterinary Officer of the United States.

Today, we are facing the largest animal health emergency in this country's history. We are dealing with an unprecedented outbreak of highly pathogenic avian influenza (HPAI) that is taking a heavy toll on the poultry industry. People have lost their jobs and have seen their livelihoods put in grave danger by this outbreak, and our hearts go out to them. I can assure you, however, that this disease has USDA's fullest attention, and we are committed to standing with our producers and industry to get them – and the communities they live in and support – back on their feet.

USDA has been and will be there every step of the way with producers, industry, and our state partners. We've worked closely with them to respond quickly and decisively to this outbreak. More than 400 USDA staff and nearly 3,000 USDA-contracted personnel have been working around the clock in every affected state on the response. We've delivered over $190 million in indemnification payments to producers to control the spread of disease, and to help them recover from it. Should the need arise, we have the authority to request even further funding. All told, USDA has committed over $500 million – an amount more than half of APHIS' yearly discretionary budget – in addressing this outbreak. We've seen trade cut off by trading partners concerned about the devastating effects of this disease, causing $1 over billion in poultry products to be directed to other markets at a cost to producers. We understand the devastating impact this outbreak has had upon all, and we are committed to helping those affected. And we will help protect those producers who have not yet been – and we certainly hope, will not be – impacted by this disease.

**The Outbreak**

The outbreak started in December 2014. Western Hemisphere migratory birds commingled with Asian birds in the northwestern part of the continent. These birds acquired a variant of HPAI that is currently widespread in Asia. Wild ducks and geese (which have lower mortality for this variant) brought the disease first to the Pacific flyway, and later to the Central and Mississippi

flyways. Initial detections in the United States were in wild birds and backyard flocks, and may have resulted from direct contact with sick migratory birds. As the virus spread through the Midwest, it came into contact with some of the largest segments of the poultry industry; it took an especially heavy toll on turkeys and egg-laying chickens, primarily in Minnesota and Iowa.

APHIS scientists have been conducting an epidemiological investigation into the origins of the disease. Based upon the results of the preliminary investigation the Agency released in June, we believe wild birds were responsible for introducing HPAI into the environment, and from there it was spread into commercial poultry houses. However, given the number and proximity of farms affected by HPAI, it appears the virus is spreading in other ways as well. For instance, one analysis provides evidence that a certain cluster of farms was affected by identical viruses, pointing to possible transmission among those farms. In addition, genetic analyses of the HPAI viruses suggest that independent introductions as well as transmission between farms are occurring in several States concurrently.

Our investigation shows that the virus has been introduced into commercial poultry facilities from the environment (i.e., water, soil, animal feces, air) or from farm-to-farm transmission on human sources such as boots or equipment. After conducting an analysis of over 80 commercial poultry farms, APHIS cannot associate transmission of the disease with any single one of those factors, but it seems clear that lateral spread occurred when biosecurity measures that are sufficient in ordinary times were not sufficient in the face of such a large amount of virus in the environment.

USDA – through the APHIS National Veterinary Services Laboratories – has confirmed HPAI in 21 states, which includes nine states where we identified it in commercial poultry. We have confirmed the disease in 232 total poultry premises, with 211 of those being commercial facilities. As part of our disease control strategy, we've depopulated 7.5 million turkeys and 42 million chickens and pullets. This is approximately 3% of the U.S. annual turkey production, and approximately 10% of the egg-laying chicken population.

**USDA's Response to HPAI**

USDA has extensive experience in responding to animal disease outbreaks, especially in poultry. In 2003 and 2004, we successfully fought off an outbreak of Exotic Newcastle Disease in the southwestern United States and low pathogenic avian influenza, which spread through the Shenandoah Valley in Virginia. The bulk of our response to the current outbreak has been based upon the existing USDA avian influenza response plans we've developed and refined over the years. These existing plans have allowed USDA and its state partners to respond quickly and decisively to address this outbreak using the authorities given to us under the Animal Health Protection Act and state laws and regulations.

The goals of USDA's HPAI response plans are to (1) detect, control, and contain HPAI in poultry as quickly as possible; (2) eradicate HPAI using strategies that seek to protect public health and stabilize animal agriculture, the food supply, and the economy; and (3) provide science- and risk-based approaches and systems to facilitate continuity of business for non-infected animals and non-contaminated animal products. In addition we want to ensure that the

Federal government, producers, States and local governments are well-positioned to effectively respond to future outbreaks. Achieving these goals will allow individual poultry facilities, States, Tribes, regions, and industries to resume normal production as rapidly as possible and minimize losses from future outbreaks. They will also allow the United States to regain disease-free recognition from our trading partners without the response effort causing more disruption and damage than the disease outbreak itself would be were it left unchecked.

The plan has five basic steps when the disease is detected: quarantine, eradicate, monitor, disinfect, and test.

- Quarantining allows us to restrict the movement of poultry and poultry-moving equipment into and out of the control area. Simply, we must stop the spread and transfer of the disease as much as we can.

- Eradication is part of our "stamping-out" approach to HPAI, which requires the depopulation of clinically affected and in-contact susceptible poultry to eliminate the disease where it exists and to further reduce the risk of spread. USDA has provided indemnification payments to producers for those birds that must be depopulated, which helps serve as an incentive for them to report potential infections quickly, which can further reduce the potential for virus spread.

- USDA monitors the region to better understand the viral spread. We monitor birds in a broad area around the quarantine area to see if there are other incidents to which we must respond.

- Cleaning and Disinfection of the premises where affected flocks are located is a key piece toward eradication. We must know that facilities are clean and disease-free before we can allow them back into production.

- Testing is the last step. After the disinfection is complete and before we can release the quarantine, we test the premises and environment to ensure that it is disease-free, so that operations may safely resume.

USDA has the best avian influenza surveillance system in the world. Our program exceeds international standards and allows us to identify the disease, and upon detection, to ramp up our emergency response activities. Our strong surveillance system assures our trading partners that we take disease eradication and control seriously and will be of great benefit to us as we try to resume trade with the foreign trading partners who have cut off access to U.S. poultry and poultry products.

**How This Works for Producers**

USDA wants impacted producers to get back into business as quickly as possible, and APHIS and its state partners work very closely with those affected.

Following confirmation of HPAI in their operation, a producer will need to develop a flock plan for all premises with confirmed infections or exposure. The flock plan sets out the steps to eradicate the virus and prevent its spread to other flocks. It also specifies the procedures required to get the facility back into production, including requirements for quarantine release. The flock plan will include cleaning and disinfection requirements. The flock plan must be signed by the owners, a State animal health official, and an APHIS official before an indemnification payment can be processed. An APHIS case manager will work with the producers to walk them through the process and the information required to complete all steps.

APHIS will then prepare an appraisal document for indemnification and present it to the producer as quickly as possible. Affected producers need to sign the appraisal document before depopulation can occur. The Animal Health Protection Act limits indemnity to the fair market value of the animal being depopulated; it is not intended to make the producer whole, such as by covering production losses during the time a barn is down for the disease response activities. APHIS economists developed a series of species-specific appraisal calculators that use publicly available prices, costs, and productivity data to develop a value per animal that varies by the age of the animal. The calculators are updated monthly to account for changing feed costs, values, and assumptions.

The value per animal type multiplied by the number of each animal type is used to calculate total indemnity. For HPAI, APHIS provides 100 percent of that indemnity amount. One important distinction: the Animal Health Protection Act limits indemnity to the fair market value of the animal being depopulated.

A compliance agreement must be developed if depopulation, disposal, or cleaning and disinfection will be performed by personnel other than Federal or State officials, and if the producers will request indemnity for those activities. A compliance agreement is separate from the flock plan. The flock plan specifies the necessary procedures for the premises to resume normal production; a compliance agreement indicates what tasks will be completed, who will be responsible for each task, and how much the work is expected to cost. A compliance agreement is comparable to a statement of work -- a plan that lays out the activities to be done and the expected costs to accomplish those activities.

Provided the terms of the compliance agreement are met, USDA will provide funding for those cleaning and disinfection activities, and compensation or indemnification for any items or equipment that are destroyed or damaged as a result of the cleaning and disinfection process.

**The Importance of Biosecurity**

One of the lessons we've learned is that we all need to be vigilant about maintaining stringent biosecurity measures, especially in the face of a disease outbreak. In June, APHIS released a partial epidemiology report on the Agency's findings about the origins and spread of the virus. While the results of our preliminary epidemiological investigation didn't show a single source of transmission, it did emphasize the importance and need for improved biosecurity. The strength of

our biosecurity efforts depends entirely on all of us – producers, their employees, USDA, and our contractors who are responding to this outbreak.

Part of this involves more outreach to producers. We've made more information about basic biosecurity practices available on our website, and we've shared materials such as a checklist of best practices and information sheets with industry groups for distribution to their members. These recommendations include items such as allowing only essential personnel access to poultry premises and thoroughly disinfecting boots, equipment, and vehicles that enter and exit those locations.

We're also meeting directly with State Veterinarians and industry to discuss the need for more biosecurity. On July 28 and 29, 2015, we'll be holding a stakeholder meeting with those groups to discuss those issues to ensure that our collective biosecurity is more stringent and that we are prepared for any future outbreaks.

We know that proper biosecurity begins at the farm's edge. What this outbreak has taught us is that the biosecurity measures that extend on the farm into each individual barn or facility are equally or, at times, more important than the farm's edge approach. Based on the belief that "an ounce of prevention is worth a pound of cure," we plan to work with our producer and State and local partners to strengthen biosecurity measures. This may require changes to current practices or assumptions, and USDA is engaging our partners in these critical issues.

APHIS appreciates the cooperation of poultry producers in providing the information needed for these epidemiology investigations. APHIS values its partnership with industry and believes that with their continued support and assistance, the agency will be well positioned to learn all it can about this virus. We all have a role in – and a responsibility for – our Nation's agricultural health, and we will work together to ensure that we are in the best position possible to address this disease.

**Preparedness for the Fall**

USDA is treating the potential threat of more infections in the fall with the utmost seriousness. Although we hope that we will not have additional or more wide-spread outbreaks, it's very likely that wild birds will carry the virus with them when they begin migrating south in the fall. Although states in the Atlantic flyway have not been affected by this HPAI outbreak, it's important that our state and industry partners begin preparations should the disease occur there.

I can assure you that this need for preparedness has the attention of all of USDA. The Secretary is leading these efforts, and has directed USDA to do everything it can to respond to this virus, assist producers, and maintain trade markets. As we look to the fall, we plan to be ready for the challenge.

To that end, we recently concluded a planning workshop with our partners focusing on the worst-case scenarios and the responses needed. We're identifying the resources we would need under various scenarios and how we can better partner with States and industry to manage this disease.

We've encouraged our partners to review the existing avian influenza response plans so they understand what we will expect and what actions we will need them to take should the disease strike. Along those lines, we've urged states and industry to develop site- and county-level specific depopulation plans for landfilling or composting birds. Our experience in the Midwest showed that the biggest roadblock to efficient depopulation (which is key to reducing the spread of the virus) is the lack of ready sites to receive and process dead birds.

Should the disease strike in the fall, USDA and its partners will be ready to tackle it head-on.

**Vaccination and Trade Issues**

As part of USDA's ongoing response, the Department evaluated the efficacy of current vaccine options for HPAI in addition to the economic impacts of vaccination. Some in the poultry industry asked if USDA would consider allowing the emergency use of vaccines to halt the spread of the disease. In June, after conducting that evaluation, USDA determined that we would not, at this time, allow for the use of vaccines to assist in the eradication of HPAI.

Right now, we do not have a closely matched vaccine to the outbreak H5N8 or H5N2 HPAI viruses. USDA's Agricultural Research Service (ARS) is evaluating a current vaccine in chicken and turkey protection studies against our specific outbreak viruses. In addition, ARS has developed a reverse genetic H5 vaccine seed strain that antigenically matches the field virus and it is undergoing the same protection studies. Only the most efficacious vaccines should be considered for field use as any infection in the vaccinated population would still require the entire barn to be depopulated.

Aside from questions about its effectiveness, USDA believes that if a vaccine were used, some additional trading partners would ban all U.S. exports of poultry and eggs and not necessarily just those from the states currently affected by HPAI until they could complete a full risk assessment. The loss of these markets could cost U.S. producers at least $3 billion in trade revenue with uncertain reductions to the mortality rate of birds from this disease.

In the weeks and months ahead, we will continue to support efforts to develop more effective vaccines. ARS scientists are working diligently on a better vaccine based on the specific genetics of this strain of the virus. We have said that we may reevaluate our vaccination decision as more effective vaccines are developed and ready for use, carefully considering both the efficacy of the vaccine and the potential trade impacts. If used, vaccines will serve as an additional tool in our eradication efforts and will be targeted in the states and poultry sectors where they can be most effective.

USDA has been working very closely with our trading partners to minimize the effects of this outbreak on producers. The World Organization for Animal Health (OIE) guidelines encourage a regionalized approach to animal diseases, and we have urged our trading partners to adopt that approach, just as we would with them should they be struck by an animal disease. Despite the OIE guidelines, 18 trading partners have suspended imports of all U.S.-origin poultry and poultry products. However, 38 trading partners have adopted a regionalization approach, limiting

imports of poultry and poultry products only from those states or counties affected. We speak with our partners regularly, and are already working with them to restore market access from the areas where the outbreak was limited and has been controlled. We'll continue to work with them to restore full market access as quickly as possible as the overall outbreak subsides.

**Conclusion**

There are a few key points I want to leave you with. There have been no human infections from these viruses and the risk to the general public is low. It's also important to understand that our food supply is safe. Properly prepared and cooked poultry and eggs are safe to eat.

I think despite the difficulties we've faced, we've had some good news. In recent weeks the number of new detections has slowed to a trickle, and more and more farms have begun to repopulate with new poultry. The restocking guidelines we and our state partners have put in place give us the assurance that the premises and the local environment are free from the disease, and that we have enhanced biosecurity measures in place to reduce the threat of re-contamination. Most importantly, successful restocking is a sign that our techniques and approaches in confronting this disease can and do work. That might not seem like much consolation for the producers who've lost so much, but it should provide reassurances to those nervous about the potential approach of the disease through wild waterfowl come fall.

I really want our producers to understand that they have USDA's support. Our experience in quickly and successfully responding to previous animal disease outbreaks and the lessons we've learned from the Spring on this outbreak will inform our response and allow us to minimize the effects of this disease going forward. Every day, we are further refining our prevention, detection, and response based on the latest science and the lessons from this outbreak. We will continue sharing what we learn with our state and industry partners through regular conversations and meetings. We will also continue to work with Congress to ensure that we have the necessary tools and resources to fight this disease. Together, we will meet this challenge and protect the health of the Nation's poultry.

# Testimony of

**Jim Dean**
**Chairman**
**United Egg Producers**

United Egg Producers

*on*

**Highly Pathogenic Avian Influenza: The Impact on the U.S. Poultry Sector and Protecting U.S. Poultry Flocks**

**Before the**
**Committee on Agriculture Nutrition & Forestry**
**United States Senate**

**July 7, 2015**

Mr. Chairman, Senator Stabenow and members of the committee: My name is Jim Dean and I am an egg farmer from Sioux Center, Iowa. I currently serve as Chairman of the United Egg Producers. UEP is a farmer-owned cooperative whose members independently produce and market more than 90% of all eggs in the United States.

Egg farmers appreciate the interest of this committee and other Members of Congress as we deal with the worst animal health crisis in the nation's history. About 36 million hens have been removed from the nation's laying flock as a result of this disease, and an additional 5-6 million pullets – which are young birds that would have begun laying eggs in the near future – have also been lost. Even without additional cases of highly pathogenic avian influenza (HPAI), we and our customers are dealing with the loss of 12% of the U.S. egg-laying flock. If we consider just the portion of the flock that produces eggs for further processing – that is, breaking into products such as liquid whole egg or dried egg white that are used in food manufacturing and food service – the loss is closer to 30%.

