

Biosecurity Issues for NRCS

Glenn Carpenter

National Leader Animal Husbandry

Conservation Webinar 10/7/15

- Avian Influenza 2015
 - Western and Central Migratory Flyways
 - 21 States impacted
 - 50 million birds
- Poor biosecurity may be a major means of transmission

Biosecurity is a series of practices to

- Minimize transfer of contamination or diseases
- Includes such things as:
 - Isolation
 - Disinfection
 - Registering contacts with outsiders

Good biosecurity can minimize problems with disease and post-slaughter contamination.

Poor biosecurity can harm the profitability of the livestock industry and public perception of the safety of food produced by the industry

Nationally good biosecurity helps
safeguard the food supply

Areas to guard against include Anthrax,
PEDv, Johne's, Foot and Mouth, Exotic
Newcastle, Avian Influenza, many other
diseases

NRCS needs to exhibit leadership and develop partnerships to assist in containing animal diseases

- Partner with APHIS, FSA, Extension, Industry

Office in nearly every county

- Tremendous grass roots advantage

Biosecurity goals include not spreading disease but most importantly, the health and safety of the employee

NRCS wants to make sure that as employees carry out their normal jobs they do not become the source of the problem

Biosecurity policy is at GM.130.403.H

For livestock there are three levels of biosecurity based on the level of interaction with the producer, facilities, or livestock.

Level 1. Office or home visits

Level 2. Minimal contact with animals, buildings, or manure

Level 3. Close contact with animals, buildings, manure

During outbreak of disease NRCS employees will not enter affected areas except at the request of APHIS or the State Veterinarian

- Preplan visits
 - Call ahead
 - Know what supplies you need
 - Know what equipment is in your vehicle
 - Where have you been; Where are you going?

- Learn and adhere to biosecurity protocols.
 - Time between visits at least 1 day
 - Washing equipment and vehicle
 - PPE
 - Disposal
 - Other birds

- Stop all visits?
 - APHIS, State Vet, producer, industry
 - Areas with very heavy poultry production will be impacted
 - In many states poultry are in pockets
 - Decision for State Conservationist

- For information contact:
 - Glenn Carpenter
 - Glenn.Carpenter@wdc.usda.gov
 - Phone: 301.504.2293

Conservation Practice Standard 368

Emergency Animal

Mortality Management



Presented by:

Cherie E. LaFleur, P.E.

Environmental Engineer

Central National Technology Support Center, Ft. Worth, TX

USDA – NRCS

Definition

- A means or method for the management of animal carcasses from catastrophic mortality events.

Purpose

- Reduce impacts to surface water and groundwater resources
- Reduce the impact of odors
- Decrease the spread of pathogens

Conditions Where Practice Applies

- Animal operations where a catastrophic event would result in the need to manage animal carcasses.
- May not apply to catastrophic mortality resulting from disease.
- Does not apply to routine animal mortality. Use NRCS CPS Code 316, Animal Mortality Facility.

Criteria – All Purposes

- Conform to all applicable federal, state and local regulations.
- Divert runoff from a 25-year 24-hour rainfall event (minimum)
- Provide appurtenances to ensure the safety of humans and livestock.
- Address biosecurity concerns in all aspects of the process
- Locate all buried utilities in the project area, including drainage tile and other structural measures.
- Include provisions for closing and/or removing temporary components, where required.

Criteria – Onsite Disposal

- **Location.**

- Locate so that prevailing winds and landscape elements minimize odors and protect visual resources.
- Locate down -gradient from springs or wells where possible or take steps necessary to prevent groundwater contamination.
- Locate above the 100-year floodplain elevation
- Use an offsite disposal method if there is not a suitable location on the farm.

Criteria – Onsite Disposal

- **Location.**
 - Minimize disruption of ongoing daily operations.
 - Where it will not interfere with other travel patterns on the farm such as livestock pathways and feed lanes.
 - Sites with restricted percolation (suitable soils) and a minimum of 2 feet between the bottom of the facility and the seasonal high water
 - Revegetate all areas disturbed by mortality management activities (CPS 342).

Criteria – Onsite Disposal

- **Location.**

- The soil interpretations found in the Disaster Recovery category under Soil Suitabilities and Limitations on the Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/>) can be used as an initial screening tool to identify areas that are likely to be most suitable for this practice.

Criteria – Onsite Disposal

- Burial Pit/Trench (Burial Trench)
- Composting
- Incinerators and Gasifiers
- Open-air Burning
- Temporary Mortality Storage with Refrigeration Units

Burial Trench

- General.
 - Bury as directed by state and local regulatory agencies.
 - More than one trench may be required.
 - Where permitted leave mortality uncovered or lightly covered until bloating has occurred, or use methods to reduce bloating
 - Retain topsoil to re-grade the site as settling occurs
 - Remove or render inoperable all field drainage tile (subsurface drains)

Burial Trench

- Soil Suitability
- Seepage Control

Soil Suitability

- Potential to pollute surface or ground water if not sited in low permeability soils.
- Web Soil Survey (WSS) evaluates potential burial sites for suitable soils using Catastrophic Mortality, Large Animal Disposal, Trench criteria. (*general evaluation but not site specific*)

Soil Suitability – Web Soil Survey



- Online tool used to determine which soils may be suitable for catastrophic mortality disposal.
- Provides data on the limitations of the soil for burial and trench construction.
- Does not provide criteria for pit design or construction.
- Site should not be selected based solely on WSS interpretations.
- Include a site visit and investigation to verify assumptions about the location.

Area of Interest (AOI) Soil Map **Soil Data Explorer** Download Soils Data Shopping Cart (Free)

View Soil Information By Use: All Uses Printable Version Add to Shopping Cart

Intro to Soils **Suitabilities and Limitations for Use** Soil Properties and Qualities Ecological Site Assessment Soil Reports

