Objective 4: Extension and Outreach Activities (Penn State University)

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1st Annual PRD-CAP Meeting

October 28, 2015, Providence, Rhode Island

Intended Audience For These Activities

- Small, mixed and food animal practitioners
- Extension educators
- Small commercial organic and pastured poultry farmers and organizations.
- Backyard, hobby and exhibition poultry growers
- Gamebird producers

Posters distributed at 56+ county fairs, organic and pastured poultry meetings, regional extension meetings

RESPIRATORY DISEASES OF SMALL POULTRY FLOCKS

Penn State **Extension**

Introduction

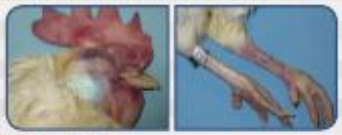
Poultry may become infected with several types of respiratory illnesses caused by viruses, bacteria, fungi, and parasites. Clinical signs of these illnesses often look very similar. However, successful treatment and prevention of these diseases depends on an accurate diagnosis. Some of the common respiratory diseases are explained briefly.

Aspergillosis (Brooder Pneumonia)

- **Cause:** Common fungus called *Aspergillus fumigatus*, sources of which may include moldy, wet feed, wet bedding, or mold on hatching eggs. Infection occurs when birds inhale large numbers of fungal spores, producing severe inflammation in birds' lungs, air sacs, and sometimes other tissues.
- **Diagnosis:** Respiratory tract cultures and/or microscopic examination of the affected tissues.
- **Treatment and prevention:** Treating individual birds is usually ineffective, very expensive, and not practical. In affected flocks, remove the mold source to prevent new infections. Clean up and disinfect the coop.

Avian Cholera (*Pasteurella multocida*)

- **Cause:** Bacterial infection from *Pasteurella multocida*, which can be acquired from exposure to sick wild waterfowl or rodents in the poultry area or through bite injuries from predators that carry these bacteria in their saliva. The disease can be further spread through fighting in the birds and may cause pneumonia, abscesses in multiple tissues, and often high death loss.
- **Diagnosis:** Bacteria must be cultured in a laboratory from blood samples, abscesses, or dead birds.
- **Treatment and prevention:** Treat the flock with an appropriate antibiotic (ideally based on culture and drug sensitivity information) for at least 10 days. Predator and rodent control is also necessary. Pick up and dispose of dead birds. Clean up and disinfect the coop.



Avian Influenza

- **Cause:** Type A influenza virus of birds, which is most often present in wild and domestic waterfowl and shore birds. Infection is occasionally transmitted to poultry. Two forms of the illness occur: highly pathogenic avian influenza (HPAI) and low pathogenic avian influenza (LPAI). LPAI sometimes produces minimal illness in infected birds, but HPAI is very lethal to chickens, turkeys, and upland game birds. Disease must be reported to the Department of Agriculture if detected in Pennsylvania. Clinical signs are highly variable but may include respiratory disease, drops in egg production, swollen head, hemorrhages on the body and comb, and sometimes high death loss.
- **Diagnosis:** Antibodies can be detected with a blood test. Tests that detect the virus from respiratory and cloacal swabs are also available. These tests are conducted at the Pennsylvania Department of Agriculture Diagnostic Laboratories in State College, Harrisburg, and Kennett Square, Pa.
- **Treatment and prevention:** Prevent direct or indirect contact with domestic or wild waterfowl (such as geese or ducks) and their droppings. Avoid high-risk practices such as visiting live bird markets and bird auctions. No vaccines are available for use in the U.S.

Fowl Pox Infection

- **Cause:** Birds become infected with the pox virus through contact with sick birds or infected scabs in the environment. Mosquitos can also transmit fowl pox.
- **Diagnosis:** Typical nodules and scabs can be seen on featherless tracts of skin on the face, wing web, and feet, and often take 3 to 4 weeks to heal and fall off. Nodules can sometimes develop in the mouth and trachea. This form, called "wet pox," is difficult to recognize and may cause affected birds to die from suffocation.
- **Treatment and prevention:** Keep a closed flock (no new birds of any age or species introduced to the present flock from outside sources) and control mosquitoes. Clean up and disinfect the coop. A very effective vaccine is available that can prevent the illness or stop the existing infection from spreading if detected early.

