

# Emergency Poultry Disease Response Certificate Course

This is a four day certificate course on Emergency Poultry Disease Response for up to twenty-two participants. Topics in the course will include, but are not limited to: understanding the influenza virus, surveillance, biosecurity, outbreak response and control, incident command structures, protecting the responder, depopulation, disposal, composting, and decontamination. The training program presents and utilizes the "Delaware model," which emphasizes close cooperation between government, industry and educational institutions to manage avian influenza outbreaks utilizing best management practices and technologies related to controlling outbreaks of avian influenza and other catastrophic disease outbreaks. In addition, participants will earn continuing education units (CEU) necessary for veterinary or veterinary technician continuing education requirements: 3.2 CEUs (32 training hours)

**Dates: July 11 - 14, 2011**

**Location: Charles C. Allen, Jr. Biotechnology Laboratory, University of Delaware, Newark, DE 19716**

## Course Objectives:

1. Trainees will understand the elements of successfully planning for and responding to a poultry disease outbreak, including state/regional and national policies, indemnification agreements, incident command management structures, surveillance of wild birds and commercial poultry, , and multi-jurisdictional cooperation.
2. Trainees will fully understand the personnel requirements to successfully respond to poultry disease outbreaks.
3. Trainees will understand the Personal Protective Equipment (PPE) requirements for personnel responding to an outbreak.
4. Trainees will understand the options available to cull sick flocks (CO<sub>2</sub>, foam, etc.).
5. Trainees will understand about the options to dispose of culled flocks including in-house composting.
6. Trainees will learn the key characteristics of a disinfection strategy and techniques to clean and disinfect poultry houses and equipment.

## Schedule:

Day 1: Monday, July 11, 2011

Topic	Instructor	Time (hours)
Introduction / Welcome	Eric Benson and George Irvine	8:00 – 8:30
Pre Course Survey: Participant data	Eric Benson	8:30 – 8:45
Discussion- Past and Current Avian Influenza Situations in Home Regions	Participants	8:45 – 10:00
Break		10:00 – 10:15
Influenza Viruses and Detection	Jack Gelb	10:15 -11:15
The United States Live Bird Market System	Aliza Simeone	11:15 – 12:15
Lunch		12:15 – 12:45

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Personal Protective Equipment	Krista Murray	12:45 – 1:45
Swabbing and PPE	Bob Alphin	1:45 – 2:30
Surveillance Hands On Demonstration	Participants	2:30 – 3:30
Break		3:30 – 3:40
Surveillance in Wild Birds and Poultry	Brian Ladman	3:40 – 4:40
Discussion-Surveillance and Live Bird Market Systems	Participants	4:40 – 5:00

### Day 2: Tuesday, July 12, 2011

USDA's Prospective on Emergency Poultry Disease Response	Mark Remick	8:00 – 9:00
Zoonotic & Foreign Animal Diseases	Dan Bautista	9:00 – 10:00
Break		10:00 – 10:15
Delmarva Outbreak Response	Don Ritter	10:15 – 11:15
Other Models of Control: Vaccination and Controlled Marketing	Dan Bautista	11:15 – 12:00
Lunch		12:00 – 12:30
Guidelines, Methods and Criteria for Depopulation	Bob Alphin	12:30 – 1:15
Foam Depopulation	Eric Benson	1:15 – 2:15
Depopulation Demonstration		2:15 – 3:30
Break		3:30 – 3:45
OIE Categories and Depopulation Methods Currently In Use	Participants	3:45 – 4:45
Certification Quiz 1: Introduction through Depopulation	Participants	4:45 - 5:00
Dinner	Deerfield Golf & Tennis Club	5:00 – 7:00

### Day 3: Wednesday, July 13, 2011

Allen Lab Tour	Bob Alphin	8:00-8:30
Incident Command Structures and Perdue's Lesson's Learned	David Shapiro	8:30 – 9:30
Biosecurity	David Shapiro	9:30 – 10:30
Break		10:30 – 10:45

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Disposal Options	Eric Benson	10:45 – 11:45
Lunch	Catered	11:45 – 12:15
The Science Behind Composting	Eric Benson	12:15 – 1:15
Implementing Composting	Bob Alphin	1:15 – 2:15
Composting Demonstration		2:15 – 3:15
Break		3:15 – 3:30
Discussion: Composting & Disposal	Participants	3:30 – 4:30