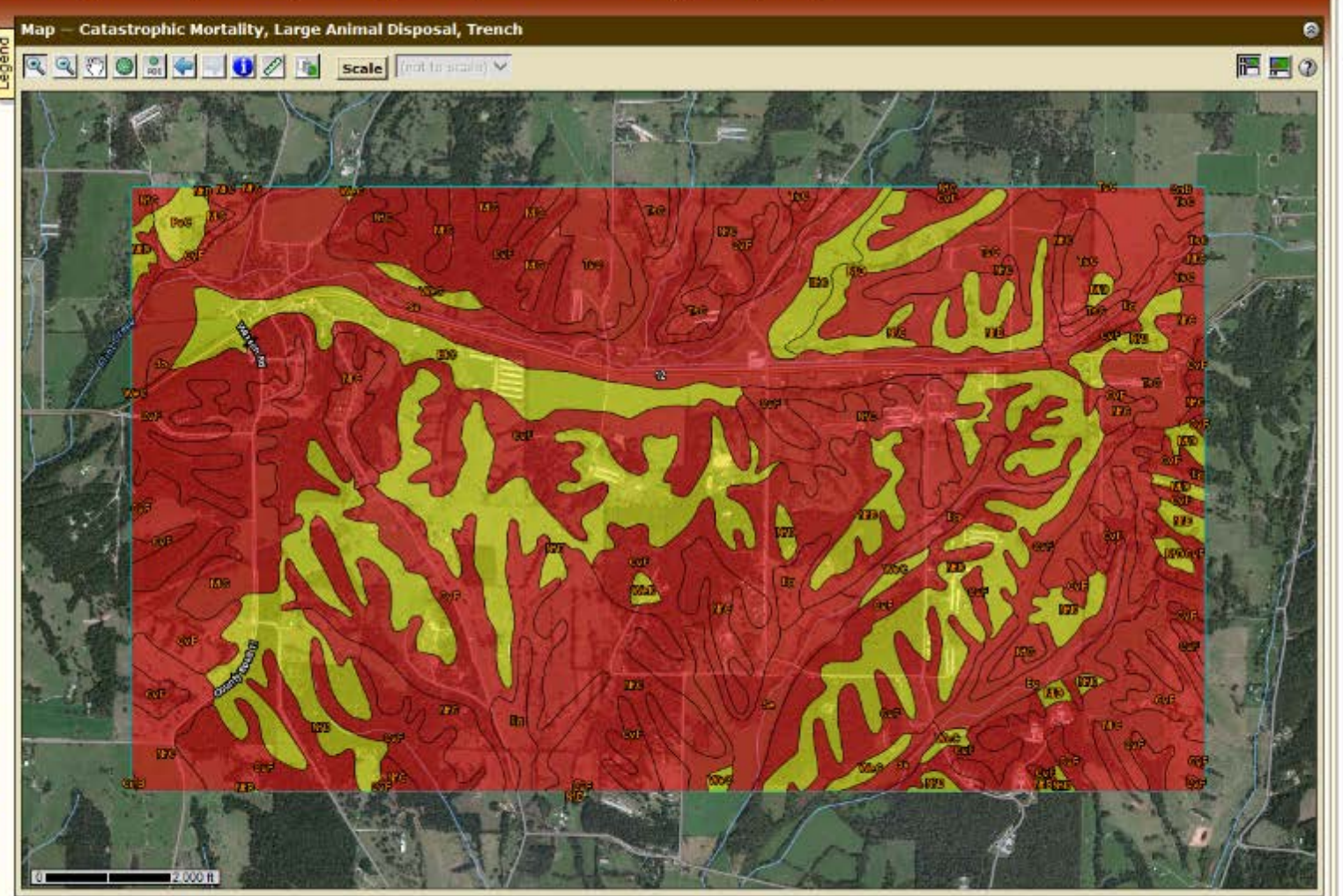
Search

Basic Search

Enter keywords

Advanced Search

- Suitabilities and Limitations Ratings**
-
- Building Site Development
 - Construction Materials
 - Disaster Recovery Planning**
 - Catastrophic Mortality, Large Animal Disposal, Pit
 - Catastrophic Mortality, Large Animal Disposal, Trench**
 -
 - View Options
 - Advanced Options
 -
 - Clay Liner Material Source
 - Composting Facility - Subsurface
 - Composting Facility - Surface
 - Composting Medium and Final Cover
 - Rubble and Debris Disposal, Large-Scale Event
 - Land Classifications
 - Land Management
 - Military Operations
 - Recreational Development
 - Sanitary Facilities**
 - Daily Cover for Landfill
 - Sanitary Landfill (Area)



Soil Suitability

- Examples of limitations that can be overcome.
 - **Slope** – Use short diversion to divert overhead water.
 - **Depth to Rock** – Keep trench shallow and create adequate volume by “mounding” of sidewalls above original ground elevation.
 - **Unstable excavation walls** – Excavate flatter side slopes.
 - **Fragments or Stones** – No specific construction requirements to meet, but difficulty will be encountered during mechanical excavation of pit.

Soil Suitability & Seepage Control

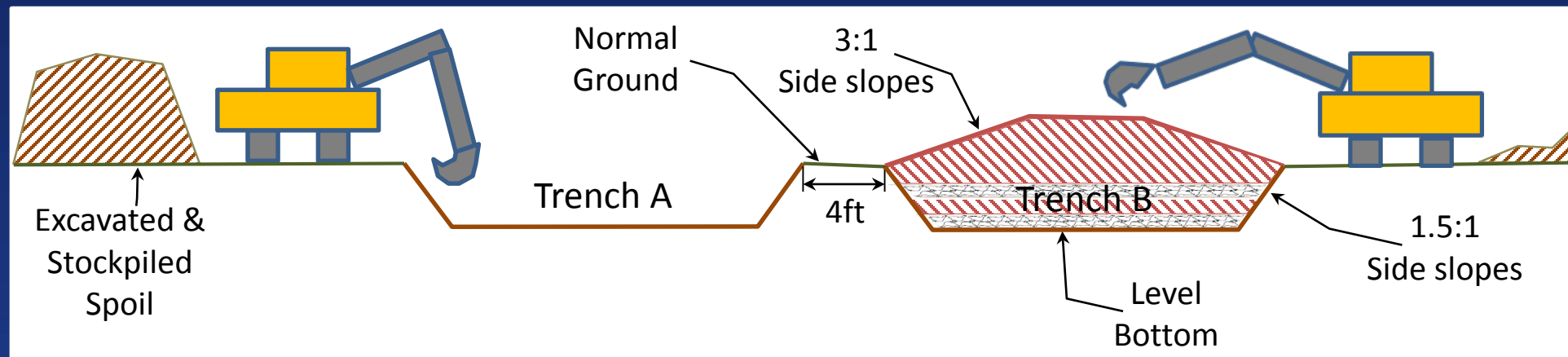
- All borings should be to a depth of at least 2 feet below the planned bottom of the burial trench.
- In some situations, in-situ soils may not meet an acceptable permeability or have other limitations.
- Should the geologic investigation indicate the need for a liner, information and guidance can be found in the NRCS AWMFH Appendix 10D and Conservation Practice Standard, Pond Sealing and Lining, Code 521. (timing & logistics *may not allow*)

Burial Trench

- Size and Capacity
 - Use appropriate weight to volume conversions. (*45 pcf*)
 - Trench length may be limited by soils and/or slope.
- Cover with a minimum of 2 feet of cover soil. (*no compaction*)
- Provide a finished grade above natural ground elevation to accommodate settling and divert runoff.

