Guidance for Iowa Premises Preparedness & Planning  
For Avian Influenza (AI), including  
Highly Pathogenic Avian Influenza (HPAI), and  
Low Pathogenic Avian Influenza (LPAI)  

Updated 1-10-2017  

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INTRODUCTION
Guidance for Avian Influenza Premises Preparedness & Planning

The Iowa Department of Agriculture and Land Stewardship (IDALS), in conjunction with the United States Department of Agriculture (USDA), have developed this resource guide to assist poultry producers prepare for, and for use in the event of, an outbreak of Avian Influenza (AI) which may include Highly Pathogenic Avian Influenza (HPAI) or Low Pathogenic Avian Influenza (LPAI).

A swift initial response to AI is critical to controlling the spread of the disease. The five key areas of initial focus are:

1. **Quarantine.** A draft quarantine is included, so a producer can review the requirements and determine what is required from the flock owner/producer to comply with the quarantine.
2. **Epidemiologic assessment.** This is an assessment of your premises/poultry operation, practices, and possible contacts with other poultry premises during the two weeks prior to the HPAI/LPAI diagnosis.
3. **Indemnity Agreement.** The flock owner needs to agree to, and sign, the USDA Indemnity Agreement for poultry and poultry products, if they wish to receive indemnification. USDA will gather information related to the inventory of poultry and eggs (if applicable) on the date the flock was determined to be presumptive positive for HPAI/LPAI. The age of poultry in weeks plus details such as how many times a layer flock has been molted and the number of weeks past the most recent molt will be recorded.
4. **Depopulation.** Depopulation methods will be analyzed in the context of meeting the need of timeliness to stop the spread of disease, with a goal of depopulating the flock within 24 hours after the diagnosis of presumptive positive for HPAI/LPAI is received.
5. **Disposal.** USDA will discuss options for accomplishing disposal and payment for disposal with the flock owner.

Based on clinical signs or a presumptive diagnosis, a team from IDALS, USDA, and Iowa Department of Natural Resources (IDNR) will meet with the poultry owner and/or site owner as soon as possible to discuss these five key areas. Information in this guide, and subsequent editions of this resource guide, are used in the initial site visit to quickly respond and attempt to contain the spread of HPAI/LPAI.

Methods, options, practices, etc., discussed in this resource guide will evolve and change over time, as will this guide. In the event of an HPAI/LPAI outbreak, the most up to date information will be used and the current outbreak status will dictate the course of action.

Any questions regarding avian influenza may be directed to:
Iowa Department of Agriculture and Land Stewardship
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319
515-281-5321

December 20, 2016
QUARANTINE INFORMATION
Guidance for Avian Influenza Premises Preparedness & Planning

The Iowa Department of Agriculture and Land Stewardship (IDALS) will issue an infected premises quarantine based on lab results or clinical signs indicative of Avian Influenza (AI) which may include Highly Pathogenic Avian Influenza (HPAI) or Low Pathogenic Avian Influenza (LPAI). The quarantine prohibits all movement in and out of the infected premises. However, if a producer deems it necessary to move poultry, poultry products, or other items into or out of the quarantined premises, a permit request must be submitted to IDALS for approval or denial as the movement of any materials on or off of the infected premises is prohibited unless the movement has been pre-approved in a written permit issues by IDALS.

The quarantine and subsequent attachments clearly delineate the quarantine boundary around the premises, as well as the required a decontamination line(s). Both the quarantine boundary and the decontamination line(s) will be clearly marked on a map that will be an attachment to the quarantine. Requirements for cleaning and disinfection activities at the decontamination line are included as a quarantine attachment.

Violation of the terms of the quarantine is punishable by civil penalties pursuant to Iowa Code Chapter 163.

Any questions regarding the quarantine or requirements may be directed to:
Iowa Department of Agriculture and Land Stewardship
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319
515-281-5321

December 20, 2016
IN RE: 
Name
Avenue
Town, IA 50000

ORDER NO. AI 17-0000

TO: Name

I. SUMMARY

This Order of Quarantine requires that all poultry and poultry products located at above-referenced premises (or NAME, AVENUE, TOWN if the affected location is different), hereafter referred to as the “affected premises”, and outlined in Quarantine Attachment 1, are hereby placed in quarantine under suspicion of being infected with, or exposed to the disease known as avian influenza. All poultry and poultry products located at this affected premises must be isolated and quarantined. No poultry and/or poultry products may be removed or delivered to the affected premises without a permit. In addition, any movement of vehicles into or out of the premises must comply with proper cleaning and decontamination per USDA “Highly Pathogenic Avian Influenza Standard Operating Procedures: 15. Cleaning and Disinfection” (copy provided) and must be permitted by the Iowa Department of Agriculture and Land Stewardship (IDALS).

Questions regarding this Order should be directed to:

Relating to Technical Requirements: Greg Schmitt, DVM 627 – 1st Avenue LeMars, Iowa 51031 IDALS Phone: (515) 281-5305

Relating to Appeal Rights: Jacob Larson
Agriculture and Land Stewardship Assistant Attorney General Lucas State Office Building 321 E. 12th St., Ground Flr. 
II. JURISDICTION

1. IDALS may establish, maintain, enforce, and regulate quarantine and other measures relating to the movement and care of animals that may be exposed or afflicted with an infectious or contagious disease. Iowa Code § 163.1(4).

2. IDALS may quarantine or destroy any animal exposed to or afflicted with an infectious or contagious disease. Iowa Code § 163.10.

3. Whenever the chief of division of animal industry shall have knowledge of an outbreak of any contagious, infectious or communicable disease among domestic animals in the state, the chief of the division of animal industry shall take such action as necessary for the prevention and suppression of such disease, including establishment, enforcement and maintenance of quarantines. 21 Iowa Admin. Code 64.2.

4. “Infectious or contagious disease” means “glanders, farcy, maladie du coit (dourine), anthrax, foot and mouth disease, scabies, classical swine fever, tuberculosis, brucellosis, vesicular exanthema, scrapie, rinderpest, avian influenza or Newcastle disease as provided in chapter 165B, pseudorabies as provided in chapter 166D, or any other transmissible, transferable, or communicable disease so designated by the department.” Iowa Code § 163.2(5).

5. “Highly pathogenic avian influenza and low pathogenic H5 or H7 avian influenza in poultry” has been designated by IDALS as an infectious or contagious disease. 21 Iowa Admin. Code 64.1(6).
6. Quarantine is defined as “the perfect isolation of all diseased or suspected animals from contact with other animals as well as the exclusion of other animals from yards, stables, enclosures or grounds where suspected or diseased animals are or have been kept.” 21 Iowa Admin. Code 64.6.


8. All poultry and poultry products must not be sold privately, except by a state authorized permit. Exposed animals and products must remain on the premises where disclosed unless a State or Federal permit for movement has been obtained, in accordance with Iowa Code chapter 163 (Infectious and Contagious Among Animals), and 21 Iowa Admin. Code 64 (Infectious and Contagious Diseases), USDA Code of Federal Regulations (CFR) 9 CFR and USDA Highly Pathogenic Avian Influenza Response Plan (Red Book) - http://www.tahc.state.tx.us/emergency/HPAI_ResponsePlan.pdf

III. STATEMENT OF FACTS

9. The above-referenced named party owns and/or cares for poultry and poultry products located at the affected premises.

10. IDALS received lab results from the poultry and poultry products located at the affected premises and the results identified that the poultry and/or poultry products may be/are infected/exposed with avian influenza.

11. Avian influenza is an infectious or contagious disease.

IV. CONCLUSIONS OF LAW

12. IDALS has determined that the poultry and poultry products located at the affected premises, may be/are infected/exposed with avian influenza. Iowa Code Section 163.10 and 21 Iowa
Administrative Code 64.2 authorize IDALS to take such action as necessary for the prevention and suppression of avian influenza, including establishment, enforcement and maintenance of quarantines.

V. ORDER

THEREFORE, IDALS orders the following:

13. All poultry and poultry products located at the affected premises are hereby placed in quarantine under suspicion of being infected with, or exposed to the disease known as avian influenza.

14. All poultry and poultry products located at the affected premises must be isolated and quarantined.

15. No poultry or poultry products located at the affected premises may be removed from the premises without permission from IDALS. In addition, any movement of vehicles into or out of the affected premises must comply with proper cleaning and decontamination per USDA “Highly Pathogenic Avian Influenza Standard Operating Procedures: 15. Cleaning and Disinfection” (copy provided) and must be permitted by the Iowa Department of Agriculture and Land Stewardship (IDALS).

