

Heartland Avian Influenza Workshop
August 11th-12th
Lied Lodge Conference Center

August 11th, 2015

I. Introduction

A. Joe Francis

1. Joe announced that Jim Macy would be joining the workshop later.
The resources table at the back of the room has printouts of documents used by various states during the AI outbreak. **ACTION ITEM: If possible, we would like to get electronic copies of the documents from the resources table to make them available on our website after the workshop.** The website address is:
<http://deq.ne.gov/NDEQProg.nsf/OnWeb/Avian>
2. An e-mail address has been set up so things can be added to the website and comments can be made to action items. Action items can also be added to the website through this e-mail address: ndeq.aiworkshop@nebraska.gov.

B. Bryan Tuma

1. Background-32 years in law enforcement, left to go into the private sector, returned to work with NEMA.
2. Thanked all the surrounding states who have been dealing with AI for sending documents about planning, etc. early on. These documents have been helpful in making preparations before AI impacted Nebraska.
3. At the National Homeland Security Convention, other states were very interested in what was going on in the Midwest.
4. Early in the event, NE got a Governor's Declaration. How does your state declare an emergency? This can be an important component of getting legal authority and funding.
5. When planning for an event, you will respond the way you train. The AI outbreak was a high intensity but low frequency event. Consider how often you look at your state's plan. Also consider how often you review and revise that plan.
6. Are NIMS communication procedures being used? In the era of social media, misinformation spreads quickly.
7. Resources management-plan for getting the correct materials to the correct place. Consider what has to be done for disposal, etc.
8. When an emergency is declared, that allows the Governor's Emergency Management Fund to be used. That resource can really make the difference to respond appropriately. States have turned to compacts to assist each other. Nebraska is part of the Emergency Management Assistance Compact (EMAC).
9. If you have any questions or concerns, feel free to contact him through Joe or Bobbie.

C. Bobbie Kriz-Wickham

1. The main story in today's paper was a turkey farm in IA repopulating birds. Everyone is starting to get their facilities up and operational again.
2. Building relationships between state agencies and with other states can help us make these stories more positive and make the outcomes of these events more successful.
3. If an event like this happens again, we hope to have ourselves and our producers better prepared. Having access to the boots on the ground perspective makes a huge difference in how decisions are made. Even when those decisions come from a boardroom in Lincoln, having that input from people in the field helps make the decisions more appropriate for the situation. Details really do matter.

II. Current Status

A. Nebraska-Dave Haldeman

1. Proactive planning efforts were in place to provide planning and contractors for Nebraska Department of Ag. In 2004, they looked at and evaluated specific sites for on and off-site burial. They came up with plans for disposal. In 2007, efforts were made to specifically consider an outbreak of AI. NDA provided the funding, DEQ provided the contractors. They used a computer program to ID burial sites. In 2008, they looked at small and medium cattle operations and looked at burial as the primary disposal method.
2. During the AI incident, composting was used for disposal. Although the plans that were put in place couldn't be used directly, the information that had been collected prior to the event was useful.
3. Nebraska has monthly security team meetings. As they watched other states have AI issues, they got together with NDA and had a 50 minute tabletop exercise.
4. When AI reached Nebraska, NDEQ had a meeting with all areas of their department and had a discussion about what needed to be done.
5. The actions taken or considered included:
 - a. Monitoring compost sites, especially how that compost will be used offsite
 - b. Checking lagoons
 - c. Issuing burn permits for materials that can't be cleaned and disinfected
 - d. Revisiting onsite burial plans in case composting can't be used as a means of disposal.
 - e. A more standard approach is needed for disposal of PPE.
 - f. Methods of disposal needs to be addressed when colder weather becomes a factor.

B. Nebraska-Dennis Hughes

1. In December 2014, high pathogen AI started in California along the Pacific Flyway. In March, cases were confirmed in Minnesota. Missouri, Kansas, North Dakota, and South Dakota soon followed. State veterinarians started having weekly conference calls. Cases were confirmed in Iowa. Nebraska was next.