Burial Trench

- Construct level trench bottoms.
- OSHA standard for trench excavation safety - excavations greater than 5 ft. deep should adhere to the criteria and will typically require minimum side slopes of 1.5 (horizontal) to 1 (vertical) (1.5:1)
- Stockpile excavated spoil material at least 2 ft away from top edge of trench.
- Separate trenches by at least 3 ft (prefer 4 ft) of undisturbed soil.
- Stockpile topsoil to re-grade the site after ground has settled.



Burial Trench

- Burial Trench Loading Design and Safety.
 - Use barriers to keep vehicular traffic at least four feet from the edge of the pit/trench edge.
 - Use pit excavation techniques that are OSHA compliant.

Composting

- National Engineering Handbook (NEH) Part 637, Chapter 2, Composting; and NEH, Part 651, Chapter 10, Section 651.1007, Mortality Management.
- Plan for the amount of carbon material (2 – 4 semi-truck loads for 500 ft poultry house)
- Protect compost pile from precipitation and runoff
- Cover static piles or windrows with a minimum of 18 inches of carbon material to discourage pests and minimize odors.

Incinerators and Gasifiers

- Use Type 4 (human and animal remains) incinerators that have been approved for use within the state.
- Base the minimum incinerator/gasifier capacity on the average weight of animals times the number of animals in the event.
- Refrigeration units may be necessary to improve the efficiency of the operation.
- Locate a minimum of 20 feet from any structure.
- Spread ash according to NRCS CPS Code 590, Nutrient Management.

Open-air Burning

- Includes burning on combustible open heaps, or pyres or air curtain destructors.
- Must take place as far away as possible from the public.
- Typically strictly regulated, by State and/or local officials.
- A permit is usually required to perform open-air burning, if allowed at all.

Temporary Mortality Storage with Refrigeration Units

- May be needed to store mortality prior to disposal.
- Likely that multiple units will be needed.
- Account for the mechanism to be used to empty the refrigeration unit.
- Constructed of durable material and leak proof.
- Place on a pad of suitable strength to withstand loads imposed by equipment used to load/unload unit.
- Temperatures:
 - Rendering - 22° to 26° F.
 - Composting and high temperature methods - a few degrees above 32° F

Criteria – Offsite Disposal

- Transportation
 - Leak proof, tarped and covered
- Rendering
 - Transport, travel restrictions, logistics, may limit
- Land Fill (Subtitle D)
 - Individual landfills generally decide whether to/not to accept mortality

Considerations

- Available equipment and land application area
- The management capabilities of the operator
- The emotional impact on the producer caused by the losses
- The degree of pollution control required by state and local agencies
- Effect on wildlife and domestic animals
- The economics of the available alternatives
- Effect on neighbors (aesthetic, odors, traffic on public roads)

Considerations

- Animal operations with a Comprehensive Nutrient Management Plan (CNMP) may have planned for catastrophic mortality disposal under the “Farmstead Safety and Security” element. Initial planning of site suitability should include referring to the Web Soil Surveys’ soil interpretations for “disaster recovery planning”
<http://websoilsurvey.nrcs.usda.gov/>.
- Alternatives to prevent bloating such as opening abdominal cavities.
- State requirements for record keeping. Items such as burial site location, type and quantity of mortality, burial date, and other pertinent details may be required.

Plans and Specifications

- Contact information for state authorities
- Amount, type, and weight of mortality.
- Layout and location of on-farm mortality management activities.
- Number, capacity, and type of on-farm disposal methods.
- Grading plan with drainage features, as appropriate.
- Soil and foundation reports, as appropriate.
- Requirements for onsite disposal, as appropriate.
- Structural details, as appropriate.
- Vegetative requirements, as appropriate.
- Odor management.
- Where offsite disposal is to be used, contact information for transportation and disposal facility.

Operation & Maintenance

- Specific instructions for each component.
- Safety considerations.
- Address bio-security concerns in all aspects of installation, operation and, maintenance.
- Identify onsite locations for emergency animal mortality management activities and disposal sites as appropriate.
- Contact(s) and phone numbers of person(s) to contact for catastrophic losses. (Figure 1)
- Maintain recordkeeping of number, average weight, cause, and date of animal deaths.
- Method and procedures of catastrophic mortality disposal.
- Periodic inspections of disposal sites, as appropriate.
- Prompt repair or replacement of damaged components, as appropriate.
- Site references and/or manufacturer or installer for trouble shooting mechanical equipment, as appropriate.

Figure 1

EMERGENCY MORTALITY RESPONSE

Emergency Contacts and Farm Information



Plan Date:	
Farm Name:	
Owner/Operator:	
County:	
Physical Address of Facility:	
Directions to Facility:	
Emergency Contacts	
Local Veterinarian:	
On-Call Veterinarian:	
Integrator	
Other:	
Local Emergency Number:	
List of Agencies to notify within 24 hours	
State Animal Health Agency:	
State Veterinarian:	
Federal Area Veterinarian in Charge:	
Heavy Equipment Contractor	
for handling carcasses:	
for excavating burial pits:	
Composting Material Supplier:	
Incinerator:	
Landfill:	
Rendering Facility:	
Other (specify):	

Other Information

- Premises Number
- Suppliers of biosecurity materials
- Mechanics
- Authorized Equipment Repair Contacts

Add'l O&M – Incinerators, Gasifiers, Refrigeration Units

- Operate units properly to maximize operating efficiency.
- Load according to the manufacturer's recommendations.
- Inspect periodically for leaks, mechanical and structural integrity and proper operating temperature.

Add'l O&M - Composting

- Identify operational information and equipment that will need to be readily available.
- Locate, as soon as practical, a source for carbonaceous material sufficient to provide for the catastrophic event.
- Include a recipe of ingredients that gives the layering/mixing sequence.
- Provide maximum and minimum temperatures for operation, land application rates, moisture level, management of odors, testing, etc.
- Become familiar with composting methods and procedures as soon as practical.

