

This information is pulled from some presentations given by poultry science faculty on avian influenza, past outbreaks, disease symptoms, response to the disease. In addition, there is information on reporting flocks with high mortality or other symptoms.

Avian Influenza

Ounce of prevention better than a pound of cure

Brian Fairchild
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University of Georgia



Primary Message Now is Prevention

▶ Biosecurity



Avian Influenza

- ▶ Caused by a virus
- ▶ Many different strains
- ▶ Named after proteins on their envelope
- ▶ H for Hemagglutinin (1-16)
- ▶ N for Neuraminidase (1-9)

HPAI Strains →

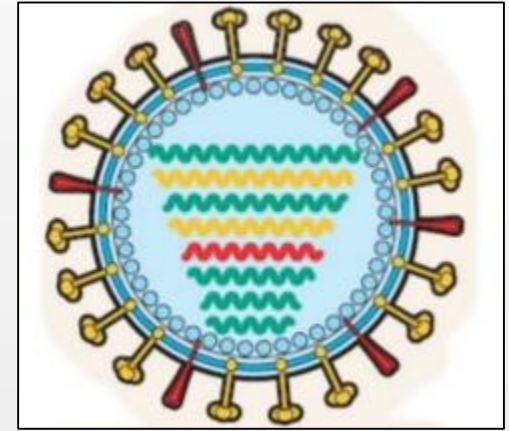
Number	Year	Country/Region	Strain
1	1959	Scotland	H5N1
2	1961	South Africa	H5N3
3	1963	England	H7N3
4	1966	Canada	H5N9
5	1975	Australia	H7N7
6	1979	Germany	H7N7
7	1979	England	H7N7
8	1983-84	USA	H5N2
9	1983	Ireland	H5N8
10	1985	Australia	H7N7
11	1991	England	H5N1
12	1992	Australia	H7N3
13	1994	Australia	H7N3
14	1994-95	Mexico	H5N2 **
15	1995 and 2004	Pakistan	H7N3**
16	1997	Australia	H7N4
17	1997	Italy	H5N2
18*	1996-2015	Eurasia/Africa	H5N1
19	1999-2000	Italy	H7N1
20	2002	Chile	H7N3
21	2003	Netherlands	H7N7
22	2004	USA	H5N2
23	2004	Canada	H7N3
24	2004	South Africa	H5N2 (ostriches)
25	2005	North Korea	H7N7 **
26	2006	South Africa	H5N2 (ostriches)
27	2007	Canada	H7N3
28	2008	England	H7N7
29	2009	Spain	H7N7
30	2011-13	South Africa	H5N2 (ostriches)
31	2012	Chinese Taipei	H5N2
32	2012-15	Mexico	H7N3 **
33	2012	Australia	H7N7
34	2013	Italy	H7N7
35	2013	Australia	H7N2

David Swayne, USDA-ARS



Avian Influenza

- ▶ Caused by a virus
- ▶ Named after proteins on their envelope
- ▶ H for Hemagglutinin (1-16)
- ▶ N for Neuraminidase (1-9)
- ▶ In waterfowl, usually cause no disease
- ▶ In gallinaceous birds,
 - ▶ **cause mild disease (LPAI)**
 - ▶ **to severe catastrophic disease (HPAI)**
- ▶ HPAI is a foreign animal disease
- ▶ AI has an incubation period of 3-7 days
 - ▶ Depending on



Avian Influenza

- ▶ AI has an incubation period of 3-7 days
- ▶ Depends on
 - ▶ Viral dose
 - ▶ Poultry species
 - ▶ Route of exposure



Avian Influenza

- ▶ Two types based on ability to produce the disease (pathogenicity)
 - ▶ **Low Path AI**
 - ▶ commonly occurs in wild birds. In most cases, it causes minor symptoms or no noticeable symptoms. It is rarely fatal in birds.
 - ▶ **High Path AI**
 - ▶ fatal in chickens and turkeys. HPAI spreads rapidly and has a high death rate