2. On Mother's Day weekend, a flock in NE was reported as having a high mortality rate. A Governor's Declaration was vital in the process. Mistakes were made, but all agencies involved have learned and are better prepared.
 3. All commercial facilities with infected birds were depopulated. Most of the carcasses were composted. One backyard flock, with a small number of birds opted to use burial. Four of the five impacted facilities are cleaned and disinfected.
 4. We were not able to shut down virus shedding fast enough. Depopulation takes too long. Controversy has erupted over shutting off ventilation in a building and walking away as a means to depopulate a facility. This method takes 2-3 hours for all of the birds to die. Using other methods takes a long time to depopulate a large volume of birds.
 5. There is a conference next week which NDA uses to help train others to work with them. This conference also helps them train themselves. Everyone is preparing themselves for a second round of AI to hit. The virus may mutate and become something else. We need to look at a faster way to depopulate flocks.
 6. We need to identify specific needs and, of course, we always need funding.
- C. Wisconsin-Zoe McManama
1. AI first detected in Wisconsin on April 11, 2015. 9 commercial facilities and 1 backyard flock in four counties were impacted. 6 turkey flocks and 3 table egg flocks were also affected. About 1.8 million birds were affected.
 2. CO2 and Foam were used to depopulate flocks. Birds were composted on site, both in barns and outdoors. Off site, birds were either incinerated or solid waste landfilled.
 3. As of August 8, 2015, all farms are released from quarantine and repopulating.
 4. Preparedness-Adapting to redefine what an animal disease response really means: farm preparedness, biosecurity, emergency prioritization, SOPs, situational awareness, greater communication with emergency management partners to improve incident response.
 5. Liaisons-the importance of liaisons cannot be stressed enough in this situation.
 6. Establishment of working groups with other agencies to develop branch-specific directives is critical.
 7. Medical clearance and fit-testing for a broad range of staff prevents delays in response.
 8. Now need to maintain focus on lessons learned, knowledge gap filling, statutory authorities, SME Training, communicating, and virus deactivation.
 9. Specific needs-more consistency from farm to farm, agency to agency, and state to state. Decision making requires explicit technical support.
- D. Iowa-Adam Broughton
1. Iowa is ranked #1 in chicken layers, #1 in pullets, #8 in turkeys, and #1 in egg production. In March 2015, IA had 59.5 million egg layer chickens, or 16% of

national stocks, in 3,821 laying facilities. They had 11 million turkeys at about 200 farm sites.

2. By the end of June, 24.7 million egg layer chickens were euthanized from about 22 laying facilities. That was 41.5% of IA's stock. 1.1 million turkeys from 35 farm sites, or 10% of Iowa's stock were euthanized.
 3. IDALS Planning Efforts- IA DNR's Foreign Animal Disease Plan was developed in 2003. Supplemental Annex W of the Iowa Emergency Response Plan was created. It provided the latest analysis of all available disposal options and laid out DNR's role in an outbreak.
 4. Iowa is still dealing with the outbreak as of July 31, 2015, 20 premises are cleaned, 19 of them are disinfected. Environmental samples have been collected at 20 of them. 6 are eligible to restock. By August 9th, they are projected to have 35 premises cleaned and 28 disinfected., 22 sampled, and 20 eligible to restock. It is anticipated that IA will still be dealing with the Spring outbreak in mid-September.
 5. Short Term Preparations-Once the outbreak response and premises recovery has begun they will do an After Action Report and prepare for the next outbreak by determining if there is a need to create stockpiles of anything and if policies need to be changed or updated.
 - a. The event must be looked at in detail through the AAR to review what worked and how they arrived at those solutions. They also will review what didn't work so well and what can be done to improve it.
 6. Longer Term Efforts-take what was learned from this outbreak and apply it to other livestock. Determine if there are legislative hurdles that need to be addressed. Evaluate if any equipment needs purchased and a time frame and method for doing so.
 7. Some issues from AAR won't have easy solutions.
 - a. Dealing with public perception
 - b. Biosecurity and material movement control
 - c. Working with producers early and often
 - d. Working with local responders and the community
- E. Minnesota-Beth Thompson and Lisa McMahon
1. 104 cases in 23 counties. 108 farms were affected, 98 commercial turkey farms, 4 commercial chicken layer farms, 1 chicken pullet, and 1 backyard flock. 9 million birds were impacted.
 2. All but 10 sites used foam for depopulation, all but 14 sites used composting.
 3. All control zones have been released. Over 70 farms have completed cleaning and disinfecting. Over 40 farms have restocking agreements. 8 farms have been released from quarantine.
 4. Minnesota's Emergency Operations Plan annex P outlines who is responsible. MPCA/BAH MOU Minn. Stat. 35.815. BAH deals with carcasses, MPCA deals with the solid waste.