Day 4: Thursday, July 14, 2011

International Aspects of Emergency Poultry Disease Response	George Irvine	8:00 – 9:00
Dealing with a long term outbreak – Virginia 2002	Beth Krushinskie	9:00 – 10:00
Break		10:00 – 10:15
International Backyard flocks and Live Bird Market Systems	Gavin Macgregor-Skinner	10:15 – 11:15
Backyard flocks/Live Bird Markets Outbreak Table Top Exercise	Participants	11:15 – 12:15
Lunch		12:15 – 1:00
The Science Behind Disinfection	Eric Benson	1:00 – 1:45
Implementing a Disinfection Strategy	Eric Benson	1:45 – 2:45
Equipment Disinfection Demonstration	Eric Benson	2:45 – 3:30
Certification Quiz 2: Depopulation through Disinfection	Participants	3:30 – 4:00
Wrap Up Discussion	Participants	4:00 – 5:00

### Module Descriptions:

**Introduction:** What is an emergency response? How is this program going to be organized? What are the key steps in a response? How can the emergency poultry disease response model be used for other animal emergencies?

**Discussion-Past and Current Avian Influenza Situations in Home Regions:** Participants are encouraged to share with other participants what has happened in their host countries. Have

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there been any recent avian influenza outbreaks? How were they handled? What are the current problems?

Influenza Viruses and Detection: What is the “Avian bird flu”? How does AI spread? What are hemagglutinin and neuraminidase, and what do they do? How can influenza viruses be detected?

The United States Live Bird Market System: The United States has a number of regional live bird markets which are managed differently than the larger integrated commercial poultry industry. These differences can pose biosecurity challenges. Strategies to deal with the challenges of the US live bird market system will be discussed.

USDA's Prospective on Emergency Poultry Disease Response: The USDA APHIS Veterinary Services prospective on emergency poultry disease response working with states, poultry companies and universities to effectively respond to disease outbreaks.

Personnel Protective Equipment: What types of personal protective equipment (PPE) is required during an outbreak response? The use and appropriateness of N95 masks, powered air purifying respirators and self contained breathing apparatus will be discussed.

Swabbing and Surveillance Hands-On: Demonstration and participant participation in proper collection of field samples and the use of personal protective equipment.

Surveillance in Wild Birds and Poultry: A critical step in emergency poultry disease preparedness and response involves wild bird and commercial poultry surveillance programs. These programs involve the testing of migratory birds nationally and internationally including the USDA, DOI and its cooperators (including the State of Delaware and the University of Delaware). In January 2006, the U.S. commercial poultry industry initiated an avian influenza testing program. All broiler flocks from participating companies, including all four broiler companies on the Delmarva Peninsula, are tested and confirmed AI negative before going to slaughter.

Discussion-Surveillance and Live Bird Market Systems: Participants are encouraged to share with other participants about the surveillance methods and programs utilized in their home countries and the live bird market systems found there. What are some of the lessons learned from your surveillance programs and dealings with live bird markets?

Allen Laboratory Tour: The Allen Laboratory is a state of the art BSL 3 Ag facility that allows faculty and staff at the University of Delaware to perform cutting edge research with a variety of viruses and pathogens. The tour will include discussion of how the building was designed and a tour of the animal and laboratory spaces.

Zoonotic & Foreign Animal Diseases: Why do existing and emerging zoonotic and foreign animal diseases represent a continuing threat to national and international agriculture, human health, and national security? How the confluence of veterinary and human health should require the “One Medicine Concept” approach to dealing with the problem.

Delmarva's Outbreak Response: The Delmarva Peninsula is a high density poultry production region. In 2004, a LPAI outbreak on Delmarva was contained after relatively limited spread due to a well developed response plan that was in place before the outbreak. The plan had a clear cut emergency management structure. Poultry emergencies require a multifaceted response and control strategy. After the detection of an avian influenza outbreak, all response plans involve quarantine, further testing of flocks in and around the quarantine zone, then depopulation, decontamination including carcass disposal, cleaning and disinfecting. The successes of the 2004 response, along with lessons learned from that response, have been used to guide the development of new emergency response procedures.

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Other Models of Control-Vaccination and Controlled Marketing: Depopulation is one approach used to control the spread of avian influenza and other diseases. Vaccination and controlled marketing can be key tools for the prevention and control of avian influenza. Both techniques are used internationally. Vaccination can be used to help contain outbreaks, reduce viral shedding, and decrease transmission, but can also reduce detection of sick birds.

Guidelines, Methods and Criteria for Depopulation: There are a limited number of mass emergency depopulation procedures. Guidelines from the US Department of Agriculture, American Veterinary Medical Association, OIE, and others guide the selection of appropriate depopulation techniques. The advantages and disadvantages of several gas depopulation techniques will be discussed.