This severe supply disruption has affected us and our customers alike. Although the United States normally does not need to import eggs or egg products, the recent HPAI outbreaks have temporarily changed that reality. As producers and processors, we are in favor of our customers having access to supplies of imported egg products and shell eggs for breaking, as long as they are safe. We have worked with the U.S. Department of Agriculture and the Food and Drug Administration to facilitate approval of import procedures and provide information to companies that need temporary supplies. We would much rather our customers obtain alternate supplies temporarily than to see them make the difficult and regrettable choice of reformulating their products to reduce or eliminate egg content.

I would like to publicly thank Chairman Roberts, Ranking Member Stabenow and their staffs as well as USDA, in particular the Animal and Plant Health Inspection Service (APHIS), for responding to the HPAI crisis. This Committee and Secretary Vilsack's personal involvement has been critically important, and we appreciate the continuing leadership. In a situation like this, no response is ever perfect. Sometimes we have had disagreements with APHIS or frustrations with various aspects of their operations. As an industry, we have not always done everything perfectly either, but we were taking great pains to utilize industry best practices regarding biosecurity at our facilities. We have had an open and respectful relationship with APHIS and other USDA agencies that has permitted us to work through difficult situations. Fundamentally, we want to express our gratitude for APHIS's hard work and dedication, as well as the role played by other USDA agencies, including the Food Safety and Inspection Service and the Agricultural Marketing Service.

Egg farms have been implementing biosecurity measures for many years, starting after the high pathogen Avian Influenza outbreaks in Pennsylvania in the 1980's. Persistent cases of avian influenza during the early 2000s led to the creation of a control program for this less-virulent disease, and producers who participate in this program implement biosecurity at their farms. Biosecurity is also required by the FDA's Egg Safety Rule, which successfully combats *Salmonella* Enteritidis.

So the HPAI outbreak did not catch producers unprepared, and likewise APHIS had done research and planning in preparation for the disease. That being said, the highly-infectious nature of this virus is somewhat precedent-setting. The rapid and seemingly uncontrolled lateral spread of this particular virus has stymied the best efforts of both farmers and APHIS. As one example, the largest egg farm affected by the disease in Iowa had undergone a USDA biosecurity audit less than two months before the outbreak and was given a perfect score. That does not mean that either the farm or APHIS did anything wrong, but it does illustrate that even biosecurity is not a 'magic bullet' and that we still have more to learn about controlling the spread of the pathogen.

We can do more and are doing more. Stringent limits on movement between henhouses as well as new and additional restrictions on vehicular traffic are just some of the steps many producers have taken since the outbreaks began. Industry meetings have been turned into webinars to avoid transmitting the virus by bringing people together unnecessarily, new research is being funded and USDA has worked with UEP and the American Egg Board to disseminate the most current biosecurity information to all producers.

HPAI has already harmed local economies and led to some layoffs that we hope will be temporary. The disease puts at risk family-owned, multi-generational farming businesses; the jobs of thousands of farm workers; and the economic health of rural communities where the affected egg farms are often among the largest employers.

In Iowa, the egg industry accounts for about 3,200 jobs directly but more than 20,000 jobs when supplier employment and indirect economic impacts are considered. The industry in Iowa generates $6.6 billion in economic activity each year, amounting to more than $500 million in federal and state tax revenues. In nearby affected states, the industry is also a major presence, accounting for $3.1 billion in economic activity and 12,000 jobs in Minnesota in addition to $500 million in economic activity and 2,600 jobs in Wisconsin. Unfortunately, a very large number of these jobs must now be considered at risk.

The HPAI outbreaks will have a significant and negative impact on our industry in these and other states. That is inevitable, and frankly there is nothing the government can do to completely mitigate the harm. However, we are grateful that Congress saw fit to create a system of indemnity payments to cover the value of birds that must be destroyed, lost production, as well as cleaning and disinfection costs. For us – and for our colleagues in the turkey and other poultry industries – these indemnities can be the difference between a farm failing or surviving. By keeping farms in operation, indemnities also help keep workers employed and benefit local economies.

We have been engaged in a respectful dialogue with USDA about the formulas that are used to calculate indemnities for the egg industry. Current regulations require that indemnities reflect the value of egg production, but we are concerned that the specific formulas used to calculate payments fail to completely reflect this value.

The formulas do a relatively good job of reflecting the investment that has gone into a pullet at the start of her laying cycle at 18-19 weeks of age. A few adjustments to the pullet value are in order, and USDA

appears likely to make at least some of these changes. We appreciate very much the Department's openness to the data we have supplied and the arguments we have made.

However, the real issue with the current formula is that it does not adequately capture the value of the future stream of egg production associated with the hen. I will not take the committee's time with the technical aspects of this discussion, except to say that we very much hope that USDA will agree to make changes to its current formulas to better reflect egg production value, and we believe that the existing statutes provide ample authority for the Department to do so. I do, however, want to make sure the committee understands the fundamental difference between egg production and the production of turkeys or broilers.

These "meat birds" have a relatively short life cycle before they go to slaughter. A new flock can then be placed in fairly short order. Modern egg production does not work that way. In a multi-barn complex, the birds in one house will be of a different age than those in other houses. We deliberately "stagger" the age of hens in our barns in order to smooth out normal production cycles. A hen's egg production increases and then decreases over her useful lifetime in a predictable fashion. If all hens on a farm were of the same age, there would be times – before pullets began laying and late in the life of each flock – when the farm would have insufficient eggs for its customers as well as times in the middle of the flock's life when supplies might be greater than market needs.

By systematically staggering the ages of our flocks, we can provide a stable supply to our customers. However, this also means that if every bird on a farm must be killed at once – as is the case in an HPAI outbreak – the farmer cannot immediately replace all those birds. Rather, the farm must re-stock sequentially, house by house, over a period of months or even years. Since supplies of chicks or pullets are typically contracted far in advance, a farm could not re-stock immediately even if it wanted to; the birds would simply be unavailable.

This means that an egg farm hit by HPAI will not return to full productivity, nor will it regain normal revenue, for an extended period of time. During this time, the farm will continue to incur its fixed costs, such as debt service, utilities, pest control, taxes and, of course, labor. But there will be insufficient revenue to cover these costs.

We conservatively estimate these fixed costs incurred during unexpected down-time at 10 cents per dozen eggs that would otherwise have been produced. The private firm Agri Stats, on which USDA relies for some other aspects of its indemnity calculations, affirms that this number approximates its egg clients' costs. We are seeking to have USDA adjust its formulas to reflect this amount.

Mr. Chairman, the egg industry has suffered a severe blow this year. Our farms, our employees, our communities, and our customers have felt the impact. It is vital that all of us work closely with USDA to take every step we can to prevent more harm to our industry as well as the rest of U.S. poultry. We need, and very much appreciate, your support and that of USDA as we move forward. We pledge our best efforts to overcome this virus and re-build a healthy industry. Finally, if I could sound an optimistic tone, I'd say that the HPAI indemnity program is precisely the kind of sound government policy that keeps farmers in business and keeps government prepared for the worst. We have great confidence

that in working with USDA and APHIS, working with this Committee, and working with the appropriators on priorities like completing the Southeast Poultry Research Laboratory, HPAI can be overcome. This government response has been professional and is to be admired. We look forward to working with USDA to adjust the indemnity formula to better reflect lost production value, but we believe that is a solution that can be achieved. Thank you again for the opportunity to testify and for all of this Committee's assistance.

Thank you, Chairman Roberts, Ranking Member Stabenow and members of the Senate Committee on Agriculture, Nutrition and Forestry.

I am Dr. Tom Elam, president of FarmEcon LLC, an agricultural economics consulting company in Carmel Indiana. My specialty is poultry. I would like to summarize findings that are in my written testimony, and make two recommendations for your consideration.

For the past several months I have made a running analysis of economic effects of the High Pathogenic Avian Influenza outbreak. With dismay, I have closely followed these outbreaks as they spread from the Pacific flyway into the Upper Midwest, and damage increased to record levels.

As an economist, I deal in the hard numbers – but as an individual the hard realities faced by poultry growers who have, in many cases, lost entire flocks, is difficult to imagine.

Based on pre-outbreak wholesale prices, my estimate of producer direct loss arising from destroyed turkey and egg production is about $1.57 billion, $530 million for turkeys and $1.04 billion for layers. By design, these estimated impacts exclude substantial price increases that have occurred since the outbreak hit the Upper Midwest. That estimated loss does not include cleanup, bird restocking, higher costs to consumers from post-outbreak price increases, or any further production losses past today.

The economy-wide loss for just destroyed production to date is conservatively estimated at nearly $3.3 billion. This larger number is based on earlier University of Minnesota research. It includes estimated losses past the producer and wholesale level and into retail food stores and the foodservice sector.

These are large numbers, but do not begin to capture the impact of local damage done in the affected states.

All production losses are concentrated among relatively few farms, represented by only 223 turkey and layer locations. As bad as it is for turkey and egg consumers facing higher prices and possible product shortages, for those affected producers the losses are catastrophic. What is even more important is that there is the very real possibility of another major HPAI outbreak later this year.

Based on my experience there are two priority areas that this committee should consider:

1. First and foremost, this committee and the Congress should ensure that USDA has sufficient resources to address its key public sector roles in HPAI outbreaks, namely control and prevention. USDA alone has the resources to look at this issue across the entire span of original infection sources (vertical transmission from wild birds) and farm-to-farm (horizontal flock-to-flock) transmission.

   APHIS has done an incredible job in the current outbreak. However, despite its efforts, and those of producers, the virus was able to spread to a record number of flocks and birds. USDA has a key role to play in discovering how this virus managed to bypass current biosecurity measures. Our only chance of preventing further outbreaks, and if they occur limiting their scope, is to discover what went wrong, and put into place effective countermeasures to prevent another occurrence and control it better if it does.

   It will take a public-private partnership to make that happen. If USDA does not have the resources to play its key role in the public arena our ability to prevent and mitigate future outbreaks will be severely compromised. If we fail current losses could be dwarfed by future outbreaks. The goal should be nothing short of complete eradication.

   As part of this program we need to consider the role of vaccination as one option. To make vaccination a viable option we would need more effective products than are available at this time.

2. Secondly, for those farms and companies with lost flocks the economic impact is, relatively speaking, much more severe than nationwide statistics. Some farms have lost 100% of their turkeys. Some egg producers have lost large portions of their layers and pullets. The financial impact for these operations is staggering.

   I have been consulted by turkey and egg producers on USDA indemnification payment rate issues. Based on those conversations it is apparent to me that current indemnification rates fall far short of HPAI's realistic economic damages. The question needs to be asked by this committee, "Do current

USDA indemnification payment rates meet the intent of Congress?"

It is strongly suggested that Congress hold hearings on the general adequacy of USDA's HPAI indemnification payments, and specifically payment rates that have been applied to this outbreak. At a minimum, affected flock owners, industry experts, and USDA personnel who administer the program need to be involved in those hearings.

Thank you for your attention. I welcome your questions, and am pleased to remain here as a resource for this committee during this hearing.

**Testimony by Ken Klippen**
**President of the National Association of Egg Farmers**
**Before**
**Senate Agriculture Committee**
**July 7, 2015**
**"Highly Pathogenic Avian Influenza:**
**The Impact on the U.S. Poultry Sector and Protecting U.S. Poultry Flocks"**
**Room 328A**
**The Senate Russell Office Building,**
**Washington, DC.**

My name is Ken Klippen, President of the National Association of Egg Farmers, formed from its predecessor Egg Farmers of America in 2014. I have spent more than 30 years in the egg industry in capacities including production and processing, but the principle part of my career has been in representing egg farmers both nationally here in Washington, DC as the Vice President and Executive Director for Government Relations to the United Egg Producers, and internationally when I was the Director General of the International Egg Commission headquartered in London, England.

**Who Does National Association of Egg Farmers Represent?**

The National Association of Egg Farmers represents 278 farmers, among the largest number of individual egg farmers in a national organization, producing shell eggs for retail and eggs for processed products like mayonnaise and cake mixes. Our smallest egg farmer has 8,000 chickens and our largest has more than 5 million of chickens, offering a balanced perspective of corporations and small, family farms in our positions and policies. Our group of farmers came together originally to oppose the national egg legislation in the 2011th and 2012th Congresses because passage of that legislation would have led to many of the smaller egg farmers going out of business. Fortunately many members of this committee supported our view that production methods are best left to the farmer who cares for his chickens while providing a safe and wholesome egg.

**Egg Industry Hit by Avian Influenza**

A new challenge in the form of highly pathogenic avian influenza has confronted the egg industry and many of the smaller farmers have been affected. Amon Baer, Lake Park, Minnesota who testified before this committee during the 2012th Congress in opposition to the national egg legislation, is a member of the National Association of Egg Farmers. He's also one of the egg farmers devastated by avian influenza. When he discovered birds on his 300,000 egg layer farm dying suddenly in April, the laboratory confirmation of avian influenza made his heart sink. He would have to destroy every chicken on his farm. Amon Baer's farm is one of the 223 bird flu cases in 15 states, including California, Washington, Oregon, Idaho, Iowa, Kansas, Minnesota, Missouri, Montana, North Dakota, South Dakota, Arkansas, Indiana and Nebraska. The total U.S. table egg layers is approximately 300 million chickens, and the loss to the egg industry is approximately 13% of the total number of layers.

**What is Avian Influenza?**

According to the U.S. Department of Agriculture Animal & Plant Health Inspection Service, Avian influenza is a viral disease that occurs internationally and can infect wild birds (such as ducks, gulls, and shorebirds) as well as domestic poultry (such as chickens, turkeys, ducks, and geese). This supports our policy for producing poultry indoors and not in free-range environments where the chickens may be exposed to the virus more readily. This current outbreak has USDA reporting a number of flocks with this disease including a number of small backyard flocks, one in Kansas with only 10 birds. This is flu for birds just as there is for people—and, as with people, some forms of the flu is worse than others. HPAI can spread fast and quickly kill chickens and turkeys. Wild birds, however, can carry HPAI viruses without appearing sick. Since December 2014, USDA has confirmed several cases of highly pathogenic avian influenza (HPAI) H5 in the Pacific, Central, and Mississippi flyways (or migratory bird paths). So, the claims by federal officials that waterfowl is a likely source of the virus has merit.

Avian flu virus can survive in poultry manure up to one month when the temperatures are 40 degrees Fahrenheit. At 90 degrees Fahrenheit, the survival of the virus drops to 4 days. If the virus is in pond water at 66 degrees Fahrenheit, the survival of the virus is between 3-6 months. If the water temperature is 88 degrees Fahrenheit, the survival of the virus drops to one month. This is why we are seeing a leveling off in the number of bird flu cases today compared to April and May when the temperatures were cooler.

**Control of Avian Flu**

Biosecurity of farm facilities is essential to preventing the introduction of the virus into the flock, but the transmission route is principally by migrating waterfowl. Scientists are looking at other modes of transmission including farm workers spreading the disease, shared equipment from infected facilities, rodents and wild birds, and possibly airborne transmission.

Is there a vaccine? APHIS has questions over the effectiveness of the current vaccine. But vaccines have been tried in the past such as the H6N1 Avian Flu in California 2005. After eradication, the vaccine was halted. In 2012 the Mexican state of Jalisco vaccinated 100 million chickens when an outbreak of avian flu occurred in that country. Most of the egg farmers in that state have between 500,000 to one million chickens and no funds to compensate growers whose flocks are depopulated for the disease. It was felt that this led to some egg farmers not reporting the disease and thus perpetuating its existence. However, credit is given to the vaccination for saving 75% of the 100 million chicken vaccinated.