Infectious Bronchitis (IBV)

- **Cause:** An avian coronavirus. The disease spreads very rapidly and causes coughing, egg production drops, and sometimes death loss in very young chickens. After the initial infection, thin-shelled eggs or eggs with wrinkled shells may be seen.
- **Diagnosis:** Blood test. Some animal laboratories can attempt isolation of the virus from necropsy specimens.
- **Treatment and prevention:** Only supportive care can be provided once the flock is ill. For prevention, keep a closed flock, away from other poultry. Clean up and disinfect of the coop. Vaccines are also available.

Infectious Laryngotracheitis (ILT)

- **Cause:** An avian herpesvirus. Infected chickens develop severe respiratory distress and may cough up bloody mucus. High death loss may be seen. Recovered birds may remain virus carriers and continue to spread the infection among susceptible chickens.
- **Diagnosis:** Clinical signs are very suggestive for ILT. Submit sick or dead birds to the Animal Diagnostic Laboratory.
- **Treatment and prevention:** A very effective vaccine is available that can prevent the illness or stop the existing infection from spreading if detected early. Vaccination prior to taking birds to poultry shows (no less than one month before the show) is highly recommended. A tissue-culture-origin vaccine should be used.

Mycoplasma gallisepticum (MG)

- **Cause:** This bacteria infects chickens, turkeys, and upland game birds. Clinical signs include nasal discharge, infected sinuses and air sacs, pneumonia, and a drop in egg production. Turkeys are the most vulnerable to infection, while chickens sometimes carry this bacteria without showing signs. Spread by bird-to-bird contact or contact with infectious respiratory secretions. Once infected, a bird remains infected for life. Infected breeders also transmit this bacteria into the hatching egg, causing chicks to hatch with the infection.
- **Diagnosis:** Clinical signs, blood testing, and testing for presence of the organism.
- **Treatment and prevention:** The effects of the disease can be reduced with certain antibiotics. Vaccines are also available. For prevention, keep a closed flock and only purchase birds that have tested negative for the disease.

Additional Resources

For more information on flock health, treatment, and prevention of disease, contact the Penn State Animal Diagnostic Laboratory at 814-863-0837.

Prepared by Sue Wallace-Pendleton and Patricia Dunn, Penn State Animal Diagnostic Laboratory, Penn State Extension and Department of Animal Science.

Funding provided by a USDA-NIFA grant.

Photos provided by the American Association of Avian Pathologists and the Penn State Department of Animal Science.

extension.psu.edu

PENNSTATE Cooperative Extension College of Agricultural Sciences

BIOSECURITY: PROTECTING YOUR BIRDS FROM DISEASE

Penn State **Extension**

Introduction

Biosecurity means protecting your birds by preventing disease from entering your farm, and protecting your neighbors by preventing disease from leaving your farm. Some diseases are unapparent, and others can kill all of your birds. Developing a good biosecurity plan and adhering to it is the best way to limit the introduction of infectious diseases and parasites into your flock.

Decrease Your Risks of Disease Spread

- Never introduce adult birds into an established flock unless they pass quarantine (3 to 4 weeks of isolation) or are tested clean of disease.
- Never mix different species in the same flock. Mixing species (e.g., chickens and turkeys or with waterfowl) on the same premises can be a deadly combination.
- Limit visitors from accessing your pens. Do not visit other poultry facilities.
- Confine birds to a fenced area and limit contact with wild birds, mammals, and insects as much as possible.
- Do not share equipment, supplies, or vehicles with other bird owners.
- Clean and disinfect all coops, equipment, shoes, clothes, and vehicles properly, every time, before entering poultry areas.
- Practice "all in, all out" when changing flocks. Get rid of all birds and disinfect the coop before getting any new birds.
- Keep rodents, flies, dogs, and cats out of the chicken coop and feed.
- Check for parasites monthly and treat if necessary. Use a dusting area to prevent external parasites.