16. The quarantine of poultry and poultry products located at the affected premises, shall remain in effect until revoked by the Chief of Division of Animal Industry at IDALS, or an assistant or representative of the Division of Animal Industry at IDALS. Restrictions and avian influenza testing requirements for removal of quarantine shall be in compliance with all State and Federal rules and specifically, in accordance with Iowa Code Chapter 163 (Infectious and Contagious Among Animals), and 21 Iowa Admin. Code 64 (Infectious and Contagious Diseases), USDA Code of Federal Regulations (CFR) 9 CFR and USDA Highly Pathogenic Avian Influenza Response Plan (Red Book)- $http://www.tahc.state.tx.us/emergency/HPAI_ResponsePlan.pdf$

17. The quarantine of poultry and poultry products located at the affected premises, is effective upon the issuance of this Order.

VI. EMERGENCY ADJUDICATIVE PROCEEDING
18. IDALS is issuing this quarantine because the outbreak of avian influenza in the poultry located at the affected premises is contagious to other poultry and may impact the health and well-being of poultry, which requires immediate agency action.

19. Avian influenza causes clinical signs which may include: respiratory disease, drop in egg production, sneezing, coughing, ocular and nasal discharge, watery diarrhea, cyanosis and edema of the head, comb, wattle, and edema and red discoloration of the shanks and feet. Avian influenza is spread between individual birds by ingestion or inhalation of the avian influenza virus.

VII. APPEAL RIGHTS

20. Pursuant to Iowa Code section 17A.12 and 21 Iowa Administrative Code 2.4, a written Notice of Appeal may be filed with the Secretary within 30 days of your receipt of this Order. The Notice of Appeal shall be sent to the address provided above. A contested case hearing will then be commenced pursuant to Iowa Code chapter 17A and 21 Iowa Administrative Code 2. You may contact Jacob Larson, attorney for the Department, for more information regarding appeal procedures and resolution of this Order.

VIII. NONCOMPLIANCE

21. Failure to comply with this Order may result in the imposition of civil penalties and injunctive relief pursuant to Iowa Code sections 163.61 and 163.62.

DAVID SCHMITT, State Veterinarian
Animal Industries Bureau
Iowa Department of Agriculture and Land Stewardship

Dated this Day of Month, 2017.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true copy of the foregoing document attached to this Certificate was:

[ ] personally delivered
[ ] sent regular mail
[ ] sent certified mail
[ ] sent via fax
[ ] sent via email

Staff Name: [Inspector or Process Server]

January 3, 2017
QUARANTINE ATTACHMENT 1
Example Quarantine Boundary Map

Quarantine Boundary
Decontamination area

January 20, 2016
QUARANTINE ATTACHMENT 2
Guidance for Avian Influenza Premises Preparedness & Planning

This premises ______ (911 address and premises identification) has been quarantined to prevent the spread of Avian Influenza (AI), either Highly Pathogenic Avian Influenza (HPAI) or Low Pathogenic Avian Influenza (LPAI).

As owner/agent ____ NAME ______, you are responsible to maintain all quarantine procedures on your premises to prevent HPAI transmission, which can occur by direct or indirect means.

This Quarantine prevents all movement onto and off of this premises, unless a permit is issued for specific, defined, movements.

Security
- Secure all fences and points of entrance/exit to prevent unauthorized access to the site, or inadvertent movement/escape of poultry, poultry products, or contaminated equipment off of the premises. Maintain one point of access/egress where quarantine biosecurity and decontamination procedures can be implemented and monitored.

Poultry/Poultry Products (whole shell eggs, liquid eggs, pasteurized whole shell eggs or liquid eggs, compost, manure, egg shells, inedible egg product, etc.)
- Prohibit movement of all poultry/poultry products onto or off from the premises, unless an official movement permit has been issued by IDALS.

Quarantine Boundary
- The quarantine boundary (see Quarantine Attachment 1 – Example Quarantine Boundary Map) clearly denotes the quarantine boundary for this premises. Also indicated on Attachment 1 is the physical location of the decontamination line(s). Decontamination must occur on movements off of this premises.
- It is the ultimate responsibility of the producer/owner to ensure cleaning and disinfection protocols are complete prior to any movement across the decontamination line. See cleaning and disinfecting (C&D) details under Equipment and Vehicles below, and in Quarantine Attachment 3 - Cleaning and Disinfection at the Decontamination Line.
- The decontamination area should be placed on the quarantine boundary to avoid recontamination prior to leaving.

People
- Limit people on site to employees essential to care for the animals, those who live on the premises, people who must deliver feed or provide other essential services, and authorized response personnel. Note: limit employees to only those deemed essential, for example: to care of animals, participate in response activities and perform critical maintenance and site security tasks. Visitors are not allowed on the premises at this time.
- Wear outerwear that can be cleaned and disinfected, such as coveralls and boots, or single use outerwear that can be properly disposed of.
- Before leaving the premises, ensure compliance with one of the biosecurity protocols below.
a. Shower and change into clean clothes including clean footwear. Attention should be paid to prevent any contamination of clean clothes when leaving the premises.
b. Remove coveralls, hair covering and footwear/covering, and PPE, thoroughly wash hands, and make sure all preventative measures have been taken to ensure personnel do not track any virus off the infected premises.

- Leave contaminated clothes on site to be laundered. If laundry is not available, disposable coveralls and boots should be worn. After removal of disposable coveralls and boots, dispose of them in a manner that will not allow HPAI/LPAI to be transferred off the premises.

**Equipment and Vehicles**
- Clean and disinfect all equipment prior to leaving the premises. Every type of equipment (tools, shovels, skid loaders, vehicles, etc.) must be washed to remove all organic matter (dirt/manure). Power wash vehicles, paying special attention to the undercarriage. Vehicles and equipment must be rinsed and areas with pooling water are eliminated. Appropriate disinfection (by solution or heat application) must be implemented according to directions prior to crossing the decontamination line. See Quarantine Attachment 3 - Cleaning and Disinfection at the Decontamination Line.

**Deliveries**
- The movement of any materials on or off of the infected premises is prohibited unless the movement has been pre-approved in a written permit issues by IDALS. If any movements are permitted by IDALS, all attempts should be made to minimize any unnecessary traffic on site.

**Wildlife**
- Be aware of wildlife movement around the premises. Mitigation strategies to keep wild birds from entering facilities are required.

By signing, I agree to implement these procedures.

Owner/agent signature___________________________________________________________

January 3, 2017
QUARANTINE ATTACHMENT 3
Cleaning and Disinfection at the Decontamination Line

Safety
- Read and follow all labels.
- Enforce all safety protocols when handling, mixing and applying chemical disinfectants to prevent harm to personnel, equipment and the environment. Read Safety Data Sheets (SDS) which list the stability, hazards, personal protection needed, and first aid for all chemical disinfectants. Use appropriate personal protective equipment (PPE) including gloves, face and eye protection.
- Follow all product label instructions on the detergent and on the EPA-registered disinfectant (dilution, handling, contact time, stability, storage, and disposal).

Cleaning
- Dry clean all surfaces before entering the decontamination area.
  - Dry brush to remove all visible dirt and organic matter.
- Wash all surfaces and rinse within the identified decontamination area.
  - Wash items thoroughly with detergent using a soft brush, cloth or sponge, as needed.
  - Rinse items with clean water.
  - Contain runoff water. Do not allow runoff water to drain into other water sources or into “clean” uncontaminated areas.
  - Allow items to dry prior to disinfection.

Disinfecting
- Disinfectant Application
  - Prepare fresh solutions of the EPA-registered disinfectant according to the product label to ensure efficacy.
  - Apply disinfectant solution to all surfaces with a low pressure sprayer, or by wiping, or immersing the items in the solution. (*Virkon® instructions can be substituted.*)
  - Use high pressure sprayers with caution to avoid further spread or aerosolization of the HPAI/LPAI virus.
  - Ensure all areas are covered thoroughly with the solution and remain “wet” throughout the necessary contact time; reapply if necessary.
- Rinse
  - Rinse thoroughly with clean warm (if possible) water – rinsing is essential as detergents or disinfectants dried on components may cause deterioration of rubber or metal parts if not completely removed.
  - Allow items to air dry. Some items may be placed in the sunlight for drying and additional disinfection.