What about vaccination in the U.S.? Part of the concern expressed by APHIS is the effectiveness of the vaccine claiming only a 60% effectiveness in preventing the disease. Isn't this true about human vaccination for influenza? I get a flu shot every year knowing it's only partial protection. If an egg farmer could have saved 60% of his flock by vaccinating for avian influenza, this might have meant the difference between his business surviving and bankruptcy. Whether to introduce vaccination in a control program should be based on sound, scientific data. Some poultry veterinarians claim vaccination will slow down the spread of the virus; however it may currently remove the ability to determine infected chickens from vaccinated ones. The development of DIVA vaccines (Differentiating infected from vaccinated animals) would help differentiate a vaccinated chicken and one infected with the virus. We understand that vaccination is a one tool

in the tool chest of options and would be of definite value where complete eradication is not possible and the disease becomes endemic. The U.S. poultry industry already vaccinates for Marek's Disease, Newcastle Disease, Infectious Bronchitis, Laryngotracheitis, Fowl Pox, Avian Encephalomyelitis, Infectious Bursal Disease, and Hemorrhagic Enteritis. But not Avian Influenza as several major international trading partners prohibit the importation of poultry products from countries reporting highly pathogenic avian influenza. During the International Avian Influenza conference in Baltimore, MD, I was one of the nearly 200 delegates from 37 countries discussing biosecurity, vaccines, and education efforts to better inform the poultry industry and policy makers in universally-accepted marketing strategies when the disease occurs in any country.

**Indemnification Plan Presented to APHIS**

In correspondence with the key officials overseeing the avian influenza outbreak and indemnification, The National Association of Egg Farmers (NAEF) on Wednesday, May 27, provided an indemnity plan for the egg layers being depopulated. NAEF acknowledged to APHIS this avian influenza situation is unprecedented, and that disposal is monumental, but NAEF urged the USDA Animal & Plant Health Inspection Service (APHIS) to seek quick, but fair resolutions to these problems. The officials receiving the indemnity plan were Dr. Lee Ann Thomas, APHIS Director of the Avian Health Center in Riverdale, MD, Burke Healey, the APHIS Incident Commander in Ft. Collins, CO, and in Washington, DC Dr. John Clifford, USDA's Chief Veterinarian, and APHIS Administrator Kevin Shea

**What's Contained in the Regulations Concerning Avian Flu?**

NAEF stated that included in these fair resolutions to the problems is the need to pay indemnities as outlined in 9 CFR part 56.4 (1) (a) which states, in part,

*"For laying hens, the appraised value should* ***include the hen's projected future egg production.*** *Appraisals of poultry must be reported on forms furnished by APHIS and signed by the appraisers and must be signed by the owners of the poultry to indicate agreement with the appraisal amount. Appraisals of poultry must be signed by the owners of the poultry prior to the*

*destruction of the poultry, unless the owners, APHIS, and the Cooperating State Agency agree that the poultry may be destroyed immediately."*

NAEF further delineated the regulation calls for appraisals agreed upon before the destruction of the poultry. The farmers confirmed with Highly Pathogenic Avian Influenza H5N2 [notifiable avian influenza] are awaiting confirmation of the agreed upon *"projected future egg production"* so they can take the needed steps to dispose, clean and disinfect in preparation for repopulating.

**Calculating Indemnity for Loss of Eggs**

Utilizing the statistics developed by Maro Ibarburu, Associate Scientist – Business Analyst at Egg Industry Center, Iowa State University, in Ames, Iowa, NAEF submitted the charts on the 5-year average costs and prices in cents per dozen as a starting point for calculating the per dozen value of projected future egg production. The profit from the year 2014 to the year 2010 in cents per dozens is 33.17, 9.35, 0.02, 2.20 and 7.57 respectively for an average price per dozen at 10.46 cents per dozen. NAEF pointed out the same chart also provides the value of the actual layer at 9.53 cents per dozen providing the depreciation value much like those calculated for depopulated turkeys.

NAEF emphasized that the genetics of today's laying hen has provided a bird capable of producing eggs to 95 weeks of age in the first cycle (without a molt). The chart of eggs per hen-housed cumulative figures presented to APHIS by NAEF provided the quantity of eggs for each week that the chicken is producing eggs. For egg farmers using Hyline W-36, the cumulative total on a per hen-housed basis is 436.35 eggs (36.3625 dozens) at 95 weeks, and for Lohlman-Lite at 95 weeks is 442.8 eggs (36.9 dozens). NAEF stated that in the last major avian influenza outbreak in 1983-84 in Lancaster area of Pennsylvania, the eggs per hen-housed cumulative figures were measured to 80 weeks of age with just over 6 dozen less eggs per bird than today's egg layer.

NAEF provided the statistics to APHIS as a means to help bring about a speedy and fair appraisal for the egg laying chickens being depopulated due to his virus. NAEF stated this would include the depreciated value of the actual laying chicken plus the projected future egg production out to 95 weeks of age for today's genetically-improved modern layer.

APHIS acknowledged receipt of the information and stated it would conduct its analysis of the information in formulating its indemnity program for egg farmers and let NAEF know of that plan. We're still waiting for the APHIS plan although it has been announced that calculations will be made based on 90 weeks of production instead of the original 80 weeks. We have also learned indirectly that the biosecurity features of the FDA's egg safety rule "Prevention of Salmonella Enteritidis in Shell Eggs During Production, Storage, and Transportation" [21 CFR part 118] may play a role in determining indemnification levels to egg farmers. The unfortunate part of this plan is that FDA's egg safety rule only applies to egg farmers with 30,000 or more chickens. This leaves out many of the egg farmers in the National Association of Egg Farmers who have less than the minimum number under this rule. APHIS must provide a fair and equitable plan that applies to all farmers producing eggs, not just the corporate farms producing eggs with political influence.

**The Indemnity Plan Specifics Submitted by NAEF**

The National Association of Egg Farmers indemnity plan presented to the USDA Animal & Plant Health Inspection System is based on depreciation value of the hen coupled with the future egg production as specified in 9 CFR part 56.4 (a) (1).

The Egg Industry Center in Ames, Iowa provided the data. When calculating the depreciation value, using the pullet (young chicken less than one year old) costs in cents per dozen, starting in

the year 2014 and working backwards to the year 2010, that value is 9.53, 10.13, 10.14, 9.51, 8.26 for a hen's **depreciation value average of 9.51 cents per dozen.**

Future egg production is calculated on Amon Baer's farm to 95 weeks of age, where each of his chickens would have produced just over 36 dozen eggs. The 5-year average profit starting with the year 2014 working back to the year 2010 is 33.17 cents, 9.35, 0.02, 2.20, and 7.57 for **an average profit per dozen at 10.46 cents.**

With the depreciation value and future egg production, we can start calculating indemnity.

At 20 weeks of age, the hen is most valuable. Her depreciation value is based on 9.51 cents per dozen eggs she would have produced or a value of $3.42 (9.51 x 36 dozen). Her production (36 dozen eggs) expected would have been valued at (36 x 10.46) is $3.77. Adding $3.42 to $3.77 provides a bird's true value at $7.19.

**At 20 weeks, we expect federal indemnification to be $7.19 per bird.** That's the peak value and will go down for each week of age before depopulation. To calculate the value based on the age of your flock, farmers universally can use the **Eggs per Hen-Housed Cumulative chart provided by the Egg Industry Center.** After locating the age of the flock in the left-hand column, the figures to the right are the eggs produced to that point in the age of the bird. Divide by 12 (eggs/dz) and you have your multiplier. For depreciation value, multiply the eggs/dz multiply times the average value of 9.51 cents. Then, for the future production, multiply the eggs/dz times the average price of 10.46 cents/dz. **The two figures added together provide the combined depreciated value plus the future eggs produced.**

If an egg farmer molts his birds and carries out the production to 120 weeks, he needs to subtract the lost production during the 8-week molt and then add the eggs produced post-molt as his multiplier.

**Conclusion**

Avian influenza is a virus that is pathogenic to chickens and turkeys while ducks and geese may have the virus but be asymptomatic. This is why poultry should be raised indoors and not free-range. The rapid response to depopulating and disposing of infected poultry is the surest way of controlling the disease, and vaccination could be a useful tool in the event the disease becomes endemic. Indemnification for bird depreciation and loss of income from the eggs that chicken would have produced is already in the Code of the Federal Register [9 CFR part 56.4 (a) (1)]. The National Association of Egg Farmers has proposed one plan for following the specifics in the CFR that is considered fair and equitable to egg farmers. We ask that the Senate Agriculture Committee urge the U.S. Department of Agriculture to give serious consideration to the indemnification plan proposed or suggest a comparable plan that produces an equitable outcome for egg farmers facing loss of income from avian influenza consistent with the regulations.

Thank you for the privilege of sharing this information with the members of the Senate Agriculture Committee today.

Compiled by Rob Knecht, Vice President of Operations at Konos, Inc., and President of Michigan Allied Poultry Industries for The Committee on Agriculture, Nutrition, and Forestry of the US Senate: "Highly Pathogenic Avian Influenza: The Impact on the U.S. Poultry Sector and Protecting U.S. Poultry Flocks."

July 7, 2015

Mr. Chairman, Ranking Member Stabenow, and all members of the committee: Thank you for inviting me to testify today on behalf of Michigan Allied Poultry.

**Protecting Michigan's Poultry**

As the country's 7th largest producer of eggs and 15th largest in turkey production, Michigan's poultry producers took action when the Highly Pathogenic Avian Influenza (HPAI) hit commercial poultry operations in the Midwest. Specifically, the Eurasian H5N2 impacted 1.95 million egg laying hens as close as Southern Wisconsin, two commercial turkey farms in Ontario, Canada just East of Michigan, a small backyard flock in Indiana just South of Michigan's Southern border as well as a small number of migratory geese on the East side of Michigan. The overall impact includes almost 50 million commercial poultry throughout the US. This report describes four things:

1. What specific biosecurity changes have been made to poultry operations based on the HPAI outbreaks.
2. How the poultry industry in Michigan partnered on the biosecurity initiative to protect the states poultry.
3. A synopsis of how HPAI changed how Michigan producers view biosecurity.
4. A list of other simple changes made to Michigan farms.

*Biosecurity upgrades, changes, and improvements*

Throughout the announcements of HPAI outbreaks, many theories of WHY and HOW the virus spread to different flocks ran through the industry. This specifically outlines two of the major changes companies in Michigan implemented in order to protect the commercial poultry of the state.

**Hiring specific crews of employees that handle hen handling tasks.** In poultry production, there are a variety of tasks that happen once, twice, or three times in the life of the bird that take a great deal of labor over a short period of time. For example, when egg laying hens are moved from the pullet barn (where the birds are reared prior to egg production) to the laying barns (where the birds will live during the time that they are producing eggs), there needs to be as many as 10 to 12 people over a two to four day time period enlisted to move the birds. In order to do this, many companies relied on outside or contract labor to do this. The other tasks that take this type of influx of labor include moving the day-old chicks into their respective homes, vaccination, beak treatments, moving the birds out of the laying barns at end of a cycle, and cleaning/disinfecting of barns after each movement of a flock in or out of a barn. Generally, to employ a crew that is solely dedicated to a single farm was cost prohibitive to the operation, thus an outside operation was used.

As of today, there are many companies in Michigan that will be engaged in some sort of exclusive relationship with a group of labor that will complete all of the tasks dedicated to a flock. These employees, along with the employees that are working in the barns on a daily basis, have the closest interaction with the birds and need to be the cleanest. These tasks include (but are not limited to) moving birds at the different ages of their lives, vaccinations, beak treatment, and other tasks that require large amount of labor in a short amount of time. A higher level of control can be placed on these crews. The more control a company has over the crews that move the birds, the less likely for a virus to spread. It is very likely that crews that moved birds at one facility could have spread the virus to other farms in the outbreaks in Iowa, Minnesota, other states.

**'Shower in, shower out' at all facilities for employees in direct contact with poultry as well as vehicle washing.** Outside of the afore mentioned bird crews, two of the most likely vectors for transmission of avian influenza are the other people working in the poultry houses on a daily basis as well as the vehicles coming to the farm. From a personnel perspective, daily chores in a given hen house are completed by a 'house manager'. These chores put this person into direct contact with many of the birds in that house. From a vehicle perspective, Michigan poultry farms (egg laying hen facilities, turkey facilities, and broiler facilities) have materials moving off and onto their farms in semi-tractors and trailers daily. There are also employee cars and traffic moving on and off the farm each day. There are also grain trailers, manure trailers, and other heavy equipment moving on and off farms daily as well.

To clean people, Michigan's poultry farms engage a few different strategies. In the short term, some companies partnered with hotels in the area of Michigan where the farm is located. The 'house managers', bird crews, or anyone else that would be in direct contact with the birds are funneled to the local hotel and the egg producer covers the cost of a few hotel rooms that act as a de facto locker room facility to clean each person. At that time, they are given other clothes, shoes, or both. They are then transported via company owned van that has been cleaned and disinfect to the farm where they will be doing their work. Another short term strategy includes the purchase of a mobile shower unit. This unit is pulled by a truck and boasts three stalls where employees can shower and change their cloths. The unit only needs to be plugged in and hooked up to a water source (the water is heated by the on-board propane unit) to be a "rolling biosecurity' unit. In the long term, some poultry farms in Michigan plan to construct on-site shower and locker facilities. The facilities act as an employee in-take area where all employees, no matter where they work, will park, change their clothes into company provided uniforms and disperse from there to their respective areas of work. Assuming there is a contaminated individual or vehicle, the virus would be stopped at this point.

To clean vehicles, there are multiple strategies as well. First, Michigan producers are putting disinfectant mats at every entrance to their farms. The disinfectant is refreshed daily in many cases and more often when necessary. Second, there are some egg operations that are doing additional spraying of disinfectant of the wheels and wheel-wells of every vehicle that comes onto the facility. Next, many poultry operations in Michigan (and other states) are requiring a full truck wash (there are wash facilities that specialize in large truck cleaning) and wash ticket (record of the washing be completed) prior to entry onto the farm. Many trucks that are coming to Michigan farms could easily be travelling East and West via I-80 where HPAI could easily found. There are also large trucks that carry birds from place to

place and could have been on a farm that could be infected. Lastly, many Michigan producers are going over their facility at a regularly interval with disinfectant sprayed onto the ground as a last line of defense if some amount of the virus has slipped through the cracks.

*Michigan's partnership to protect the states birds*

In addition to biosecurity changes, all of Michigan's poultry producers rallied together to protect the state's birds. Michigan Allied Poultry Industries (MAPI) acts as the state trade association. Early on in the HPAI outbreaks, MAPI was responsible for coordinating conference calls to discuss best practices and issues in biosecurity, coordinate efforts of producers to help learn from past HPAI outbreaks, and talked directly with producers to help them get to a satisfactory level of biosecurity.

Starting April 17th, Michigan implemented a weekly call that includes many of the Michigan poultry stakeholders including allied industries such as feed companies. This includes Michigan State University's (MSU) Extension staff, the Michigan Department of Agriculture and rural Development (MDARD), Michigan's State Veterinarians, and MAPI board and membership representative. As recently as June 30th, there was a call with the MAPI membership and Michigan Department of Natural Resources officials to discuss further migratory bird testing and the Canada geese found on the East side of Michigan that were infected with HPAI. More specifically, MSU has always made itself available to discuss biosecurity risk analysis, strategies, and implementation. For example, MSU's Extension program has presented at MAPI's annual winter seminar on biosecurity on multiple occasions. Another example is Dr. Richard (Mick) Fulton of MSU Extension wrote the state's Low Pathogen Avian Influenza (LPAI) program that is now handled by MDARD. This exemplifies both MSU's expertise in poultry and ability to partner with other state offices. Additionally, when asked to provide this testimony, Dr. Fulton was one of the first people I asked for counsel.

Next, MAPI penned a letter to the Director of MDARD on May 21, 2015 asking the state to halt all "live poultry sales at farmer's markets, poultry show, fairs, and exhibitions" as well as asking the State Veterinarian to "stop movement of backyard and hobby poultry by suspending poultry classes at county fair and exhibitions until it is determined that the threat of HPAI in the US no longer exists." This was based on the rapid spread of the disease, the discussions that ensued and building on what we saw happening in the industry. Pennsylvania, a victim of an avian influenza outbreak in the early 80's, was one of the first to make this request of their state and Pennsylvania had not yet experience an outbreak in 2015. MDARD Director Jamie Clover Adams, in Michigan, granted MAPI's request two weeks later.

