

Poultry

HEALTH REPORT

A National Institute for Animal Agriculture Publication

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LPAI Prevention and Control Program Launched for LBMs

Recurring cases of low pathogenicity avian influenza (LPAI) in the live bird marketing (LBM) system and commercial industry over the past 10 years has resulted in the development of a program to prevent and control the presence of this virus throughout all levels of the poultry industry.

"The prevention and control program in the live bird marketing system is a cooperative effort between state and federal government and many representatives of commercial industry and the live bird marketing system," said Dr. Lynne Siegfried, senior staff poultry veterinarian with APHIS' Veterinary Services. "The goal is to produce a program that will be effective in reducing the incidence of the virus in the live bird marketing system, and, therefore, the risk of the disease to commercial industry."

The goals of the program are to:

- Diagnose, control and prevent LPAI H5 and H7;
- Help participants to improve biosecurity, sanitation and disease control in their operations; and
- Minimize the effects of LPAI in the U.S. commercial poultry industry.

While the program is voluntary to each state, APHIS hopes that the incentives are strong enough that all states having businesses within the scope of the live bird marketing system will participate in the program. Once a state becomes a program participant, it must be able to enforce the requirements under the

program for each level of the live bird market system, which includes suppliers, dealers, haulers, auction markets, wholesalers and LBMs. APHIS provides resources through cooperative agreements with participating states to help support the enhanced field monitoring and surveillance activities that the program requires. The program also provides indemnification for losses resulting from LPAI for facilities that are in compliance with the program requirements, as identified in the program's Uniform Standards.

Administration and enforcement will come from the state level. States must have requirements for licensing or registration of all businesses within the live bird market system. There must be biosecurity protocols in place in these facilities and employees must have received biosecurity training.

Three basic components comprise the program, production units, distribution units and live bird markets, of which states will have to identify and register these components to participate in the program. Record keeping will play in integral part of the LBM system program, with each facility responsible for maintaining documentation of purchases and sales of evidence of negative testing for AI.

The testing requirements under the program provide options based on the type of production unit and the frequency of testing. The following classifications exist:

See *LBM Program* | page 2

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LBM Program | USDA Coordinates Effort for LPAI

(continued from page 1)

- *AI-monitored flock:* At least 30 birds are tested monthly according to the Uniform Program Standards, for at least three months by an approved laboratory. Tests must continue monthly.
- *Established flock:* A flock that has been maintained intact with no additions for at least 21 days. To move birds from an established flock, 30 birds must be tested within 10 days prior to movement. If a flock continues to be tested monthly for three months, it becomes an AI-monitored flock.

- *Commingled flock:* A group of poultry from multiple sources. If additions to an established flock are from untested flocks, it must wait 21 days before requalifying as an established flock and before testing for AI may resume. It must then follow protocol for a non-monitored flock.
- *Non-monitored flock:* One that has not been previously monitored by AI testing for three months. These flocks must be tested within 10 days to enter the LBM system.

Two official virus identification tests for the program are used: virus isolation and the real-time reverse-transcriptase polymerase chain reaction (RRT-PCR) test. For antibody detection, the agar gel immunodiffusion test (AGID) is the official protocol. The virus detection tests are only conducted in federally approved laboratories. The AGID test may be done at state approved

laboratories. All positives from these tests result in submission of specimens to the National Veterinary Services Laboratory (NVSL) for subtyping and genetic testing of the viruses identified.

Surveillance is maintained for the program throughout the LBM system, with each facility being subjected to random testing at least quarterly. The program became effective on Oct. 20, 2004 and is likely to continue to evolve as it is implemented.

"While the first edition of the program was finalized in September, the LBM Working Group continues to interact to work out procedures for implementing the program requirements throughout all of the businesses in the LBMs, to include suppliers, dealer, haulers, wholesalers, auction markets and live bird markets," said Siegfried. ●



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Broiler Trade Outlook Stronger

The U.S. Department of Agriculture's Economic Research Service (ERS) has reported that the outlook for broiler meat exports in the fourth quarter of 2004 is stronger than earlier anticipated and the estimate has been raised by 100 million pounds to 1.325 billion pounds. Most of the increase is due to record exports in October but other factors, such as the reopening of the Hong Kong/China market and the decline in the dollar relative to a number of other currencies have also contributed to the increase. Shipments in 2005 are forecast at 4.96 billion pounds, up 7.6 percent from 2004, when disease restrictions limited trade, but only

slightly higher than in 2003.