5. MPCA Proactive Planning
 - a. Internal AAR
 - b. MPCA is updating SOGs and guidance documents for landfills, incinerators, and feedlots.
 - c. They are considering requiring feedlots to have “worst case scenario” composting plans.
 - d. Request disposal facilities include more items in solid waste management plans.
6. MPCA Areas of concern
 - a. Disposal of non-decontaminated solid waste through open-burning, composting, recycling, incineration. To reduce stigma, a letter was sent out to landfills.
 - b. Stormwater and wastewater need to have long range management standard practices. They did find out that the foams do not produce any PFC contamination.
 - c. Even municipal incinerators can’t handle the large quantities of supplements and antibiotics that require disposal. There had to be some on-site burning for things that couldn’t be decontaminated.
 - d. Eggs had to be treated as if they were contaminated. Egg cartons and pallets had to be disposed of, and there were thousands of those daily.
- F. Kansas-Ken Powell
 1. KDHE/KAHD began working together in 1999 on emergency planning. At first, they were only concerned with cattle and hogs. KAHD is lead in all livestock emergencies. KDHE provides support by providing disposal site approval. ICS training is essential. Exercises are beneficial. Meeting with state’s largest poultry facility scheduled.
 2. KDHE Pre-planning includes pre-selection of burial sites, development of GIS software to do on the fly determination for disposal sites, development of Trench Sizing Worksheet, and updating of pre-selected sites every 5 years,
 3. Information Needs
 - a. Plan for teams of personnel for site.
 - b. Restrictions of movement of personnel on teams.
 - c. Equipment availability-trenching for burial, materials handling for composting.
 - d. Carbon materials for composting.
 4. Kansas doesn’t have a large poultry industry. They had four separate incidents. They discovered some gaps and are working on ways to close them.
 5. They are doing AARs, as well as planning and tabletop exercises. They are part of a foreign animal disease workgroup that meets every 4 weeks.
 6. Main lessons from incident-Get key people in the right places at the right time. Partnerships are great.
- G. Missouri-Kent Haden

1. They had 4 incidents. 2 were in flocks of turkeys with about 50,000 brds in each flock, 1 incident was a backyard flock.
2. If AI mutates, imagine trying to control it. The rotation typically goes through poultry, swine, and then humans.
3. How do we prevent virus shed? We need to be able to get birds euthanized and removed in 24-48 hours.
4. Have to find a balance between being realistic about possibility of a zoonotic illness and scaring the public.

III. Fall Planning for HPAI-Dr. Jack Shere

A. Incident Command System

1. Local resources first. Needs to run from the bottom up, not the top down. Unified command of all units, including state, federal, and industry.
2. APHIS Support comes in when local resources are overwhelmed or exhausted or are unable to respond. USDA support is used when APHIS resources are overwhelmed. When USDA resources are overwhelmed, then additional Federal department support is required.
3. They don't work in the state under Federal authority, they work under the State's authority. Federal quarantines are only used when necessary. It's not about who is in charge, it's about all hands on deck.
4. For AI incidents, APHIS, Veterinary services were called in. There were Incident Management teams who worked on 28 day rotations with 3 day overlaps to allow information sharing.
5. Consistency is vital. Each team can't just come in and make changes so everyone is doing things differently.
6. For the Fall, they will need to reset and retrain. Rethink boots on the ground so there are better working partnerships and more oversight.
7. Want to have local site managers who remain throughout E & D and C & D, Environmental testing and restock to maintain consistency.

B. Resources

1. There needs to be funding. People have to be willing to fund these programs before they're needed so they are in place in the event of an emergency. There has to be training so response can be efficient and appropriate.
 - a. When using contractors, in the future payment needs to be performance based, rather than hourly. Hourly pay gives no incentive.
 - b. Cost has to be compared for having people on staff and buying equipment.
2. Everyone involved has to have some skin in the game (Industry/Producers/ State/ and Federal) or else no one cares about getting things done.

C. Worst Case Scenario Fall Planning

1. Multiple segments and sectors concurrently in multiple states.
 - a. Commercial-high volume and high value
 - b. Live Bird Marketing System
 - c. Backyard flocks.