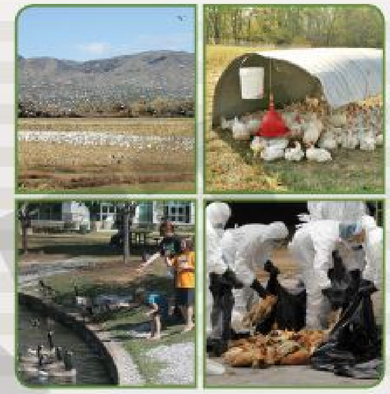
Best Practices on the Farm

- Make sure everyone that cares for your birds understands and abides by all biosecurity plans for your flock.
- Wear separate dedicated clothing and shoes when working with your birds.
- Clean up any spilled feed and discourage wild birds from accessing feed and your bird pens.
- Watch for signs of infectious disease in your birds.
- **Never** access your birds after hunting, fishing, or coming in contact with any other birds or areas that wild birds frequent.
- **Never** buy birds from unknown sources like auctions or other live bird markets.
- Care for and visit birds in the order of bird age—youngest first to oldest last.
- Always care for sick pens last or, better yet, have a separate person care for sick birds.

Signs of Sick Poultry

If birds:

- Stop eating and drinking
- Show signs of droopiness or lack of energy
- Have watery eyes or nostrils, and make rattling or wheezing sounds when they breathe
- Die suddenly without clinical signs
- Have poor balance and/or abnormal head and neck positions
- Have diarrhea
- Have decreased egg production or produce soft-shelled or misshapen eggs
- Exhibit swelling or purple discoloration of shanks, head, eyelids, or comb



What to Do If You Have Sick Birds

- Place your premises under voluntary quarantine from all visitors.
- Do not buy, sell, trade, or move any of the birds off your premises.
- As soon as possible, double-bag and refrigerate dead bird(s) and contact the veterinary diagnostic laboratory for further directions on submission. You may be directed to take live birds with symptoms and/or take or ship recently deceased birds to the lab.
- Do not visit farms or businesses that are frequented by people that have birds.

Contact Penn State Extension

The Penn State Extension Poultry Team has experts in many other areas of keeping poultry, including breeding, incubation, genetics, judging, nutrition, housing, ventilation, etc. Many health problems are related to these factors rather than infectious disease agents alone. Specific contact information and numerous resources can be found at **extension.psu.edu/animals/poultry**.

Where to Get Help

The Pennsylvania Animal Diagnostic Laboratory System has several university-based veterinarians with advanced training and expertise in poultry diseases. They deal with all types of avian health problems, from the common to the unusual, and can help sort out individual bird problems from those that may cause sickness in the entire flock. Diseases that may spread to other animals and people can also be identified. Conditions that may impact food safety of poultry meat and eggs can be detected or ruled out. Please contact either of the labs below for consultation, preferably the one nearer your location:

Penn State Animal Diagnostic Laboratory
University Park, PA (Centre County)
Phone: 814-863-0837
vbs.psu.edu/adl

New Bolton Center Laboratory of Avian Medicine and Pathology, University of Pennsylvania
Kennett Square, PA (Chester County)
Phone: 610-444-4282
www.vet.upenn.edu/research/academic-departments/pathobiology/avian-medicine-and-pathology

Regional PDA Veterinarians

1. Northwest (Meadville): 814-332-6890
2. North Central (Montoursville): 570-433-2640 ext. 2
3. Northeast (Tunkhannock): 570-836-2181
4. Southwest (Greensburg) 724-832-1073
5. Central (Martinsburg): 814-793-1849 ext. 218
6. South Central (Harrisburg): 717-836-3237
7. Southeast (Collegeville): 610-489-1003

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extension.psu.edu

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PENNSTATE
Cooperative Extension
College of Agricultural Sciences

This Poster is Available in English and Spanish

HPAI EMERGENCY RESPONSE PLAN

HIGHLY PATHOGENIC AVIAN INFLUENZA

1

WATCH

MONITOR YOUR BIRDS DAILY FOR SUDDEN DEATH; DECREASED EGG PRODUCTION; SWELLING OR PURPLE DISCOLORATION OF HEAD, COMB, EYELIDS, HOCKS; DIARRHEA; SOFT-SHELLED OR MISSHAPEN EGGS; SEVERE LETHARGY; NEUROLOGICAL SIGNS SUCH AS HEAD TILTING.