Finally, the industry is policing itself on many of these issues. The financial investment on many of these changes can be very high. New buildings, truck washing, and time add up for a producer to protect the birds. What can be assumed is that a region is only as strong as its weakest link. West Michigan is where the vast majority of the poultry production lives and an outbreak at one of those farms could be devastating to other area farms, even with the strictest biosecurity program. What this means is that producers are talking with each other or through MAPI regarding major breaches of biosecurity that are witnessed. As with any new programs, gaps were identified in all producer programs at the beginning, however, since the commencement of the increased emphasis on biosecurity, there have been little

complaints. There is a cohesive thought process amongst producers to do everything possible to protect the state's birds.

*Synopsis*

An overall feeling of constant vigilance resonates throughout Michigan amongst producers. As recently as the end of June, producers were encouraged to keep an intense focus on biosecurity through the fall migration in 2015. In addition to the constant vigilance, an effort to document, verify and validate all procedures will ensure a permanent focus on biosecurity. Many of these items discussed here will become common practice. The most impactful way the HPAI changed producer attitudes is to consider areas that were never considered before as potential breaches of biosecurity.

*Other changes that have been implemented at other Michigan farms*

Included below is a bulleted list of other items producers in Michigan have implemented or changed to mitigate the risk of HPAI coming onto their farms. This is by no means and exhaustive list, but meant to illustrate the lessons learned from this horrific disaster:

- Disinfectant spray over part of all of the farm's high traffic areas with commercial sprayers.
- All unnecessary visitors are prohibited until further notice.
- Dramatic increase in liquid or slurry footbaths of disinfectant through the farm for foot traffic. Large mats that can disinfect the entire radius of semi-tractor and trailer have been placed at the entrances to farms as well.
- Increased signage, gates, and other tools to restrict access near live poultry.
- Not allowing any drivers to get out of their trucks to traverse farms.
- In the event a visitor is allowed on a farm, "Port-a-Jons" are in areas so that those visitors do not need to go inside any company owned facilities.
- Lysol is being supplied to all company owned truck drivers to spray their shoes and inside of truck cabs.
- Cleaning and disinfectant fogging of all materials that were at other poultry facilities.
- Disallowing any supplies from farms in areas where HPAI has been detected.
- Purchases of gates or heavy duty chains for all entrances to farm.

Michigan producers practiced biosecurity for years prior to this HPAI outbreak and it is very common to increase intensity in times when there is an immediate threat. Michigan poultry producers are very concern about HPAI and are trying to all that they are able to prevent it from infecting our flocks. Mr. Chairman, Ranking Member Stabenow, and all members of the committee, I greatly appreciate the opportunity to testify today. I look forward to answering any questions you might have.

**Testimony of Brad Moline on behalf of the National Turkey Federation**

**July 7, 2015**

Good afternoon Chairman Roberts, Ranking Member Stabenow and members of the committee. My name is Brad Moline, and I am a third-generation turkey farmer from Manson, Iowa. I graduated from Iowa State University with a double major in Animal Science and Dairy Science in 2002. Following graduation, I returned home with my wife Kelly to raise our three children and to work alongside my dad and brother to run Moline Farms. I am testifying today on behalf of the National Turkey Federation, and all of its farmers, processors and other members that have been impacted by this year's highly pathogenic avian influenza (HPAI) outbreak.

On our farm, we raise approximately 155,000 turkeys annually. We are one of more than 40 farmers operations that supply turkeys to West Liberty Foods, a grower-owned cooperative that employs another 1,400 plant employees in West Liberty, Iowa, and Mt. Pleasant, Iowa. West Liberty also has two additional facilities in Bolingbrook, Illinois and Tremonton, Utah. Combined we employ over 2000 people at our 4 facilities. West Liberty Foods started in 1997 and has grown from its humble roots, to processing 22,000 turkeys per day. Combined with Tyson Foods turkey operation in Storm Lake, Iowa turkey industry provide more than 3,500 jobs in the state and well over $1.5 billion annually to the Iowa economy. I am currently living the avian influenza nightmare. We have already depopulated more than 56,000 turkeys, which totally cleaned out our 12 growing barns. If we are lucky, we will be able to salvage this year with one flock, which we hope to repopulate sometime around August 1st. Regardless, 2/3 of our annual income has been wiped out by HPAI. Without APHIS indemnification of the loss of birds, many farmers may have been forced to hang it up. We could not live without these indemnity payments provided by USDA during this time. We also appreciate Members of Congress and USDA has ensured these payments are timely and still available. We will rely solely on our savings and these payments until our next flock goes to market around the Thanksgiving holiday.

Before we get any further into our discussion on the how we might better handle the outbreak in the future, the turkey industry would like to extend a sincere thanks to USDA and specifically APHIS employees for the thousands of hours of service

fighting this outbreak over the last six months. We know that it has taken people away from their families, so we appreciate the dedication and sacrifice given to assist our industry during this difficult time. We could not have done it without them.

**Scope of the Outbreak**

Since the HPAI outbreak began in late January, there have been 153 cases confirmed in commercial turkey or turkey breeder flocks in eight states, with Minnesota, Wisconsin, South Dakota, and my home state of Iowa being the hardest hit. The impacts are still being felt and have resulted in the loss of nearly 8 million turkeys nationwide, with an economic impact to date estimated at slightly less than $500 million. Additionally, several processing plants that have had to lay off more than 400 employees because of the lack of turkeys, and some are running reduced shifts for the remaining employees. The virulence of this HPAI strain is like nothing seen before, and its impact is unprecedented. Farmers not only have to deal with the immediate financial and emotional hardship, but many of us will likely pay a steep price in future earnings, as we are not certain when we will be allowed to repopulate. In order to repopulate, appropriate composting and cleaning of the barns must be done. Additionally, new positive cases, in the area, could have a impact on repopulation.

The H5N2 and H5N8 strains currently impacting the Midwest and the rest of the country have been devastating to the farmers and rural communities supported by turkey and egg-laying operations, but it has affected our friends in the broiler industry as well with respect to our international trade partners. Currently 18 countries, including key export markets like China and South Korea, have banned all poultry from the United States, and 32 countries have state or regional bans in place. With HPAI now being a global disease, we need to press our trading partners to have a more robust conversation about the realities of discovery, monitoring and eradication of this disease. Almost every other poultry producing country has this disease, and it is time standard operating practices be revisited. We support USDA in its effort to update trade agreements when it comes to how the world deals with this disease.

**Communication and Keys to Eradication**

Now that we have an abridged version of the impact HPAI has had on the turkey industry, I would like to turn to how we work to eradicate it. The turkey industry is committed to working with APHIS to improve upon five key areas that are critical in this fight: we must start by having a faster depopulation and disposal strategy, a faster repopulation strategy, a viable vaccine and a coordinated, enhanced focus on biosecurity. There is no silver bullet. However, in order to achieve these objectives, the final thing, above all others, must be to have clear and concise communication. I cannot stress enough how much we believe that a lack of clear communication created the confusion we specifically saw in Iowa and Minnesota. We firmly believe unclear communication contributed to the spread of this disease. We stand ready to build a better working relationship so we can eliminate future outbreaks quicker.

While we did not know how bad our outbreak would be in Iowa, we knew from Minnesota's experience that it was very likely to grow exponentially. The federal and state governments missed a critical opportunity to sit down with poultry industry leaders, at the very beginning, in an effort to develop a game plan, and ultimately, clearly define responsibilities. This would have gone a long way in avoiding the mass confusion that we experienced in Iowa. It took more than a month and a half, and urging by our state association and the National Turkey Federation, as well as members of this committee, to finally convince people that things must get fixed in Iowa. This should have happened immediately.

For us farmers, having a clear roadmap explained by government officials (not contractors) would have allowed those of us whose livelihoods are on the line to know what was expected of us, and quite frankly we would have been better able to assist with USDA's plan. When you are at the government's mercy, you're expecting help and a clear understanding of requirements or protocols for each situation. It was an opportunity missed, and it was only exacerbated as more APHIS staff transitioned in and out of the impact zone creating more confusion. We share the frustration with APHIS that as of recently as two weeks ago, contractors were still giving turkey farmers incorrect information. We are coordinating with APHIS now to correct this problem. One recommendation that we think would be very helpful in preventing this communication gap would be to

have more USDA staff overlap in the field. We feel this would cut down on communication errors to farmers that will allow for faster depopulation and disposal of birds.

**Depopulation**

Keeping with the theme of communication, we have made great strides on the depopulation front, but early on in Minnesota and Iowa it was a struggle. We agree with the government that swift and efficient depopulation is absolutely critical to eradicating the disease, but in many instances it took as long as 11 days before depopulation began, and this made the nightmare even worse. We appreciate the government improving farmer communication, which allowed us to speed up the process to safely depopulate the infected flocks with appropriate government oversight. In order to really keep virus load to a minimum, we believe the goal should simply be to have infected birds put down within 24 hours of a positive test confirmation from the National Veterinary Services Laboratory (NVSL). In order to achieve this, our disease response plan and process need to improve. We look forward to working with USDA to continue improving this critical step.

**Disposal**

With regards to disposal, the industry is continually challenged to adjust to the ever changing government goal post. We understand the challenges APHIS has had in cutting down on rumors and misinformation regarding disposal requirements and establishing a clear chain of command. The government must understand that its decisions impact families' lives and the reality was that those who were sent to represent the government continued to send mixed messages that kept turkey farmers guessing as to the exact right thing to do.

The most important thing that we in the industry ask is to help us speed up the process where possible and clear communication is the answer. The sooner the birds and infected materials are allowed to be removed from the barns, the sooner the barns can be cleaned and disinfected, which starts the clock on being able to get back to doing what we love, which is raising turkeys. Our future depends on having turkeys in those barns, so any confusion that creates a delay in the cleaning and disinfecting step simply delays us getting back into production. Between now

and this coming fall, we look forward to streamlining the process with USDA so we can keep the game planning on the fly to a minimum.

At the urging of APHIS we have instructed our companies not to wait on implementing contingency plans. Everyone, including us, must be better prepared to handle the volume of material that needs to be disposed of during a situation like we just experienced – in the heat of a crisis it is not the time to be negotiating with a landfill for disposal approval. Furthermore, between now and the fall migratory flight, work needs to be done on developing additional disposal options, such as clearing the legal hurdles surrounding rendering infected birds, improved incineration systems – possibly on farm – as well as on ensuring appropriate haul-off methods are approved by city, state, and county officials. These efforts will further improve the efficiency of disposal.

If composting is going to be used in the future, we need to ensure that all employees and contractors understand USDA's rule requiring 14 days of composting in barn before removal out of the barns and ensure it is adhered to by all. The repopulation clock does not start until we can get all material out of the barns and begin cleaning and disinfecting infected areas. We look forward to working with USDA and Congress to streamline a strategic plan that clearly defines what will be done during the outbreak that focuses on building trust and limiting confusion on these critical measures.

**Biosecurity**

Biosecurity is something we take very seriously on our family farm. We know it is vital to pay attention to the details. As we try to claw our way out of this nightmare, we are evaluating our farms and brainstorming about how we can enforce better biosecurity. We have are anxious to learn from specialists around the country and other farmers in the industry on the topic of how to better prepare and insulate our flocks from the virus. We were all caught off-guard by this new strain of the disease and it is going to require an extraordinary new approach to biosecurity. What we have done successfully for years clearly needs to be revisited.

Could we all have done more to stop the spread of this virus? Most likely, but I take great offense to the notion articulated by some inside and outside the government that we in the turkey industry were careless or knowingly negligent. We in the industry, and my family farm specifically, have everything to lose by being sloppy – we don't win by cutting corners. And, let's be completely clear here: APHIS officials need to examine their own biosecurity practices, especially those of their contractors, moving forward. APHIS is doing an excellent job of documenting the epidemiology of this disease, but to date, the agency has shared very little information with industry that examines the role delayed depopulation, confused disposal and documented biosecurity lapses by its contractors played in spreading this disease. Turkey farmers are ready to accept our responsibility; and work hand-in-hand with the government to evaluate how they may improve everyone's process.

To that end, the National Turkey Federation has initiated a review and update of our Biosecurity Best Management Practices, last revised in 2013, to see where we can hopefully provide critical improvements that can be incorporated into each grower's flock management plans. It also should be noted that the industry has already learned important lessons on biosecurity from this situation and will incorporate many of the items in the completed version. We will tackle the issue of biosecurity head on – starting with a "lessons learned" meeting later this month in Iowa. This will be an important step toward improving the poultry industry's best management practices that will ensure we come out of this troubling time as even stronger leaders in the stewardship of biosecurity.

We appreciate and commend APHIS for working with the industry to provide feedback and analysis from their initial research that allowed us to have the most up-to-date information, and make sure that important biosecurity measures are not missed or neglected. If someone in our industry is being careless we need to better self-regulate our farmers and companies that are not holding up their end of the bargain. As noted, APHIS needs to do the same. We are dealing with a new and very deadly strain that is unfortunately likely to strike again, but working in partnership with the government we can eradicate this deadly influenza strain.

**Repopulation**

All of these disposal and cleanup efforts will not mean much if we cannot get birds in our barns and try to raise at least one flock by the year's end. There was tremendous uncertainty surrounding when infected farms would be allowed to restock, and what requirements farmers would need to meet in order to do so. The *APHIS Red Book*, which lays out all of the procedures to be used in an HPAI outbreak, contains guidance for repopulation, but it became apparent that the agency was not going to follow these guidelines. Communications with different agency personnel led to confusing and often contradictory information, with different messages coming from the field and D.C. Conflicting information from state agencies compounded this uncertainty. Not knowing when, or if, we would be allowed to repopulate our farms added to the worry and stress we were already under.

Because turkeys live longer than smaller poultry; the turkey industry operates on timetables often planned a year or more in advance, with every step is scheduled from poult delivery to the day the turkey is processed. With no known date for when we might be able to restock, we could not begin the process of planning the rest of the business operation, much less the rest of our personal lives. Lack of certainty on when restocking might happen prevented us from knowing when we would need poults, which had impacts further up the supply chain, as the egg and poult suppliers need more lead time before they can deliver new birds to a farm.

After a great deal of effort on the part of industry and USDA, restocking criteria for previously infected farms was finally issued in early June. This was almost two months after the first outbreak in Iowa, and over four months after the first reported case in turkeys. Although we still have concerns over some of the criteria, we at least have a plan to move forward. Better communication at every step could have helped prevent a lot of the unease, uncertainty, and confusion that seemed rampant in April and May.

**Vaccines**

After recovering from the horrible impact of the outbreaks, the next step is to ensure that this virus does not strike again. It does not do any of us any good if we place new flocks in the Midwest only for another deadly outbreak to strike us come

the fall or the spring. To truly recover from this devastating chapter we need every means possible to eradicate the disease in commercial poultry.

There are many strategies that will be employed, but one of the most powerful potential tools in the toolbox will be a vaccine to fight the virus. USDA Agricultural Research Service has developed a vaccine seed strain specifically to combat the deadly strain of H5N2, and now APHIS has made available virus isolates so that qualified labs could study the virus, its genetics, and even conduct challenge studies against it. We are close to having the right tool to help us eradicate the disease. The science is nearly there, so our hope is to have it commercially available for the fall.

What we do not have is political assurance that we will be allowed to use this tool when it becomes available. There are concerns that some countries will cite our use of vaccines in order to restrict our poultry exports. If the turkey industry were to vaccinate, we would do so in a fashion that allows us clearly to differentiate between vaccinated and infected birds, so that we can ensure that no infected bird ever leaves the farm and that no meat from vaccinated birds ever leaves our shores. We commend APHIS in working diligently to limit any nationwide impact of these possible trade restrictions, and assure our key trading partners that the vaccination plan we will have in place is effective at not only eliminating the disease but ensuring that vaccinated poultry and poultry products will not be a threat to exports. But in the end, the decision will be one that weighs the impact on the export margins of certain sectors of the poultry industry with the potential survival of the Midwest turkey and layer industries.