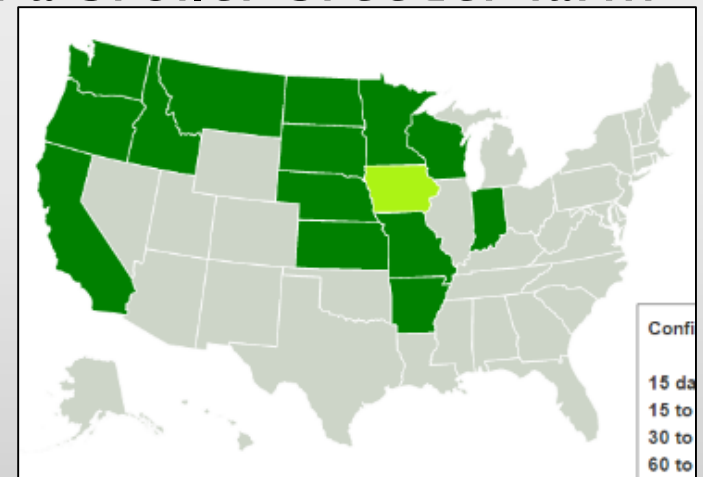
Avian Influenza

- ▶ This virus does not affect humans
- ▶ Public Health Department will be monitoring
- ▶ AI viruses can change and adapt
- ▶ Concern is paralysis of the industry, loss of production and trade



History of HPAI in the US

- ▶ 1983 - Large outbreak PA: Destruction of 17M chickens
- ▶ 1983 - Single flock in TX
- ▶ 2014-2015 – Large outbreak with confirmed cases in WA, OR, CA, ID, MT, AR, MO, MN, IA, SD, ND, WI, ND, NE, IN
- ▶ 2016 – Confirmed cases in IN in turkeys
- ▶ 2017 – A confirmed case in TN on a broiler breeder farm



USDA APHIS



Avian Influenza

- ▶ Virus does not infect humans
- ▶ Poultry meat and egg products are safe to eat...
- ▶ Even during an AI outbreak
- ▶ Why?
 - ▶ No meat or eggs from infected flocks leave the farm
 - ▶ Cooking kills the virus



Economic Impact

▶ Minnesota

- ▶ Estimate impact on state economy – greater than \$650 million
- ▶ Affected 2,500 jobs
- ▶ Estimated \$170 million loss in wages



Economic Impact

- ▶ Iowa
 - ▶ \$427,000
 - ▶ Income, egg sales, grain sales
 - ▶ 8,500 jobs affected



Economic Impact

▶ Georgia

▶ Economic Impact of the Chicken Industry in Georgia

	Direct	Supplier	Induced	Total
Jobs (FTE)	47,911	72,223	32,651	152,785
Wages	\$2,597,656,000	\$4,360,942,800	\$1,514,633,000	\$8,473,231,800
Economic Impact	\$24,193,016,800	\$16,126,985,800	\$4,488,094,800	\$44,808,097,400



Avian Influenza Symptoms

- ▶ Lack of energy and appetite
- ▶ Decreased egg production and/or soft-shelled or misshapen eggs
- ▶ Swelling of the head, eyelids, comb, wattles, and hocks
- ▶ Purple discoloration of the wattles, combs, and legs



Purple discoloration of comb & wattles



Swelling of head, face, comb and wattles



Avian Influenza Symptoms

- ▶ Depression, reduced vocalizations
- ▶ Nasal discharge, coughing, sneezing
- ▶ Stumbling or falling down
- ▶ Diarrhea
- ▶ Sudden death without any clinical signs