With lower prices for most broiler products, growth in egg sets and chick placement are expected to gradually slow. This implies a slightly slower growth in U.S. broiler production through the first half of 2005. Broiler production during the first half of 2005 is expected to total 17.2 billion pounds, about 3 percent higher than in the same period in 2004.

Additionally, ERS has reported higher turkey prices for the fourth quarter of 2004. Prices for the fourth quarter 2004 averaged 77.1 cents per pound, up 14 percent from a year earlier for that time period.

Avian Influenza is "Topic A" for Poultry at USAHA

Both low-pathogenicity and high pathogenicity strains of avian influenza (AI) received attention at the meeting of the U.S. Animal Health Association (USAHA) Committee on Transmissible Diseases of Poultry and Other Avian Species at the USAHA Annual Meeting, Oct. 21-28 in Greensboro, N.C.



Dr. Ernest Zirkle, former New Jersey State Veterinarian, presented a report on the live bird marketing system in the northeast and its relationship to the spread of avian influenza. This system is comprised of storefront markets that sell individual birds to customers who then ask the store owner to kill and dress the birds. The birds always leave the markets processed.

The system handles 25 million birds annually and is not subject to federal meat inspection rules because the customer owns the birds before the birds are killed and hence the operation is defined as "custom kill." There are 85 of these markets in New York City, 32 in New Jersey, 10 between New York City and Boston, and three in Philadelphia.

In spite of state requirements that birds come from AI-monitored flocks, the percentage of markets testing positive for low-pathogenicity AI over the years has ranged from 15 to 85 percent. Some poultry suppliers for these markets do not abide by AI guidelines and requirements. They deliver directly to markets and return contaminated vehicles to farms, auction markets or assembly points; biosecurity is non-existent.

USDA's Animal and Plant

Health Inspection Service (APHIS), as part of the "Poultry 2004" study by its National Animal Health Monitoring System (NAHMS) will conduct the live bird market component of this study from January through April 2005. California, Florida, New England, New Jersey, New York, Pennsylvania and Texas will be involved. Animal health officials will visit every known live bird market in these areas where they will gather information that focuses on bird movement, cleaning and disinfection, and management.

The committee also heard reports on high pathogenicity AI outbreaks in Texas (H5N2) and in the Frazer Valley, British Columbia, Canada (H7N3) as well as reports on outbreaks of low-pathogenicity AI in Ohio (H3N2), Delaware (H7N2), Pennsylvania (H2N2), Maryland (H7N2), and Texas (H7N3). A case of high pathogenicity AI (H5N1) was reported in Korea in December 2003 and by June 2004, nine other Asian countries reported H5N1 within their industry.

Salmonella Resolution Passed

A joint resolution from USAHA's Committee on Transmissible Diseases of Poultry and Other Avian Species and Committee on Salmonella was passed at the recent meeting of the USAHA that calls for key governmental agencies to establish *Salmonella* performance standards, as opposed to regulations, to benchmark and determine if establishments are properly controlling pathogens.

USAHA Resolution #5

"The United States Animal Health Association (USAHA) rec-

ommends that the United States Department of Agriculture (USDA), Food Safety and Inspection Service (FSIS) and the United States Department of Health and Human Services (DHHS), Food and Drug Administration (FDA) continue efforts to improve the safety of U.S. meat, poultry, and egg products and protect public health.

"These efforts should be based on rigorous science-based initiatives that are proven effective in reducing pathogen contamination. They should include adequate funding for research and development of new and innovative control strategies.

"The USAHA also recommends that USDA-FSIS establish informal performance standards, rather than regulations, using these as "benchmarks" to determine whether establishments are appropriately controlling pathogens in their operations. In addition, the establishment of any new performance standards or changes to existing performance standards should be tied to scientifically supportable human health measures directly related to that standard.

"Finally, the USAHA recommends that government and industry strive to work cooperatively toward the common goal of improving food safety of meat, poultry, and egg products. The establishment of a confidential third-party repository for collection and storage of government, industry, academic, and other pertinent food safety data should be pursued. The repository should be accessible to all affected parties. Communication between industry and government should be improved with additional opportunities for combined training developed." ●

Avian Influenza Vaccine Antigen Bank to be Established

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service, Center for Veterinary Biologics, has awarded a contract to Fort Dodge Animal Health to develop avian influenza (AI) vaccine antigen for poultry.