To conclude, great strides in communication between all impacted stakeholders have improved detection, biosecurity, depopulation and disposal, as well as vaccine research and development since the beginning of this unprecedented outbreak. As we work to prepare for the fall, we appreciate APHIS' comprehensive approach it has now incorporated in working with industry. We cannot eradicate this disease without open and clear communication as a top priority.

With that Mr. Chairman, I conclude my testimony and will be happy to answer any questions.

**Statement of Dr. Swayne**
**Laboratory Director**
**Southeast Poultry Research Laboratory**
**Agricultural Research Services**
**U.S. Department of Agriculture**

**Before the**

**Senate Committee on Agriculture, Nutrition, and Forestry**

**July 7, 2015**

Chairman Roberts, Ranking Member Stabenow and Members of the Committee, I am Dr. David Swayne, Laboratory Director and Supervisory Veterinary Medical Officer, at the Southeast Poultry Research Laboratory (SEPRL) which is part of the Agricultural Research Service's (ARS) U.S. National Poultry Research Center in Athens, Georgia.

I am sure you are aware of the great hardships that the U.S. poultry industry and producers have suffered because of Highly Pathogenic Avian Influenza (HPAI). It goes without saying that ARS, and particularly the research staff at SEPRL, are committed to eradicating the H5N8 or H5N2 viruses at the center of the current North American outbreak through cutting edge research in diagnostics, epidemiology, pathology, molecular biology, and vaccinology. ARS is determined to aid our sister agency, the Animal and Plant Health Inspection Service (APHIS), and the poultry industry to ensure that this strain of avian influenza is understood and can be scientifically managed to protect animal agriculture and the food supply.

**Background**

ARS's Exotic and Emerging Avian Viral Diseases Research Unit at SEPRL has been conducting research on avian influenza since the mid-1970s. Our research has helped U.S. poultry farmers increase exports, led to the eradication of low pathogenic avian influenza (LPAI) in U.S. poultry, and contributed to the overall global efforts to combat LPAI and HPAI. Today, SEPRL is USDA's national research laboratory for avian influenza and an international reference laboratory recognized by both the World Organization for Animal Health (OIE) and the Food and Agriculture Organization of the United Nations. We also work within the Animal Influenza Expert Laboratory that cooperatively works internationally to control influenza in all agricultural species.

**Initial Research Response**

In response to the first detections of H5N8 and H5N2 in wild waterfowl and captive raptors in the United States in December of 2014, ARS refocused its HPAI research direction to the most imminent research needs to address the U.S. outbreak. Within

weeks, scientists at SEPRL developed a rapid molecular test to detect the Asian H5 HPAI, which would quickly differentiate it from the North American LPAI viruses. The test was quickly validated by researcher at SEPRL for sensitivity and specificity, and transferred to the National Veterinary Services Laboratory (NVSL) of APHIS. In addition, SEPRL developed a rapid test for the identification of the N8 gene of the Asian HPAI viruses and helped NVSL optimize its neuraminidase sequence test.

**Infectivity and Transmission**

Representative H5N8 and H5N2 HPAI virus strains from the United States were tested in terrestrial poultry, domestic ducks, and captive mallards to determine how easy it was to infect birds and produce disease. The initial HPAI viruses required high intranasal doses of virus to infect chickens and turkeys, and contact transmission to birds was inefficient. However, all infected chickens and turkeys became ill and died. By contrast, the domestic ducks and mallards became infected with lower doses of virus and had more efficient contact transmission. They did not become ill or die, but shed virus into the environment through the feces and oral secretions for up to 14 days.

These studies suggest the early H5 HPAI viruses were best adapted to waterfowl and difficult to transmit from wild waterfowl to poultry. The HPAI virus detections in wild birds from the Pacific Flyway corroborate this observation as detections were observed at an unexpectedly high rate in several duck species, with more limited detection in backyard flocks and only two commercial poultry flocks.

However, the later outbreak of the H5N2 virus in the Midwest required less virus to infect chickens, and contact transmission occurred more easily than with the initial HPAI viruses. This demonstrated that the wild bird viruses had changed and were more easily transmitted to and among chickens and turkeys, potentially allowing for farm-to-farm spread of the virus.

**Molecular Analysis of Virus Spread**

It is critical in developing control and eradication strategies to understand how the viruses are introduced onto farms and how they spread. SEPRL researchers have been working with APHIS virologists and epidemiologists as well as and field and university poultry veterinarians to provide molecular network analysis of the HPAI viruses. The data produced by this analysis supports the idea that the early outbreak viruses were likely introduced by wild birds. However, the analysis of later viruses showed molecular sequence evidence of clustering, which is a sign of farm-to-farm spread.

**Vaccine Issues**

In the United States, there is no vaccine approved or currently in use in commercial poultry for H5N8 or H5N2 HPAI. While some nations have attempted to utilize vaccine to protect poultry against the H5N1 HPAI virus, these vaccines have not been found to

eradicate HPAI. Ninety-nine percent of the vaccine use to this point as been in China, Egypt, Vietnam and Indonesia.

Issues associated with vaccine use, including vaccine failure and vaccine resistance, have been identified in countries using the vaccine. In addition, vaccine efficacy is limited over time. Similar to human influenza, avian influenza viruses change over time, and vaccine efficacy decreases as the viruses change. This has necessitated continued surveillance for vaccine resistant strains within vaccinated poultry populations of these countries, and periodic change of the vaccine seed strain to more closely match the circulating field HPAI virus for optimal protection. In countries vaccinating against HPAI, virological surveillance in vaccinated flocks is crucial to collect viruses for genetic and antigenic analysis to assess field protection between vaccine seed strains and current circulating field viruses.

ARS plays a critical role with APHIS and other public health authorities in providing scientific information and countermeasures to significantly and measurably mitigate the impact of HPAI disease outbreaks. When addressing the need for vaccination, SEPRL first evaluates new avian influenza viruses by sequence analysis and serologic characteristics, which provides a good estimation of how close the new viruses are to other influenza viruses and existing vaccines. Then we select the most representative challenge viruses to use in efficacy challenge studies. Because these are HPAI viruses, the studies must be conducted in high biocontainment facilities.

**Vaccine and Testing**

SEPRL conducts vaccine seed strain development and testing as well as routine research activity, but it does not manufacture vaccines nor decide when or if vaccines should be used in the field. The licensing and use of a vaccine is determined by APHIS. Currently, SEPRL is evaluating registered HPAI vaccine and HPAI vaccine seed strains for protection in chickens and turkeys against the current H5 HPAI outbreak viruses. If viable, appropriate vaccine or vaccine seed strain will be transferred to a commercial vaccine manufacturer.

**Measuring Efficacy**

Vaccine protection or efficacy is measured primarily by two means in vaccinated poultry: (1) prevention of clinical disease and death; and (2) a reduction in virus shedding, which is of the growth of the challenge virus and the resulting presence of the virus in body secretions (oral secretions and feces). Reduced virus shedding is important in reducing environmental contamination, and thus reducing virus transmission and infection. Low quality vaccines or vaccines with antigenic mismatches do not prevent infection. Thus birds challenged with a high dose of HPAI virus will become infected and excrete a great deal of virus into the environment.

Vaccination can play a helpful role in disease eradication if properly implemented, but historically vaccination negatively affects poultry exports, which is a crucial part of the

U.S. poultry industry. Efforts to mitigate the effect of vaccination on exports include the use of testing that can differentiate vaccinated poultry from infected poultry using reliable and cost effective serological and virological testing. This differentiation approach has been shown to work experimentally, but with only limited field experience for HPAI vaccine. SEPRL is evaluating all the vaccines tested for the ability differentiate vaccinated poultry from infected poultry. Because of the many types of vaccines proposed for use, some strategies need more work for development and validation. The validation of this approach is a priority for SEPRL and its collaborators.

**Conclusion**

The current HPAI outbreak presents unique and unprecedented challenges to the U.S. poultry industry. The widespread presence of HPAI in wild birds provides an ongoing threat to the U.S. poultry industry. That is why SEPRL immediately began to work to identify specific strains of the virus, and develop a test to detect the HPAI in affected poultry. In addition, SERPL continue to work develop and test an effective vaccine for the specific strains of the virus impacting the U.S. As mentioned before, we are in the initial testing phase for the H5 HPAI strain. While testing looks promising, much more work needs to be done before a registered vaccine is found to be a viable option.

We will continue to develop new and improved tools for containment of the virus, and work to make these tools commercially, where possible, as a means to prevent the widespread losses the poultry industry and producers have sustained during this outbreak. The Agricultural Research Service, along with Animal and Plant Health Inspection Service, will continue to work hard to address this complex problem. Thank you again for the opportunity to testify and for Congressional support as we continue to fight this virus.

## DOCUMENTS SUBMITTED FOR THE RECORD

JULY 7, 2015



American Bakers Association

*Serving the Baking Industry Since 1897*

July 7, 2015

The Honorable Pat Roberts
United States Senate
109 Hart Senate Office Building
Washington, DC 20510

The Honorable Debbie Stabenow
United States Senate
731 Hart Senate Office Building
Washington, DC 20510

**RE: U.S. Senate Committee on Agriculture, Nutrition and Forestry Hearing on the "Highly Pathogenic Avian Influenza: The Impact on the U.S. Poultry Sector and Protecting U.S. Poultry Flocks"**

Chairman Roberts and Ranking Member Stabenow:

The American Bakers Association (ABA) would like to thank you for holding a hearing to discuss this critical issue gripping the poultry, baking and other food production industries. The avian influenza has not only devastated the egg laying hen population, and thus the livelihoods of many farmers across the country, but it has also dealt a heavy blow to bakers who are struggling to procure adequate egg supplies.

The American Bakers Association (ABA) is the Washington D.C.-based voice of the wholesale baking industry. Since 1897, ABA has represented the interests of bakers before the U.S. Congress, federal agencies and international regulatory authorities. ABA advocates on behalf of more than 1000 baking facilities and baking company suppliers. The baking industry generates more than $102 billion in economic activity annually and employs more than 706,000 highly skilled people.

## IMPACT TO THE BAKING INDUSTRY

While the first detections of the avian influenza were in the Pacific Northwest late last year, massive supply disruptions did not begin for the industry until mid-April 2015. Up to this point, most detections were impacting turkey farms in the West and Midwest. But from April 11 to April 30, just over 11 million egg laying hens had been infected and removed from egg production, with that count dramatically increasing to about 33.2 million over the following month. As of today, over 34.2 million egg laying hens have been affected, although this does not include the close to 6 million pullet chickens that have also been affected, impacting future flocks of egg laying hens[1].

[1] U.S. Department of Commerce, Animal and Plant Health Inspection Service: Update on Avian Influenza Findings, Poultry Findings Confirmed by the USDA's National Veterinary Services Laboratories (online, as of June 25, 2015)

Starting in late April, bakers became concerned about future egg supplies, but these concerns quickly became a reality in early May when egg product suppliers began putting bakers on allocation, or reducing the amount of contracted egg product deliveries. Within days, many of these suppliers declared "Force Majeure", or due to an act of God, suppliers would temporarily suspend all deliveries until the supply crisis passed. This forced many bakers to seek alternative sources for egg products, but none were to be found. Egg product suppliers that had not been impacted by the avian influenza would not take on new contracts out of fear from potential future infection. This left bakers and many other food producers scrambling to procure critical supplies, many of which are still without a solution today and may soon run out of stored egg product stock.

While many bakers have struggled with paying record high prices over the last couple of months (prices soaring as much as 273 percent since late April for egg products), this has never been a price issue for the baking industry. This has been and continues to be a true supply issue, where bakers have struggled to procure egg products at any price. To date, about one-third of the breaker market has been taken offline due to the avian influenza. This market has been the sole source of egg product ingredients to the baking and food manufacturing industries.

Bakers may also be forced to reformulate out of using egg products all together; this may sound simple, but it is not the case. Some products must use eggs since it is part of the standard of identity statutory definition, and some baked goods must use eggs as an ingredient due to its function in the baking process. Without eggs, some baked goods will have a different taste, texture, color and/or appearance, which consumers may reject. For some baked products, egg substitutes may only be a partial solution since the technical function of egg products are critical to the final product during the baking process. Even if egg substitutes are able to produce similar if not identical results to meet consumer preference demands, labeling is an issue. Bakers face millions of dollars in labeling costs due to possible changes that would be required if egg substitutes are used instead of eggs. This critical change could create a backlog in label production that would impact many baked goods.

## SOLUTIONS TO ADDRESS THE CRISIS

ABA strongly believes that a healthy egg producing industry is the best long-term solution to the crisis facing the baking industry. As such, ABA stands ready to support our egg producing friends in any way possible to help the industry get back to operating at full capacity as safely and efficiently as possible. This being said, ABA understands that as of today, this is at least a one to two year supply disruption, with the possibility of this timeline being extended further should the avian influenza continue to spread this fall and winter, when we cannot depend on hot temperatures to prevent the spread of the virus.

To date, ABA has worked on seeking additional egg product imports to help meet demand. The U.S. has been a net exporter of eggs for decades due to the success of the domestic egg laying industry. From the bakers' perspective, until late April 2015, domestic eggs have been the most cost effective and efficient source of eggs in the world. Only one foreign government had access to the U.S. market as of a few months ago, that being Canada. While the Netherlands were recently approved for egg product exports, they too allowed their approval to previously lapse due to a lack of market in the U.S. While a few other countries had started the process to gain

approval, most have ignored the U.S. market due to a lack of competitive demand, again due to the efficiencies domestic egg producers have over their foreign counterparts. Over the last month and a half, this demand for foreign sources of eggs has reluctantly, but dramatically, changed due to the impact of the avian influenza on U.S. egg product supplies.

ABA is very pleased that the U.S. Department of Agriculture (USDA) has recognized the nature of the crisis and its impact on the baking and food producing industries, and has worked to find possible expediencies in the Food Safety and Inspection Service (FSIS) equivalency process in order to expedite imports, as appropriate. ABA supports current FSIS food safety standards and is currently working with several foreign governments to ensure that each fulfills requirements within the equivalency process. While these countries, if approved, will not be able to meet all demands, it will help stave off dire consequences that some bakers are facing should they not be able to procure adequate U.S. egg product supplies or completely reformulate to an egg substitute.

ABA also supports increasing shell egg imports and allow these eggs to be processed into egg products that the industry desperately needs. ABA continues to work with foreign producers to help them meet U.S. Food and Drug Administration (FDA) food safety guidelines, allowing these producers to export shell eggs into the U.S. egg products market.

**CONCLUSION**

Never has the U.S. experienced a crisis such as this in the poultry sector. There has been a large ripple effect throughout the supply chain, from farm to fork. Bakers are struggling to procure critical egg product supplies, and unless the current market climate soon changes, will face dire consequences.

ABA stands ready to support the domestic egg production industry as it works to overcome the devastating impact the avian influenza has had on egg laying hen flocks, as a healthy domestic industry is critical to solving long-term egg supply concerns. In the meantime, ABA will continue to work with the USDA and FDA to seek expediencies in the importation process, allowing qualifying countries to export needed egg product ingredients for use in U.S. baking and food manufacturing.

ABA appreciates Chairman Roberts' and Ranking Member Stabenow's attention and concern on this critical issue. ABA also thanks all the members of the Senate Committee on Agriculture, Nutrition and Forestry for their focus to find efficient solutions to the current crisis impacting U.S. poultry farmers, bakers and other food manufacturers.

Sincerely,

Robb MacKie
ABA President & CEO

**Testimony of**
**Carol Freysinger**
**Executive Director of the National Pasta Association**
**Senate Committee on Agriculture, Nutrition & Forestry**
**July 7, 2015**

Chairman Roberts and Ranking Member Stabenow:

I appreciate this opportunity to provide testimony to the Committee on the impacts of the recent egg shortage caused by the avian influenza outbreak in the United States on the pasta industry.