Foam Depopulation: Foam depopulation was developed as a fast, humane, and easy to implement mass emergency depopulation procedure. The procedure reduces the number of people required and can rapidly depopulate floor reared poultry. Participants will learn the characteristics of foam, the science behind the procedure, and how to implement foam depopulation.

Depopulation Demonstration: Two different water based foam depopulation methods will be demonstrated. Depending on time and conditions, participants will have the opportunity to operate the equipment.

Allen Laboratory Tour: The Allen Laboratory is a state of the art BSL 3 Ag facility that allows faculty and staff at the University of Delaware to perform cutting edge research with a variety of viruses and pathogens. The tour will include discussion of how the building was designed and a tour of the animal and laboratory spaces.

Incident Command Structures (ICS) and Perdue's Lesson Learned: ICS is a scalable system used for commanding, controlling and coordinating the efforts of individual agencies as they work towards the common goal of stabilizing an emergency. The system provides the framework for people from multiple agencies to work together. In this module, representatives will discuss how ICS was part of Perdue's response during regional poultry disease emergencies.

Biosecurity: Biosecurity is one of the principle steps in preventing the spread of disease. Biosecurity is the one aspect of avian influenza control that can be practiced on a daily basis. Examples of current methods, including risk assessment biosecurity programs will be discussed.

Disposal Options: After catastrophic poultry emergencies, whether avian influenza, heat stress, or otherwise, requires disposing of large numbers of birds. One of the critical concerns in selecting a disposal method is biosecurity. Depending on the circumstances, the options may be limited. The advantages and disadvantages of several disposal options including on-farm burial, landfilling, incineration, and composting are reviewed.

The Science Behind Composting: Composting is an effective on-farm means of inactivating avian influenza virus. Composting is suitable for international and domestic carcass disposal. In this module, the fundamental principles of composting will be discussed.

Implementing Composting: Composting has been used for both daily and catastrophic mortality disposal. Daily mortality disposal has been successfully used on Delmarva since the 1980's, while in-house composting is slightly newer. Procedures for both daily and catastrophic mortality are reviewed, including the mix & pile and layering techniques.

Composting Demonstration: Both daily and catastrophic composting will be demonstrated.

International Aspects of Emergency Poultry Disease Response: Internationally, there are large differences in how emergency poultry disease responses are handled. An overview of the

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generally accepted international and UDS standards will be presented and participants will be able to discuss how individual countries create emergency response policies. An outcome of the session would be an understanding of the policy approaches to poultry disease response.

Dealing with a long term outbreak – Virginia 2002: The poultry industry in the central Shenandoah Valley of Virginia was affected by a LPAI outbreak in turkeys, broilers and layers, costing the industry an estimated \$130 million. Many lessons were learned from this outbreak which lasted over four months, involved a total of 197 infected farms and required 4.7 million birds to be depopulated.

International Backyard flocks and Live Bird Market Systems: Live bird markets and village/backyard flocks present a unique challenge for both developed and developing nations. In this module, techniques developed and tested internationally, including the use of participatory disease surveillance techniques for detecting AI outbreaks; the use of participatory epidemiology for investigating disease outbreaks; how a community mobilization program can be used to reduce the risk of AI transmission and how a commercial poultry private sector partnership was used to develop and test both biosecurity advisory services models, and integrated behavior change mass media campaigns will be discussed.

Backyard flocks/Live Bird Markets Outbreak Table Top Exercise: Participants will take part in a table top response exercise to an AI outbreak in a village flock/live bird market scenario.

Science Behind Disinfection: How are disinfectants classified. What are the advantages and disadvantages of these different classes of disinfectants? What is different about the newer generation of disinfectants? What is the impact of organic material on the efficacy of these agents?

Implementing a Disinfection Strategy: What are the key characteristics of a disinfection strategy? Which chemicals should be used and how should they be applied? What consideration should be given to disinfecting equipment?

Equipment Disinfection Demonstration: Skid steer loaders are extensively used in United States emergency management situations. One of the problems of using skid steer loaders is disinfecting the equipment after the outbreak. Unfortunately, disinfecting the equipment can be problematic, with numerous occluded spaces and blind holes. In this demonstration, participants will get to use a liquid spray and thermal fog and see the problems of trying to achieve optimal disinfectant penetration on equipment.

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## Other Instructions

The program cost includes lodging and limited meals (breaks and lunches, dinner on Tuesday) for the participants during the program. Participants are responsible for dinner on Sunday, Monday, and Wednesday.

Dress for the program is casual / corporate casual

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