There are no acceptable or practical
treatments for AI



How is HPAI controlled

- ▶ **Stamping out**
 - ▶ Infected flocks quarantined and destroyed
 - ▶ Prevent infection to other flocks
- ▶ Vaccination (USDA decision)
 - ▶ No vaccine match
 - ▶ Paralyzes exports
 - ▶ Interferes with surveillance
 - ▶ Vaccine does not stop virus spread
 - ▶ If vaccine use, it will be to help with eradication



Testing for AI

- ▶ GA Testing volume: 300,000/yr
 - ▶ ACTIVE SURVEILLANCE:
 - ▶ Under NPIP:
 - ▶ all broiler flocks are testing before processing
 - ▶ broiler Breeders every 4-12 weeks
 - ▶ layer flocks 2-3 times in their life time
 - ▶ Auction and Sales: random testing
 - ▶ PASSIVE SURVEILLANCE: All birds submitted to the lab for any reason are tested



State Response Plan

1. Immediate response (first case)

1. *Activation of Committee and GIS*
2. *REPORTING*

2. Indemnity



AFFECTED FLOCK	
Quarantine Euthanasia	
Disposal	
C&D	
Security and Biosecurity	

Georgia Poultry Laboratory Network



State Response Plan

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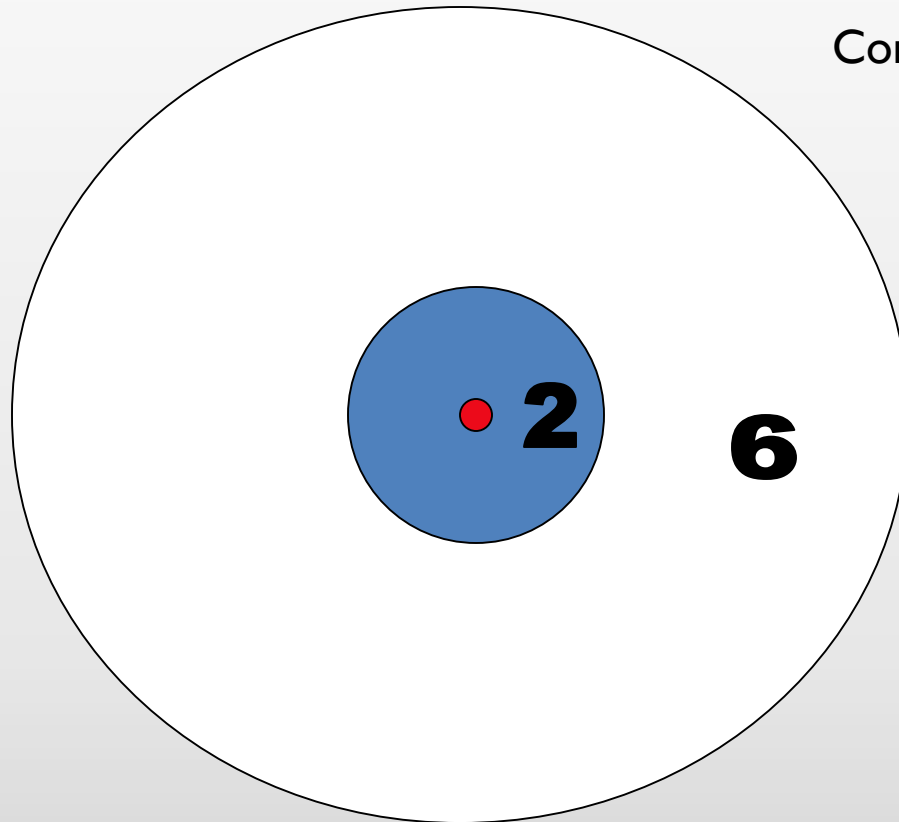
AFFECTED FLOCK	SURROUNDING FLOCKS
Quarantine Euthanasia	Monitoring by priorities and Zones
Disposal	Movement Control
C&D	
Security and Biosecurity	