The vaccine antigen will be manufactured and stored at Fort Dodge Animal Health facilities located in Charles City, Iowa. The facilities will house enough frozen antigen to produce up to 10 million doses of vaccine for each of the following AI subtypes: H5N2, H5N9, H7N2 and H7N3. In the event of a high pathogenicity AI (HPAI) outbreak, the frozen antigen would be used to prepare the

vaccine for possible use in poultry in order to manage the disease.

The bank of vaccine antigen is scheduled to be completed by January 2005.

"The AI vaccine antigen bank will be a great asset in helping APHIS work to keep high pathogenicity avian influenza from becoming established in the U.S. poultry population," said APHIS Administrator W. Ron DeHaven. Under APHIS guidelines, H5 and H7 AI vaccines are allowed to be used as tools for combating outbreak of HPAI in the United States but only under APHIS supervision or control as part of an official animal disease control program.

HPAI is an extremely infectious and fatal form of avian influenza that, once established, can spread rapidly from flock to flock. An outbreak in the United States could potentially cost the poultry industry millions of dollars in losses. From 1983 to 1984 an HPAI outbreak in the Northeastern United States cost nearly \$65 million, and the resulted destruction of 17 million birds.

In Gonzales County, Texas, a flock of 7,000 broiler chickens were destroyed Feb. 21, 2004, after the H5N2 strain of HPAI was confirmed in several birds from the flock, the first case of HPAI in the United States in 20 years. ●

Chicken Genome Paving Way for Research

As the first bird and the first agricultural animal to have its genome sequenced, the chicken is paving the way for research on human diseases, as well as studies on chicken breeding to benefit agriculture. An international consortium of scientists that includes a researcher from Michigan State University analyzed the chicken genome and published a paper in the Dec. 9 issue of the British science journal *Nature*.

The first draft of the chicken genome was placed into free public databases for use by researchers around the world in March 2004.

The bird whose genome was sequenced, a red jungle fowl (*Gallus gallus*) known by her wing band number, 256, still lives on the MSU campus in a facility that serves the lab of Jerry Dodgson, professor of microbiology and molecular genetics at MSU, who has worked on mapping the chicken genome for the past 17 years.

No. 256 was chosen as the genome model because she's from an inbred line; this makes her genome more uniform than non-inbred chickens. Also, red jungle fowl represents the wild type species from which all domestic chickens came. A female was chosen because female birds contain a sex chromosome (called W) that male birds lack. She also provided DNA used to create recombinant DNA clone maps of the chicken genome. Those maps provided the framework for the much more detailed genome sequence assembly.

"Chickens and humans are, in some cases, infected by the same viruses, bacteria and parasites," said Dodgson, one of the coordinators of the International Chicken Genome Sequencing Consortium, which sequenced and analyzed the red jungle fowl genome. "The research shows that chickens and humans share more than half of their genes. The chicken genome sequence is

expected to help us uncover genes that enhance natural disease resistance in birds. Then we can see if those same genes are in humans."

Dodgson, whose research is also funded by the Michigan Agricultural Experiment Station at MSU, said the sequenced genome may someday allow poultry producers to know why certain chickens lay more eggs than others or why certain broiler chickens may have less fat. They then can identify commercial chickens with the same genetic predisposition to these desirable traits.

Researchers estimate that the chicken has between 20,000 and 23,000 genes in its 1 billion DNA base pairs. The human count is 20,000 to 25,000 genes in 2.8 billion DNA base pairs.

The consortium was made up of more than 175 scientists from China, Denmark, France, Germany, Japan, Poland, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States. ●

USDA Re-establishes General Conference Committee of the National Poultry Improvement Plan

Outgoing Agriculture Secretary Ann M. Veneman recently announced that the U.S. Department of Agriculture is re-establishing the general conference committee of the National Poultry Improvement Plan (NPIP). This authorization allows the committee to continue for another two-year period.

"This committee will continue to provide critical advice regarding poultry health issues," said Veneman.

The General Conference Committee is the official advisory committee to the Secretary of Agriculture regarding poultry health issues. The committee serves as a

forum for the study of problems relating to poultry health and as the need arises, makes specific recommendations to the Secretary of Agriculture concerning how USDA can help the industry solve these problems. The committee also assists USDA with planning, organizing and conducting the biennial conference of NPIP; evaluates comments received from interested persons concerning proposed amendments to USDA regulations that pertain to poultry health; and serves as a liaison between NPIP and the U.S. Animal Health Association. The authority for re-establishment of the committee's charter is within the Federal Advisory Committees Act.