References

- Code of Federal Regulations. Title 40 - Protection of Environment. CHAPTER I - ENVIRONMENTAL PROTECTION AGENCY (CONTINUED). SUBCHAPTER I - SOLID WASTES. PART 258 - CRITERIA FOR MUNICIPAL SOLID WASTE LANDFILLS. Subpart A – General § 258.1 (4)(f)(1)
<http://www.gpo.gov/fdsys/pkg/CFR-2014-title40-vol25/xml/CFR-2014-title40-vol25-sec258-1.xml>
- EPA CRITERIA FOR MEETING THE SMALL, ARID, AND REMOTE MUNICIPAL SOLID WASTE LANDFILL EXCLUSION
<http://yosemite.epa.gov/osw/rcra.nsf/ea6e50dc6214725285256bf00063269d/148f6afee54217be852568e300468382!OpenDocument>
- Nutsch, A., J. McClaskey, and J. Kastner, Eds., 2004. Carcass disposal: a comprehensive review, National Agricultural Biosecurity Center, Kansas State University, Manhattan, Kansas.
- USDA, NRCS. National Engineering Handbook, Part 651, Agricultural Waste Management Field Handbook. Washington, D.C.
- USDA, NRCS. National Engineering Handbook, Part 637, Chapter 2, Composting. Washington, D.C.

NRCS Assistance

- APHIS provides financial assistance in the case of disease
- Technical assistance
 - Planning for emergency disposal due to catastrophic animal mortality event
 - On-site assessment of siting/soils of various functions of emergency disposal
 - Report TA under 368
- Financial assistance
 - A situation where USDA declares emergency
 - Cattle deaths due to Winter Storm Atlas, Fall 2013
 - Livestock losses due to tornadoes in NE, Summer 2014
 - Led to rules waivers which allowed EQIP assistance in a short timeframe.

Questions?

Contact Information:

Cherie E. LaFleur, P.E., Environmental Engineer
CNTSC, Ft. Worth, TX, USDA – NRCS

Cherie.lafleur@ftw.usda.gov

Ofc: 817-509-3303

Cell: 817-240-0439

Carcass Management and HPAI 2015 Challenges

October 7, 2015

Lori P. Miller, PE
USDA APHIS
Lori.p.miller@aphis.usda.gov



Protecting Animal Agriculture





Highly Pathogenic Avian Influenza

A Guide To Help You Understand the Response Process



Detect

You see unusual signs of illness or sudden deaths in your flock. You report it to your private or State veterinarian.

Samples are taken and tested. You find out your flock is positive for HPAI.

Quarantine

USDA and State personnel come to your farm. We assign you a caseworker, who will be your main point of contact onsite, answer your questions, and guide you through the needed paperwork. We will also place your operation under quarantine, meaning only authorized workers are allowed in and out, and movement restrictions for poultry, poultry products, and equipment go into effect. We contact neighboring poultry farms and start testing their birds to see if they've been affected, too.

Appraise

We work with you to create a flock inventory. This lists how many birds you have, what species they are, their age, and other key details that will help us give you 100 percent of fair market value for your birds.

Depopulate

Infected flocks are depopulated as quickly as possible—ideally within 24 hours of the first HPAI detection—to get rid of the virus.

Compensate

You receive your first indemnity payment early on in the response process. We also pay you a standard amount for virus elimination activities (cleanup work).

Manage Disposal

USDA will help you dispose of the dead birds safely. Disposal methods include composting, burial, incineration, rendering, or landfilling. The options you'll have depend on several things: what type of farm you have, the specific conditions there, State and local laws, and what you prefer.

Eliminate Virus

The next step is to wipe out all traces of the virus at your property. To kill the virus, thoroughly clean and disinfect the barn, equipment, and all affected areas of your farm. You can do this work yourself or hire contractors to handle it.

Test

As soon as you're ready, let your caseworker know you're finished with cleanup. Your site must then stay empty for at least 21 days. During this time, we'll return to collect and test environmental samples. We need to confirm that your property is completely virus-free.

Restock

Once USDA and the State both approve, you can restock your facilities and start production again. State officials will release your farm from quarantine after all required testing and waiting periods are done.

Maintain Biosecurity

After restocking, you'll need to continue maintaining the highest biosecurity standards to keep the virus from coming back. For biosecurity tips, go to www.aphis.usda.gov/publications and download the factsheet "Prevent Avian Influenza at Your Farm."



How Long Does the Process Take?

Ideally, this entire process could be completed in as soon as 60–120 days. However, the timeframe varies depending on many things (for example, flock size, depopulation and disposal methods used, test results, farm's location). We're committed to restoring production as fast as we can while also protecting poultry health.

Questions?

Talk with your caseworker or the State or Federal officials responding to the disease event in your area.

For general information and contacts, visit:

www.usda.gov/avian_influenza.html
www.aphis.usda.gov/fadprep



Composting



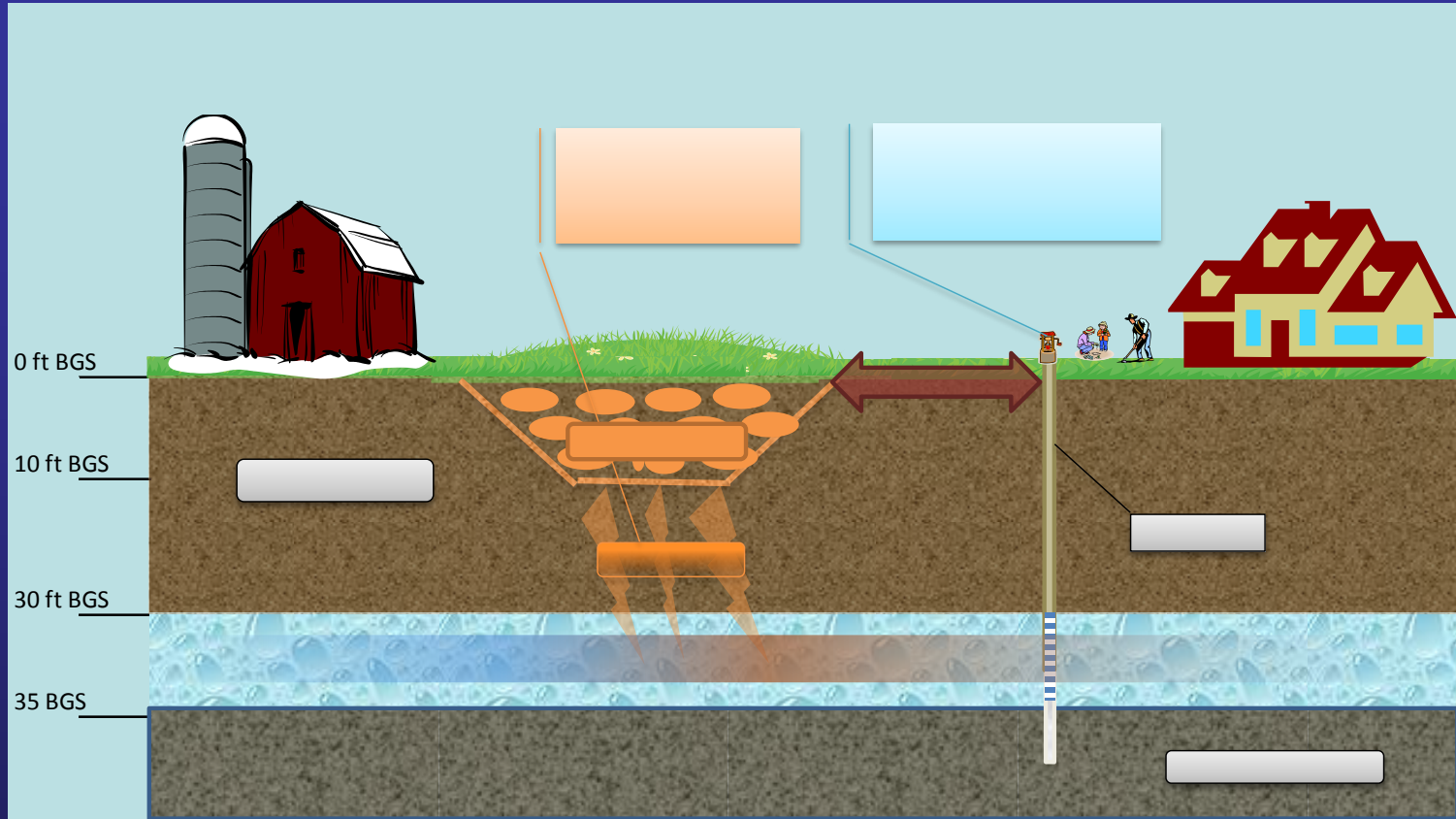
Disposal - Burial



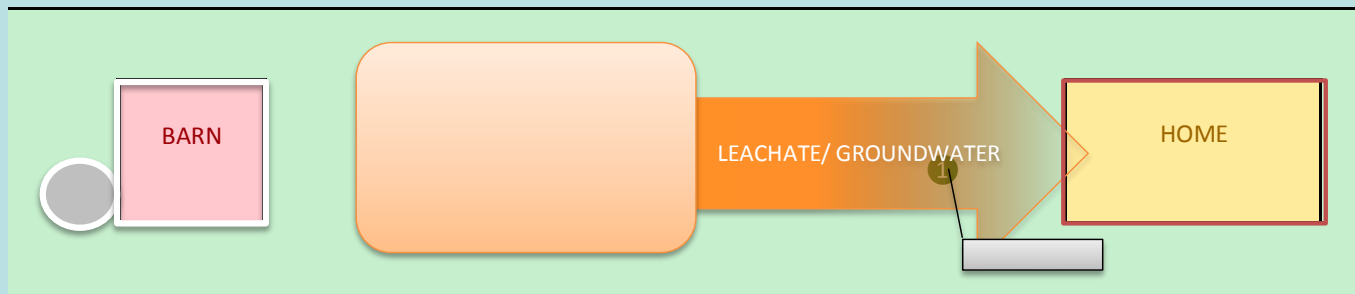
Onsite Incineration



Burial Effect on Environment



Property values? Clean-Up Liability?



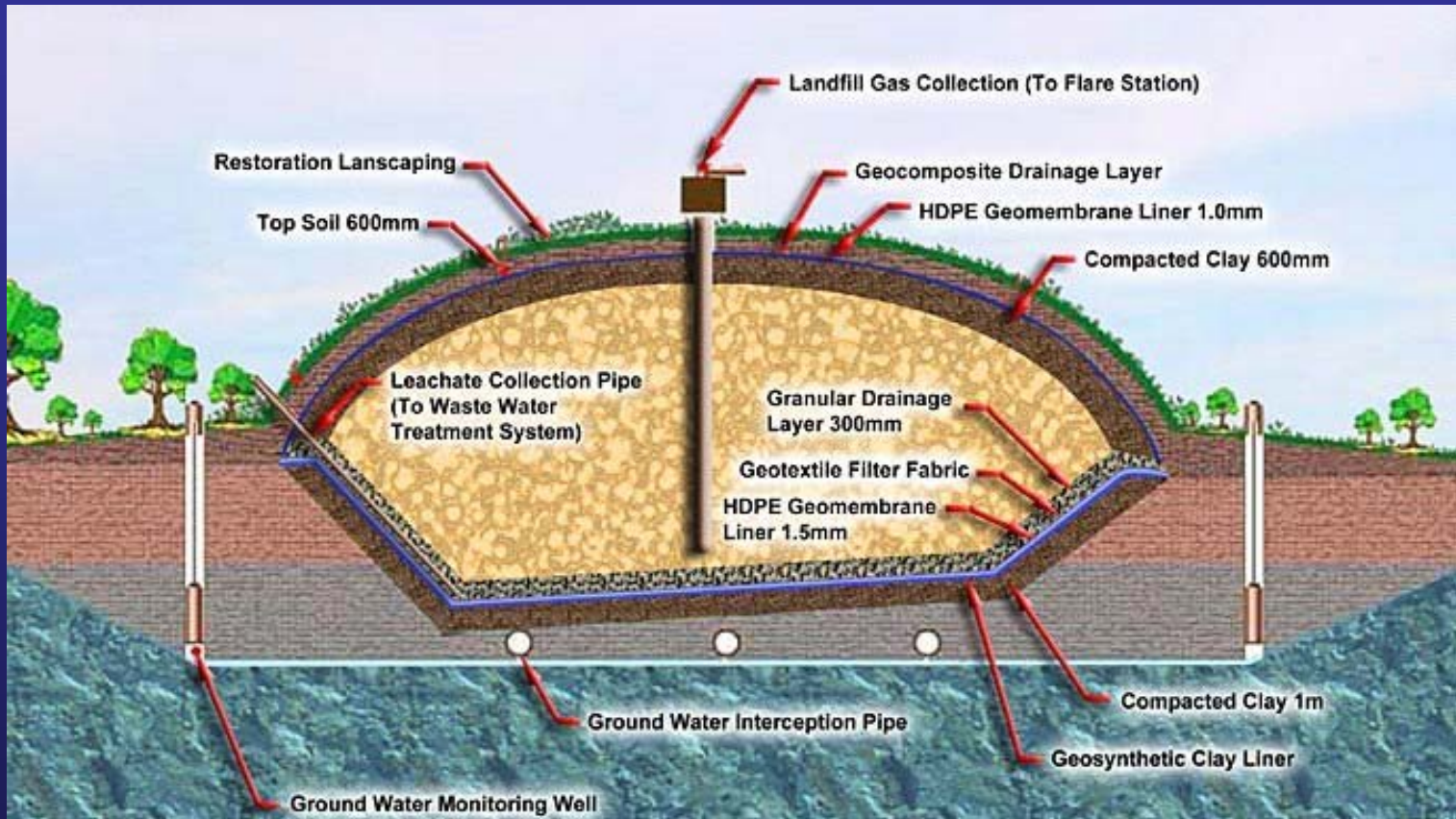
Why is nitrogen a problem?