2. 500 or more commercial establishments affected.
 3. Top 20 layer, broiler, and turkey producer states: AL, AR, CA, DE, GA, IN, IA, KY, MD, MI, MN, MS, MO, NE, NC, OH, PA, SC, TX, and VA.
 4. An animal health event in poultry with no zoonotic spread.
 5. Key focus areas:
 - a. Biosecurity
 - b. Depopulation and Disposal
 - c. Diagnostics
 - d. Vaccination and Trade
 - e. Economics
 - f. Budget/Funding
 - g. Outreach and Public Affairs
- D. Avian Influenza and Poultry Trade International Conference**
1. Held in Baltimore, MD on June 22-25, 2015.
 2. Meeting had over 200 attendees from 37 countries.
 3. More information is available on their website:
http://www.aphis.usda.gov/wps/portal/aphis/ourfocus/animalhealth/sa_animal_disease_information/sa_avian_health/ct_ai_conference!/ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOK9_D2MDJ0MjDzdgy1dDTz9wtx8LXzMjf09TPQLsh0VAZdihlg
 4. Many countries view vaccination as a lack of control. It's a failure to control the incident, therefore they do not want our birds.
- E. Fall Planning Workshop**
1. Held in Riverdale MD on June 30-July 1
 2. Attended by 100 representatives from industry, officials from the top poultry producing states, and USDA personnel
 3. Organized as workshop with small group discussion.
 4. Purpose to plan for a worst-case HPAI scenario this fall.
 5. Specific goals were to identify what improvements and expansions of current response activities are needed; what response gaps exist in the Federal, State, or industry level; how these gaps can be remedied; and what commitments participants can make to address these gaps.
- F. State and Industry Preparedness Surveys**
1. Next step-conduct a nationwide review of emergency resources and planning activities to date, personnel, equipment, emergency plans, disposal options, etc.
 2. Critical for Federal-State-Industry efforts to prepare for potential HPAI outbreaks.
 3. State survey distributed on July 6, response due July 24-are summarizing and analyzing now.
 4. Industry survey set to distribute week of July 27th to be due August 7.
- G. What we heard**
1. Biosecurity gaps
 - a. Epidemiological data needs to be faster and include more data analysis and interpretation.

- b. Biosecurity plans that are site-specific need to be developed and auditable; verification process; starting standardized template; third party oversight
 - c. Real-time information about newly affected premises needs to be shared; producers want to know for operational purposes; confidentiality
 - d. A culture of biosecurity needs to be pervasive, applied as appropriate, based on resources, industry driven guidelines for development.
 - 2. APHIS/Industry Actions
 - a. Develop biosecurity checklist for relevant commodities
 - b. Develop options for an auditing system to verify implementation of recommended biosecurity practices, including self-certification
 - c. Develop a template that can be used by producers to develop a site-specific risk based evaluation of their facility
 - d. Documenting (or developing) reference materials for producers that will provide additional information and instructions on developing site specific plans.
 - e. Developing an education and outreach program related to biosecurity (including multi-lingual materials) in conjunction with LPA and industry PIOs.
 - 3. Really have to consider balance between reporting infections and protection of producers. Some have said poultry industry doesn't have good biosecurity. The biosecurity was as good as it needed to be. This virus is easy to kill, but it moves around very easily.
- H. Individual Site Emergency Management Plans**
- 1. Euthanasia
 - 2. Disposal
 - 3. Cleaning and Disinfection
 - 4. Manure/compost Management
 - 5. Resources needed to accomplish E & D and C & D
 - 6. Some facilities do not have site-specific depopulation plans. The most efficient way of depopulating flocks is not recognized as acceptable.
 - 7. Depopulation: APHIS Actions
 - a. Implement 24 hour performance measure for depopulation, possibly tied to indemnity. The quicker the birds are depopulated, the less disease spreads.
 - b. Explore additional options for depopulation and determine level of support. Ventilation shut down can be coupled with other methods to depopulate.
 - c. Inventory equipment for depopulation and disposal and consider re-positioning based on results.
- I. Disposal Gaps**
- 1. Producers and growers are sometimes unable to execute disposal plans.
 - a. Attitudes/lack of understanding/Fear/Business Model/Transport Issues make disposal a big problem
 - b. Virus can be killed by heating up barns to 120 degrees for 7 days in a row. Detergent, sun, heat will all kill the virus.