People – personal protective equipment (PPE)
- Conduct personnel (and PPE) cleaning and disinfection in a systematic manner to ensure efforts are effective.
- Follow cleaning and disinfecting steps of reusable PPE as above. Pay close attention to soles of boots.
• Carefully remove outwear (doff PPE) to avoid cross contaminating inner clothing.
• Leave clothes to be laundered on site.
• Place disposable clothing items in plastic garbage bags. Spray the outer surface of the bag with disinfectant solution, and dispose in a manner that will prevent the spread of HPAI/LPAI.
• Ensure people do not cross the decontamination line in clothes that may have been contaminated.

Equipment
• Prevent any piece of equipment from leaving the premises without first being thoroughly cleaned and disinfected.
• Use an alternative disinfection method such as heat (steam, bake, flame), or ultraviolet radiation (sunlight), if equipment may be damaged by chemical solutions.
• Wipe or spray air-tight electronic equipment.

Vehicles
• Ensure the disinfection station is constructed to accommodate vehicles.
• Berm the area to contain water runoff.
• Remove any loose items out of the vehicle interior for individual C&D.
• Use brooms, shovels, manure forks, brushes and scrapers to remove all visible organic material from vehicle exterior before entering the decontamination area.
• Mechanical scrubbing and scraping may be necessary to remove oils, grease or exudates from rough surfaces, deep cracks, or other surface irregularities.
• Pre-soak surfaces and items that are caked with organic materials first, if necessary.
• Pay special attention to the wheel wells and undercarriage.
• Thoroughly clean and disinfect the interior of the vehicle, especially if the driver has left the cab while on the quarantined premises.
• Allow vehicle to sit 5-10 min to drip off rinse water before applying disinfectant.
• Keep the disinfectant in contact with all surfaces for the appropriate contact time listed on the label.

January 3, 2017
A critical component to stopping the spread of a foreign animal disease such as Highly Pathogenic Avian Influenza (HPAI), or Low Pathogenic Avian Influenza (LPAI), is to do a thorough epidemiological evaluation of the infected premises. The intention of the epidemiological review of infected premises is to try to determine how the infected premises may have gotten the virus, and identify any other premises that may be potentially infected with Avian Influenza as a result of contact with the infected premises.

The focus of the epidemiologic review is the two weeks prior to the diagnosis of HPAI or LPAI. Included in this section are some questions to begin the review. Any information gathered prior to the IDALS and USDA team arriving at your premises, will help the process move quickly and efficiently.

Avian Influenza Epidemiological (Epi) Report Questionnaire

**I. Premises Information**

Premises Identification Number: 

Name of Premises: 

Owner of Premises: 

Address of Premises: 

County of Premises: 

Premises Owner Phone: 

Premises Owner Email: 

Premises Entrance Latitude: 

Premises Entrance Longitude: 

**II. Owner Information**

Owner of Animals: 

Address of Animal Owner: 

Animal Owner Phone: 

Animal Owner Email: 
III. Interview Contact Information

Name of person administering questionnaire: _______________________________________

Name of person answering questionnaire: _______________________________________

Phone: _______________________________________________________________________

Position (e.g., owner, manager, veterinarian, etc.): ________________________________

Date of interview: __________________________________________________________________

IV. Flock Information

<table>
<thead>
<tr>
<th>Clinical signs (brief description)</th>
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<tr>
<td>Baseline daily mortality rate: (insert rate from farm)</td>
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<tr>
<td>Daily mortality rate (number of dead birds/bird population on date of initial sampling)</td>
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<tr>
<td>Date first clinical signs were noted</td>
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<td>Date initial samples were collected</td>
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<tr>
<td>Laboratory to which initial samples were submitted</td>
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<tr>
<td>Results of any AI tests in past 21 days</td>
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<td>Date premises quarantine or hold order was issued</td>
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List all houses on the farm even if not affected with HPAI/LPAI. Use additional space as needed.

<table>
<thead>
<tr>
<th>House ID</th>
<th>Type of Birds</th>
<th>Number of Birds</th>
<th>Age of Birds</th>
<th>House Dimensions</th>
<th>Ceiling Height</th>
<th>Ventilation Type</th>
<th>Date of Onset of Clinical Signs</th>
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**DRAFT**
Do you have a veterinarian who regularly advises you on disease prevention?  
☐ YES  ☐ No

If yes, name of veterinarian: ______________________________________

Do you have a pre-arranged depopulation plan for this flock?  ☐ YES  ☐ No

If yes, briefly describe the pre-arranged depopulation method: ________________________________

Have you exercised or used this method previously?  ☐ YES  ☐ No

V. Trace-in and Trace-Out Questionnaire

Name of person administering questionnaire: ________________________________

Name of person answering questionnaire: ________________________________

Phone: ________________________________

Position (e.g., owner, manager, veterinarian, etc.): ________________________________

1. How are daily mortalities disposed of on this farm? Please specify if disposal occurs on or off this premises.
   a. ☐ Composting
   b. ☐ Burial
   c. ☐ Incineration
   d. ☐ Rendering
   e. ☐ Landfill
   f. Other (specify): ______________________________________

If disposal occurs at another premises:

<table>
<thead>
<tr>
<th>Name and Location (company name)</th>
<th>Transported by</th>
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</table>
2. List any locations that accept manure/litter or compost from this premises during the last 21 days.

<table>
<thead>
<tr>
<th>Name and location (company name)</th>
<th>Date (mm/dd/yy)</th>
<th>Intended use</th>
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3. Was manure or animal material (dead birds, egg shells, bad eggs, etc.) from other premises brought onto this premises during the last 21 days?
   □ YES □ No If YES: ____________________________________________

<table>
<thead>
<tr>
<th>Product</th>
<th>Source</th>
<th>Date (mm/dd/yy)</th>
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4. Have you or any of your employees, including any contractors or volunteers, visited any other premises with poultry or any processors of eggs or poultry products during the last 21 days? e.g., farm, slaughter, processing, market, residence with poultry
   □ YES □ No If YES: ____________________________________________

<table>
<thead>
<tr>
<th>Premises/processor name</th>
<th>Person/title</th>
<th>Date (mm/dd/yy)</th>
</tr>
</thead>
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5. Is there a community living situation where farm workers from this premises interact with workers from other poultry facilities?
   □ YES □ No If YES, describe: ____________________________________________

6. Did any crews (e.g., catch crews, load-out, vaccination, insemination) enter the premises during the last 21 days?
   □ YES □ No If YES, describe: ____________________________________________
7. Did any of the following visit the premises during the last 21 days? If Yes, give date and name or company information. Is there a visitor log? □ YES □ No

<table>
<thead>
<tr>
<th>Visitor</th>
<th>Date(s) of visit</th>
<th>Name/company</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Federal/State veterinary or animal health worker</td>
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<tr>
<td>b. Extension agent or university veterinarian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Private or company veterinarian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Company service person</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Nutritionist or feed company consultant</td>
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<td>f. Inspector (e.g., FDA, NOP, biosecurity auditor, etc.)</td>
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<td>g. Feed delivery</td>
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<td>h. Egg truck</td>
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<td>i. Litter/bedding delivery</td>
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<td>j. Litter removal</td>
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<td>k. Renderer/dead bird pick up</td>
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<td>l. Pest/rodent control</td>
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<td>m. Manure truck</td>
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<td>n. Trash pick up</td>
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<td>o. Occasional worker (e.g., family member, part-time help over holiday)</td>
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<td>p. Wholesaler, buyer, or dealer</td>
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<tr>
<td>q. Customer/consumer (private individual)</td>
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<tr>
<td>r. Other (Electrician, building contractor, plumber, school groups, 4-H groups, FedEx/UPS, etc.)</td>
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</tbody>
</table>