2

REPORT

IMMEDIATELY CALL THE PA DEPARTMENT OF AGRICULTURE'S BUREAU OF ANIMAL HEALTH & DIAGNOSTIC SERVICES (PDA) FOR SAMPLING INSTRUCTIONS IF YOU SUSPECT HPAI. DO NOT REMOVE DEAD BIRDS FROM YOUR PROPERTY UNLESS INSTRUCTED TO DO SO BY PDA.

24-HOUR HOTLINE: 717.772.2852

3

ALERT

IF PDA CONFIRMS HPAI ON YOUR PREMISES, CONTACT YOUR NEIGHBORS, VETERINARIAN, FARM SUPPLIERS AND PENN STATE EXTENSION TO ALERT THEM OF THE DIAGNOSIS.

4

STOP

PROTECT

PROTECT OTHER FLOCKS BY RESTRICTING TRAFFIC ONTO YOUR PROPERTY. DISINFECT SHOES, CLOTHING, VEHICLES AND EQUIPMENT.

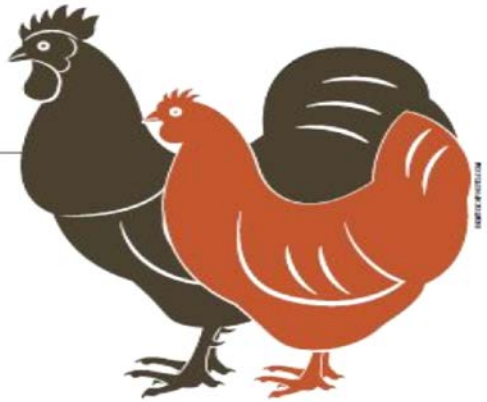
FOR MORE INFORMATION, VISIT EXTENSION.PSU.EDU/ANIMALS/POULTRY

Penn State **Extension**

Over 17,000 of these flyers have been distributed at fairs, county offices, on the Penn State Website

Penn State **Extension**

Avian Influenza
Where to Get Help



Where do I get help when I suspect a health problem in my poultry flock?

The **Pennsylvania Animal Diagnostic Laboratory System** has several university-based veterinarians with advanced training and expertise in poultry diseases. They deal with all types of avian health problems, from the common to the unusual, and can help sort out individual bird problems from those that may cause sickness in the entire flock. Diseases that may spread to other animals and people can also be identified. Conditions that may impact food safety of poultry meat and eggs can be detected or ruled out. Please contact either of the labs below for consultation, preferably the one nearer your location:

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vbs.psu.edu/adl

New Bolton Center Laboratory of Avian Medicine and Pathology, University of Pennsylvania
Kennett Square, PA (Chester County)
Phone: 610-444-5800 ext. 6710
www.vet.upenn.edu/research/academic-departments/pathobiology/avian-medicine-and-pathology

The **Pennsylvania Department of Agriculture (PDA) Bureau of Animal Health and Diagnostic Services** also has veterinarians on staff in the roles of keeping birds healthy and preventing disease spread. Some are based at the main offices in Harrisburg, and there are staff in each of seven regions in the state. You may know the PDA veterinarian in your region from fairs or certified poultry technician training courses. Contact phone information for these offices are as follows:

State Veterinarian, Harrisburg
717-772-2852

extension.psu.edu/flock-help

Regional PDA Veterinarians
1. Northwest (Meadville): **814-332-6890**
2. North Central (Montoursville): **570-433-2640 ext. 2**
3. Northeast (Tunkhannock): **570-836-2181**
4. Southwest (Greensburg) **724-832-1073**
5. Central (Martinsburg): **814-793-1849 ext.218**
6. South Central (Harrisburg): **717-836-3237**
7. Southeast (Collegeville): **610-489-1003**

The United State Department of Agriculture (USDA) has a national toll-free hotline to report significant illness or deaths consistent with avian influenza and exotic Newcastle disease, both highly contagious viral diseases. These signs can include sudden death without clinical signs; lack of energy or appetite; decreased egg production; soft-shelled or misshapen eggs; swelling or purple discoloration of head, eyelids, comb, hocks; nasal discharge; coughing; sneezing; incoordination;