I am the Executive Director of the National Pasta Association (NPA). NPA, founded in 1904, is the trade association representing the $2 billion U.S. pasta industry. NPA strives to increase the consumption of pasta, to promote the development of sound public policy, and to act as a center of knowledge for the industry and the consumer. My testimony today is submitted on behalf of NPA's manufacturing members, who have serious concerns about this critical egg shortage.

NPA manufacturing members represent companies that produce dry, fresh, and frozen pasta or pasta used as an integral part of a finished food product. NPA's supplier members represent companies that supply ingredients and equipment for the manufacturing of pasta products, including eggs. NPA's members are located throughout the United States with major production centers in Missouri, Arizona, South Carolina, North Dakota, Minnesota, Montana, and New Jersey.

NPA manufacturing members primarily rely on dried eggs in egg noodle production including dried egg whites, dried egg yolks, and dry whole eggs, but also utilize some liquid eggs. Manufacturers purchase anywhere from 4,000 to 2,000,000 pounds of dried eggs annually from a number of egg processing companies, as well as around two million pounds of liquid whole eggs. Several NPA members produce egg noodles, which according to the U.S. Food and Drug Administration (FDA) Standard of Identity (21 C.F.R. §139.150) requires formulations of egg noodle total solids to contain no less than 5.5% by weight of egg or egg yolk solids. NPA's supplier members include egg and processed egg suppliers that house over five million birds, many of which have tested positive for avian influenza, resulting in the inability to fill egg contracts for our manufacturing members.

The direct impacts of this protracted egg shortage on NPA manufacturing members includes failure to ship products; delayed shipments; eliminated orders; invocation of force majeure clauses in fixed contracts with egg suppliers; and price increases. Contract price increases have been documented for dried egg yolk from $1.93/lb. to $7.50/lb. Manufacturers have also experienced contract shortages with up to 38% reduction in availability of egg whites and 46% reduction in availability of egg yolks.

Some manufacturers have been forced to the open market in attempt to find additional egg supplies to meet demand resulting in substantial prices increases. Egg white prices under fixed contracts average about $5.97/lb. versus $16.00/lb. in open market, a 268 percent cost increase.

Comparably, egg yolk prices have experienced a 459% increase as manufacturers are forced to seek supplies on the open market.

While some processed food manufacturers can explore reformulation to reduce the quantity of eggs in their recipes, egg noodle manufacturers are held to the FDA Standard of Identity referenced above, and must adhere to the 5.5% minimum of egg content.

Ultimately, this shortage of eggs is expected to result in higher prices of pasta products that contain eggs and may result in certain of these pasta products being unavailable. Without relief, the shortage will also have a significant impact on the viability of American pasta makers and suppliers of the industry. The impacts of the shortage are only beginning to manifest themselves on the manufacturing side, and it is likely they will continue to worsen without a long-term solution or significant temporary relief.

On behalf of the National Pasta Association, I thank the Committee for your consideration of the critical impact this unprecedented outbreak continues to have on the U.S. pasta industry. We welcome any questions and further opportunities to provide additional information to members of the Committee.

Senate Agriculture Committee
Hearing on Highly Pathogenic Avian Influenza

July 6, 2015

Chairman Roberts, Ranking Member Stabenow, and Members of the Committee:

Since December 2014, Highly Pathogenic Avian Influenza has infected and killed more than 49 million birds nationwide. The impact has been particularly profound in the Midwest, where producers in Iowa, Minnesota, Nebraska, and 12 other states have seen their flocks decimated. Although the spread of this devastating outbreak is beginning to slow, the travel path of migratory birds returning in the fall is poised to spur the continued spread of Avian Influenza.

The economic impact of this outbreak has been thoroughly documented, and has reached well beyond poultry producers. As a result of dwindling flocks, prices for whole eggs are up 70 percent – an unprecedented increase. According to Goldman Sachs, this means consumers could spend an additional $8 billion on eggs. Prices for liquid and dried eggs, ingredients that go into a variety of food products ranging from baking mixes and ice cream to pasta and sauces, are up 219 and 190 percent respectively. Further effects are being felt every day by ancillary industries, including animal feed, trucking, and more.

The path forward – toward reliable supply for consumers and efficient and profitable operations for producers– is challenging. As flocks depopulate, many producers are working as an interim solution to source eggs from foreign trading partners, while all consider the question of whether resumption of operations is practically achievable while facing the threat of re-infection.

For producers, our current position is one of ongoing and continuing risk. Cleanup is well underway and is being carried out efficiently, but repopulation cannot begin in earnest until we are safeguarded against the return of the disease in a manner that reaches beyond enhanced biosecurity and a cycle of eradication and cleanup. Without lasting protection against future outbreaks, the future of the $44 billion American poultry industry is in sincere jeopardy.

The United States Department of Agriculture (USDA) recently accepted comments regarding the limited use of vaccines as a means of combating the devastating disease with which we are currently faced. We support USDA's deliberate steps to assess vaccines and their efficacy. A comprehensive, effective response and prevention solution must include the use of limited, efficacious and geographically targeted vaccines. Delaying a final decision on vaccines until the fall is ill advised, and in practice, may limit our ability to return to operation.

Although producers recognize the need to proceed cautiously and with full awareness of the circumstances surrounding the industry's response to Avian Influenza, many of us strongly support the use of a proven vaccine. I am aware of one production platform that has been successfully tested on the H7 strain of Avian Influenza. Although the current strain is different, I understand that the vaccine (produced by Iowa-based Harrisvaccines) has been amended to suit the current H5N2 outbreak. Additionally, Ceva Santé Animale (CEVA) is a global company based in France that has developed a product called Vectormune. The efficacy of Vectormune has been demonstrated through various field and laboratory experiments conducted by CEVA as well as independent research institutes. I am enthused about these vaccines' capacity to serve a role in our industry's comprehensive response to the threat of Avian Influenza.

I respectfully ask for your assistance in approving field trials of a vaccine for H5N2, and eventually approving the limited use of vaccines.

Furthermore, Rembrandt greatly appreciates that USDA is devoting substantial time and resources to the project of fairly compensating affected farmers. With respect to "start of lay" or capitalization costs, we believe that USDA is close to arriving at a formula that adequately captures those costs. We are concerned, however, that the Department's fair value formula does not accurately reflect the harm that farmers will suffer as a result of losing their egg production revenue streams. Without delving too deeply into the mathematical minutiae, we would like to explain our primary concerns with that piece of the formula.

First, as a result of USDA restrictions on re-populating dictated by its eradication strategy, and due to the nature of the egg production business requiring staggered layer placement to ensure consistent egg production, affected farmers will not be able to immediately re-populate farms to ordinary capacity. This unplanned down-time and the corresponding substantial lost income will compound the severe and immediate hardship farmers will be experiencing from the loss of the destroyed hens. Nevertheless, the Department's current indemnity formula does not account for these losses. Additionally, instead of using gross margin, the Department is using retained earnings as the baseline to calculate fair value. In addition to being a less precise mathematical undertaking, using retained earnings as the baseline seems inconsistent with the notion that farmers should receive the full fair market value of future lost egg production. Moreover, we are concerned that the Department is relying on data from the U.S. Bureau of Economic Analysis for its calculations, as we believe that the Bureau data does not reflect the current, on-the-ground financial realities of affected egg farmers. Finally, while affected farmers are deprived of income for months and even years, they will not be relieved of the substantial burden of paying fixed costs, such as utilities, taxes, and labor. Currently, the Department's formula does not take account of this additional financial strain on farmers.

Rembrandt fully understands the challenges the Department is facing in attempting to contain the HPAI outbreak while administering the indemnity program, and we appreciate the careful attention the Department has devoted to the indemnity program thus far. We are optimistic that we can continue to work with the Department to arrive at

an indemnity formula that addresses the above concerns and ensures that affected farmers are fairly compensated for the lost income they will suffer as a result of the outbreak.

Respectfully,

Dave Rettig
President and Co-owner
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# Economic Losses from the 2015 Highly Pathogenic Avian Flu Outbreak

**June 29, 2015**

*Dr. Thomas E. Elam*
*President, FarmEcon LLC*

The information contained herein has been taken in part from trade and statistical services and other sources believed to be reliable. FarmEcon LLC makes no warranty, express or implied, that this third party information is accurate or complete. This study is provided as a public service to the Senate Committee on Agriculture, Nutrition and Forestry.

# Economic Losses from the 2015 Highly Pathogenic Avian Flu Outbreak

## Executive Summary

This paper contains a preliminary estimate of selected economic losses from the unfolding 2015 Highly Pathogenic Avian Influenza (HPAI) outbreak in the U.S. Losses to both turkey and egg sectors will be included. The estimates are preliminary as of the date of this paper. The outbreak is likely over, with the last report of new layer flock infection confirmed on June 17, 12 days ago. However, further losses cannot be ruled out. It is also preliminary in that there is incomplete knowledge of losses in both the turkey and layer breeding flocks that will significantly affect longer term turkey and egg production.

There are also other significant unknowns surrounding the production losses. These include time and costs required to clean and restock affected operations, details on the age of lost flocks, and the potential for future outbreaks later in 2015. All of these unknowns could significantly increase the magnitude of the loss estimates in this paper.

Losses included in the paper are also for the value of lost turkey and egg production only. They do not include estimated cleanup costs, or increased costs to consumers from higher egg prices.

Losses do include direct production losses to both turkey and egg producers. Those losses are expanded to economy-wide losses, including retail and foodservice, using a method employed in a recent University of Minnesota paper on this subject.

Economy-wide losses to date total an estimated $3,289 million spread over the remainder of 2015 and all of 2016. Direct processor losses to date over that same period total an estimated $1,566 million.

## HPAI Economic Losses to the Turkey Sector and U.S. Economy

**Actual Turkey Losses Through June 29, 2015:** HPAI has, to date, resulted in the loss of approximately 8.0 million market and breeding flock turkeys. One major breeding company has disclosed significant losses in turkey poult (baby turkey) capacity that could reduce total U.S. turkey poult supply by 6.4% from August through December, 2015. The poult loss would affect both 2015 and 2016 turkey production.

In this paper it is assumed that the current outbreak's turkey production loss is an average market live weight of 45 pounds per tom and 16 pounds per hen and light tom.

This estimate is also based on an assumption of about 90 days from HPAI detection to re-stocking. If re-stocking takes longer it could increase the loss. If it can be done faster losses may be less. It is assumed that HPAI losses in re-stocked facilities, if any, will be minor. Restocking is proceeding, and we are making good progress.

It is also assumed that replacement poults will be available on a timely basis to replace all of the 8.0 million lost turkeys. This could be a major issue as there have also been some losses in the breeding flock, and there will be a bunching effect on poult demand that could delay re-stocking somewhat.

Prices assigned to the lost production are pre-loss average prices reported by USDA from January 2014 through the end of March, 2015. The prices used do not reflect significant post-HPAI market price increases that have resulted from the production losses or private contract prices set between processors and customers. The tom price is a weighted average of tom cut-up parts. The hen and light tom overall average price includes 8-16 pound hen and 16-24 pound tom whole bird prices.

## Economic Losses from the 2015 Highly Pathogenic Avian Flu Outbreak

Losses at both the turkey and egg the processor level do not include losses that will occur in the marketing chain from processor to final consumer. These losses include the economic activity that will not occur as result of lower volumes of products available for sale. A recent University of Minnesota paper estimated that the ultimate economy-wide loss is about 2.1 times the processor lost value[1]. Since the Minnesota paper was published production losses have grown to about twice the magnitude estimated by the author.

The table below summarizes the estimated losses for HPAI outbreak-related turkey deaths of 8.0 million birds. It does not include the impact of higher prices on consumer spending, further production losses as a result of breeding flock destruction, or any re-stocking delays past the assumed 90 days, and resulting further production losses. Prices used are pre-HPAI, and do not reflect post-HPAI increases.

Including value multiplier effects, the total economic loss from the bird losses to date is $632 million.

**Current Turkey Sector and Economy-Wide Loss Estimates for Bird Losses as of June 29, 2015**

| Item | Estimated Loss |
|---|---|
| Live Pounds Lost/Tom | 45 |
| Toms Lost, Millions | 4.24 |
| Total Lost Tom Pounds, Millions | 191 |
| Processor Value/$Live Pound | $1.29 |
| Total Processor Value, $Millions | $247 |
| | |
| Live Pounds Lost/Hen and Light Tom | 16 |
| Hens and Light Toms Lost, Millions | 3.73 |
| Total Lost Hen and Light Tom Pounds, Millions | 60 |
| Processor Value/$Live Pound | $0.90 |
| Total Processor Value, $Millions | $54 |
| | |
| Total Processor Lost Value at 2014/March 2015 Prices, $Millions | $301 |
| | |
| University of Minnesota Lost Value Multiplier | 2.1 |
| | |
| Total Lost Value to U.S. Economy, $Millions | $632 |

**Estimated Turkey Losses from Breeding Flock Losses:** A major turkey breeding company has estimated breeding flock losses that imply a 6.4% reduction in total turkey poult supply from August through the end of 2015. There have also been other losses at other producers, but no specific estimates are available at this time. To the extent that these losses are not included this estimate is conservative. There are also short term measures that can be used to somewhat mitigate breeding flock losses, and these are also not included. Prices used are pre-HPAI, and do not reflect post-HPAI increases.

Hen poults have been in seasonal surplus supply, and not used to produce market turkeys, for the past several years. The surplus occurs over the fall and winter when hens are not need to produce holiday whole bird supply. The estimate for surplus hen poults from July through December of this year is about 5.57 million. Of these,

[1] Tuck, Brigid. Impact of Poultry and Egg Production Losses and Poultry Processing Losses Due to the Avian Influenza. University of Minnesota Extension Service. May, 2015

about 4.41 million are needed to replace hen poults that will not be available as a result of this breeding flock loss. That leaves about 1.16 million hen poults that could be fed to heavier weights, and used to replace lost heavy toms. It is assumed that all available hen poults will be used this coming fall and up to the end of the year.

However, at market age toms weight about 45 pounds, and at the same age hens weigh only about 25 pounds. Hens also consume about 12% more feed per pound compared to toms. The feed cost loss is relatively minor, and not included in the loss estimates.

Overall, the known breeding flock loss results in 196 million pounds of lost tom production. If all surplus hens are used to replace lost heavy tom and hen poults there is an offsetting gain of almost 28 million pounds of live turkey production.

**Future Poult Supply-Related Turkey Sector and Economy-Wide Loss Estimates through May 2016**

| Item | Estimated Loss |
|---|---|
| Pounds of Tom Production, Total Live Weight, Millions | 196 |
| Processor Value/$Live Pound | $1.29 |
| Total Processor Value Lost, $Millions | $254 |
| | |
| Net Gain in Hen Production from Reduced Hen Destruction, Millions Lbs. | 27.5 |
| Processor Value/Pound | $0.90 |
| Total Processor Value Gained, $Millions | $25 |
| | |
| Net loss of processor value from breeding stock loss, $Millions | $229 |
| | |
| University of Minnesota Lost Value Multiplier | 2.1 |
| | |
| Total Lost Value to U.S. Economy, $Millions | $481 |

At pre-loss market prices the net producer loss is another $229 million. The total economic loss is $481 million. This loss occurs between November 2015 and about May 2016 as the reduced poult supply is raised and marketed.

**Total Current and Future Loss:** Total economic loss for this outbreak is estimated at $530 million direct cost to processors and $1,113 million to the U.S. economy.

**Total Turkey Sector and Economy-Wide Loss Estimates through May 2016**

| Item | Estimated Loss |
|---|---|
| Processor Value Loss from Current Turkey Losses through June 22, 2015 | $301 |
| Processor Value Loss from Reduced Poult Supply, August-December 2015 | $229 |
| Total Processor Value Loss from 2015 HPAI Outbreak, Millions | $530 |
| University of Minnesota Lost Value Multiplier | 2.1 |
| Total Turkey Lost Value to Economy, Millions | $1,113 |

These estimates are for lost production only. They do not include the impact of higher retail and restaurant prices that are already resulting from smaller product supplies. Also not included are future losses from the

current outbreak past June 29, 2015, or any future outbreaks later in 2015, 2016, or beyond. Further turkey flock losses could add to the already significant economic losses shown above.