2. Composting, Landfills, Incineration, Burial, and Rendering are all acceptable means of disposal.
- J. Disposal: APHIS/State Actions**
1. Develop key talking points to separate fact from fiction around disposal issues for HPAI poultry waste.
 2. Develop SOPs for safely transporting waste from farms to landfills.
 3. Provide transporters with up-to-date info about the status of quarantine zones and poultry premises along major transportation routes
 4. DOT routes
- K. Cleaning and disinfection-gap**
1. There is a lack of definitive guidance about the best way to clean and disinfect a building. What is clean?
- L. Cleaning and Disinfection: APHIS Actions**
1. Summarize existing knowledge about effective C & D Practicers/methods/variance conditions (manure handling must be addressed)
 2. Develop further guidelines on cleaning and disinfecting methods
 3. Instead of cleaning and disinfection, focus on virus elimination, instead.
- M. Indemnity and reimbursement: APHIS Actions with Industry Input**
1. Develop a more uniform and efficient reimbursement process for C & D, use a per bird or per square foot basis and a capped amount to make process more consistent and efficient.
 2. Review and where appropriate reconcile and adjust calculators as needed.
 3. Work with growers/producers to develop more efficient ways to verify inventories and poultry mortality to expedite depopulation
- N. Diagnostics Gap: Feedback is that current diagnostic testing capacity for HPAI is not sufficient for a large scale outbreak.**
- O. Diagnostics; APHIS Actions**
1. Assessing NAHLN Capacity-especially in top 20 poultry states and prepare for NALHN activation.
 2. Develop a diagnostic laboratory communication plan to disseminate updates and changes to participating laboratories quickly and efficiently.
 3. Continue efforts to implement electronic messaging of results from high volume/high priority labs.
 4. Conduct additional proficiency testing in NAHLN Labs to add to the pool of trained personnel.
- P. Vaccination and Trade Gaps**
1. Vaccines are under development and testing. Field application testing needed.
 2. Limited understanding about immediate and long-term impacts of HPAI on international and domestic markets
 3. Discussions about ways to mitigate these impacts are planned for the future
 4. Policy, strategy for use, and tracking methodology will need to be clearly outlined.
- Q. Vaccination: APHIS Actions**

1. Will soon implement a consultation strategy with industry and states to further develop and refine our proposed vaccine policy.
2. Issue a Request for Proposals to identify viable vaccine candidates.
3. CVB is working with vaccine manufacturers, ARS, and others to expedite review and licensure of candidate vaccines as appropriate
4. Develop clear, simple messages about vaccine use and implications for food safety

R. Trade

1. Ongoing conversations with animal health officials in foreign countries to educate about HPAI Status and enhanced mitigations.
2. Coordinating with other USDA Agencies to examine economic impacts

S. Team

1. We must get many issues worked out together
2. Only as good as our weakest teammate
3. Point fingers or build support
4. HPAI is the enemy
5. Collaboration is important, but it will not be enough without participation
6. There is a difference between commitment and participation.

IV. Disposal Options

A. Kansas- Livestock Composting in Emergencies

B. Emergency disposal could be required in event of Foreign Animal Disease or mass deaths due to heat, storms, or power outages.

C. Primarily considered with regard to swine facilities-face issues if there is an electrical malfunction, manure pump malfunction, or a ventilation fan malfunction or cattle facilities-face issues with heat and cold stress.

D. Want to prevent disease spread by eliminating disease at that site, odors, runoff, visual impairments, scavengers, and a need for a permanent burial site.

E. Plan for training of employees, location of compost area, location of materials, and location of equipment.

F. Need to have loaders, turners, screens, water wagons, water pumps, thermometer, trained personnel. If they don't have equipment to build and maintain piles, it makes things difficult.

G. Facilities need to have a site specific plan. It may be necessary to go to facilities and discuss composting. Poultry sites seem to prefer the 3 bin system for normal daily mortalities.