8. Specify if any equipment was shared with another premises during the last 21 days, whether you received or loaned the equipment, and the location and name of the companies or premises the equipment was shared with:
Vehicle | Received/loaned | Specify (name, company, location)
--- | --- | ---
ATV/4-wheeler | ☐ Rec/d ☐ Loaned | 
Tractor | ☐ Rec/d ☐ Loaned | 
Gates/panels | ☐ Rec/d ☐ Loaned | 
Skid-steer loaders | ☐ Rec/d ☐ Loaned | 
Egg flats | ☐ Rec/d ☐ Loaned | 
Egg racks | ☐ Rec/d ☐ Loaned | 
Pallets | ☐ Rec/d ☐ Loaned | 
Dead bird containers | ☐ Rec/d ☐ Loaned | 
Manure/litter handling equipment | ☐ Rec/d ☐ Loaned | 
Pressure sprayers/washers/foamers | ☐ Rec/d ☐ Loaned | 
Other cleaning equipment | ☐ Rec/d ☐ Loaned | 
Vaccination equipment | ☐ Rec/d ☐ Loaned | 
Bird catching equipment | ☐ Rec/d ☐ Loaned | 
Live haul loader | ☐ Rec/d ☐ Loaned | 
Other (debeakers, etc., specify) | ☐ Rec/d ☐ Loaned | 

9. Were any birds introduced onto the premises during the last 21 days?
☐ YES ☐ No If YES, describe: ________________________________

<table>
<thead>
<tr>
<th>Date (mm/dd/yy)</th>
<th>Bird type (e.g., chicks, poults, spiking roosters, layers, breeders, etc.)</th>
<th>Source</th>
<th>Transported by</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

10. Have any birds moved off the premises during the last 21 days?
☐ YES ☐ No If YES, describe: ________________________________

<table>
<thead>
<tr>
<th>Date (mm/dd/yy)</th>
<th>Bird type (e.g., chicks, poults, spiking roosters, layers, breeders, etc.)</th>
<th>Destination</th>
<th>Transported by</th>
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</table>
11. Were any birds moved within the premises during the last 21 days? (e.g., from one barn to another on the same premises)
   □ YES  □ No  If YES,
   a. Was a contract crew used?  □ YES  □ No  If YES, specify company/crew name:

   b. Was farm specific equipment used?  □ YES  □ No  If NO, describe:

12. Were any eggs moved onto the premises during the last 21 days?  □ YES  □ No  If YES, list source (name and location) for eggs coming onto this premises during the last 21 days, the dates eggs were received, and whether the eggs were intended for hatching, or were processed or unprocessed from source.

<table>
<thead>
<tr>
<th>Source name and location (company name)</th>
<th>Date (mm/dd/yy)</th>
<th>Intended for hatching?</th>
<th>Processed?*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>□ YES □ No</td>
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<td>□ YES □ No</td>
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</table>

*Method of processing: ____________________________

13. Were any eggs moved off the premises during the last 21 days?  □ YES  □ No  If YES, list source (name and location) for eggs moving off this premises during the last 21 days, the dates eggs left, and whether the eggs were intended for hatching, or were processed or unprocessed from source.

<table>
<thead>
<tr>
<th>Source name and location (company name)</th>
<th>Date (mm/dd/yy)</th>
<th>Intended for hatching?</th>
<th>Processed?*</th>
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*Method of processing: ____________________________

14. Is there any additional or important information that we need to know at this time regarding the disease on your farm?  □ YES  □ No  If YES, describe: ____________________________

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<table>
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<tbody>
<tr>
<td>1</td>
<td>House ID</td>
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<td>Number of Birds</td>
<td>Age of Birds</td>
<td>House Dimensions</td>
<td>Ceiling Height</td>
<td>Ventilation Type</td>
<td>Date of Onset of Clinical Signs</td>
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</tbody>
</table>
VI. Additional Contacts

15. Other people from company we may need contact info for:

<table>
<thead>
<tr>
<th>Name:</th>
<th>Title:</th>
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<tr>
<th>Phone:</th>
<th>Email:</th>
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<th>Name:</th>
<th>Title:</th>
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<th>Phone:</th>
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16. Business Associations. Does this premises have associations with other poultry or poultry products companies? For instance, is this premises or the birds on this premises owned by another poultry company, is this premises a sister company to another poultry company, do the owner(s) of this premises or birds own other Poultry sites or birds on other sites? List and describe:

________________________________________________________________________

________________________________________________________________________

17. Neighboring facilities. Are there other poultry sites near this site? Are there dangerous contacts to this site? For example, within the last 21 days have you had feed delivered by the same company as another poultry site, have you used the same service people as another poultry site, does another poultry site use the same egg truck as you, etc.? List and describe:

________________________________________________________________________

________________________________________________________________________

18. Feed Mill. Is there a feed mill on site? ☐ YES ☐ No If YES, does this feed mill prepare feed for other sites? ☐ YES ☐ No If YES, list all other sites that have received feed from this feed mill in the last 21 days:

________________________________________________________________________

________________________________________________________________________
19. **Processing Facilities on Site.** Are there other processing facilities (egg breaker, pasteurizer, grader, compostor, pelleteer, etc.) on site? □ YES  □ No  If YES, describe:____________________________

    a. If YES, what shipments into or out of facility have occurred in the last 21 days? □ YES  □ No

9. **Waste Water.** How is waste water disposed of, if any? ________________________________

10. **By-Products.** Where do other by-products (for example eggshells) or waste go? ________

11. **Truck Wash.** Is there a truck wash on site? □ YES  □ No  If YES, how is the waste water handled? ________________________________

12. **Truck Wash.** Do outside trucks use this truck wash? □ YES  □ No  If YES, please explain:

January 3, 2017
SITE SPECIFICS QUESTIONNAIRE
Guidance for Avian Influenza Premises Preparedness & Planning

All Inclusive Information from Owner of Infected Premises

- Owner name and 911 address
- Legal name of business
- 911 address of premises with livestock if different than owner address
- Premises ID
- If contract grower, owner of livestock and 911 address
- E-mail addresses of all entities involved and if in agreement to receive information via e-mail-including acceptance of service of quarantine
- All pertinent information about livestock facility (inventory of livestock, numbers of barns, size of barns, type of barns-peaked roof-drop ceiling, etc., number and size of heaters per barn, current equipment on site, such as skid loaders)

Questions will vary based on type of operation, depopulation method employed, disposal method chosen, etc.

January 3, 2017
Before any poultry are depopulated on a premises because of the presence of Highly Pathogenic Avian Influenza (HPAI), or Low Pathogenic Avian Influenza (LPAI), the USDA appraisal and indemnity form covering the poultry on the premises must be prepared and signed. The process of the appraisal and indemnity is clearly laid out in the USDA Appraisal and Indemnity Procedures document, https://www.aphis.usda.gov/animal_health/emergency_management/downloads/hpai/indemnity_procedures.pdf. It will be help the process move quickly if producers are familiar and have read and have required information that is available.

December 20, 2016
DEPOPULATION GUIDANCE AND OPTIONS
Guidance for Avian Influenza Premises Preparedness & Planning

Foreign animal disease outbreaks, such as Highly Pathogenic Avian Influenza (HPAI), or Low Pathogenic Avian Influenza (LPAI), require immediate responses to contain and eliminate the disease. Immediate depopulation of poultry on a premises that has been diagnosed with HPAI, and possibly LPAI, is critical in containing the disease and stopping potential spread to other premises.

USDA has established a 24-hour depopulation goal, starting at the time a presumptive positive test result is received. If additional infected premises are discovered, a presumptive positive may not be needed to trigger depopulation.

The following documents provide options for depopulation:


Ventilation Shutdown (VSD) Evidence and Policy, https://www.aphis.usda.gov/animal_health/emergency_management/downloads/hpai/ventilationshutdownpolicy.pdf, are applicable to addressing the different options of depopulation to determine what will be the best option for use on your premises to meet the 24 hour depopulation goal.

Producers will need to find help with penning of animals – appropriate guidelines for PPE and contact with other birds following will be provided to producers.

December 20, 2016
DISPOSAL OPTIONS AND INFORMATION
Guidance for Avian Influenza Premises Preparedness & Planning

Following depopulation of poultry due to Highly Pathogenic Avian Influenza (HPAI), or Low Pathogenic Avian Influenza (LPAI), the next critical step in eliminating and containing the animal disease is to dispose of the dead poultry. The Iowa Department of Agriculture and Land Stewardship (IDALS) will require disposal of birds to be handled onsite following accordance with all Iowa Department of Natural Resources (DNR) regulations. Only in rare cases will dead poultry, poultry products, or other by-products be allowed to be moved off site for disposal. The producer must request permission to move products off site and explain the reasons why. If permission is granted, the producer must then fill out a permit request, including destination, and obtain written approval prior to engaging in moving depopulated poultry off-site for disposal.