## HPAI Economic Losses to the Egg Sector and U.S. Economy

Loss of 40.2 million lost laying hens and pullets, over 11% of the total flock, is estimated to result in a loss of 959 million dozen eggs between now and the time egg production can fully recover. This is estimated to take up to two years, but during that time production will be steadily increasing once hen re-stocking gets underway. We cannot immediately replace all the lost hens. There are not enough replacements available to do so. Even if there were enough replacements, the bunching effect of so many flocks of the same age would not result in a steady flow of suitably sized eggs. A surge in supply would also be followed by a decline as the replacement flocks of the same age go through a production cycle, resulting in egg surpluses, then shortages, and significant price swings. Neither the egg industry nor consumers would benefit from overproduction followed by shortages.

The estimates below assume that each lost hen or pullet results in a year's loss of average egg production per layer. This loss is spread over the roughly 24 months it will take the sector to restock and recover to full production. For the same reasons that were discussed for turkeys, these losses are preliminary estimates. Prices used are pre-HPAI, and do not reflect substantial post-HPAI increases.

**Current Egg Sector and Economy-Wide Loss Estimates for Layer Losses as of June 29, 2015**

| Item | Estimated Loss |
|---|---|
| Laying Hens and Pullets Lost, Million | 40.2 |
| Dozen Eggs per Lost/Hen and Pullet | 23.8 |
| Total Dozen Eggs Lost, Million | 959 |
| Percent Shell Eggs | 36% |
| Percent Egg Products | 64% |
| Shell Eggs Lost, Million Dozen | 348 |
| Processor Shell Egg Value/$Dozen | $1.29 |
| Total Processor Shell Egg Value Lost, $Million | $448 |
| University of Minnesota Lost Value Multiplier | 2.1 |
| Total Economic Loss, $Million | $941 |
| Breaker Eggs Lost, Million Dozen | 611 |
| Processor Breaker Egg Value/Dozen | $0.96 |
| Total Processor Breaker Value Lost, $Million | $588 |
| University of Minnesota Lost Value Multiplier | 2.1 |
| Total Economic Loss, $Million | $1,235 |
| Total Egg and Egg Products Processor Value Lost, $Million | $1,036 |
| University of Minnesota Lost Value Multiplier | 2.1 |
| Total Economic Loss, Shell and Breaker Eggs, $Million | $2,176 |

Due to heavy Iowa losses, breaking egg production has been disproportionately reduced relative to shell eggs. Breaking egg products are widely required for bakery products, ice cream, confections, and other grocery products. The baking industry has been particularly affected.

The estimated $588 million breaker loss is based on an estimated processor market value of breaking egg products. Prices used are pre-HPAI, and do not reflect substantial post-HPAI increases.

The total egg producer lost value is conservatively estimated at $1,036 million. The loss to the total economy is conservatively estimated at $2,176 million.

The losses in the table above do not include the effects on consumer egg and egg product spending caused by record high egg and egg product prices seen since the HPAI outbreak. Higher egg prices of the magnitude seen in May and June 2015 could result in many times the roughly $2.176 million production loss impact shown in this table. Wholesale table egg prices have more than doubled at their peak since the outbreak, and most egg product prices have tripled.

Stated losses also do not include further losses from further hen loss in this or any future outbreaks. Economy-wide losses also likely do not fully include effects of the approximately 25% loss of the total breaker egg supply. This loss could reduce egg product-dependent production. The effects of such a large loss could be underestimated by the University of Minnesota 2.1 value multiplier.

## Total HPAI Losses from the Current Outbreak as of June 29, 2015

Known and projected production losses from poultry bird losses through June 29, 2015 conservatively total $1,566 million at the primary processor level. Total loss to the U.S. economy totals $3,289 million.

**Current Turkey and Egg Sector and Economy-Wide Loss Estimates for Bird Losses as of June 29, 2015**

| Item | Estimated Loss |
|---|---|
| Total Turkey and Egg Processor Value Lost from 2015 HPAI Outbreak, $Millions | $1,566 |
| University of Minnesota Lost Value Multiplier | 2.1 |
| Total Turkey and Egg Economic Loss from 2015 HPAI Outbreak, $Millions | $3,289 |

This is by far the most significant HPAI outbreak in U.S. history, and the economic damage is correspondingly record large. The economic impact shown above underestimates the complete picture. Further bird losses are possible, no impact of higher consumer prices is included, nor in the case of eggs is sufficient value put on potential lost production of food items, especially bakery products, heavily dependent on egg products.

## Potential Losses from Future HPAI Outbreaks

If measures taken to stop the spread of HPAI are not effective future losses can be expected. The wild birds that spread the virus vertically to poultry flocks migrate through heavily populated poultry areas every spring and fall. There is no reason to believe that another H5N2, or other AI strain in general, outbreak is not possible, or if it occurs it will be confined to just the flocks directly infected vertically by wild birds. There also no reason to expect that broiler sector, almost completely bypassed by this outbreak, would escape a future outbreak.

If we cannot prevent and better control future outbreaks the security and affordability of our food supply is under significant threat. We should use every measure at our disposal to prevent the spread of HPAI in U.S. poultry flocks.

We can speculate that another HPAI outbreak in the fall of 2015 or spring of 2016 could result in losses at least as large as the current outbreak's estimated $3.3 billion. If the disease were to spread to the much larger broiler sector losses could be many multiples of those we have already seen in turkeys and layers.

Furthermore, if we do not eradicate HPAI we run the very real risk that it could become a chronic, endemic, disease issue in U.S. turkey, broiler and layer flocks. The economic damage of lost production and exports from long term HPAI re-occurrence could be devastating to poultry producers, the food supply, and U.S. consumers.

## Recommendations

**Prevention and Eradication:** First and foremost, this committee and the Congress should ensure that USDA has sufficient resources to address its dual roles in HPAI outbreaks, namely prevention and eradication. USDA alone has the resources to look at this issue across the entire span of original infection sources (vertical transmission from wild birds) and farm-to-farm (horizontal flock-to-flock) transmission.

APHIS has done an incredible job in the current outbreak. However, despite its efforts, and those of producers, the virus was able to spread to a record number of flocks and birds. USDA has a key role to play in discovering how this virus managed to bypass current biosecurity measures. Our only chance of preventing further outbreaks, or if they occur limiting their scope, is to discover what went wrong, and put into place countermeasures to prevent, or at least limit, another occurrence. It will take a public-private partnership to make that happen. If USDA does not have the resources to play its key role, our ability to prevent and control future outbreaks will be severely endangered. The goal should be nothing short of complete eradication.

As part of this program we need to consider the role of vaccination as one option. To make vaccination a viable option we would need more effective products than are available at this time.

**Indemnification Payments:** Conservatively estimated economic effects of the record-large HPAI damages contained in this paper are nation-wide. The numbers are large, and meaningful, but do not account for disproportionate impact on affected operations.

For those farms and companies with lost flocks the impact is much more severe than the nationwide statistics. Some farms have lost 100% of their turkeys. Some egg producers have lost over 25% of their layers and pullets. The financial impact for these operations is shattering.

I have been consulted by several turkey and layer producers on indemnification payment rate issues. Based on those conversations it is apparent that current rates fall short of HPAI's actual economic damages. The question needs to be asked, "Do current USDA HPAI indemnification payment rates meet the intent of Congress?"

It is strongly suggested that Congress hold hearings on the general adequacy of USDA's HPAI indemnification payments, and specific payment rates that have been applied to this outbreak. At a minimum, affected flock owners, industry experts, and USDA personnel who administer the program need to be involved in those hearings.

## QUESTIONS AND ANSWERS

JULY 7, 2015

**Senate Committee on Agriculture, Nutrition & Forestry**
Highly Pathogenic Avian Influenza: The Impact on the U.S. Poultry Sector and Protecting U.S. Poultry Flocks
July 7, 2015
Questions for the record

**Questions for Dr. John Clifford/APHIS**

Chairman Pat Roberts

1) **What improvements to the indemnity calculation for egg laying hens has APHIS identified that will help to ensure a more accurate value of the hen and the eggs is factored into the calculation?**

APHIS has made several adjustments to the indemnity calculator to better compensate producers for the cost of egg-laying hens the Agency depopulates. The table egg calculator is based upon data from AgriStats, a poultry benchmarking company. At the start of the HPAI outbreak, the calculator was based upon 2013 AgriStats data. Starting on July 1, APHIS updated the calculator to 2014 AgriStats data. After consulting with industry, we also examined the length of time we assume a bird can lay eggs and changed our calculator from 80 to 90 weeks. We also retroactively compensated producers previously paid using the 80 week calculation. We update the calculators on a monthly basis to better reflect changing market values and to provide a more accurate price.

2) **The Highly Pathogenic Avian Influenza outbreak has illuminated the extreme threat our livestock and poultry sector faces from foreign animal diseases. I've received a letter signed by all the major livestock organizations suggesting there is a serious shortage of FMD vaccine needed to manage an FMD outbreak. Can you enlighten the Committee on this issue and how you plan to deal with this shortage? Have you requested additional appropriations to address the problem? How would you propose that industry help pay for FMD vaccine?**

The first action, in the case of a FMD outbreak, would be to immediately contain and stamp out the disease through depopulation and movement restrictions. However, APHIS considers FMD vaccines a key tool to have available should FMD enter the country. Accordingly, we maintain a supply of about 25 million doses of vaccine across multiple strains in the North American Vaccine Bank. However, this amount of vaccine on-hand will not be sufficient to eliminate a large outbreak of the disease if we must make the policy decision to use vaccine.

Estimates of the amount of vaccine needed to address an outbreak of FMD in the United States vary. APHIS' 2016 appropriations request included $1.2 million for the North American Vaccine Bank. This amount is a continuation of baseline funding and would maintain the vaccine bank at its current size.

The Agency continues to have discussions with industry about how to best ensure adequate vaccine coverage should the need for vaccine use arise. Those discussions have included a range of alternatives, including Federal-industry cost-sharing, and those conversations with industry are ongoing.

Senator David Perdue

1) **Can you explain to the committee the reasoning behind the delay in epidemiological reporting by USDA APHIS? The first HPAI case was in December 2014 and I'm told that some states are just now receiving preliminary information.**

APHIS released the draft epidemiological report to the public – to include our state and industry partners – in June 2015. There was no delay in releasing this report. This extensive draft report includes the results of investigations spanning more than 80 commercial poultry facilities, as well as other in-depth studies and analyses performed with the assistance of academic, Federal, State, and industry partners. Preparing the draft report and the related studies and analysis included in it took a significant amount of time, particularly as the scope and spread of the outbreak expanded. We remain committed to regularly updating the report and sharing our findings with our partners and the public. We released our most recent updates to the epidemiological report on July 24. We shared these updates with our state and industry partners and the general public. Going forward, we will release an update to the report on a monthly basis.

2) **What is being done to police internet sales of live birds and hatching eggs? Is there a plan to work with USDA APHIS and the US Postal Service to control the spread of animal diseases?**

It is difficult to regulate the sale of live birds over the Internet, and States have import requirements that vary widely. USDA has engaged with other agencies to discuss this issue. The U.S. Postal Service issues guidelines for live animal shipments in its Domestic Mail Manual.

Hatching eggs are sold through eBay online retail services using software filters that were discussed and developed with APHIS. The filters do not prohibit sales, but rather educate importers and encourage them to contact the APHIS website for import information. Hatching eggs sold through online private vendors are either imported as mail, cargo or personal baggage and arrive through international ports or postal hubs, where they must be declared to Customs and Border Protection (CBP). CBP informs VS of shipment arrivals and will destroy hatching eggs that are found to be illegal or smuggled or that or otherwise lack a health certificate or an import permit. APHIS inspectors review import documents and port veterinarians enforce import requirements; any shipment not in compliance may either be refused entry or destroyed at the port.

APHIS is working on an outreach campaign to educate backyard flock owners and hobbyists of the import requirements for shipping live birds and hatching eggs. APHIS encourages people to

purchase from a source that participates in USDA's National Poultry Improvement Plan (NPIP) certification programs, as the requirements for certification mean the source is disease free.

**3) Has there been any discussion around revisiting the FSIS exemption for backyard poultry in a time of HPAI outbreak?**

The Poultry Products Inspection Act exempts from FSIS inspection a facility that slaughters 20,000 birds or less per calendar year so long as the products of these birds are not shipped interstate. Because it is established in statute, congressional action would be needed to modify the exemption.

**4) Does USDA plan to request increased funding for the National Animal Health Laboratory Network (NAHLN) which is needed to prepare and maintain a rapid and efficient laboratory network to provide for our animal health needs?**

APHIS values NAHLN and the partnerships it has developed through the network. They have been an integral part of our disease response efforts. The FY 2016 request from APHIS for NAHLN is $6.7 million. In connection with its response to Highly Pathogenic Avian Influenza, APHIS sought and received additional funding for the laboratories through its emergency transfer authority under the Animal Health Protection Act; diagnostic needs are being included in these requests, which are funded through the Commodity Credit Corporation (CCC). If there is an acute need for additional emergency funding in the case of a future outbreak, the Department will continue to work through the CCC to ensure funding for these laboratories continues to meet their needs should that need be above what has been appropriated in the current fiscal year. .

Senator Charles Grassley

**1) While there are differences of opinion in the world of poultry about the interest in vaccination, what is USDA doing to educate other countries about the safety of U.S. poultry products to minimize impacts on trade?**

USDA has had regular discussions with our partners to minimize the impacts of the HPAI outbreak on trade. In June, USDA participated in the International Conference on Avian Influenza and Poultry Trade in Baltimore, Maryland. There, USDA directly engaged trading partners around the world to discuss how to minimize the risks of the disease and to ensure continuity of safe trade. USDA officials have been continuing those conversations and will be meeting directly with key trading partners to emphasize the safety of U.S. poultry products throughout September.

**2) The USDA has acknowledged it has the authority to compensate farmers for the downtime that results from the destruction of their animals. Do you believe the formula for the required compensation to these farmers should include payment for this prolonged government-mandated downtime?**

After careful evaluation USDA has determined that paying for downtime losses would not consistent with the purpose of indemnity payments, as outlined by the Animal Health Protection

Act (AHPA). Under the law and the applicable indemnity regulations, USDA provides affected producers with indemnity equal to the fair market value of euthanized birds.

Paying for downtime loss would increase USDA costs by one to two times the payment levels already provided to producers. APHIS has delivered nearly $200 million dollars in indemnification payments to producers and spent nearly $1 billion in total on the response to HPAI—more than the Agency's entire annual appropriation for all of its mission activities, not just animal health.

A further increase in indemnity payments to cover producer downtime is untenable from a budget standpoint. Indemnity payments encourage early reporting of disease, solicit cooperation, and cover the costs of specific assets destroyed by pest and disease response activities. Payment of indemnity enables USDA to share the burden of disease outbreak with producers, but cannot—and is not intended to—cover all losses endured by affected producers. For this reason, USDA cannot pay indemnity to cover production losses for the period of time a farm will be out of commission during depopulation, cleaning/virus elimination, and the time before restocking can begin. Doing so would constitute providing a safety net to producers, which is what insurance programs, rather than indemnity, are intended to provide.

Senator John Thune

I, as well as the poultry producers in my state appreciate the efforts USDA has put forth to stem avian influenza.

1) **Dr. Clifford, if you could prioritize further assistance to USDA from Congress what would be your top priority?**

We appreciate the support we've received from Congress. The Secretary's transfer authority under the Animal Health Protection Act has allowed us to access funding to address this outbreak, and we will consider using this authority as we identify further funding needs. We are still in the midst of identifying lessons learned and developing response plans for the fall, and should we identify any gaps in authority or funding, we will work with the Congress to address those issues.