H. The facilities are not necessarily where the carbon source is.

I. Wisconsin-Composting AI Mortalities

1. Had North and South breakout areas. Really likes Minnesota's policy of having someone on site from Department to supervise and guide

2. Mission-Deactivate the HPAI

3. Method-Create compost windrow, get average pile temps up over 130 F

- a. Two scenarios

- i. Farms constructed own piles with no supervision or assistance-Northern Farms

- ii. Farms assisted by subject mater experts/regulators-Southern Farms
 - 4. Chickens-Layer barn layout not conducive to in-barn composting. Compost piles built in manure barn and outside.
 - 5. Piles must be constructed with adequate regard for:
 - a. Space
 - b. Room for equipment to maneuver
 - c. Size of birds
 - 6. Farm worker assistance is invaluable. Carbon sourcing can be a problem. South had to go to municipal source, which only delivered from 8-4 on M-F. North had supplier very close who only made woodchips.
 - 7. Monitoring-the average pile temp must be above 130 F for at least 3 days.
 - 8. Turkeys
 - a. Piles constructed in barns
 - b. Very tight operating area for equipment
 - c. Turkeys ranged from 4 oz to 70 lbs.
 - d. Piles had problems with exposed birds, leachate, and underperformance, which led to additional issues with vectors. After 14 days, still had whole birds.
 - 9. Issues to be addressed
 - a. Authorities for enforcement
 - b. Virus thresholds
 - c. In-barn vs outdoors
 - d. "Pretty Piles" mindset
 - e. Optimizing available carbon usage
 - 10. Thick base-a big fluffy base allows air and aerobic bacteria. Layer of birds, layer of manure, repeat. Material was very dry, had to add moisture. If animal tissue density is too low, animals mummify. Ended up leaving birds on the ground for up to 5 days after depopulation.
 - 11. When checking, having a schedule helps, it keeps workers from feeling fatigued. The faster you get the birds under, the better.
 - 12. Optimum size of woodchips was an inch in diameter on at least 2 axes, wood shavings compacted too much.
 - 13. At the end of the process, it's not finished compost, has to sit at least 6 months to mature.
 - 14. Some farms wanted to sell the compost. Questions about ethics, because some funds were used from Federal and State sources. As far as APHIS is concerned, selling the compost is fine. Once it is no longer animal material, which finished compost is not, then it is the facilities' responsibility to get rid of it.
- J. Minnesota-Composting
- 1. Minnesota had very lengthy section in statutes about composting.
 - 2. Swine producers have been using composting as their go-to disposal method.
 - 3. Pros:
 - a. Some can be done indoors

- b. Little to no maintenance needed if done properly
- c. Good biosecurity, not a lot of people in and out of facility

4. Cons:

- a. Poultry folks not as in tune with composting as swine producers
- b. Many turkey producers were concerned that virus would survive on outside of pile
- c. Had some compost piles that had insect issues, mainly flies

K. Nebraska-

1. Went to concept of burial when they started looking into disposal plan. Thought carbon sourcing would be an issue. Runon and Runoff were also worries. There were also concerns about vectors disturbing the piles.
2. In 2004 hired a contractor. DEQ partnered with the Department of Agriculture to develop the Catastrophic Animal Mass Mortality Plan. Hired an engineer to create trench designs based on cattle, then made an estimate of the number of animals that could go into trenches. Developed a checklist for placement of trenches.
3. In 2007, came up with disposal plans for poultry premises based on the number of birds and checklists. There were only two sites that couldn't do on-site burial.
4. They knew that since 2007 many sites had changed. Worked with the Department of Ag to identify producers. All of that planning, and they haven't done any on-site burial yet.
5. Composting appears to use more surface area than burial, but it actually wouldn't. The trenches would have needed to be 30-31 feet deep to accommodate birds.
6. UNL professor wanted to do research of effects of burial of carcasses. DEQ partnered with her to help determine the risk of contamination to ground water. This study will be put up on the website.

L. Iowa

1. Incineration/Burning

- a. Tarmac Thermal Unit- Thermal desorption units designed to treat decontaminated soil. Had never been used for carcass disposal. One unit placed at a landfill. Emissions control equipment: baghouse and afterburner. Propane fired burning at 600-800 F. Reached a peak production of 225,000 birds/day when running 24 hours, or about 32 roll-offs. Much higher capacity compared to other incinerators used. More time to mobilize and set up and also encountered issues getting up and running.
- b. Mini Tarmac Thermal Unit-smaller version of the Tarmac. Two units were used, located at impacted facilities. Also equipped with a baghouse and afterburner for pollution controls. Reached a peak of 90,000 birds/day when running 24 hours, or about 13 roll offs (had 65,000 per day average)
- c. Air curtain incinerators-designed for high temperature burning of wood waste. Equipped with an air manifold to create "Air curtain" to control smoke. Blower is powered by a diesel engine. Supplemental fuels were needed for good

combustion of carcasses. Four units were used at impacted sites for carcass disposal. Units are portable and could be moved from one site to another. One unit could process approximately two roll offs per day-14,000 birds. Also used for incineration of contaminated wood pallets and cardboard egg cartons.