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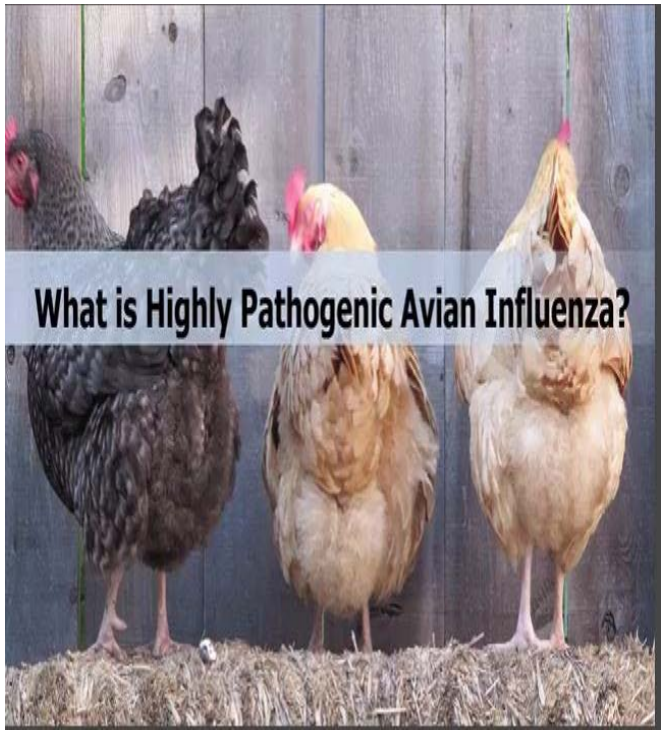
Multiple Educational Videos Have Been Produced Geared Towards Small Flocks



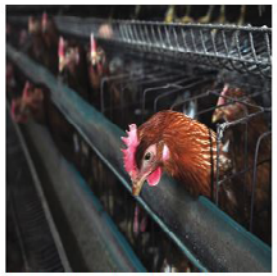
Penn State Extension Website

http://extension.psu.edu/animals/poultry

Penn State **Extension**

Farm Plan for Highly Pathogenic Avian Influenza

Critical steps for farms to be prepared for an HPAI outbreak in Pennsylvania.



Two critical steps in preparation for HPAI include identifying an "Administrator" of the Farm Plan and registering your farm premise with the PA Department of Agriculture (PDA). The Administrator is the person in charge and responsible for the plan, personnel, equipment, supplies and necessary communications in preparation of the plan and execution of the plan should HPAI be identified. The Administrator should register the farm premise with the PA Department of Agriculture online or call them at 717-836-3235.

Confirmation of HPAI

If no HPAI is known to exist in Pennsylvania

If no HPAI is known to exist in PA, yet your flock has high

- PDA Veterinary Laboratory, 2305 N. Cameron St., Harrisburg, PA 17110 717-787-8808, pvlsubmit@pa.gov.
- Penn State University, Animal Diagnostic Laboratory, Wiley Lane, University Park, PA 16802 814-863-0837, adlhelp@psu.edu.
- University of Pennsylvania, New Bolton Center, 382 West Street Rd. Kennett Square, PA 19348 610-444-4282, nbccontact@padlsnbc.vet.upenn.edu.

Only after speaking to PDA or PADLS staff should you bring dead birds (no live birds) to one of the PADLS labs. The dead birds should be double bagged in heavy plastic bags, with the outside of the outer bag disinfected before putting into the vehicle for transport. Transport no live birds.