Preferred onsite disposal options include composting and burial. Incineration, landfill, rendering, and alkaline hydrolysis are options that require additional approval and planning.

Information following in this section can be used as guidance material and as a list of resources to obtain more information.

December 20, 2016
A Quick Guide for Ag Producers
Response to a Poultry Disease Outbreak

Avian influenza hit Iowa turkey and layer producers hard in 2015. Producers faced agonizing choices as they lost their flocks. They had to make quick decisions on how to dispose of their losses — humanely, economically and safely — for the health of their neighbors and the environment, now and in the future.

Poultry producers can use this guide when they have a disease outbreak or are planning for a potential outbreak. Look for these sections: the five carcass disposal options in Iowa, disposal of potentially contaminated waste, supplies, equipment, and the disposal of wastewater generated when decontaminating equipment, vehicles and staff.

Carcass Disposal
There are five disposal options. Which one you use depends on the disease, facility location, and other qualifying factors. The Iowa Department of Natural Resources (DNR) must approve disposal options prior to disposal. The Iowa Department of Agriculture and Land Stewardship (IDALS) must approve any movement off-site and required biosecurity measures.

1. Composting
Composting carcasses effectively inactivates viruses when done correctly. It can be cost and labor effective. Composting speeds up normal decay processes caused by naturally occurring bacteria and fungi. Follow recommendations for construction, materials and temperature monitoring to ensure quick, complete decay, avoid foul odors and prevent releasing of highly contaminated liquids.
Materials needed for effective composting:
- Carbon Source Material – corn silage, poultry litter, hay/straw, saw dust, ground corn stalks
- Cover Material – corn silage, wood chips, hay/straw, ground corn stalks
- Plan on roughly 12 cubic yards of cover/base material per 1,000 lbs. of carcasses
- To estimate the length of windrow needed, allow one foot of windrow for:
  - 82 ducks
  - 50 chickens
  - 14 turkeys

Factors indicating effective composting:
**Moisture** — For optimum performance, maintain moisture content between 50 and 60 percent. Compost should be moist but not soggy. If you can squeeze moisture from a handful of compost, mix it with drier material.

**Carbon Source** — Carbon is needed for high levels of microbial activity. The right materials keep compost porous allowing oxygen into the pile and permitting gases like ammonia, which inhibits microbial activity, to escape. Some materials are particularly good for absorbing excess liquid released by decaying carcasses, an important factor in preventing undesirable environmental impacts.

**Heat** — Heat is important for successful composting. Check temperatures frequently to ensure viruses are inactivated. Measure at two depths in the compost pile (18” and 36” from surface) at 10 to 12 locations along the length of the windrow to insure temperatures reach 130 to 150°F for 3 consecutive days.

**Construction:**
See Diagram 1 and Table 1 for separation distances.
- Base Layer: Uncompacted and minimum of 15 in deep to absorb leachate.
- Compost Core: 1:1 mix of poultry and carbon source material
- Height: Maximum 8 ft.
- Cover: Minimum 12 in. to retain heat and absorb odor and excess precipitation.
- Windrow Width: 15-ft. maximum base; 14-ft. maximum windrow to ensure oxygen penetration.
- Width between Windrows: Two loader widths

### Diagram 1: Composting Requirements

**BURIAL**

On-site burial can effectively inactivate viruses. When done correctly, it can also be environmentally safe and cost effective. If some animals cannot be buried onsite, consider burial on neighboring properties subject to the owner's approval.

**Site Selection Criteria:**

**Materials** — No additional materials needed.

**Factors affecting effective burial** — Burial is easiest and best under dry, warm conditions. Wet, muddy and frozen ground may require special equipment or extra care. Burial site location and conditions must meet DNR-established criteria and site conditions. Verify site location with DNR field staff.

**Exclude Utilities** — First contact IOWA ONE CALL at 800-292-8989 to locate any buried utilities on proposed site. Premises owner must also ensure field drainage tile is located at least 200 feet from excavation.

**Protect Wells and Well Source Water** — Ensure private wells are more than 200 feet and public wells are more than 2,500 feet from the excavation. Check and confirm burial site is not within a source water protection zone for wells regulated by the DNR. Find source water zones at: [programs.iowadnr.gov/sourcewater/maps/index.html](programs.iowadnr.gov/sourcewater/maps/index.html).

**Use of Geographic Information System Maps** — Use DNR's Burial Zone Siting Atlas at [programs.iowadnr.gov/maps/afoburial.html](programs.iowadnr.gov/maps/afoburial.html) to locate potential burial sites. The maps assign risks to groundwater contamination based on alluvial soils and karst topography. They also map known private and public wells. The first two zones might be usable,
but DNR field staff must approve its use before burying:
- Acceptable zone shaded in green - no known restrictions for burial.
- Cautionary zone shaded in yellow - only limited burial recommended.
- Exclusion zone shaded in red - no burial recommended.

Surface Water Control — Construct berms to divert surface water around trenches if surface water runoff would flow into trenches.

Trench Length and Setback Distances — Although trench length and setbacks will vary with site factors, trenches must meet the following requirements:
- Follow contour lines as closely as possible
- Trench must be placed at least 50 (horizontal) feet from another trench
- Must not include any sand seams or pockets. Stop digging if the trench intersects a sand seam or pocket. Then backfill the last 10 feet of trench with non-sandy soil. Compact backfill area as much as possible. Dig a test pit every 10 feet beyond sandy area. Continue trenching after test pits show soil is free of sand.
- Meet all separation distances listed in Table 1

Trench Construction
Base size of trench on the size and number of animals to bury. Using Table 2, multiply number of animals by volume per animal to determine volume needed for disposal. Divide by desired width of trench (7 to 12 feet). Divide remaining number by depth (between 5 and 9 feet) to determine the length of trench needed.

Trench Width — Between 7 and 12 feet.

Depth — Trench should be between 5 and 9 feet deep. Keep sides as vertical as possible. If stability is a problem, slope sides to prevent cave-in and ensure equipment can safely place carcasses. Distribute carcasses evenly on the bottom of the trench.

Groundwater Separation — Maintain at least 2 feet between the trench bottom and groundwater. Groundwater depth must be verified on site before trenching begins.

Cover —
- Cover carcasses with 2.5 to 3 feet of cover below ground level
- Mound all excavated soil over the trench
- Avoid compacting the cover soil
- Seed the excavated area with shallow rooted cover crops such as oats, ryes, and clovers.

### 3 INCINERATION/Thermal Treatment
While carcasses can be incinerated, sizes and types of equipment vary greatly as does their efficiency. It pays to consider capacity, fuel use and operating costs of available units. Consult with DNR staff to obtain any required permits, waivers or variances before starting operation.
**LANDFILL**

While carcasses can be sent to a landfill, the landfill must approve their acceptance. Also, disposal must meet landfill disposal criteria established by DNR, adhere to strict biosecurity measures at the farm and landfill, and be approved for movement off-site by the Iowa Department of Agriculture and Land Stewardship (IDALS).

**RENDERING**

While sending carcasses to a rendering plant is approved, the facility must be willing to accept the carcasses. Also strict biosecurity measures must be met at the farm and rendering facility and IDALS must approve moving carcasses off-site. Obtain final approval from the DNR and IDALS for the final disposal of the rendered product before choosing this option.

**NON-CARCASS SOLID WASTE**

Whenever possible, disinfect and handle non-carcass solid waste as non-infected waste. Discuss disposal options with the veterinarian in charge to determine what material is infected, if the virus can be inactivated, or if materials can be moved off site. If disinfection is not economical or efficient, there are other options.

Contaminated litter/manure, feed, egg products and similar miscellaneous material may have a beneficial use. Egg products may be pasteurized and sold. Consider composting organic material including litter/manure and feed. In some circumstances mix with carcasses and bury these materials in the trench or add them to compost windrow.

Wood, cardboard, paper and similar solid waste can be burned on-site following the DNR disaster debris disposal guidance for burning of tree and brush. If DNR requirements cannot be met, the material can burned at an approved off site area, taken to a landfill, or incinerated on or off-site with DNR approved incineration equipment. Obtain approvals for off-site disposal according to the method chosen.

**WASTEWATER**

It’s important to follow guidelines to safely dispose of wastewater generated when responding to a disease outbreak. Wastewater includes water generated from decontamination and biosecurity, cleaning and disinfection, normal operations or any other wastewater generated at an infected premise.