- 2. Air Quality Requirements**
 - a.** Iowa Administrative Code (IAC) requires air quality construction permits for emissions sources
 - b.** IAC also allows for variances from rules if approved by the Department
 - c.** Iowa DNR granted variances from the requirement to obtain a construction permit for the incinerators-temporary equipment, short-term operation, approval can be granted sooner with a variance vs. permitting, included operating conditions in approved variances
- 3. Tarmac Operating Conditions**
 - a.** The unit must be operated according to manufacturer's specifications
 - b.** Maintain the temperature of the material exiting the primary chamber at 600-800 F.
 - c.** Maintain the temperature of the afterburner at 1400 F or greater
 - d.** Operate the control equipment at all times
 - e.** The afterburner must be at 1400 F or greater before beginning to feed material into the primary chamber
 - f.** Fuel is limited to LPG
 - g.** Opacity limit of 40%. Excessive smoke should be investigated and corrective action taken if possible.
 - h.** Monitor feed rate, it may be possible to adjust the feed rate as long as the temperatures are maintained.
- 4. Air Curtain Incinerator Operating Conditions**
 - a.** The unit must be set up at least 500 ft from the nearest residence not on the property where the incinerator is located.
 - b.** The unit must be operated according to the manufacturer's specifications, including: The unit should be operated by a trained operator, the blower should be operated whenever possible and according to the manufacturer's specifications, and ash should be emptied from the incinerator periodically.
 - c.** Supplemental fuels are limited to natural gas, propane, fuel oil, diesel fuel, untreated wood, untreated seeds or pellets, other untreated vegetative matter or used oil meeting the specifications of 40 CFR 279.11 as amended through May 3, 1993. Coal may be used in limited quantities in lieu of the preferred supplemental fuels listed above.
 - d.** Opacity limit of 40%. Excessive smoke should be investigated and corrective action taken if possible.
- 5. Incinerator Prohibited Materials**
 - a.** Roll-off liners
 - b.** Biobags

- c. Personal Protective Equipment (PPE)
- d. Trash
- 6. Open Burning
 - a. There was no open burning of carcasses
 - b. DNR allowed open burning of wood, cardboard, and paper at contaminated facilities with the following requirements:
 - i. All material except wood, cardboard, and paper need to be removed from the burn pile.
 - ii. Pile needs to be monitored during burning operations for safety and to prevent fire spread.
 - iii. Burning is conducted only when weather conditions are favorable with respect to surrounding properties.
 - iv. Local DNR Field Office is contacted prior to burning.
 - v. Burn piles should be kept small to reduce particulate matter loading of the atmosphere (several small burns are better than 1 large burn)
 - vi. Burn pits (recommended) should be placed $\frac{1}{4}$ mile from the nearest inhabited building unless there is a written waiver from the building owner

M. Results

1. Minnesota-first option offered was landfill, encountered delays, so they gave up and went to composting.
2. In NE composting went well, but the compost looks too much like woodpile. There's very little nutrient value in it. Did have some issues with flies. Didn't consider incineration due to cost.
3. APHIS-Like having the options. Incineration-miserable, weighing costs and need for experts to run the equipment, the most it ever achieved was 35 roll-offs in a day. They had to have engineers on site to fix it. Mini tarmacs worked okay, but broke down at least once a week. Fan of burial, get back to business quickly, but the burial site must be monitored. Really supports composting, it seems to fit well. It balances cost, disposal needs, and industry needs. New disposal and disinfecting methods need to be looked at, but good procedures need to be developed first. If you have good contractors in your state, do everything you can to keep them.