If HPAI is known to exist in Pennsylvania

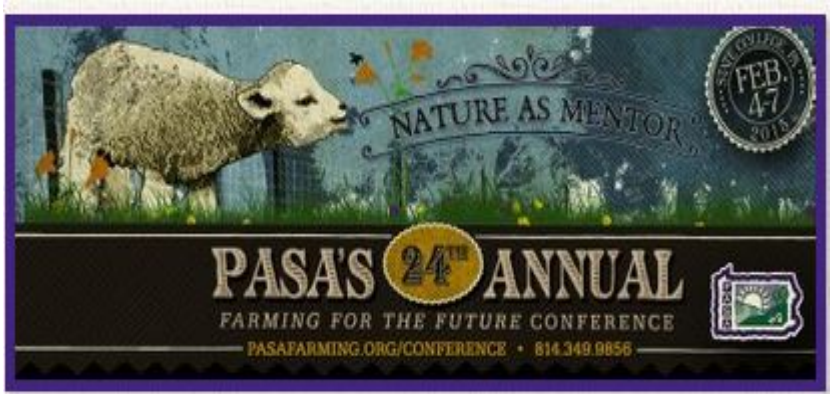
If HPAI is known to exist in PA, and your flock has high mortality and symptoms concurrent with HPAI immediately call the PDA Bureau of Animal Health at 717-772-2852. These calls will be handled on a case-by-case basis, and consideration will be given to location, type of bird, mortality rate, etc. When the situation warrants concern, the bird owner will most likely be instructed to double bag dead birds in heavy plastic bags, disinfect the outer bag and place the bags at the end of the farm lane in coordination with Bureau of Animal Health Diagnostic Services (BAHDS) personnel for timely pickup. For further guidance on swabbing birds, submission procedures, and contact information see

Submission of Samples for Detection (PDF)

Working With NAGA (North American Gamebird Association) on HPAI issues through newsletter, e-blasts, conference calls.

- NAGA Poultry Health Committee working with PA Extension, USDA, veterinarians from several states on biosecurity guidelines, disease detection, HPAI farm plan and secure gamebird supply.

Invited Presentations and Booths at Organic and Pastured Poultry Meetings



- These groups typically believe "holistic" practices make their birds more resistant to disease (sunshine, organic feed, keeping birds outdoors).
- Important to give them unbiased disease information.

Penn State Invited to Speak at APPPA event (October 15, 2015) and at PASA conference February 3-6, 2016

PASA and APPPA Workshop: Avian Influenza Management for Pastured Poultry Producers

APPPA
American Pastured Poultry Producers Association

The Pennsylvania Association for Sustainable Agriculture (PASA) and the American Pastured Poultry Producers Association (APPPA) are working to together to host a free workshop on best practices for preventing and managing highly pathogenic avian influenza (HPAI) on pastured poultry farms.

When	Oct 14, 2015 from 06:00 PM to 08:00 PM
Where	Lancaster, PA / Lancaster County
Contact Name	Franklin Egan
Contact Phone	814-349-9856

PASA's 25th Annual *Farming for the Future* Conference

STATE COLLEGE, PENNSYLVANIA • FEBRUARY 3-6, 2016

- Attendees from all over the Eastern USA
- Over 2000 farmers, processors, allied industry, environmentalists typically attended.

Educational workshops through the region targeting small flocks, hobby, 4-H and backyard production

- 11 meetings in multiple locations in PA sponsored by extension and PDA discussing biosecurity, respiratory diseases including AI and how to get help through the laboratories.

Education of Veterinary Practitioners on Health Concerns of Poultry

- Practitioner's Meetings May 1st, and September 2nd, 2015.
- Invited Full Day Workshop and Necropsy Lab at Fall Veterinary Practitioners Event in Pittsburgh, November 8th, 2015.

Biosecurity and Disease Recognition for Poultry Handlers and Catch Crews

- Collaboration with US Poultry and Egg Association.
- Originally funded by previous AI-CAP grant.
- Revised original chapters on biosecurity, disease recognition and Avian Influenza.
- Several meetings held for small independent crews and companies on HPAI preparedness and risk factors for disease introduction and spread.

PHT
Poultry Handling & Transportation

USPOULTRY
U.S. POULTRY & EGG ASSOCIATION

PENNSTATE
1855

Poultry Handling & Transportation: Egg-Type Chickens

Ensiling Poultry Carcasses for Bio secure Preservation and Virus Destruction

Paul H. Patterson, Mike Hulet, Patricia Dunn, Huaguang Lu, Subhashinie Kariyawasam, Lisa Kitto and Amy Mayer

- Ensiling can scale-up for commercial application
- 100,000 hens
- 1 million hens

This project is supported by Agriculture and Food Research Initiative Competitive Grant no. 2015-68004-23131 from the USDA National Institute of Food and Agriculture