Georgia Poultry Laboratory Network



Zones

Control and surveillance

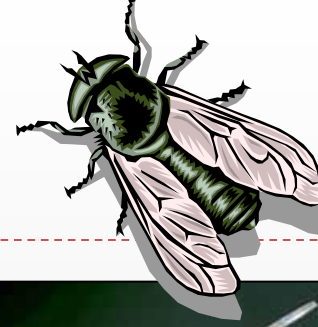


Biosecurity for Flocks

- ▶ Prevent contact with waterfowl & wild birds
- ▶ Establish good rodent control programs
- ▶ Routine cleaning and sanitation of coop
- ▶ Have designated clothes and shoes for entering coop or working with your flock



Biological Vectors



Biosecurity for Flocks

▶ Hunters

- ▶ Dress your game birds in the field whenever possible
- ▶ If you must dress birds at home, clean them in an area your poultry and pet birds cannot access
- ▶ Use dedicated tools for cleaning game, whether in the field or at home
- ▶ Always wear rubber gloves when cleaning game
- ▶ Double bag the offal and feathers. Tie the inner bag, and be sure to take off your rubber gloves and leave them in the outer bag before tying it closed.
- ▶ Place the bag in a trash can that poultry and pet birds cannot access.



Primary Message Now is Prevention

▶ Biosecurity

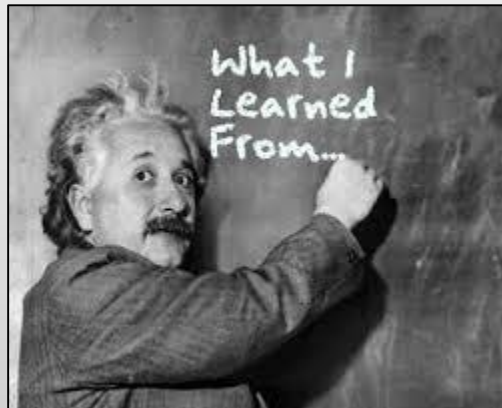


Limit visitors



Points to take away from this

1. We need to initiate BIG change-Biosecurity/Prevention
2. This is not a human virus, it is an avian virus
3. Poultry products are safe to consume
4. Water fowl are carriers and efforts should be made to minimize them from grazing near poultry facilities
5. Georgia is prepared to handle it, but with proper biosecurity, hopefully we won't have to





Department of Poultry Science

College of Agricultural & Environmental Sciences

UNIVERSITY OF GEORGIA

www.poultryventilation.com



Small Flock Avian Influenza Triage County Extension Office

A. Bruce Webster

Department of Poultry Science

The University of Georgia

Early Discovery/Early Eradication

- Highly pathogenic avian influenza is classified as a Foreign Animal Disease.
 - FAD triggers federal response
 - USDA APHIS, in cooperation with GA Dept. Agriculture
- USDA goal is to depopulate infected flock within 24 hours of detection.
 - Early discovery is essential to minimize risk of virus escape from infected premise.
- County extension offices are on the front line of the avian influenza defense effort.
- What to do with calls about sick birds?
 - Small poultry flocks (backyard flocks)
 - Wild birds

Early Discovery/Early Eradication

- Most calls will be about other issues.
 - Bird problems related to nutrition, management, or other infectious or non-infectious diseases.
- Need triage system to sort out cases.
 - Possible cases of A.I. must be reported to Georgia Poultry Lab Network (GPLN).
 - Don't want to miss a case.

Signs of Avian Influenza

(In order of importance)

- Sudden death without clinical signs.
 - Swelling of the head, eyelids, comb, wattles & hocks.
 - Purple discoloration of wattles, combs & legs.
 - Coughing, sneezing.
 - Lack of coordination, paralysis.
 - Nasal discharge.
 - Diarrhea.
 - Lack of energy & appetite.
 - Ruffled feathers.
 - Decreased egg production.
 - Soft-shell or misshapen eggs.
-
- **Problem: Many poultry diseases have similar symptoms and some symptoms may be caused by poor feeding or management.**

How to tell if it is A.I.