2) **We have testimony from witnesses that indicates they believe there should be better communication between USDA and poultry producers, especially those who have been forced to depopulate. Do you agree with this assessment?**

We do acknowledge that there were some difficulties in communication with producers, particularly early in the outbreak as the rate of disease grew rapidly. We've also acknowledged some logistical challenges around depopulation early in the outbreak. In both cases, we feel that our response improved greatly after those initial outbreaks, and we took the lessons we learned and applied them to the *Fall 2015 HPAI Influenza Preparedness and Response Plan (Fall Plan)* we developed for any potential outbreaks in the fall. A copy of the *Fall 2015 HPAI Influenza Preparedness and Response Plan* and supporting documents are available on the APHIS website

at: https://www.aphis.usda.gov/animal_health/downloads/animal_diseases/ai/hpai-preparedness-and-response-plan-2015.pdf

**3) What steps will USDA take to improve communications?**

One of the lessons we learned is the need for single case managers for each affected premises. By having a dedicated person as a point-of-contact for each farm – something we put into place in Iowa after those initial difficulties – we can ensure that producers know who to talk to find answers to their questions. We also developing additional outreach materials to address many of the common questions we've heard and to explain the policies and procedures for affected producers. In addition, APHIS will continue to focus on providing on-the-ground public information support to the local community during an outbreak, coordinating and sharing information with State and industry partners, and developing and distributing of informational materials to a wide variety of audiences.

**4) Is there more USDA can do to help stop the spread of avian influenza among neighboring facilities and flocks? Is more education needed?**

One of the lessons we've learned is that we all need to be vigilant about maintaining stringent biosecurity measures, especially in the face of a disease outbreak. In June, APHIS released a partial epidemiology report on the Agency's findings about the origins and spread of the virus. While the results of our preliminary epidemiological investigation didn't show a single source of transmission, it did emphasize the importance and need for improved biosecurity, both among premises and within individual premises. The strength of our biosecurity efforts depends entirely on all of us – producers, their employees, USDA, State and local governments and our contractors who are responding to this outbreak.

Part of this involves more outreach to producers. APHIS worked throughout the summer with State partners, industry, academia, and other stakeholders to gather input for the development of the Fall Plan. The Fall Plan not only discusses planning and preparedness activities but also contains links to updated policies, guidance documents, and background information. These documents include a biosecurity self-assessment for the poultry industry as well more information about basic biosecurity practices and a checklist of best practices and information sheets that we shared with industry groups for distribution to their members. These recommendations include items such as allowing only essential personnel access to poultry premises and thoroughly disinfecting boots, equipment, and vehicles that enter and exit those locations.

In addition, APHIS has taken steps to bolster the training, information technology, and health and safety support it provides to all emergency responders. While these supports were in place during the spring outbreak, they have been further augmented to ensure that employees receive additional support before, during and after deploying to the incident.

**5) Do you believe current indemnities are equitable among all sectors of the poultry industry?**

We have regularly examined whether the indemnity we're providing is fair to producers, and have revised the indemnity calculator, which provides the values for different types of poultry based upon their fair market value, several times. APHIS regulations for HPAI response currently do not allow for splitting indemnity payments between owners and growers in the case of contract growers. APHIS is drafting an interim rule to allow the use of split owner/grower indemnity distribution for HPAI, similar to that described in the low pathogenicity AI regulations.

6) **My understanding is APHIS has contracted with various companies to provide composting material for use in the disposal of dead birds. What has been the progress to date and do you expect APHIS will need the entire amount of material contracted?**

We have completed all composting and, pending additional infected flocks, we should not be requiring additional compost. There may be compost that will not be used for operations related to the spring outbreak.

Senator Joe Donnelly

1) **You testified about the importance of improving the efficiency of outbreak response and that you have been working with states and industry on some specific depopulation problems, which has been among the biggest roadblocks in a speedy response. I know our Hoosier producers are eager to develop those plans, and I hope that you can commit to working with our stakeholders to improve that type of planning. I have also heard from some producers about the complexities associated with finalizing a cooperative agreement with the agency, which is needed before finishing repopulation efforts.**

   **Can you commit to providing the resources stakeholders may need to develop improved response plans and to seeing if there are ways to reduce the complexity and amount of time it may take to finish a cooperative agreement with the agency?**

We have been working closely with our state and industry partners, stressing the importance for them to revise their existing HPAI response plans. We want to ensure that the types of logistical issues we saw early in the spring outbreak – such as the difficulty of securing disposal options – will not happen again in a future outbreak. We jointly developed a list of response-related equipment to identify gaps, which will allow us to strategically place items to reduce the response time should we detect a future outbreak. We have also worked closely with the States and industry to develop the Fall Plan.

**Questions for Dr. David Swayne/ARS**

Senator John Thune

7) Do you believe an effective vaccine can be developed? If so, how long do you think this would take?

Efficacious vaccines have been developed against different highly pathogenic avian influenza (HPAI) viruses in the past. To be successful, a vaccine must offer protection against viruses genetically to similar to the viruses causing the outbreak. ARS has developed a vaccine seed strain that is very efficacious against the spring outbreak strains and is in process of transferring to a commercial vaccine manufacturer. The seed strain was transferred the end of July. ARS is also testing other potential vaccines for their ability to protect poultry from the outbreak virus

8) What do you think are the chances that U.S. poultry producers will face a similar or possibly even worse outbreak this fall than we did this past spring?

While we cannot determine the exact odds of a fall outbreak occurring, we can confirm that return of the H5 HPAI virus in the fall of 2015 is possible. That is why APHIS worked throughout the summer with State partners, industry, academia, and other stakeholders to ensure preparedness.

The Department learned a lot through the experience of responding to this unprecedented animal health event, from our epidemiology work, and through input USDA solicited from our State partners, industry, academia, and other stakeholders. These lessons have driven our fall planning efforts and were essential for the development of the Fall Plan. The Fall Plan captures the results of this planning effort, organizing information on preparatory activities, policy decisions and updated strategy documents into four key areas: preventing or reducing future outbreaks; enhancing preparedness; improving and streamlining response capabilities; and, preparing for the potential use of AI vaccines. We are confident that if the virus does indeed reappear, that we will minimize its spread by having emphasized increased biosecurity and focusing on depopulation in less than 24 hours when possible.

**Senate Committee on Agriculture, Nutrition & Forestry**
Highly Pathogenic Avian Influenza: The Impact on the U.S. Poultry Sector and Protecting U.S. Poultry Flocks
July 7, 2015
Questions for the record
**Mr. James R. Dean**

Senator John Thune

1) I am encouraged to hear that on behalf of United Egg Producers you commented positively on the dedication and hard work of USDA in reaction to the this crisis. Moving forward, especially in the areas of reducing exposure to neighboring facilities when the avian influenza is detected in a facility, should USDA be doing more to educate growers and producers – or should the industry be more responsible?

*I would like to thank Senator Thune for his interest in helping farmers to get back on their feet and to make every effort this disaster is not repeated or at the very least minimized.*

*In a true HPAI stamp out and eradication, the infected farm should be immediately identified and a 3 kilometer quarantine zone and then restrict movement. Minnesota seemed to protect the identity of the infected farm and at times it was a 7 to 10 day delay and they would announce the county the farm was located. This would allow the virus to spread rather than containing it to a much smaller area. It's my understanding the government cannot release the identity of the infected farm. In my opinion, if this is the case, that rule must be changed or we'll never have an effective eradication program. To answer the question it must be a joint effort, by state and federal agencies plus the private sector. My concern, the producers and growers that have been impacted might not have the financial resources to afford the added bio-security measure that will be needed in the future.*

2) What more should USDA be doing or what could USDA do better in the processes of oversight on depopulation, disposal, disinfecting, and approval processes for repopulation?

*As Dr. Clifford stated in his testimony, there is not an adequate euthanizing method to quickly kill large numbers of birds to stop the spread of the virus. In my opinion, and I believe Dr. Clifford's, it is more humane to turn off the ventilation and euthanize the birds by oxygen deprivation than have the bird die from HPAI, which is a very slow painful death for the bird over a three or four day period. At Centrum Valley Farms we were able to save 3.8 million birds by shutting down the ventilation in one building. Stopping the spread of the disease is imperative to limit the number of birds lost. The federal government cannot make recommendations to producers unless it's approved by the American Veterinarians Association. In my opinion I don't believe the producers/growers in South Dakota, Iowa, and*

*Minnesota would have had near the bird losses if quicker euthanizing had been employed. The massive plume of virus overpowered the bio-security systems that were in place.*

3) Do you think these processes and more important the time frame from detection to repopulation could be safely shortened? If so, how?

*If the virus is contained in one building by quickly euthanizing the birds, the spread of the virus in the complex would be greatly reduced. Even though all birds are lost, the cleanup would be reduced since the amount of virus would not be present. The federal contractors are not trained in cleaning and disinfecting but their costs are up to ten times greater that if the producer would do C & D. The federal government refuses to pay producers any more than out of costs which doesn't give the producer the incentive to do the work. The government pays the contractor an enormous hourly rate, per diem, travel, and bio-gear so the costs can run up to 10 times the money. If the government would pay producers on a per bird reimbursement similar to the costs paid to the outside contractors, even if it was 50%, the government would save money, the producer would have the incentive and could make a profit to help him or her get back on their feet, but the government will not let producers make a profit but they are willing to pay outside contractors huge costs. When we were depopulating Center Fresh, our staff was pulling 4 birds to the outside contractor's one. I've talked to other producers who had the same experience during depopulation. I have nothing against the people working for the contractors, but they are not trained to work in chickens' houses, they must wear restrictive protective gear and the conditions can be difficult.*

**Senate Committee on Agriculture, Nutrition & Forestry**
Highly Pathogenic Avian Influenza: The Impact on the U.S. Poultry Sector and Protecting U.S. Poultry Flocks
July 7, 2015
Questions for the record
**Dr. Thomas Elam**

Senator John Thune

1) Do you believe effective and actuarially sound insurance programs could be developed for both growers and laying hen operations?

*Based on past and future loss experience I foresee no actuarial issues for developing an insurance program for either type of operation. It would be no more difficult than the current crop insurance programs available for crops such as corn and wheat. Given the long term low loss rates for poultry disease initial premiums would be modest. However, those would need to be adjusted upward if AI outbreaks were to become more frequent.*

*One major issue that would need to be resolved would be the scope of coverage. Casualty losses for the value of lost poultry and related mitigation expenses are relatively easily calculated. If business interruption losses are also be covered, loss adjustment appraisals become more difficult, and premiums would be necessarily higher.*

2) You stated in your testimony that we need vaccines that are more effective than the ones currently available. I know you are an economist but have you researched or do you know how long it might take for researchers to develop and effective vaccine?

*I have not discussed vaccine development with any researchers, nor does my animal health career include any vaccine experience. I cannot give you an informed answer to that question.*

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Questions for the record
**Mr. Ken Klippen**

Senator John Thune

1) In your testimony you advocated for the use of vaccine to fight the avian influenza. Do you believe sound science now supports or will support the use of a vaccine?

Yes, but the concern centers on the ability to export poultry products to countries that have placed a ban where a vaccine is used. This could be alleviated through the development of DIVA vaccines (Differentiating Infected from Vaccinated Animals) so those countries can see the difference between a vaccinated chicken and one infected with the virus. The other concern is the impact of vaccination on the chicken's production ability. Even if it impacts temporarily the number of eggs produced, it is far better than destroying the chicken altogether.

2) If so, will it be feasible to effectively vaccinate U.S. poultry flocks?

The U.S. Department of Agriculture hopes to stockpile enough vaccine to prepare the nation's poultry industry in the event of another episode of highly pathogenic avian influenza. Since the poultry industry is already vaccinating for other diseases such as Infectious Bronchitis and Newcastle Disease, another vaccination can be an additional step to prevent another disaster such as we experienced this year.

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Questions for the record
**Mr. Rob Knecht**

Senator John Thune

1) Do you believe there is adequate information and education available to producers regarding limiting the spread of avian influenza?

*I believe there are best practices within biosecurity and I believe that there are avenues for producers that are engaged to understand and implement those. Biosecurity is the strongest weapon the poultry industry has to combat HPAI. For those that choose not to engage in the discussion or implement these best practices, I would be very concerned. Additionally, I believe that the greater poultry community has access to information and education on AI, however that does not seem to correlate with some standards of production in the US. For example, USDA organic standards (as well as others) require that birds be able to go outside. This is a very concerning trend that needs to be halted immediately. If HPAI were to be in the air around a poultry house where the birds were to be required to go outside, they would be at a huge risk of contracting the disease.*

2) You mentioned that there is constant vigilance throughout Michigan's poultry producers in focusing on biosecurity. Do you believe other states are as vigilant as Michigan? And if not, what should be done so there is consistency among all states in their biosecurity efforts to stop the spread of avian influenza?

*I cannot attest to the other states but I can say that this virus is incredibly aggressive and even the most vigilant of operations, could have been effected. I know that Michigan producers have sharpened their programs and continue to do so in preparation for the fall migration. In regards to consistency, I would strongly recommend the committee consider the USDA organic regulations as it relates to outside access for egg laying hens. This is a VERY concerning trend for the welfare and health of the birds as well as the long term sustainability of organic egg farming. Adding stringent, specific requirements for outside access puts them directly in harm's way and at dire risk of infection to, not only HPAI, but any other illness that migratory birds may carry or that is in the ground outside. Allowing this is a step backwards in biosecurity and only increases a consistent risk of hurting the birds and encouraging further spread of HPAI or like diseases.*

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July 7, 2015
Questions for the record
**Mr. Brad R. Moline**

Senator John Thune

1) You stated in your testimony that you hope to salvage this year with one flock, in a barn you hope to repopulate by August 1 of this year. Barring any further incidences of the avian influenza in your operation when do you hope to become fully operational?

*Moline Farms plans to repopulate the brooder barns on July 31, 2015. The brooder barns are located on the farm the USDA labeled Calhoun 1. The poults will stay in these brooder barns for 5 weeks (35 days). They then will be divided and placed in the finisher barns on Calhoun 1 and Pocahontas 4. The brooder barns will then be washed and disinfected. The second flock is scheduled for the third week of September. Those poults will be moved to the finishers at Calhoun 2 in the middle of October. The brooders will be cleaned and disinfected again. The third flock will be placed in late November and at that time we will be fully operational.*

2) Since the first outbreaks occurred has the timeframe between detection and repopulation improved or been shortened at all?

*I believe that the time frame from detection and repopulation has improved and shorted slightly. The USDA and APHIS has cleared up most of the communication and has given the producers a much clearer road map to move forward. The process for turkey producers is slow. It takes 14 days to complete first stage of composting. The compost and litter removal takes time due to weather constraints because of moving the contents outside. The cleaning and disinfecting is variable to individual producer's different style barns, cleaning equipment, and labor availability. Overall, the process is slow, but clear communication is removing unnecessary delays.*

3) What more could USDA or growers do to reduce the amount of time from detection to repopulation?

*The USDA needs to take advantage of the 14 day compost period to sit down with producers to complete the paperwork and form a comprehensive plan for cleaning, disinfecting, testing, and repopulating. This enables and encourages the producers to take control of their own operations. The producers will then be able to have a clear plan to move forward and restart there operations as quickly as possible. Another item that USDA must do for*

*producers is to stream line the massive amounts of paperwork. The compensation to producers to their own cleaning, disinfecting, and repopulation needs to be clear from the very beginning. The USDA needs to break down the compensation for these steps, to a square foot basis or a bird space basis. This allows the producer to make financial decisions quickly and accurately.*

4) Do you believe communication between USDA and growers has improved and is adequate or is there still room for improvement in communications?

*I believe communication between producers and USDA has improved significantly. It always has room for improvement, but great improvements have been made. The turkey industry has learned from the mistakes that were made and we believe that the USDA has listened to us to improve their response.*

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