Whenever possible, dispose of wastewater at the infected premise. Take biosecurity measures and get approval from IDALS for off-site disposal.

**Disposal options:**

If the site has on-site treatment, obtain DNR and IDALS approval and treat wastewater at the site. Some thermal units need additional water to process carcasses. Wastewater generated on site can be treated as part of the thermal unit’s operating process. Producers can haul wastewater to a thermal unit if they take biosecurity measures and IDALS approves.

Some city or other permitted wastewater treatment facilities will accept wastewater from response operations, including activated sludge treatment plants that use ultra-violet (preferred) or chlorine disinfection. During winter when disinfection units don’t normally operate, the facility should activate disinfection units. Alternative treatment such as fixed film may be considered if approved by the DNR field office. Once DNR approves, the treatment facility must agree to accept the wastewater, the producer must adhere to strict biosecurity measures at the farm and the treatment facility, and IDALS must approve moving wastewater off-site.

**DNR CONTACTS**

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<tr>
<th>Field Office</th>
<th>Business Hours Phone</th>
<th>After Hours Phone (Duty Officer)</th>
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<tbody>
<tr>
<td>1 – NE Iowa</td>
<td>515-725-8694</td>
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<td>2 – NC Iowa</td>
<td>515-725-8694</td>
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<td>Emergency</td>
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<td>515-725-8694</td>
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LEADING IOWANS IN Caring FOR OUR NATURAL RESOURCES | WWW.IOWADNR.GOV | JANUARY 2016
Introduction:

Containment of highly pathogenic avian influenza (HPAI) is a critical step which must be properly performed. The intent is to deactivate and eliminate the active virus thus inhibiting the probability of its further transmission. In future outbreaks of HPAI, the first disposal priority of USDA and Iowa Department of Agriculture and Land Stewardship will be the on-farm mortality disposal options such as aerobic composting and/or burial. Aerobic composting, a heat producing microbial process, is a USDA approved method which can attain and maintain temperatures needed for deactivation of the avian influenza virus in the carcasses of turkeys and chickens. This document provides general guidelines for on-site aerobic composting of HAPI infected carcasses in terms of preparedness, preparation of materials for composting, potential carbon sources, amounts and volumes of carbon sources, location, equipment and building piles, monitoring and turning, finished materials, record keeping, personal protective equipment, and additional contact information.

Site Preparedness:

Containment of avian influenza virus and its deactivation requires a rapid response once it is detected and confirmed at a turkey or chicken farm(s). Facility operators must take into consideration materials, space, labor, equipment, and supplies needed to place the birds into compost piles once the euthanasia is complete. All euthanized carcasses, litter, egg shells, feed, bedding, paper, and other biodegradable materials within the building and/or on the premises should be composted. Composting of these materials will require additional carbon materials which should be pre-planned for access and availability. Preferred choice is to construct compost piles within the building space; however, outdoor construction on a well-drained site may be needed when building conditions do not allow for constructing them indoors. Pay loaders or skid loaders, which can easily maneuver within the building space, should be planned for use in the operation by skilled operators. Unskilled operation of such equipment can result in damage to facilities in addition to improper pile construction. Scoops, rakes, dump trucks to move materials, and flat-bed trailers to import baled carbon sources such as corn stover, should also be planned for use in this composting process. Pile monitoring will require temperature probes which have at least 4 feet long stems. Moving and spreading composted materials to the field will require dump trucks, loaders, and spreaders which need to be planned for as well. Regularly employed labor can be trained, based on skills, to preform several of tasks of composting. Plans should be discussed with compost experts who are familiar with USDA, IDALS, and Iowa DNR requirements for composting of HAPI infected carcasses. Contact information for ISU Extension & Outreach Field Agricultural Engineers is provided at the end of this document.
Preparation of Materials for Composting:

Using a pay loader or skid loader, all euthanized carcasses should be moved towards either side of the building, clearing an aisle in the middle for equipment movement. All on-site materials, i.e. litter, broken eggs, contaminated feed, bedding, paper, and other biodegradable materials should be distributed equally amongst the carcasses as they are being moved. Additional carbon sources, as needed, should be distributed equally during carcasses moving – compost pile forming process. These carbon sources should be materials such as corn stover, wood chips, fermented or partially composted materials, or other carbon sources which are sturdy enough to hold the structure of the pile and will not collapse in a couple of weeks after the start of composting. This is to allow for appropriate aeration of the windrow core (Figure 1) once the materials are placed into composting. Fine carbon sources such as sawdust, seed shells and nut hulls, fine wood shavings, etc. can be added to compensate for the amount of carbon needed to balance the materials for appropriate composting. All on-site contaminated and the additional carbon materials should be mixed with the euthanized carcasses as uniformly as possible as the carcasses are being moved to clear space for compost piles. This will help to equally distribute the materials and not require any formal mixing. Formal mixing of the materials should not be performed to avoid any further aerial transmission of the virus. Caution should be used to not drive over dead birds to keep virus contained within the carcasses. In cases where the carcasses are immediately placed into composting, no additional water for balancing the moisture may be needed. Once the space has been cleared up for constructing composting piles, a 10 to 24 inch deep base of sturdy carbon material which acts as a plenum for air movement should first be formed. Once this plenum has been constructed, the combined materials should then be placed on top of this plenum in layers, if possible, with 4-6 inches of carbon material in between each layer. Once the combined materials have been placed on this plenum, they should be topped off with an 8 to 24 inch layer of carbon material as cover to complete the pile/windrow construction.

Carbon Sources:

One of the several, easily usable, carbon source available in Iowa is corn stover. In addition to corn stover, mulch, tree bark, shredded wood without nails, straw, and wood shavings can also be used based on availability. Typical size of these materials should be between 0.5 – 2 inches, with majority of particle size being between 1-2 inches. Carbon materials larger than 2 inches in size should be avoided because the compost mixture would become too porous and be unable to maintain the desired temperature. Fine carbon sources, such as seed shells, nut hauls, sawdust, and fine ground wood shavings are not suitable for building the plenum or the cover (Figure 1). They can be used as a part of the compost mixture to make up for any deficiency in the amount of carbon needed. Caution should be used to make sure appropriately sized carbon material is used to ensure air movement in the mixture and that the pile maintains it structural integrity. Carbon sources to be used for construction of the plenum and the cover should not be stored on-site to avoid any potential contamination at onset of the outbreak.
Figure 1: A typical cross-sectional schematic of a constructed windrow (not to scale). Combined materials (core of the windrow), if possible, can be formed by alternate layers of carcasses and carbon materials (4-6 inches of carbon materials per layer of poultry carcasses).

Amounts and Volume of Carbon Sources:

The porous base on which the combined materials are to be placed for composting should be approximately 12 - 15 feet wide. Narrower bases can also be constructed when dealing with lesser total amount of combined materials. Table 1 below shows the volume of an 18-inch deep base with 10, 12, and 15 feet widths. Calculations shown are for every 10-foot length for the respective width of the base along with the respective cover volume for the configuration shown in Figure 1. Cover, typically 12 inches thick, should be placed on the top the windrow, such that the resulting total windrow height does not exceed 8 feet. Cover material can be the same material as used in the base or different depending upon availability.

<table>
<thead>
<tr>
<th>Base Width, ft.</th>
<th>Base Volume per 10 foot length, cubic yards</th>
<th>Cover Volume per 10 foot length, cubic yards</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>5.6</td>
<td>5.4</td>
</tr>
<tr>
<td>12</td>
<td>6.7</td>
<td>5.9</td>
</tr>
<tr>
<td>15</td>
<td>8.3</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Volume of litter added to the core material should be subtracted from the total volume of carbon material needed for adding to the combination of materials. Total volume of carbon material, with an estimated bulk density of 30 pounds per cubic foot, can be calculated based
on the USDA recommendations which state that 2 cubic feet is needed for every 40 pounds of bird
weight or 1 cubic foot is needed for every 20 pounds of bird weight. After an estimation of the
additional volume of carbon material needed has been made, the bulk densities listed in Table 2 can
be used to estimate the tons of material needing to be transported to the site.