- Avian influenza will impact most of a flock quickly.
- Birds will probably show several of the signs of A.I.

Triage

- Record species involved.
- Review A.I. signs with caller.
- Record which signs are evident.
- Record number or % of birds showing signs.

Triage Decisions

- If the problem is chronic, i.e., has lasted more than a week.
–Not A.I.
- If there was a problem but flock recovered. –Not A.I.
- If only one bird is sick, e.g., lethargy, ruffled feathers, or dead, but rest of flock continues to be healthy. –probably not A.I.
 - Refer client to Georgia Poultry Lab Network: (770) 766-6810.
- If decrease in egg production but birds otherwise appear normal. –probably not A.I.
 - Contact UGA Poultry Science Extension.

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 - Refer client to GPLN (770) 766-6810).
- If decrease in egg production but birds otherwise appear normal. –probably not A.I.
 - Contact UGA Poultry Science Extension.
- If sudden death, especially of multiple birds, or more than 10% of flock shows signs. –possible A.I.
 - Advise flock owner and get contact information.
 - Call GPLN Avian Influenza Hotline (770) 766-6850.
- If in doubt
 - Call GPLN A.I. Hotline

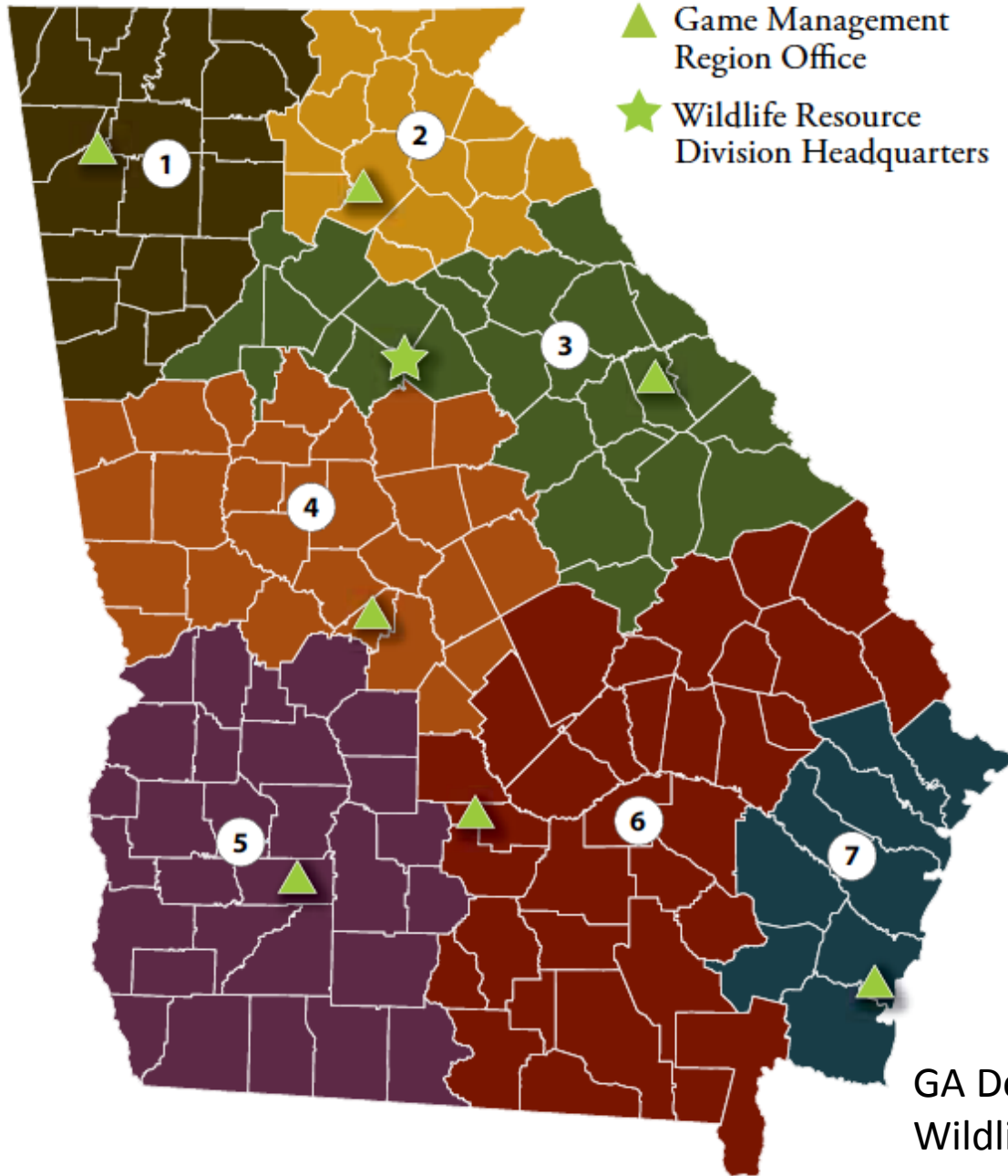
Possible A.I.