N. Site management

- a. In Iowa
 - a. 77 different times became a very difficult question.
 - b. Had to take a can of spray paint and make line to mark clean areas.
 - c. The details with the C & D lines can go on forever
 - d. Traffic flow was a huge consideration
 - e. They had DNR stormwater issues at some sites
 - f. They did not worry about aesthetics.

b. In Kansas

- a. In past did tabletop exercises with counties. This has gone over very well. They lead up to a major exercise, which they hold every 2 years.
- b. Planning how to move traffic and people.

c. In Minnesota

- a. They have a document to give to producers to fill out for their site. They can use it to map gas lines, electrical lines, etc.
- b. They tried to control access using signage, so people knew where they could go, where the clean and dirty lines are, where to go in, and where to leave.
- c. They kept a list of dedicated workers for site, had 1 site manager.
- d. Best tip: Know where the parking is.

d. In Nebraska

- a. They got a Governor's Declaration very quickly, could implement 4C Command, Control, Communication, Continuity.
- b. Nebraska State Patrol, NEMA, DEQ, USDA, other agencies mobilized very rapidly to stop spread.
- c. Implemented road blockage, had law enforcement blocking traffic, did not allow media too close to site.
- d. Started conference calls Monday-Friday at 7:30 AM and 4:30 PM with all parties involved. Kept the PIO up to speed.
- e. Wanted to keep businesses in operation, especially egg breaking facilities.
- f. Had signage, USDA brought in berms so tires could be cleaned and disinfected.
- g. Were able to minimize visibility on infected sites.
- h. Everyone had to be credentialed and badged to get on site.

e. In Wisconsin

- a. Aesthetics-odor, vectors, and large compost piles. There were nuisance complaints about flies. Also had people running around in highly visible PPE, could be seen from the road.
- b. Run-off-very important to prevent pooling. Roof pitches-when doing composting, watching where piles are placed is important.

- c. Two extremes, one site had nothing but spray cart, one site had the National Guard. The population density was a huge factor in site control. The higher the population density, the more controls had to be in place.
- d. On one farm, the land was split by road. Had to make 2 clean zones and treat them like two separate facilities.
- e. Traffic flow-National Guard set up a pad and pressure washed every truck that went through.
- f. Creating compost-If under 10,000 cubic yards, there was no need for a permit, it would be exempt. If over 10,000 cu yds, then an exemption must be granted.
- f. In Nebraska, seeing Iowa and Minnesota made them decide to get all hands on deck to help. Hong Kong was not allowing any poultry products in because of Governor's Declaration.
- g. In Iowa, eliminate some lifting of limits on hours truckers can drive, gives them flexibility to make variances for air quality, etc.

O. Industry Perspective

- a. Michael Foods thought they had great biosecurity measures.
 - a. They responded very rapidly in Minnesota, killing about 2 million birds. They started response when four birds were dead in three adjacent cages.
 - b. They depopulated a 60,000 bird layer house, then cleaned up. USDA appraisers came in and found it empty. That caused a little bit of an issue.
 - c. 12 days later, the call came in about the Nebraska farms. The first was a 3 million bird farm, then a 500,000 bird farm, then a 200,000 bird farm.
 - d. What to do with the dead birds? Burial was not an option, according to Corporate. Landfilling was not an option. Composting was about the only thing left to them.
 - e. Frustration was growing, especially with outside contractors. About half of them were afraid of chickens.
 - f. Nebraska response was overwhelming. Everything was great. National Guard wasn't necessary at NE sites.

b. Lessons Learned

- a. If it happens again, there are things they can say that will not have financial repercussions, but still help to avoid panic and help public perceptions of the incidents.
- b. Composting the birds does take up considerable space. NDEQ addressed runoff and runoff issues very early so

they did not become problems. The compost will have to be turned a couple more times to get carbon content down.

- c. Their plan didn't include disposal of PPE.
- d. Rapid depopulation is critical. It worked very well in Minnesota. It didn't in Nebraska.
- e. They will make changes to biosecurity procedures. Keep the inside of layer house separate from outside world.
- f. They are not testing the water, because the layers all use nipple waterers.
- g. The farm in Nicolette is 1/3 repopulated, it should be repopulated by the end of August. Nebraska should be repopulated by the end of September. Expect to have last of layer farms restocked by April.
- h. Industry has outside contractors that produce eggs for them. They have bought pullets from other producers. They're going through normal programs to repopulate.
- i. This incident has left many people scared.
- j. The industry is not looking at changing designs to facilitate whole house euthanizing. It's easier to prevent the need for depopulation than it is to make houses depopulation friendly.
- k. The vaccines don't have a huge impact on egg products, because the eggs are all pasteurized anyway.
- l. Thought that, overall, the interactions with state entities were pretty seamless.