- EPA standard for nitrates in drinking water is 10.0 mg/L
- Carcass burial sites generate over 1000 times the standard
- Causes Methemoglobinemia (blue baby syndrome) which can be fatal to infants
- Toxic to aquatic life
- Depletes dissolved oxygen in receiving waters
- Stimulates aquatic plant growth (eutrophication)

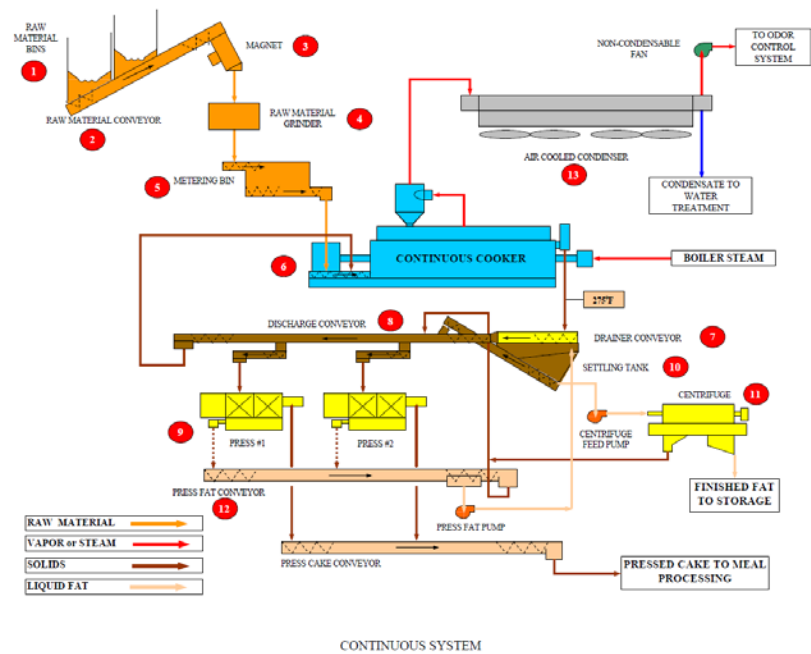
Landfill



Permitted Landfill



Rendering



Offsite Incineration



Disposal Matrix

Weighting	Criteria	Off-Site Landfill	Rendering	Off-Site Incineration	Composting	Open Air Burning	On-Site Burial
Most Important (x3)	Public Health Risk (1)	9	9	9	9	6	3
	Biosecurity (2)	6	6	6	3	3	3
	Pathogen Inactivation (3)	3	6	9	6	9	3
	Environmentally Sustainable (4)	9	9	9	9	3	3
Important (x2)	Need to Transport Carcasses Offsite (5)	2	2	2	6	6	6
	Volume Reduction (6)	4	6	6	4	6	4
	Availability(7)	6	4	2	4	4	4
	Throughput (8)	6	6	2	4	4	4
	Speed to Implement (9)	6	4	4	4	4	4
	Public Acceptance (10)	6	4	6	4	2	4
Less Important (x1)	Cost Effectiveness (11)	3	2	1	1	1	3
	Efficiency (12)	3	3	3	2	1	2
	Operability (13)	3	3	3	2	1	3
	Regulatory limitations (14)	2	3	2	2	1	1
	Denial of use (15)	3	2	2	2	2	1
	Total Points	71	69	66	62	53	48
	Average Score	4.7	4.6	4.4	4.1	3.5	3.2