- Get flock owner's name, address, phone number.
- Advise owner.
 - Urge biosecurity
 - Refer to USDA Biosecurity for Birds website.
 - Inform that GA Dept. Ag. or USDA representative may be in touch to get samples from birds.
 - Reassure that if A.I. is confirmed, USDA has indemnification program to reimburse value of birds having to be euthanized.
 - Mention that time is of the essence because birds that die on their own cannot be indemnified.
- Call Georgia Poultry Lab Network Hotline.
 - (770) 766-6850
 - Work through symptom scoring interview.

Wild Birds

- Wild birds are handled by the Georgia Department of Natural Resources, Wildlife Resources Division.
- If you get a call about deaths or illness in wild birds, particularly if multiple birds involved.
 - Contact GA DNR Game Management Specialist in your region. (Phone numbers on next slide)
- For more information see: UGA CAES publication, “How to handle dead birds or dead bird inquiries.”

Game Management Region Map



- ▲ Game Management Region Office
- ★ Wildlife Resource Division Headquarters

REGIONS	
1-Northwest	706-295-6041
2-Northeast	770-535-5700
3-Eastcentral	706-595-4222
4-Westcentral	478-825-6354
5-Southwest	229-430-4254
6-Southcentral	229-426-5267
7-Coastal	912-262-3173

GA Department of Natural Resources
Wildlife Resource Division

UGA Extension Avian Flu Webpage

- <http://extension.uga.edu/topics/poultry/avian-flu/>
 - Has links to A.I. information, e.g.,
 - Biosecurity for Birds
 - How to Handle Dead Birds or Dead Bird Inquiries

Small Flock A.I. Questionnaire

Question	Possible Answers
How long has the problem been going on?	Just started / More than a few days
How many birds involved?	One or two / 10% or more of flock
Sudden death without clinical signs?	Yes ... (get number or % of birds) / No
Swelling of head, eyelids, comb, wattles, hocks?	Yes ... (get number or % of birds) / No
Purple discoloration of wattles, combs, legs?	Yes ... (get number or % of birds) / No
Coughing, sneezing?	Yes ... (get number or % of birds) / No
Lack of coordination, paralysis?	Yes ... (get number or % of birds) / No
Nasal discharge?	Yes ... (get number or % of birds) / No
Diarrhea?	Yes ... (get number or % of birds) / No
Lack of energy & appetite?	Yes ... (get number or % of birds) / No
Ruffled feathers?	Yes ... (get number or % of birds) / No
Decreased egg production?	Yes ... (get number or % of birds) / No
Soft-shell or misshapen eggs?	Yes ... (get number or % of birds) / No

In the event....

If you have any suspicion...

Do not hesitate...

- Avian influenza Hot-line770-766-6850