<table>
<thead>
<tr>
<th>Material</th>
<th>Type of value</th>
<th>% N (dry weight)</th>
<th>C:N ratio (weight to weight)</th>
<th>Moisture content % (wet weight)</th>
<th>Bulk density (pounds per cubic yard)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn cobs</td>
<td>Average</td>
<td>0.6</td>
<td>98</td>
<td>15</td>
<td>557</td>
</tr>
<tr>
<td>Corn stover*</td>
<td>Average</td>
<td>0.6</td>
<td>80</td>
<td>20</td>
<td>120</td>
</tr>
<tr>
<td>Turkey litter</td>
<td>Average</td>
<td>2.6</td>
<td>16</td>
<td>26</td>
<td>783</td>
</tr>
<tr>
<td>Broiler litter</td>
<td>Average</td>
<td>2.7</td>
<td>14</td>
<td>37</td>
<td>864</td>
</tr>
<tr>
<td>Laying hens</td>
<td>Average</td>
<td>8.0</td>
<td>6</td>
<td>69</td>
<td>1,479</td>
</tr>
<tr>
<td>Corn silage</td>
<td>Typical</td>
<td>1.2–1.4</td>
<td>38–43a</td>
<td>65–68</td>
<td>—</td>
</tr>
<tr>
<td>Straw general</td>
<td>Average</td>
<td>0.7</td>
<td>80</td>
<td>12</td>
<td>227</td>
</tr>
<tr>
<td>Sawdust</td>
<td>Average</td>
<td>0.24</td>
<td>442</td>
<td>39</td>
<td>410</td>
</tr>
<tr>
<td>Wood chips</td>
<td>Typical</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>445–620</td>
</tr>
</tbody>
</table>

Source: NRAES 54 – On-farm Composting Handbook, * = ISU Extension & Outreach

**Location:**

It is preferred that the composting of euthanized birds take place inside the building where they were
being raised. In cases where the building structure is limited in space for windrow formation and
equipment maneuvering, it will necessitate the construction of the windrows outside, which is
generally the case with layer houses. In these cases, the windrows should be constructed onsite of
the production facilities. The outdoors site should be well drained and able to handle equipment
traffic. This site should also be evaluated for suitability such that the any free liquid does not pose a
threat to groundwater, odors do not create site issues, and flies and other vectors do not create
nuisance issues. Special precautions should be taken to adequately cover the windrows such that
scavengers cannot drag carcasses out of the
windrows. In cases where scavengers are prevalent, it may be necessary to double the thickness of
the windrow cover to a minimum of 24 inches. Separation distances, as per Iowa DNR requirements,
to water sources, wells, wetlands, property lines, residences, etc. should be maintained. Windrows
should not be constructed in the grassed waterways, flood plains, or in locations where water
presence is eminent.
Equipment & Building Piles:

Operators should not drive over the base material once it is laid down. Combination of material consisting of the carcasses should be placed on the base from either side to avoid any compaction of the base material. All eggs should be broken and added to the combination of the materials for microbial access whereas the carcasses should not be driven upon. Attempt should be made not to overfill the loader bucket to avoid carcasses rolling off and requiring additional handling. When placing the combined materials on the base, attempt should be made to distribute the materials over the base in a single layer approximately 12 – 15 inches in thickness. Any exposed carcasses should then be covered with 4-6 inches of carbon material, if possible, before starting the next layer as previously indicated. This increases the total carbon material needed on-site for pile construction. Worksheet 1 shows an example calculation for the total amount of bulking material needed for composting a 10,000 head turkey barn or a 30,000 head broiler building. The same calculations can be repeated for any specific type of animal using numbers provided in Table 1 and Table 2. Equipment should stay dedicated to the specific tasks for building windrows until all windrows have been constructed. Equipment can then be sanitized according to protocols for other on-farm use.

Monitoring and Turning:

Constructed windrows should be divided into five sections if the windrows are shorter than 200 feet or be divided into 50-ft sections if longer than 200 feet. Temperature measurements should be taken at a minimum of one location per section. Flags should be placed at each measurement location for easier identification. At each flagged location, temperature reading should be taken at four positions (X1, X2, X3, & X4) as shown in Figure 1. These four positions should be ¼ of the depth into the pile near the bottom, mid and top of the pile height, and ½ of the depth into the pile at the middle height. Stainless steel temperature probes with a 4 foot or longer stem should be purchased and used to reach onto the core of the windrow to obtain temperature readings. Multiple probes should be purchased to keep one probe at each premises. A temperature probe should be inserted into the windrow without climbing on the side of the windrow to avoid carcasses exposure. Windrows should reach temperatures over 100°F (38°C) within 72 hours of construction. After the first 72 hours, the windrows should maintain temperatures of over 131°F (55°C) for three consecutive days, and should maintain temperature of over 100°F for 14 consecutive days. In case any of these conditions is not met, consult with a compost expert immediately. Temperature should be taken at the same location each day by the same individual during the first 14 days of composting. Temperature at all (four) positions should meet the minimum temperature requirements as mentioned earlier. After the windrows have maintained temperatures of over 131°F for three consecutive days to ensure virus kill, the temperatures measurement positions can be reduced to two positions (X1 & X2) to save time. Temperature probe should be left at the position for 60 seconds or longer to allow the temperature reading to stabilize. Measurements exceeding the minimum temperature requirements can be recorded as is without the temperature reading fully stabilizing to minimize time spent inside the building. The probes should be disinfected after use and safely stored on the premises. Building fans should be turned on or the doors and curtains opened to allow for adequate air exchange. A minimum ventilation rate of 5-10 air changes per hour, as done when raising the birds during cold weather, should be considered for ventilation. This is to ensure that the gaseous levels for carbon
dioxide (CO₂) and ammonia (NH₃), below the permissible exposure limits for human health, are achieved. It is advisable for the operator to wear a protective mask with ammonia-filtration cartridges during the first few days of composting when inside the building taking temperature measurements. A second person should keep watch, while staying outside the building, to ensure safety of the person performing the work inside the building.

Windrow turning should take place only after the temperature profiles indicated above have been met. Windrows should not be turned at all in the first 14-day time period. Purposes of turning the windrow are to fluff up any slumped material, break-up any stagnant air pockets, remove preferential air flow paths, and aerate the material. Turning should be performed such that all these purposes are met by the use of loaders, turners, and/or a combination of similar equipment. Turning will cause the cover material to mix with the rest of the compost materials. In case soft tissue is exposed after turning, an additional 6 or more inches of cover material may need to be applied on top of the turned windrow.

After the turning has been completed, the windrows should be monitored for temperatures for a second 14-day time period. During this second time period, the windrows should maintain temperature of over 100°F. During the initial or the second 14-day time period, a compost expert should be consulted in case the windrow temperatures, for three consecutive days, fall below 100°F and/or if the windrows get excessively hot i.e. with temperatures over 160°F (71°C). After the temperature requirements have been met for the initial 14-day and the second 14-day time period, consult the authorized representative for release of windrow(s) in terms of monitoring requirements, off-site materials movement, etc. Composting may still need to be carried out for a longer duration to ensure that all soft tissue, feathers, and majority of bones have fully composted. This process may take one to two additional months to complete depending upon weather conditions.

**Finished Materials:**

A publication by North Carolina State University (NCSU) on mortality composting provides an average analysis for the turkey carcass compost. This average is most likely to be achieved if excessive carbon materials are not used in windrow building. For example, ISU staff took samples of the finished materials and analyzed them for nutrients. Percent differences between the average sample results and values from the NCSU publication are provided below (Table 3). The nutrient contents of the ISU samples are lower due to the excessive use of wood chips as a carbon source. Given how vastly the nutrient content in the actual composted material can differ from the published values, it is necessary for producers to test their finished compost. Finished materials should be land applied based on the calculated application rates of nutrient and/or manure management plan. In case any stockpiling of finished materials occurs during land application, it should be done in accordance with Iowa DNR and IDALS requirements.
Table 3: Average sampled and book values of nutrient content of the finished materials.