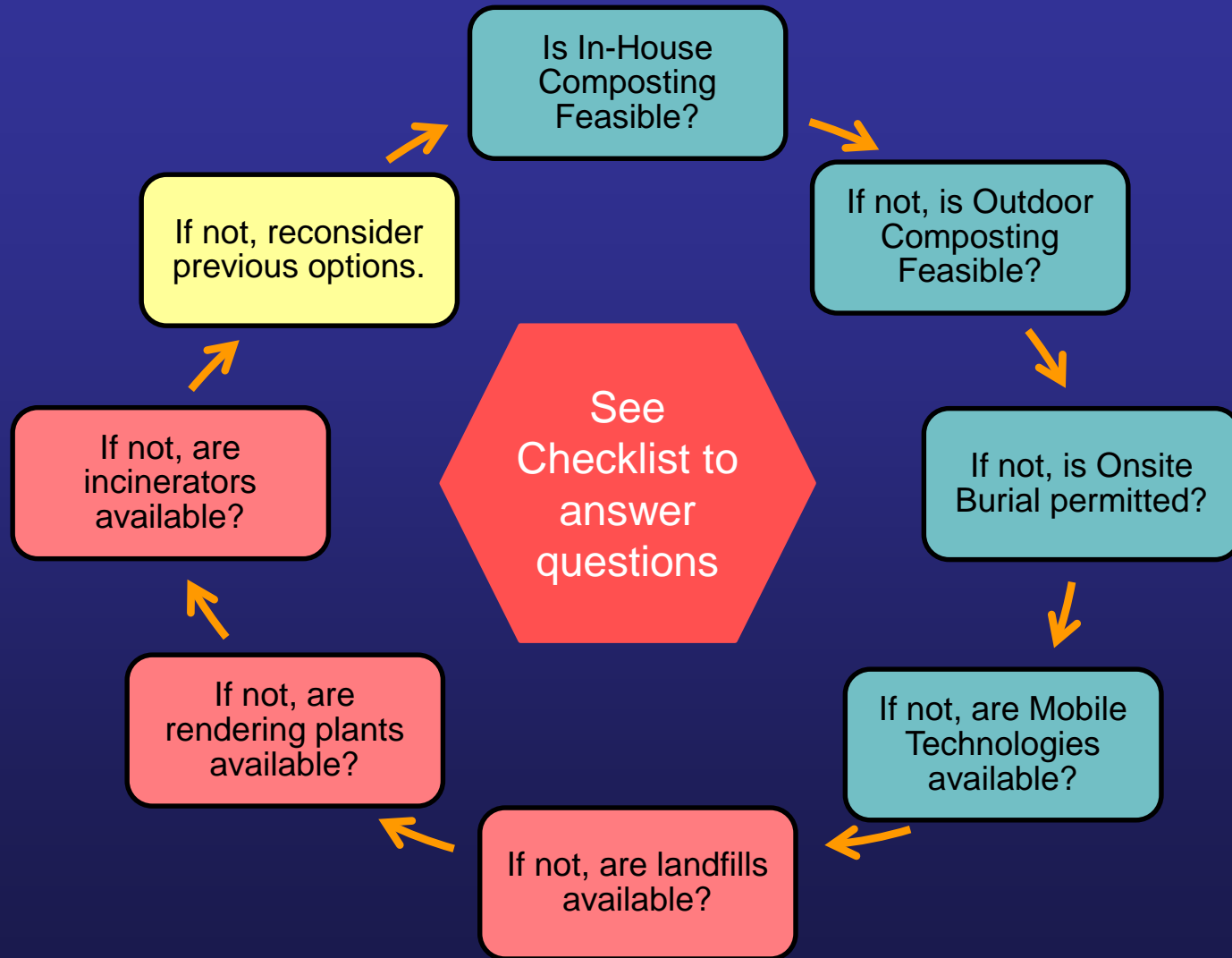
Matrix Footnotes

Values in matrix may be incident specific.

1. Public health risk – based on the UK 2001 human health qualitative risk assessment which excluded composting and mobile technologies. The rankings are consistent with the public health risks tabulated by the United Kingdom (UK) Department of Health (now the Department for Environment, Food and Rural Affairs), in “A Rapid Qualitative Assessment of possible risks to Public Health from current Foot & Mouth Disposal Options, Main Report,” June 2001.
2. Biosecurity – if process can be contained and easily disinfected = 3, if process is somewhat contained, but the processing area is difficult to disinfect = 2, if process is not contained = 1
3. Pathogen Inactivation – If process completely inactivates pathogen = 3, partial inactivation = 2, no inactivation = 1
4. Environmental sustainability – low risk of environmental contamination and useful end product = 3, low risk of contamination or useful end product = 2, risk of environmental contamination and no useful end product = 1
5. Transport carcasses offsite – Yes = 1, No = 3
6. Volume reduction – process reduces volume of biomass = 3, same volume = 2, increases volume = 1
7. Availability – option is widely available = 3, regional or somewhat available = 2, very limited availability = 1.
8. Throughput – the amount of biomass that can be processed per day. If >200K lbs/day = 3, between 200K lbs/day - 50K lbs/day = 2, <50K lbs/day = 1. Note: Throughput X Availability = Capacity
9. Speed to implement – how quickly can option begin taking first carcasses including obtaining regulatory approval where immediately = 3, <5 days = 2, more than 5 days = 1
10. Public acceptance – likelihood of public protests where low = 3, medium = 2, and high = 1
11. Cost effectiveness – cost to perform option from K State Carcass Disposal: A Comprehensive Review where <\$100/ton = 3, \$100/ton - \$250/ton = 2, > \$250/ton = 1.
12. Efficiency – amount of inputs (utilities, chemicals, fuel, carbon source) to contain and stabilize biomass over a short period of time
13. Operability – ease of implementation, for example simple to do, operators readily trained and available
14. Regulatory limitations – permits or regulator exemptions would have to be obtained in order to utilize this disposal method
15. Denial of use – land or equipment is no longer able to be used for its intended purpose due to disposal method



Avian Influenza Disposal Decision Tree



Checklist

- **Second Option - Can off-site permitted landfill be used?**

- See a comprehensive list of landfills at

- <http://www2.ergweb.com/bdrtool/login.asp>.

- Logon to the I-WASTE Tool and obtain a password if you do not currently have one.

- Enter userid and password.

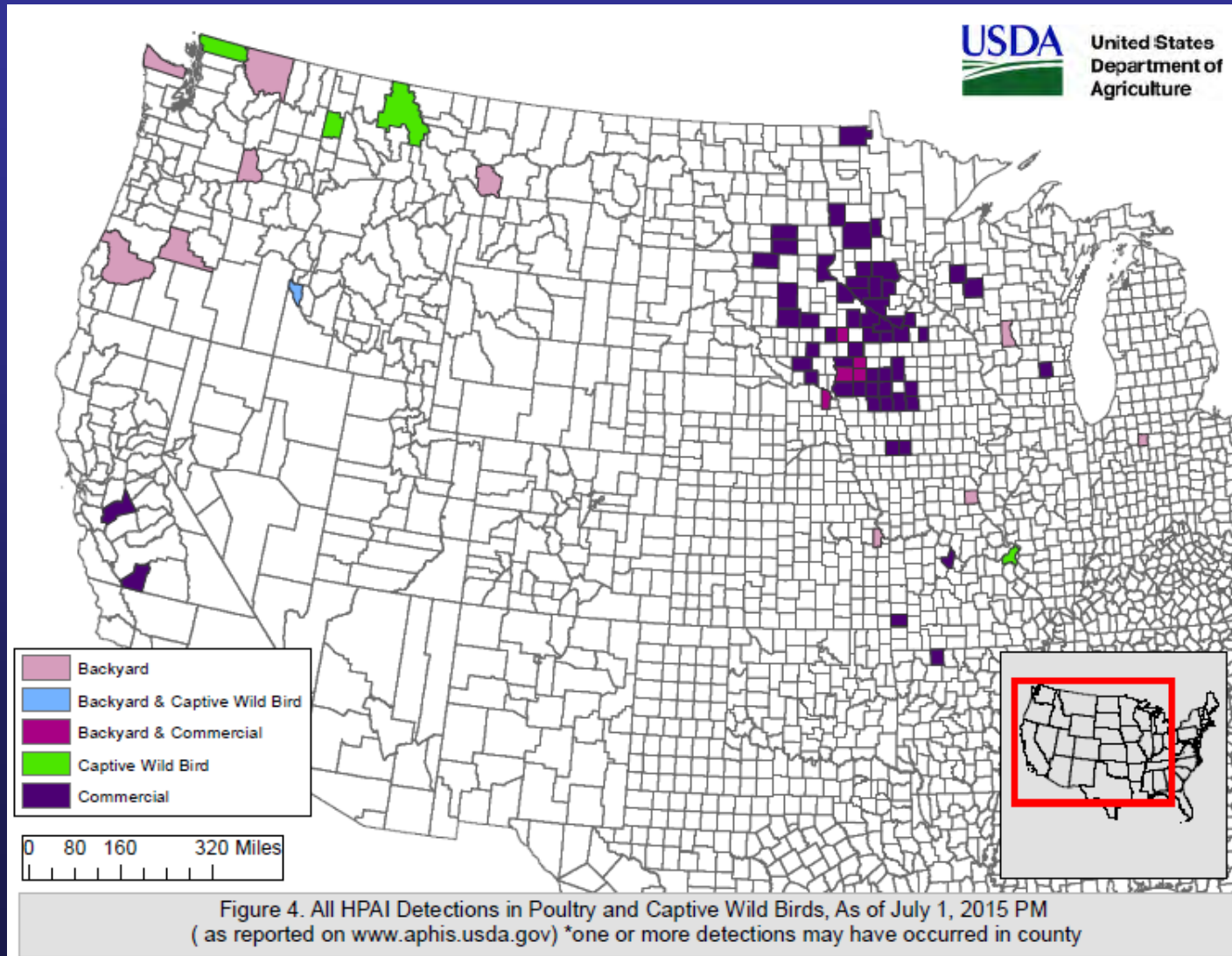
- Choose treatment and disposal facilities button on the lower left.