NPIP is a cooperative federal-state-industry mechanism for controlling certain poultry diseases such as pullorum, fowl typhoid and avian influenza. NPIP also consists of a variety of programs intended to prevent and control egg-transmitted, hatchery-disseminated poultry diseases.

Notice of this action was published in the Oct. 15 *Federal Register*. APHIS documents published in the *Federal Register* and related information, including the names of organizations and individuals who have commented on APHIS dockets, are available on the Internet at <http://www.aphis.usda.gov/ppd/rad/webrepor.html>. ●

Johanns Takes Post as New Agriculture Secretary

Mike Johanns was sworn in as the 28th Secretary of the U.S. Department of Agriculture (USDA) on January 21, 2005.

Secretary Johanns' strong agricultural roots stretch back to his childhood. He was born in Iowa and grew up doing chores on his family's dairy farm. As the son of a dairy farmer, he developed a deep respect for the land and the people who work it. He still describes himself as "a farmer's son with an intense passion for agriculture."

Johanns previously served as Nebraska's 38th governor. During his six years in office, Johanns was a strong advocate for rural communities and farmers and ranchers. He enacted a Value-Added Agriculture Initiative, signed into law the "Agricultural Opportunities and Value-Added Partnership Act," supported the development of a

hydroponic produce facility, and signed legislation that focused financial resources on providing transferable, non-refundable gas tax credits for the production of ethanol. He also led eight delegations of Nebraska government, business, and agriculture leaders on trade missions to foreign countries including Japan, Taiwan, China, Hong Kong, Australia, Korea, Singapore, Malaysia, Brazil and Chile.

Johanns has discussed the importance of USDA programs, and how they impact the lives of Americans, noting that work still lies ahead.

"There is much work ahead of us," said Johanns, after being sworn in as Agriculture Secretary. "I probably will be asked many times over the next minutes, days, weeks and months ahead as to



what our agenda is."

Johanns cited a list of issues, from bovine spongiform encephalopathy (BSE), reauthorization of the Farm Bill, revising the food guidance system, completing trade agreements, implementing conservation programs and civil rights that he will be dealing with in his new position. ●

Researchers Challenge Poultry Pathogens

An Agricultural Research Service immunologist has pioneered a novel technology that will help develop nonchemical methods to control diseases that affect poultry.

Whether baked, broiled or barbecued, poultry is an important source of dietary protein. But its production has become increasingly threatened by a disease called coccidiosis, which costs the U.S. poultry industry about \$700 million annually. Coccidiosis is caused by multiple strains of *Eimeria*, a genus of tiny, one-celled parasites that infect the birds' intestines.

Hyun S. Lillehoj, with ARS' Animal Parasitic Diseases Laboratory in Beltsville, Md., led a

team of ARS researchers in completing the first chicken intestinal genomics database library. The new resource contains gene sequences that will be used to pursue genomics-based control strategies to counter major poultry diseases.

The *Eimeria* parasite makes a protein, or antigen, that helps it pry its way into a chicken host's cells. But the antigen also evokes an attack response from the chicken's immune system. The new database will allow scientists to exploit the attack response to outsmart and disrupt *Eimeria*'s ability to colonize and inflict intestinal damage.

Lillehoj's team will conduct additional research funded by a

grant from the National Research Initiative. The NRI is administered by USDA's Cooperative State Research, Education and Extension Service. The team will use the new database to create microarray gene chips--enclosed glass slides--that hold about 10,000 genes from the chicken's intestinal cells.

As a research tool, the gene chips will help the scientists identify the specific genes that help chickens fight off infections by pathogens such as *Eimeria*, *Salmonella* or *E. coli*. ●

Source: USDA, ARS

Salmonella Can Cause Poorer Eggshell Quality

A decrease in eggshell quality is a trait that may be used to detect chickens infected with *Salmonella*, according to Agricultural Research Service scientists.

Veterinary medical officer Jean Guard Bouldin, at the ARS Southeast Poultry Research Laboratory in Athens, Ga., found an interesting phenomenon--not only was *Salmonella* present inside chicken eggs, but other bacteria were there also. Since these bacteria are usually seen in eggs that have been contaminated through cracks in the shell, Bouldin theorized that poor eggshell quality allowed the bacteria to enter the egg.