<table>
<thead>
<tr>
<th>Analytic</th>
<th>KK1</th>
<th>KK2</th>
<th>KK3</th>
<th>KK4</th>
<th>KK5</th>
<th>KK6</th>
<th>Average</th>
<th>NCSU Value</th>
<th>Percent Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture, %</td>
<td>39.10</td>
<td>36.68</td>
<td>34.88</td>
<td>46.34</td>
<td>26.15</td>
<td>22.92</td>
<td>34.35</td>
<td>40</td>
<td>14</td>
</tr>
<tr>
<td>Nitrogen, %</td>
<td>1.57</td>
<td>1.03</td>
<td>2.44</td>
<td>2.04</td>
<td>2.02</td>
<td>1.85</td>
<td>1.83</td>
<td>3.6</td>
<td>49</td>
</tr>
<tr>
<td>Phosphorus (P&lt;sub&gt;2&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;) %</td>
<td>1.26</td>
<td>0.36</td>
<td>1.71</td>
<td>1.68</td>
<td>1.38</td>
<td>1.61</td>
<td>1.33</td>
<td>1.4</td>
<td>5</td>
</tr>
<tr>
<td>Potash (K&lt;sub&gt;2&lt;/sub&gt;O) %</td>
<td>1.29</td>
<td>0.95</td>
<td>1.57</td>
<td>1.56</td>
<td>1.18</td>
<td>1.5</td>
<td>1.34</td>
<td>1.7</td>
<td>21</td>
</tr>
</tbody>
</table>

Record Keeping:

Record keeping is required for all premises which are tested positive. Records include dates, volumes by each material, estimated sizes of windrows, carbon sources and amounts used, daily temperature logs, turning records, stockpiling, and final spreading of the finished materials.

Personal Protective Equipment (PPE):

Ventilation should be minimized once the building is confirmed positive for avian influenza and mass depopulation has been achieved to reduce the risk of disease transmission. Further work in the building to transfer all potentially infected materials, moving birds out of cages, housing equipment, loose cords, cables, taking temperatures, etc. requires personnel to wear personal protective equipment. Operators and workers at the livestock operation should work with their family physician, local hospital, or medical clinics that offer OSHA Fit-Testing to make sure they are healthy to wear appropriate masks needed during such work.

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Information contained in this document is subject to change as situation develops and additional experience is gained in HPAI Infected Carcasses Aerobic Composting.
**Worksheet 1:** Procedure for estimation of the amount of bulking agent needed to be obtained and brought to the site for composting of HPAl Infected Birds. Caution should be used when using this worksheet due to changes in moisture content and bulk densities of materials listed in Table 2.

<table>
<thead>
<tr>
<th>Step #</th>
<th>Description</th>
<th>Toms</th>
<th>Broilers</th>
<th>Any Barn</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Animal type of the species housed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Number of birds in the barn</td>
<td>10,000</td>
<td>30,000</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Estimated average body weight per bird at euthanasia, pounds</td>
<td>30</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Estimated total body weight euthanized, pounds (multiply Step 2 by number of birds in the barn)</td>
<td>300,000</td>
<td>300,000</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Volume of bulking material needed, cubic yards (divide Step 3 by 20 and then by 27)</td>
<td>556</td>
<td>556</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Volume of litter in the building needing to be incorporated assuming manure storage is one-third full or about 10 tons per 1,000 Toms or 3.33 tons per 1,000 broilers (Use bulk density for the litter from Table 2) (litter weight times litter bulk density times number of birds/1000)</td>
<td>255</td>
<td>231</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Volume of bulking material needed corrected for litter, cubic yards (subtract Step 5 from Step 4)</td>
<td>301</td>
<td>325</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Assuming corn stover is used as bulking agent, tons needed (Step 7 times bulk density from Table 2 divide by 2000)</td>
<td>19</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Volume of the mixed core, cubic yards (divide the added weights in pounds of Step 7, Step 6, and Step 4 by estimated mixed bulk density of 800 pounds per cubic yard)</td>
<td>673</td>
<td>652</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Volume of the mixed core, cubic feet (multiply Step 9 by 27)</td>
<td>18,171</td>
<td>17,604</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Length of the mixed core placed in 10 feet wide by 5.5 feet high (Divide Step 10 by 3 and then by the windrow width and then by windrow corrected height and multiply by 2) <strong>NOTE:</strong> An 8 foot high windrow with 18-inch base and 12-inch cover will only have 5.5 feet height of the mixed material without any additional bulking material added in-between layers</td>
<td>496</td>
<td>481</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Amount of base material needed for 18-inch thick base, cubic yards (Divide Step 11 by 10 and multiply by the corresponding number from Table 1)</td>
<td>278</td>
<td>269</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Amount of cover material needed for 12-inch thick cover, cubic yards (Divide Step 11 by 10 and multiply by the corresponding number from Table 1)</td>
<td>268</td>
<td>260</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Amount of cover material needed for a second 6-inch layer on top of first layer of core material, cubic yards (Divide Step 13 by 2 for Toms as there will only be two layers; do not divide for broilers as there will be three layers reaching the 5.5 height)</td>
<td>134</td>
<td>260</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Amount of cover material needed for a second 6-inch cover after turning at the end of 28-days, cubic yards (Only if needed, divide Step 13 by 2)</td>
<td>134</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Total bulking material needed, cubic yards (Add Steps 7, 12, 13, 14, and 15)</td>
<td>1,114</td>
<td>1,243</td>
<td></td>
</tr>
</tbody>
</table>
**Worksheet 2:** Temperature log for different windrows for four temperature logging positions of X1, X2, X3, and X4 as shown in Figure 1. Note that the temperatures measurement positions can be reduced to two positions (X1 & X2) to save time after the windrows have maintained temperatures of over 131° F for three consecutive days to ensure virus kill.

<table>
<thead>
<tr>
<th>Windrow 1 Positions</th>
<th>Windrow 2 Positions</th>
<th>Windrow 3 Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
<td>X1</td>
<td>X2</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
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<td>4</td>
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<td>5</td>
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<td>26</td>
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<td>27</td>
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During an outbreak of Highly Pathogenic Avian Influenza (HPAI), or Low Pathogenic Avian Influenza (LPAI), it is critical to find all poultry premises that are near an infected premises in an expedited manner. A critical step that critically improves this process is to have all premises registered and have a premises identification number prior to a disease outbreak. The premises identification allows the Iowa Department of Agriculture and Land Stewardship (IDALS) to quickly locate registered sites. IDALS will require you to have a premises identification number if your premises becomes infected with HPAI.

Poultry producers are strongly encouraged to register their premises.

The Premises ID registration form can be found at http://www.iowaagriculture.gov/animalIndustry/premisesIdentificationProgram.asp

Premises registration forms can be filled out and either e-mailed, faxed or mailed to idals_id@IowaAgriculture.gov
515-281-4282 fax
Iowa Department of Agriculture and Land Stewardship
Wallace State Office Building
502 East 9th Street
Des Moines, IA 50319
515-281-5321

February 11, 2016
Protect Yourself
Avian Flu
Poultry Employees

Avian flu is a viral disease and it can be very contagious and even deadly in poultry (e.g., chickens). Of great concern are the highly pathogenic avian influenza (HPAI) H5N1 viruses that have killed millions of birds and have infected humans in other countries. If these viruses are found in the U.S., take appropriate precautions if you are involved in poultry destruction.

**Signs of Avian Flu Illness in Birds**
Sudden death, lack of energy, appetite, and coordination, purple discoloration and/or swelling of various body parts, diarrhea, nasal discharge, coughing, sneezing, and reduced egg production and/or soft-shelled or misshapen eggs.

**Avian Flu Symptoms in Humans**
Range from fever, cough, sore throat and muscle aches; to diarrhea, eye infections, pneumonia and severe respiratory diseases. The symptoms may depend on which virus caused the infection but are often similar to those of human seasonal influenza.

**When Engaged in Eradication Activities**
- Clean your hands often and thoroughly, preferably using soap and water for 15-20 seconds (or a waterless, alcohol-based hand rub when soap is not available), especially if you are handling poultry or poultry products.
- Wear lightweight, disposable gloves or heavy-duty rubber work gloves that can be disinfected. Avoid touching your face with gloved hands.
- Wear disposable outer garments, coveralls or surgical gowns with long, cuffed sleeves and with a sealed apron.
- Wear disposable shoe covers or boots that can be cleaned and disinfected.
- Wear safety goggles and disposable hair or head cover.
- Wear at least the minimum level of respiratory protection, N95 or higher respirator.
- Avoid eating, drinking, smoking and bathroom use while wearing personal protective equipment.

**Additional Guidance**
- Get the seasonal flu vaccine.
- Have your health care provider prescribe an adequate supply of antivirals during poultry destruction activities and for 5 days after it ends.
- If you develop flu-like symptoms, stay at home except to get medical attention.

For more complete information:
OSHA
Occupational Safety and Health Administration
U.S. Department of Labor
www.osha.gov (800) 321-OSHA

January 10, 2017