- Enter filter criteria such as “facility type (e.g., rendering, incinerators, or landfill)”

Checklist

- Note that construction debris landfills are not suitable for carcass disposal, and hazardous waste landfills are not necessary unless the carcasses are contaminated with a hazardous material causing them to be classified as hazardous
- Enter State or EPA region, and click “View List of Facilities” button.
- Contact facilities and determine if they will accept your livestock or poultry and meet some or all of your capacity needs.

HPAI 2015



Options Used in 2015 HPAI

211 commercial premises

MN-109 – 108 composting, 1 burial

IA-71 - composting, burial, landfill, and incineration

SD-10 - Burial

WI-9 – composting

NE-5 - composting

CA-2 - composting

MO-2 - composting

ND-2 - composting

AR-1 - burial

Composting Challenges

- Need mortality composting expert to guide windrow construction – only 2 dozen in North America; at peak, 5 deployed at a time
- Need carbon source – 1.5 pounds carbon per pound of bird; nearly 50M birds; estimated \$30M for carbon alone
- Need to monitor temperatures every day for 14 days, turn, monitor another 14 days before release from quarantine
- Labor-intensive; operators must wear PPE; potential biosecurity risks

Composting Challenges (continued)

- Difficult to coordinate multiple experts with differing opinions;
- Formed Composting Technical Team composed of all experts; have weekly conference calls to develop consensus SOP and discuss technical issues
- Field staff wanted SOPs that non-experts could follow;
- Performance of windrows declined as SME involvement decreased

Burial Challenges

- States have jurisdiction over burial permits
- Few sites suitable for burial due to shallow water table or unsuitable soil properties
- Perception that states were frivolous in denying burial approval;
- Many stakeholders lack understanding of disposal issues

Onsite Incineration Challenges

- Open burning not considered an option due to concerns about public perception
- Air curtain trench burners perceived as inadequate
- Air curtain fire boxes used at multiple sites in Iowa
- Throughput of only 5 tons/day of birds
- Large egg layer facilities produced 200 tons/day carcasses

Landfill Challenges

- Landfill companies concerned about public opposition, risk of infected leachate, and potential lawsuits.
- Federal and state government worked with landfill companies for 42 days before landfills accepted first load
- Had to develop waste acceptance criteria, safety guidelines for operators, and Frequently Asked Questions for public
- Still, landfill companies wanted the government to provide indemnity, which federal government can't do
- During the 42 days, hundreds of roll-offs filled with decaying carcasses sat in the hot sun, creating public relations nightmare

Offsite Incineration Challenges

- Requires transport; incident command reluctant to consider transport
- Fixed incinerators were located far from infected premises
- Material had to be packed in small, less-than-140-lb capacity boxes in order to go to fixed incinerators
- Only company willing to consider taking material was medical waste disposal company, which was very expensive
- Medical waste company had concerns about the DOT classification of the waste

Offsite Incineration Challenges (continued)

- Took over a month to mobilize and begin operating large “Tarmac” incinerator at central location near infected zone
- Tarmac was designed to remove petroleum products from contaminated soil, not to incinerate poultry
- Tarmac had frequent mechanical problems, but response team managed to make it process up to 337 tons per day at peak

Successes

- Were able to use risk assessment from Logistical Infrastructure project to guide transport techniques
- Had list of composting SMEs from various working groups over the years
- Had APHIS FADPreP SOPs available online
- Had pre-identified permit process for moving infected carcasses off infected premises
- Had contacts in solid waste industry from various projects and workshops
- Had some data on use of rendering during outbreak
- Were able to use composting SMEs to bridge the gap while incident management teams were deployed.

Lessons Learned

- Liners and bags identified as safe in risk assessment were found to leak after prolonged periods in sun (weeks)
- There were not enough qualified disposal specialists or composting SMEs and disposal was very complicated to implement
- There was no sufficiently-detailed, nationally-accepted, composting SOP, and it was too complicated to develop one during the response in a timely manner
- Although FADPreP SOPs were available online and disposal technical expertise available at national level, responders continually reinvented the wheel

Lessons Learned (continued)

- Pre-identified movement permit process was not coordinated with US DOT
- Despite past work with solid waste industry to utilize landfills, many companies refused waste due to fear of public reaction
- The data on use of rendering during an outbreak was insufficient to enable implementation of rendering
- There were no validated protocols for testing compost using virus isolation, nor for managing the immense quantities of manure from large egg layer operations (e.g., 30,000 tons of manure from 3.8M bird layer operation)

Looking Forward

- APHIS and the Composting Technical Team have published a national composting protocol;
- APHIS surveyed states to determine what carcass management resources they had available
- Several after-action meetings were held with stakeholders to identify major areas for improvement
- APHIS is funding development of a mortality composting course to train a new group of potential experts
- APHIS is holding several internal carcass management training courses for response teams
- APHIS is hiring and training additional staff, including project managers for carcass management



In Summary

- Significant progress has been made since 2008 in addressing response challenges
- The tools and data developed by the US and its partners were put to the test this year
- The response was more effective than it would have been without those tools and pre-planning
- There are still a number of challenges to be addressed



Questions