Salmonella enteritidis is hard to detect in chickens because there are no symptoms. This poses a significant problem, because *S. enteritidis*, found inside the egg, is an important cause of human food-

borne illness.

Bouldin and Jeff Buhr, of the ARS Poultry Processing and Meat Quality Research Unit in Athens, Ga., conducted tests in which chickens were inoculated with *S. enteritidis*. Eggs were then tested for hardness by compressing them until a hairline crack formed. Eggs from *Salmonella*-infected hens cracked easier than those from noninfected hens. Other research has shown that some strains of *S. enteritidis* seem to target the hen's reproductive tract, which appears to result in an egg with a less resilient shell, according to Bouldin.

At low-dose infection, Bouldin found that *S. enteritidis* actually stimulated egg production, particularly in older hens. This increased production may have stretched the



limited eggshell material--calcium--a bit too thin, literally.

Other diseases of chickens can also decrease shell quality, but usually they result in a decrease in production and illness in hens. Changes to eggshell quality over the lifespan of a laying hen are to be expected, and thus a hen's age could be an additional risk factor. ●

Source: USDA, ARS, by Sharon Durham

Take the Readership Survey: Your thoughts on Poultry Health Report

Poultry Health Report is an important means of communication to key stakeholders in the poultry industry.

In order to ensure that Poultry Health Report best serves your needs, we are providing you with an opportunity to give us your input. The Readership Survey, which can be found on page 8 of

this issue, is a brief 15-question survey that will allow us to better understand what you look for in a publication.

The survey is located on the last page of this publication. Simply fill it out and detach this portion, fold the page in thirds and place a stamp as indicated.

We hope that you'll take a few

minutes to complete the survey and return it. Your input is greatly appreciated.

Take the Survey Online!

Or, if you prefer, the survey can be completed online. Simply go to www.animalagriculture.org/survey/poultryhealth.htm to submit your thoughts electronically.

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POULTRY HEALTH REPORT Readership Survey

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- Producer
- Producer/Farm/Commodity Association Executive
- State Employee
- Federal Employee
- Practicing Veterinarian or Veterinary Association Executive
- Academician/Extension/Researcher/Diagnostician
- Allied Industry Stakeholder
- Media/Communications
- Other (please list) _____

2. In which Time Zone are you located?

- Eastern
- Central
- Mountain
- Pacific

3. What is your primary source of agriculture information? (choose one)

- Trade Publication (Newspaper, Magazine)
- Industry Newsletters
- Email/Internet
- Television/Radio
- Personal Contact
- Other (please list) _____

4. Rate the usefulness of this quarterly publication to you.

- 1 poor
- 2 fair
- 3 average
- 4 good
- 5 excellent

5. How much of Poultry Health Report do you typically read?

- None
- Very little
- Some
- Most
- All

6. The timeliness of information is:

- New and timely
- Outdated
- Not new, but still informative

7. The depth of information in Poultry Health Report is:

- too basic
- about right
- too technical

8. In the Poultry Health Report, I would like:

- More news items
- More in-depth analysis of key issues
- Better balance of news and in-depth information
- No changes at all

9. I find the layout/design to be:

- Attractive, easy to read
- Attractive, but hard to read
- Plain, but easy to read
- Plain, hard to read

10. Layout suggestions, (choose all that apply):

- More pictures/graphics
- More text/information
- Change Color/improve general appearance
- Other (please list) _____

11. The length of articles is:

- too long
- about right
- too short

12. How would you prefer to receive Poultry Health Report?

- Through mail, as I currently do
- Through email in an electronic format

13. Please prioritize the following areas, based upon your interests, to be covered in Poultry Health Report: (rank 1-7)

- ___ News, information and progress updates on federal disease eradication and emerging disease activity
- ___ State and national activities addressing the increasing prevalence of economically significant diseases
- ___ Highlights on health/biosecurity strategies and other industry initiatives
- ___ News and information on topics pertaining to animal health emergency management and international trade
- ___ Findings from NAHMS and other research/scientific studies
- ___ Features on advancements in animal ID and other emerging topics
- ___ Other (please list) _____

14. Would you prefer a magazine-style publication that would include information from multiple species, rather than species specific?

- Yes
- No

15. Other comments that would make Poultry Health Report more useful to you:
