

REPORT OF THE COMMITTEE ON TRANSMISSIBLE DISEASES OF POULTRY AND OTHER AVIAN SPECIES

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Vice Chair: Dr. Willie M. Reed, Okemos, MI

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The Committee met on October 25 and 26, 2004 from 12:30 pm-5:30 pm each day. Sixty-one members and 71 visitors attended. Chair

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John Smith presided. The Chair welcomed the Committee, summarized the 2003 meeting, and reported on the responses to the Committee's 2003 Resolutions and Recommendations.

Resolution 13 (2003) requested the formation of a United States Animal Health Association (USAHA) Exotic Newcastle Disease Task Force (ENDTF) to work with the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS), Emergency Programs staff to further develop the National Exotic Newcastle Disease (END) Surveillance Program. Dr. Lee Myers, Georgia State Veterinarian and Chair of the END-TF, gave a report on the activities of the Task Force later in the meeting.

Resolution 14 (2003) concerned support for research and diagnostic capabilities for foreign animal diseases of poultry and received a favorable response from the USDA-APHIS-VS and USDA, Agricultural Research Service (ARS).

The following recommendations from the 2003 Committee meeting were discussed:

1. The critical need for USDA-ARS to continue support of avian retrovirus programs at the Avian Disease and Oncology Laboratory (ADOL) in East Lansing, Michigan pending and subsequent to any relocation of the program. Congress voted to re-store funding in fiscal year 2003, plans to relocate the programs were cancelled and ARS indicated that the programs at ADOL would continue to be supported with available funds.
2. That USDA-APHIS-VS Center for Veterinary Biologics (CVB) should replace the complement fixation test for avian leucosis with more sensitive and specific tests such as enzyme linked immunosorbent assay (ELISA). That recommendation also received a favorable response from CVB and Dr. Donna M. Gatewood of USDA-APHIS-VS-CVB presented an update later in this meeting.
3. That USDA should use a definition of commercial and non-commercial poultry prepared by the Committee and employ that definition, and communicate the distinction between those classes of poultry and the justification for the distinction to disease reporting agencies and international trading partners. No formal response was received.
4. That USDA-APHIS-VS should continue progress on the live bird market (LBM) low pathogenic Avian Influenza (LPAI) program and the National Poultry Improvement Program (NPIP) LPAI program. Several reports during this meeting indicated the substantial progress being made in these areas.
5. That the USDA-APHIS-VS Center for Epidemiology and Animal Health (CEAH) National Animal Health Monitoring System (NAHMS) Poultry 2004 Study should be directed to the

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biosecurity and health practices of non-commercial poultry. That recommendation was accepted by USDA and Dr. Lindsey Garber of USDA-APHIS-VS-CEAH delivered an update on this project later in the meeting.

Two ad hoc Subcommittees were appointed at the 2003 Committee meeting. The Subcommittee chairs gave reports of the activities of those Subcommittees since the 2003 meeting.

Dr. Ernest W. Zirkle, former New Jersey State Veterinarian and Chair of the ad hoc Subcommittee on Prevention and Control of Avian Influenza (AI) in the Live Bird Marketing System (LBMS) reported on his Subcommittee activities. The LBMS is comprised of storefront markets, which sell individual birds to customers who then ask the storeowner to kill and dress the birds. The birds always leave the market processed. This process does not fall under the USDA, Food Safety and Inspection Service (FSIS) Meat and Poultry Inspection law because the customer owns the birds before the birds are killed and hence the operation is defined as custom kill. There are approximately 85 of these markets in New York City, 32 in New Jersey, 10 between New York City and Boston and 3 in Philadelphia. This system handles 25 million birds annually. Approximately 70% are grown in Pennsylvania, 15% in Canada and the rest from surrounding states in the Northeast.

Most of the birds supplied to these markets follow a network of entities similar to the "commercial" poultry industry. These include the hatcheries, farmers or growers, contractors, haulers, wholesalers and finally the LBM. A majority of production goes through this system of entities and the wholesaler ends up being the firewall separating the production side from the end market side. In the ideal situation all equipment—trucks, crates etc—are cleaned and disinfected at the wholesaler location before going back to the farms. Approximately 85% of the poultry go through these channels and the states require that all birds come from AI monitored flocks. In spite of this the percentage of markets testing positive for LPAI over the years has ranged from 15% to 80%.

There is a percentage of poultry suppliers who do not abide by these guidelines and requirements. They deliver directly to the markets and return to the farms, auction markets or assembly points. Biosecurity here is non-existent. The Ad Hoc Subcommittee was charged with helping establish a set of guidelines to close this gap. The only way is to establish a Memorandum of Understanding (MOU) that all suppliers are required to honor no matter how big or small.

To assist with enforcement there needs to be a system of identification of the individual birds within the markets to determine that the birds meet the test requirements as well as indicate the farm of origin, for trace back capabilities.

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At the 2003 Annual Meeting in San Diego, the Committee on Transmissible Diseases of Poultry and Other Avian Species (the Committee) recommended that “APHIS continue with development of the current program to address the present and dangerous situation in the north-eastern system. The Committee will appoint a subcommittee to serve as a resource and sounding board for the Live Bird Market working group in further development of the Uniform Methods and Rules (UM&R). This subcommittee will include members both within and outside of the northeastern live bird marketing area.” The subcommittee was appointed by Chair John Smith and began to function immediately after the New Year Holiday. Members of the subcommittee included State Veterinarians from the three most involved states, market growers, wholesalers, haulers, producers, a hatchery owner, USDA and other states (FL, TX & CA). A draft document was completed in four months and sent to the Chair of the Committee for further action.

The draft document was reviewed by the Committee, modified slightly for clarification and then approved and sent to the USAHA Executive Committee for review. The Board of Directors approved the document via an email vote and forwarded it to USDA, May 11, 2004.

The UM&R standards have been designed to prevent contact between the poultry growing industry and the LBM. While we cannot prevent producers from selling directly to a LBM (which is restriction of trade), we can, and must, decree that all poultry entering and equipment leaving the LBMS go through similar sanitary and biosecurity requirements as outlined in the UM&R.

The Subcommittee concluded that: if our guidelines are imposed in such a way as to elevate all segments of the LBMS to the level of biosecurity practiced by the “commercial” poultry industry we will have accomplished our goal. All producers, contractors, haulers, wholesalers/dealers must reach the same standard of biosecurity. This is not restriction of trade, but rather maintains a marketing system that has emphasis on the health of poultry as well as minimizing potential risk to human health.

Update on Individual Bird Identification:

The LBM Subcommittee made the following statement regarding individual bird ID: The LBM Subcommittee commends USDA for moving forward and funding a study to determine if individual bird identification is feasible in the LBMS. The review and then testing of two techniques (Fastack and Glue Tag) confirms that there are two tagging systems available, which potentially could be applied to the entire system. We urge USDA to continue with this research and determine through pilot studies the recommendations for the application of these tags with the goal of having a system ready to put into place within 2 years. This system must have readily readable tags in the LBM and a

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trace back/record keeping system that will find the source of birds in a minimum of time.

USDA-APHIS has established a statement of work to continue the study of individual bird identification as requested by USAHA. At this point in time the contract has not been awarded but is anticipated to be in the near future. Some of the points to clarify are:

- Refinement of available identification tags to maximize effectiveness for use in hatchling and mature groups of poultry and other avian species. This includes:
 - Testing applications at the producer level
 - Observing tagged birds in the LBM's and documenting durability and readability
 - Determining applicability and cost effectiveness of RFID technology to an avian tagging system
 - Using tagging systems of choice that fulfill criteria for animal identification under the National Animal Identification System (NAIS), and following tagged birds through the LBMS to evaluate the following:
 - The tag of choice in the different components of the LBMS
 - How tags may be issued and where they will be printed
 - Who may apply tags and where
 - Poultry identification responsibilities of the producer, distributor & LBM
 - Estimates of costs of tag application and monitoring
 - Capture costs of tags, printers, labor, administration and record keeping
 - Find hidden costs associated with program
 - Develop recommendations for cost recovery
 - Determine requirements for an electronic record keeping system for premises ID and for distribution of tags compatible with the needs of the LBMS. Assure applicability to NAIS database.

Dr. Lee M. Myers, Georgia State Veterinarian and Chair of the ad hoc ENDTF gave the following report on the activities of the Task Force.

Background

After the outbreak of END in California, USDA requested and received 9.4 million dollars for a national END surveillance and mitigation program. States were asked to submit proposals on a short deadline for cooperative agreements to monitor and control END, and a number did so. However, USDA put these proposals on hold, and developed a new plan. On October 2, 2003 Dr. Larry Granger, newly

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appointed Associate Deputy Administrator for Emergency Programs, USDA-APHIS-VS, issued a "Veterinary Services Policy on the Updated Plan for the Enhanced National Surveillance of Exotic Newcastle Disease through fiscal year 2004." Dr. Granger outlined the new direction for the proposed END National Surveillance Program during the 2003 Committee meeting. Highlights of the presentation were:

1. \$9.4 million commodity credit corporation (CCC) funds from Office of Management Budget (OMB) have been designated for an END National Surveillance Program to be distributed as follows:
 - \$4,404,300 to the USDA Legislative and Public Affairs (LPA) office to develop outreach materials
 - \$500,000 to the USDA-APHIS-VS National Veterinary Services Laboratory (NVSL) for database development
 - \$995,700 to NVSL for cooperative agreements with National Animal Health Laboratory Network (NAHLN) laboratories and other designated laboratories for laboratory support
 - \$2 million to NVSL for "Fee for service" laboratory testing reimbursement
 - \$1.5 million for state cooperative agreements for enhanced surveillance

The Committee expressed serious reservations about the utility of several parts of the proposed USDA program and registered concern that the present direction would not effectively provide the level of END surveillance that is needed or desired. The Committee outlined the following concerns in a resolution:

1. That 50% of the \$9.4 million designated funds would remain within USDA (\$4.4 million to LPA and \$500 thousand to NVSL). Although outreach materials are needed, they can best be developed at a local level due to regional differences (cultural, socio-economic, ethnic, etc.) in non-commercial poultry industries. It is understood that the actual production/printing/etc. of these materials could be done centrally.
2. That of the remaining funds, \$900 thousand would be distributed to NAHLN labs through cooperative agreements with NVSL, rather than going through state agencies. With only 12 NAHLN pilot labs identified, most states do not currently submit samples to a NAHLN laboratory to conduct routine poultry surveillance such as NPIP, export, and poultry disease monitoring programs. Also, there appears to be no supportive funds for additional personnel and supplies necessary to conduct the testing. The program, as outlined, leaves no flexibility for other options.

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3. That money is specifically allocated to NAHLN laboratories for diagnostic workups of active non-commercial poultry submissions. Although this is an admirable initiative, there appears to be a lack of flexibility to allow states to use these funds for other purposes if this type of service is already provided.
4. That the plan is heavily funded at the top with an insignificant field component. Resources are needed at the field level to (1) locate non-commercial poultry entities, (2) conduct active surveillance at aviaries, poultry sales establishments, exhibitions, etc., (3) conduct educational programs for non-commercial poultry bird owners (4) conduct passive surveillance since many of these bird owners do not use a veterinarian.

USAHA passed Resolution 13, "Immediate Review of the USDA-APHIS-VS Emergency Programs Proposed Exotic Newcastle Disease National Surveillance Program." The Resolution states, "The USAHA requests that United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS), Emergency Programs (EP) immediately work with a multi-disciplinary Task Force appointed by the USAHA to further develop the National Exotic Newcastle Disease (END) Surveillance Program. The Task Force shall include representatives from USDA, state animal health officials, the commercial poultry industry, non-commercial poultry industries, avian and poultry veterinarians, laboratory diagnosticians, the National Poultry Improvement Plan (NPIP), etc. The Task Force shall offer recommendations for the direction of the National END Surveillance Program." Dr. Don Lein, 2004 USAHA President, appointed the USAHA Ad Hoc Exotic Newcastle Disease Task Force (END-TF).

APHIS response to the Resolution states, "The U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services (VS), has been working directly with the United States Animal Health Association (USAHA) exotic Newcastle disease (END) Task Force. VS appreciates USAHA's valuable contributions. The national END surveillance program will undoubtedly improve as a result of USAHA's contributions. VS is committed to continuing the important and mutually beneficial relationship with the USAHA END Task Force. Additional meetings and conference calls are planned."

ENDTF Activities:

Through a series of conference calls and electronic mail communication, the ENDTF developed a consensus document (9 pp) within 30 days of the resolution that listed five positive aspects of the END proposed guidelines; 26 concerns about the new guidelines; 15 clarifications and questions; and 19 other comments and suggestions. From that document 7 action items were forwarded to USDA on November

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19, 2003 for consideration. Action items included:

1. Allow laboratory funding to be channeled to laboratories that are recognized and recommended by the state animal health official, independent of NAHLN. (Action taken in part.)
2. Allow flexibility in flow of laboratory funds; allow to channel through state animal health official, if that is best for the state (not strictly from the National Veterinary Services Laboratory directly to laboratory). (USDA's decision was to channel funds for END testing directly to the laboratories to create a direct relationship between testing laboratories and NVSL.)
3. Allow flexibility in funding of outreach materials; include a significant portion of \$4.4M into state agreements rather than designate full amount to LPA. It would be preferable to see approximately 50 percent of the targeted \$4.4M of outreach funds channeled directly to the state for targeted materials to populations specific to the state situation. USDA should use their portion for theme and boilerplate development, national awareness, and the like. The high-risk bird owners are best reached through field personnel interaction at local auctions, flea markets, swap meets, feed stores, etc. (USDA responded that no flexibility was allowed due to Office Management and Budget (OMB) designation of funds to LPA.)
4. Need improved oversight of bird transportation. A major deficit in the plan is lack of integrated national and state oversight of the movement of birds of undocumented health status through the transportation industry (air, cargo, postal, etc). (No action. This activity may not be directly related to disease surveillance.)
5. Allow funding of additional resources (laboratory personnel, training, supplies, etc.), if needed, in a state to conduct diagnostic testing. (Action taken through cooperative agreements with states.)
6. Allow funding of field personnel in a state, if needed, to identify, contact, and network with non-commercial poultry industry. (USDA's intent was to accomplish this through cooperative agreements with states.)
7. Allow majority of funding to go to the states. Except for education, it appears the proposed plan is relying heavily on state efforts with federal monitoring. If that is the case, the majority of funding should go directly to the states where the work has to get done, based on the work plan and their commitment to the project. (No action.)

A conference call was held with ENDTF members, including USDA representatives, and each point was discussed. USDA informed the Committee that OMB allocated the \$4.4 million specifically to the USDA

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LPA office to develop outreach materials and that the funds could not be redistributed to another entity.

In November 2003, a USDA memorandum was issued on the "Guidance on fiscal year 2004 Funding for the Exotic Newcastle Disease Surveillance Program." The Guidance document further described the four major focus areas to (1) increase the capacity to perform additional suspect END case investigations and increasing diagnostic testing capabilities for END virus through cooperative agreements for laboratory equipment and reimbursed diagnostic testing at NAHLN laboratories and other designated END laboratories, (2) educate owners of noncommercial poultry and other birds through production and distribution of educational messages and materials, (3) increase outreach and contacts with noncommercial poultry owners through cooperative agreements with a limited number of States, and (4) develop adequate database capabilities, e.g. reports of END diagnostic tests from NAHLN and other END laboratories, report of other outreach or monitoring activities and data on locations of noncommercial poultry premises. The ENDTF was not consulted about the content of the guidance document prior to issuance.

In December of 2003, Dr. Larry Granger notified the ENDTF Chair that, "The national END surveillance plan is a comprehensive, coordinated, integrated surveillance system that builds on partnerships with States, animal industries, veterinary practitioners, universities, and diagnostic laboratories." The letter also stated that, "Our Legislative and Public Affairs Staff (LPA) will be working with the ENDTF and with State information coordinators to ensure that educational and outreach programs regarding END surveillance are tailored to local needs... For a surveillance program to succeed, close cooperation between State, federal, and industry representatives must occur. VS will work closely with the ENDTF to ensure that the goal of enhancing our existing surveillance, as well as expanding surveillance to previously under sampled populations, is achieved."

In February of 2004, the ENDTF was informed that USDA allocated END Surveillance funds to 29 Participating Laboratories in 28 states. USDA stated that the allocation was based on two criteria, foreign animal disease (FAD) submissions and the value of poultry production. The ENDTF was not consulted about the allocation or the announcement.

In March of 2004, USDA LPA invited Communication Officials of State Departments of Agriculture (COSDA) representatives and cooperative extension communicators located in states determined to be "END high risk" by USDA to attend an END communicators meeting in Riverdale, MD. Select members of the ENDTF requested to attend and were granted permission. The meeting agenda included an overview of END, the END enhanced national surveillance program, public

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affairs perspective of the 2002/2003 END outbreak, and public outreach programs in California and North Carolina. Camera-ready brochures, fact sheets and other materials were presented for review. LPA did not seek further input from the ENDTF on the development and distribution of educational and outreach materials. In the ensuing months, the ENDTF became indirectly aware of materials (letter to veterinarians, packet to state veterinarians, fact sheets, brochures, etc.) distributed by LPA.

In May of 2004, the ENDTF Chair requested an update of the outreach activities from Madelaine Fletcher of USDA LPA, ENDTF member. Ms. Fletcher LPA reported that in April of 2004 a mailing was sent to approximately 51,000 veterinarians using mailing lists from the American Veterinary Medical Association (AVMA) to alert them to the start of the program. Subsequently, the same mailing was sent to Area Veterinarians-In-Charge (AVIC's) and State Animal Health Officials with a cover letter. Electronic mail was sent to AVIC's to alert them about the start of the program and the communicators meeting. An article on the campaign appeared in May 13, 2004 AVMA Bulletin (on-line edition). In early April a letter and flyers were provided electronically to the public affairs contacts of extension agents and USDA, Farm Service Agency (FSA) for distribution. Other products included a website on the VS home page www.aphis.usda.gov/vs; alerts on AI, END and backyard biosecurity printed in large quantities (English and Spanish) and used in veterinarian mailing; biosecurity brochures (English and Spanish), biosecurity posters (English and Spanish); AI and END disease cards (English and Spanish); and display banners. A press release was issued on May 4 announcing the beginning of the campaign. LPA also distributed informational packets at the National Association of Farm Broadcasters meeting and had coverage in *Feedstuffs Magazine* on May 17, 2004. Bookmarks, rulers and post-it note/scratch pads were developed. A biosecurity video was being developed in DVD and VHS formats. A toll free number was initiated that rings into the AVIC's office in the state where caller is located. A public relations firm was hired to set a benchmark for the national awareness campaign and identify cost-effective media outlets. The ENDTF was not consulted on the development and distribution of these educational/outreach materials, with the exception of input from select members who attended the communicators' meeting in March 2004.

In October 2004, the ENDTF Chair received a list of additional END outreach publications from the USDA Eastern Regional Director. The Committee learned during the 2004 USAHA meeting that the END surveillance program has been transferred from the USDA-APHIS-VS Emergency Programs staff to USDA-APHIS-VS National Animal Health Programs staff in the spring of 2004.

The ENDTF has not received updates or progress reports related

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to the major focus areas, associated use of funds for the focus areas, achievement of established milestones and outcome of basic performance measures for the end of 2004.

Conclusions

The ENDTF was successful in completing the objective to “offer recommendations for the direction of the National END Surveillance Program” within the first thirty days of the 2003 USAHA meeting, although USDA did not demonstrate a commitment to seriously explore and consider possible implementation of the recommendations.

The ENDTF was disappointed that they were unable to fulfill the remaining objective outlined in USAHA Resolution 13 (2003). The intent of the resolution was for USDA and USAHA to work collaboratively and in partnership to further develop the national END Surveillance Program. This did not happen. USDA actions did not parallel their written response to the resolution that (1) the agency “has been working directly” with the USAHA END Task Force; (2) “VS appreciates USAHA’s valuable contributions”; (3) “the national END surveillance program will undoubtedly improve as a result of USAHA’s contributions”; and “VS is committed to continuing the important and mutually beneficial relationship with the USAHA END Task Force.”

The ENDTF was essentially discounted and received little to no direct communication from USDA, unless prompted. There was no apparent plan to include USAHA in the further enhancement of the focus areas, milestones and performance measures of the national END surveillance program. It appeared that USDA chose to adhere to the program parameters outlined in the October 2, 2003 memorandum, and was unwilling to seriously consider the ENDTF recommendations and offer any modifications. As a result, the ENDTF was precluded from effectively evaluating the four major areas outlined in the END guidance document because no data or reports were provided. Also, state animal health officials reported that they were unable to monitor or follow up with END activities in their state due to a lack of effective communication with USDA program staff.

USDA failed to follow the written assurances to the ENDTF in December 2003. USDA did not build a partnership with States, animal industries, veterinary practitioners, universities, and diagnostic laboratories to develop a comprehensive, coordinated, integrated surveillance system. LPA did not work with the ENDTF to ensure that educational and outreach programs regarding END surveillance were tailored to local needs. The ENDTF agrees with the statement in Dr. Granger’s December letter that program success depends upon close cooperation between State, federal, and industry representatives. Regrettably, this did not occur. USDA did not work closely with the ENDTF to ensure that the goal of enhancing surveillance was achieved.

The ENDTF is not convinced that the educational and outreach

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portion of the program is as effective as it could have been. The ENDTF is not totally aware of all facets of the LPA program and would like to receive a report on objective and measured outcomes. Anecdotally, there remains little awareness of the “biosecurity for the birds” campaign and little behavior change in back yard poultry owners as a result of the outreach component. Despite LPA working with extension communicators, extension agents remain broadly unaware of the program. The ENDTF believes that the program would have been more effective if funds were distributed to the states to tailor materials to local cultures rather than Congress allocating funds to a national level for standardized materials produced in bulk.

In summary, the ENDTF does not believe the USAHA resolution objectives were accomplished in total because the END program appeared to be predetermined prior to the 2003 USAHA meeting with little opportunity for input. USDA is advised to work effectively with stakeholders throughout the conceptual, development and implementation stages in a sincere spirit of cooperation. The ENDTF believes that the motto of the Undersecretary for Marketing and Regulatory Programs, Bill Hawks, should become an action plan because “working together works”. USDA must improve the working relationship with the Committee by fostering a more open process and approaching issues with a sincere spirit of cooperation in order to develop effective poultry disease surveillance programs.

The ENDTF suggests that the Committee and USDA National Animal Health Program staff establish a process to exchange information and work collaboratively on poultry health issues throughout the year. The ENDTF also requests a final report on the expenditures, milestones and performance outcomes (including number of birds tested) from the \$9.4 million CCC funds allocated for an END National Surveillance Program.

Industry Annual Disease Status Reports

Broiler Industry Report:

The broiler industry report was presented by Dr. Travis Cigainero, Pilgrims Pride Corporation, Pittsburg, Texas. With a few exceptions, overall broiler health and production have been good thus far into 2004. Information presented is based on three industry surveys, personal correspondence, and Agristats. Comparing January thru June 2003 to the same period in 2004 indicates that whole bird condemnation, parts condemnation, and whole bird dispositions have remained essentially unchanged. With the consistency of the previous indicators, it is interesting that livability declined 0.31% for the same period from 2003 to 2004. The most plausible explanation for this is that good markets resulted in increased demand and slight expansions. More pounds of

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chicken were produced in essentially the same number of houses meaning that weight and age were increased. This also has an effect on downtime. Increased density, increased pounds per square foot, and decreased out time usually impact performance negatively.

AI has not been a primary problem in broilers in 2004, but the problem in limited breeder flocks and the Asian crisis has caused many to rethink the importance of this disease and implement better biosecurity plans as well as monitoring plans. Bronchitis remains problematic in some areas and the Arkansas or Arkansas related viruses are still the most often implicated viruses. No major new serotypes have been identified. There have been a few reports of problems involving Newcastle disease (ND). The issues seem to revolve around too much protection where vaccine and environment actually cause a problem or too mild vaccination over too long of a period of time resulted in an increased challenge. Laryngotracheitis (LT) has also been problematic in some areas of the Southeast. All the LT isolates have been molecularly similar to vaccine virus.

One of the most significant changes from 2003 to 2004 is the incidence of Gangrenous Dermatitis. Dermatitis has been a major disease issue in some complexes. It is difficult to trace the problem to a single etiology as many things can play a role in the disease from immune competence to feed issues to infectious agents such as Infectious Bursal Disease (IBD) and Chicken Anemia Virus (CAV).

Finally, political issues have continued to take more and more resources. A survey sent to production veterinarians by Dr. Bob Owen indicated unanimous agreement that issues unrelated to bird health continue to take more and more time each year. These issues tend to be a blend of factual science, pseudo-science, and political science. Most of the issues are manmade, but they act much like a virus, as they seem to be infectious from company to company just as a virus may be spread bird to bird.

References:

1. U.S.A. Respiratory Disease Field Perspective. Paper presented by Dr. John Smith, 39th National Meeting on Poultry Health and Processing, 2004
2. Emerging Diseases and Conditions in Broilers and Breeders, Paper presented by Dr. Bob Owen, AAAP, 2004

Table Egg Industry Report:

The table egg industry report was presented by Dr. Eric Gingerich, University of Pennsylvania, Kennett Square, Pennsylvania. Overall health of the national table egg layer flock is excellent. This is due to the availability of high quality vaccines, professional, well-trained flock supervisors, readily available technical assistance from the primary breeders, vaccine companies, and diagnostic laboratories, improved

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nutrition, and improvements in biosecurity.

A handful of diseases are still of concern, namely colibacillosis, *Mycoplasma gallisepticum* (MG), AI and *Salmonella enteritidis* (SE).

Colibacillosis is a problem mainly of young flocks, with mortality rates of 0.5 to 2% per week starting shortly after housing. It is felt that this condition is most often secondary to upper respiratory challenges with MG, *Mycoplasma synoviae* (MS), ammonia, infectious bronchitis (IB), etc. It also may be a primary problem if water lines are contaminated with *E. coli*.

MG is mainly an issue in multi-aged facilities and is successfully controlled in most cases through vaccination. Each complex must customize its vaccination program to control the strain on the farm. Ts-11 and 6/85 live vaccines are used for controlling mild strains of MG while F-strain live vaccine is being used to control more pathogenic strains. The live pox-vectored recombinant vaccine is being used in a variety of situations and the success of this vaccine has not yet been fully determined. Spread of MG to single-aged units has occurred as well and is dealt with using medication programs using tylosin or tetracycline antibiotics.

AI has been an issue in Pennsylvania (H2N2), and Connecticut (H7N2). Flocks in two Pennsylvania complexes were detected by routine active surveillance. No clinical syndrome was observed, the flocks were placed under quarantine, spread was limited in each complex, and quarantine was released after negative virus isolation attempts from sentinel birds. The Connecticut complex that became positive with H7N2 in February 2003 had been vaccinating with H7 vaccine since April of 2003. Only one positive isolation of virus from sentinel birds occurred after vaccination was initiated. The quarantine was lifted October 1, 2004 after all birds that were present at the time of the initial outbreak had been sold. California had problems with H6N2 for a few years and was using an autogenous vaccine for control until 2003 when this program was halted. No new breaks have been reported in layers since that time. H7N2 continues to thrive in the live bird markets of New York City and New Jersey and are a continual concern to egg producers in the Northeast.

SE was felt to be an issue that was being addressed adequately by state and industry egg quality assurance programs until the announcement on September 22, 2004 that the Food and Drug Administration was proposing a program "Prevention of SE in Shell Eggs During Production". Many issues will need to be thoroughly discussed in this proposed program namely 1) laboratory procedures and laboratory availability for testing, 2) funding for testing, costs incurred if eggs are diverted, and administration of the program, 3) lack of egg pasteurization facilities in many egg producing areas to be able to effectively divert eggs from high risk flocks, 4) wet washing houses required be-

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tween flocks where SE positive manure samples were found in the previous flock whereas dry cleaning, fumigation, vaccination of incoming pullets, plus good rodent control has been found to be effective, 5) the requirement for 45 F egg storage prior to processing and so forth.

Diseases under control and of low incidence include infectious laryngotracheitis (ILT), IB, coccidiosis, necrotic enteritis, fowl coryza, and urolithiasis/gout. These diseases tend to be localized to a region or a farm. Good success using the recombinant pox-vectored ILT vaccine in a region of high ILT incidence has been seen.

Diseases that are very rarely a problem are pox, Marek's, Newcastle, IBD, CAV and fowl cholera. Poultry welfare concerns are minimal as compliance to program requirements for participants have been met. The possible requirement for full feed molting is a concern as the full feed molting programs have not been universally successful in all operations where they have been tried.

The egg industry saw very good profits during the last quarter of 2003 and the first quarter of 2004 due to very good egg prices. Expansion caught up however as nearly 9 million layers were added from August 2003 to August 2004. A recent drop in feed prices has eased the losses however. The percent of eggs that are processed is fairly stable at about 30% with only 1% of eggs exported.

Turkey Industry Report:

The turkey industry report, prepared by Drs. Steven Clark, Eric Gonder and James Barton was given by Dr. Gonder, Goldsboro Milling Company, Goldsboro, North Carolina. Dr. Clark and turkey industry colleagues, Drs. Gonder and Barton, contacted several U.S. turkey industry professionals and veterinarians involved in turkey production to inquire about the health status of turkeys produced in October 2003 through October 2004. The turkey industry reports several disease challenges for this 12 months varying by geographical regions within a state and across the United States. This report will list, in alphabetical order, the challenges by disease.

Poult (viral) enteritis was a cause of relatively higher early morbidity and mortality, especially in the lower Midwest and Southeast. Astrovirus was identified by polymerase chain reaction (PCR) and enterovirus was identified by virus isolation in these cases. Respiratory problems with Avian Paramyxovirus-1, *E. coli*, *Ornithobacterium rhinotracheale* (ORT) and *Bordetella avium* (BART) are problems in some flocks, resulting into poor performance and excessive mortality. No commercial vaccine is available for ORT. Fowl Cholera has been diagnosed more frequently in the Southeast associated with the wetter season and was particularly severe in some breeder operations. Osteomyelitis (OM) continues to be a problem in some flocks. Other diagnoses of particular interest include Blackhead, Cellulitis and Avian Pneumovirus (APV).

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Turkey production totaled 5.65 billion pounds in 2003. Production declined 1.25% (71 million pounds) for the year 2003, only the third annual decline since 1982 (Sparks Companies Inc, March 2004). Heads slaughtered was down 1.3% and average live weight increased by 0.2 pound (0.09%). Declines were mainly the result of poor profitability in predominately further processed items from heavy toms. Ready-to-cook production in 2004 is expected to be 2-3% lower than 2003. Overall domestic demand for turkey products is strong, while exports have been limited to due chicken outbreaks of highly pathogenic and low pathogenic AI. Exports in 2004 are expected to reach 514 million pounds. Export bans and higher feed costs are expected to be the two major challenges for 2004.

Over the past decade, the industry has adapted its production systems from multi-age facilities to single-age operations. An informal survey (Clark, 2001) was conducted of the United States turkey industry to identify single-age production systems (all-in/all-out, brood-and-move). In 2001 there was 26% single-age production, compared to the 1995 estimate of 19%. This trend continues. The increase in single-age production is due primarily in an attempt to control/minimize disease challenges specific to different areas.

The lack of effective therapeutic agents remains a concern of the industry, including the loss and potential loss of efficacious treatments for bacterial diseases. The judicious use of antibiotics, including fluoroquinolones, appears to be reducing mortality in many turkey flocks. The turkey industry wants to ensure that any Food and Drug Administration antibiotic resistance policy is scientific and results in no loss of available drugs unless there is clear scientific evidence those drugs pose a danger to human or animal health.

Mr. Dennis Senne of USDA-APHIS-VS-NVSL presented the Avian Import Activities summary and the AI and ND Diagnostic summaries.

Avian Import Activities – FY 2004:

- Poultry and Hatching Eggs: During fiscal year (FY) 2004, 17,742,984 poultry including day old chicks, and 14,993,440 poultry hatching eggs imported into the United States;
- Commercial Birds: The imports of commercial birds are limited to those that are exempt for the Wild Bird Conservation Act, serviced by the U.S. Fish and Wildlife Service. During FY 2004, 234,856 commercial birds were released from USDA-supervised private bird quarantine facilities;
- Pet Bird Program: There were 3,430 pet birds imported into the United States and quarantined at a USDA-operated animal import centers during FY 2004. The number of home quar-

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antined birds was 121;

- Ratite Importations: No ratites or ratite hatching eggs were imported into the United States. The current price of ratites and hatching eggs does not justify the cost of importing such birds; and
- Smuggled/confiscated birds: There were 387 birds confiscated by U.S. Customs during FY 2004.

Avian Influenza:

LBM's: Monitoring of LBM's in Northeastern states for presence of AI virus continued at a record level during FY 2004 in efforts to reduce the prevalence of low pathogenic H7N2 in the LBMS. A total of 9,358 specimens in 919 submissions originating from 6 states (New York, New Jersey, Massachusetts, Connecticut, Rhode Island, and New Hampshire) were tested for presence of AIV by virus isolation in embryonated chicken eggs at NVSL. Also, 1,435 tracheal swab specimens from LBM's were tested at NVSL for presence of AI virus by the real-time RT-PCR (RRT-PCR). For the first time, LBM testing was performed in 2004 by state laboratories approved by the USDA to conduct RRT-PCR tests. This report does not include the number of LBM tests performed at state laboratories. At the NVSL, the H7N2 virus was isolated from 441 of 7,135 specimens from New York (NY), 197 of 2,072 specimens from New Jersey (NJ), and 6 of 35 specimens from Connecticut (CT). Specimens from Massachusetts (n=84), Rhode Island (n=28) and New Hampshire (n=4) were negative for avian influenza virus (AIV). No significant changes were observed in the amino acid motif at the cleavage site of the hemagglutinin protein of 193 H7N2 isolates sequenced in 2004. In addition to H7N2, one isolate of H5N8 and two isolations of H7N3 were made from NY LBMs. Pathogenicity of representative H7N2, H5N8, and H7N3 viruses was determined by the chicken pathogenicity test and deduced amino acid profile at the hemagglutinin cleavage site; all viruses were of low pathogenicity. Other AI virus subtypes and the numbers isolated from NY LBM's were H2N2 (3), H3N2 (19), H3N6 (1), and H9N2 (1). A single isolate of H2N2 also was recovered from one LBM in NJ. In addition to AIV, avian paramyxovirus type-1 (APMV-1) was isolated from 240 specimens in 104 submissions from NY (n=191), NJ (n=45), and Rhode Island (n=2). All but 9 isolates were characterized as low virulent (lentogenic pathotype) strains; the 9 other isolates were characterized as pigeon paramyxovirus type-1 (PPMV-1).

Highly Pathogenic AI (HPAI) virus: On February 23, 2004 HPAI was diagnosed in the United States for the first time in 20 years when a non-commercial broiler flock near Gonzales, TX was diagnosed with HP H5N2. The flock of 6,600 broilers was being raised for the live bird

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market outlets in Houston, TX. Subsequently, two of five LBMs in the Houston area were also found to be positive for HPAI H5N2. Extensive surveillance did not detect additional infections. The H5 infection was initially detected by RRT-PCR at the Texas Veterinary Medical Diagnostic Laboratory following a routine submission of dead chickens from the index flock. The RRT-PCR was confirmed by the NVSL and the virus was subsequently characterized as HPAI virus. The H5N2 virus was unusual in that it meets the molecular criteria of HPAI but did not produce disease or death in experimentally inoculated chickens. Phylogenetic analysis of the virus showed that the hemagglutinin was most closely related to an H5N3 virus isolated in Texas in 2002. The virus was not related to recent H5N2 viruses circulating in Mexico or the 1983-84 U.S. lineage of HPAI H5N2 viruses.

HPAI Surveillance in Washington State: Because of the presence of HPAI H7N3 in the Frazer Valley, British Columbia, Canada, the USDA activated the incident command system (ICS) in April to conduct AI surveillance along the U.S-Canadian border in Washington State. Voluntary testing of backyard and commercial flocks within a 10-mile zone adjacent to the Canadian border generated 1,621 specimens for RRT-PCR testing and 2,863 serum samples for detection of antibodies to AIV. No H7N3-positive flocks were detected.

Low Pathogenicity AI (LPAI) virus in Commercial Poultry: In January 2004, LPAI H3N2 was isolated from 34-week-old turkey breeders in Ohio with a history of drop in egg production. The premises had five houses, each containing about 2,500 birds. The virus could not be propagated in embryonated chicken eggs without prior passages in cell culture. Also, the virus could not be subtyped with conventional AI reference antisera in the hemagglutination-inhibition (HI) and neuraminidase-inhibition (NI) tests. Molecular analysis of the virus showed it to be H3N2 subtype and related to recent viruses circulating in swine.

On February 6, 2004 an H7N2 AI virus of low pathogenicity was isolated from a non-commercial broiler flock in Kent County, Delaware. The flock of 12,000 birds had an epidemiological link to the LBM's in NJ. Extensive surveillance detected a single positive commercial flock of 72,000 4-week-old broilers located 5 miles from the index case. Although there was no epidemiological link between the two premises, the H7N2 viruses from the two premises were indistinguishable. No other AI-positive flock was detected. The NVSL tested approximately 6,290 surveillance specimens by RRT-PCR in support of this outbreak.

On February 13, 2004, a flock of 500,000 layers in Lancaster County, PA were positive for antibodies to H2N2 AI virus as a result of routine surveillance. No significant production drop was noted. An H2N2 virus was isolated from the flock and was characterized as LPAI by the chicken pathogenicity test. Surveillance of nearby flocks did not detect addi-

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tional infections; however, a second layer flock was found positive for the H2N2 virus in late February 2004.

On March 6, 2004, presence of LPAI H7N2 virus was confirmed in a flock of 118,000 6-week-old broilers located near Pocomoke City, MD. The infection was detected as a result of a pre-movement testing program established because of the infections of LPAI H7N2 in DE earlier in February. The flock was depopulated and an additional 210,000 2-week-old broilers located within 1 mile of the positive premises and owned by the same company, were preemptively killed as a proactive step to prevent spread of infection. Molecular studies showed that the H7N2 virus from the MD flock was related to recent H7N2 viruses from the LBM's in Northeast U.S. but differed from the DE H7N2 virus.

In May 2004, routine serologic surveillance detected antibodies to H7N3 in two commercial breeder (chicken) premises and one small backyard flock in Hopkins County, Texas. None of the flocks showed clinical signs of infection. The two commercial breeder premises had 25,000 and 26,000 chickens, respectively. Attempts to isolate the virus were unsuccessful and extensive surveillance did not identify additional positive flocks. All three flocks were destroyed.

LPAI virus in Non-commercial Poultry: The isolations of AI virus or detection of AI virus-specific antibodies in serum from non-commercial poultry are presented in Table 1.

RRT-PCR Proficiency Test Panels: Laboratories conducting surveillance testing for AI and ND are required to have one or more diagnosticians pass an annual proficiency test to perform official RRT-PCR tests. In FY 2004, RRT-PCR proficiency panels were sent to 96 diagnosticians in 38 laboratories for ND and 80 diagnosticians in 38 laboratories for AI. Currently, 80 diagnosticians in 38 laboratories and 77 diagnosticians in 37 laboratories, respectively, are approved to conduct ND and AI RRT-PCR tests.

AI Diagnostic Reagents Supplied by the NVSL: A total of 13,586 units of Agar Gel Immunodiffusion (AGID) reagents were produced and shipped to state, university, and private laboratories during FY 2004. The quantity is sufficient for approximately 1.6 million tests. An additional 362 units (43,440 tests) were shipped to international laboratories.

Newcastle Disease:

Isolations of Virulent Newcastle Disease Virus (vNDV): Only one isolation of vNDV was made in FY 2004. The isolate was from a group of finches imported from South Africa and Tanzania and quarantined at a California quarantine center. The lot of birds was refused entry into the United States.

Isolations of Low virulent Avian Paramyxovirus Type-1 (APMV-1): During FY 2004, 70 submissions of APMV-1 from 16 states (AL,

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AR, CA, CT, FL, GA, MN, IN, NC, NJ, NM, NY, PA, TX, VA, and WI) were received for virus characterization at the NVSL. All were characterized as non-virulent NDV. In addition, pigeon paramyxovirus type-1 (PPMV-1) from pigeons or doves was identified in 15 submissions from 10 states (AR, AZ, CA, FL, KY, LA, NY, PA, TX, and WA).

ND and AI Surveillance Programs: Following the outbreak of vNDV in backyard game fowl in 2002-03, the USDA established a ND and AI surveillance program specifically targeting backyard birds. Twenty-nine laboratories were identified by the USDA to participate in the program with laboratories being reimbursed for the cost of testing. Under the program in 2004, 3,080 specimens from 12 states (FL, GA, LA, MI, MS, MO, OH, OK, PA, NC, SC, and WA) were tested for AI and 2,603 specimens from 8 states (MI, MS, OH, OK, PA, NC, SC, and WA) were tested for ND.

Table 1. Subtypes of low pathogenicity AI virus or specific antibodies detected in non-commercial birds, FY 2004.

State	Species	Subtype of AIV (No. of Isolates)	Antibody Subtypes (No. of Submissions)
California	Chicken, Quail	H6N2 (5)	H6N2 (1)
Delaware	Chicken		H5N2 (1)
Massachusetts	Chicken	H7N3 (1)	H7N3 (1)
New York	Duck, Chicken	H7N2 (2), H6N2 (1)	
Pennsylvania	Duck	H3, 4N6 (1)	H6N8 (1)
South Carolina	Duck	H5N2 (1)	H5N2
Texas	Chicken		H5N2 (2), H7N3 (3)

Dr. David A. Miller of USDA-APHIS-VS-NVSL Diagnostic Bacteriology report

Pasteurella:

During a 12-month period, NVSL received 320 *Pasteurella multocida* isolates for characterization. Of these, 120 were submitted for somatic type analysis, 46 were submitted for DNA fingerprint analysis, and 154 isolates were submitted for both tests. Results indicated that 31% were type 3, 4; 12% were type 1; 8% were type 2, 5; 10% were type 3; and 6% were type 4. A total of 29% of the isolates were identified as other somatic types. The somatic type of 5% of the isolates could not be identified. Of the isolates submitted for DNA fingerprint analysis, 7% had profiles identical to those of *P. multocida* attenuated vaccine strains, 9% matched the profile of somatic reference type 3, strain P-1059 (type 3 component used to manufacture bacterins), and 84% were wild-type profiles.

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Salmonella:

In support of the NPIP, a total of 1,800 ml of stained microtiter antigen, 830 ml of tube test antigen, 144 vials of positive control serum, and 76 vials of negative control serum were provided to industry and diagnostic laboratories. A total of 113 sera were tested for pullorum-typhoid in the microagglutination test, and 54 sera were tested for *S. typhimurium* using the tube agglutination test. The NVSL serotyped 11,493 *Salmonella* isolates recovered from animals, their environment, or feed. Of the 3,677 poultry isolates (32% of total isolates), 2,020 were recovered from chickens or their environment and 1,657 were recovered from turkeys or their environment. The most common serotypes found in poultry this year are listed in Tables 2 and 3.

Table 2: Most Frequently Identified <i>Salmonella</i> Serotypes From Chickens			
Clinical		Monitor	
Heidelberg	32	Heidelberg	451
Pullorum (Standard)	32	Kentucky	313
Enteriditis	24	Typhimurium	156
Kentucky	24	Senftenberg	139
Typhimurium	20	Enteriditis	82
All Others	41	All Others	706
Total	173	Total	1847

Table 3: Most Frequently Identified <i>Salmonella</i> Serotypes From Turkeys			
Clinical		Monitor	
Senftenberg	48	Senftenberg	377
Montevideo	21	Hadar	277
Hadar	18	Muenster	140
Heidelberg	11	Heidelberg	106
Muenster	9	Bredeney	64
All Others	55	All Others	531
Total	162	Total	1495

Mycoplasma

The NVSL performed 231 avian *Mycoplasma* hemagglutination in-

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hibition tests and 440 plate tests. During this same period, 1250 ml of hemagglutination antigen and 1050 ml of control sera were provided to other diagnostic laboratories.

Mr. Andrew R. Rhorer presented the NPIP Activities report.

Pullorum-Typhoid Status:

In calendar year 2003, there were eight isolations/outbreaks of *Salmonella pullorum* reported to the Poultry Improvement Staff. There were 42 isolations/outbreaks of *Salmonella pullorum* reported during calendar year 2004 from January to October 1, 2004. There have been no isolations of *Salmonella gallinarum* since 1988 in any type poultry. The isolates in 2003 were both standard and intermediate strains of *Salmonella pullorum*. The number of birds in *Salmonella pullorum* positive flocks (January 1, 2003- October 1, 2004) was as follows:

There were no egg-type chicken breeding flocks with isolates of *Salmonella enteritidis* in calendar year 2003 and the first 9 months of calendar year 2004.

Number of Birds	No. of Flocks	Strain of Pullorum
>5<25	1	Standard
>25<50	1	Standard
>50<100	6	Standard and Intermediate
>100<500	19	Standard

Mycoplasma Status Report:

There were 4 egg-type chicken breeding flocks positive for *Mycoplasma synoviae* during Calendar Years 2003 and the first 9 months of Calendar Year 2004.

There were 13 meat-type chicken breeding flocks positive for *Mycoplasma gallisepticum* during calendar year 2003 and the first 9 months of calendar year 2004 and 34 meat-type chicken breeding flocks positive for *Mycoplasma synoviae* during calendar year 2003 and the first 9 months of Calendar Year 2004.

There were 4 turkey breeding flocks positive for *Mycoplasma gallisepticum* during calendar year 2003 and the first 9 months of calendar year 2004 and 5 turkey breeding flocks positive for *Mycoplasma synoviae* during Calendar Year 2003 and the first 9 months of Calendar Year 2004 and 2 turkey breeding flocks positive for *Mycoplasma meleagridis* during the same period of time.

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Dr. Fred J. Hoerr, Auburn University, Auburn, Alabama presented the Mycoplasma Subcommittee report which included the following reports:

Mr. A. Rhorer reported on NPIP data on MG, MS and MM (table 3 below). The value of the mycoplasma workshops and serology quality control program provided by Dr. S. Kleven at the University of Georgia was recognized.

Table 3. <i>Mycoplasma</i> positive breeding flocks 2003-2004				
<i>Mycoplasma gallisepticum</i> , <i>Mycoplasma synoviae</i> , and <i>Mycoplasma meleagridis</i> positive breeding flocks: National Poultry Improvement Plan 2003-2004				
	WEGBY	Egg-type Chickens	Meat-Type Chickens	Turkeys
<i>Mycoplasma gallisepticum</i>	17	0	8	4
<i>Mycoplasma synoviae</i>	17	4	29	5
<i>Mycoplasma meleagridis</i>		0		2

Dr. A. McRee reported that *M. synoviae* rapid serum plate antigen was in adequate supply following an interruption in MS antigen production.

Dr. S. Kleven reported on the development of live MG vaccine strain, K5054, which shows promise as being safe and effective for both chickens and turkeys (Avian Dis 47:523-530, 2003; 48:91-99, 2004). This represents an improvement over current live MG vaccine strains because of its safety and efficacy in turkeys. F strain is too virulent for turkeys, ts-11 vaccine seems not to be able to infect turkeys, and 6/85 has shown mixed results as a turkey vaccine, but field evidence suggests that upon passage in the field it may develop virulence for turkeys. A motion was adopted for the Mycoplasma subcommittee to recommend to the Committee the adoption of a recommendation to USDA-APHIS-VS-CVB for continued support, review and licensing of live mycoplasma vaccines that are safe and efficacious for both turkeys and chickens.

Dr. S. Davison with S. Kleven and M. Garcia reported on using turkeys as sentinels for *Mycoplasma gallisepticum* detection in layer flocks. MG was successfully cultured from sentinel turkeys in 50% of 15 trials. Two "ts-11-like", and five "wild" type MG's were isolated; an additional MG isolate failed to grow in further cultures. One "ts-11-like" MG and two "wild" type MG's that had been identified by RAPD and GTC were used in the pathogenicity trials in layers and turkeys. The "ts-11-like" strain demonstrated minimal pathogenicity relative to the negative (no challenge) and positive (R strain) control groups. The two "wild" types demonstrated a greater degree of pathogenicity over the

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“ts-11-like” strain in every measured parameter including clinical signs of infection, air sacculitis, and tracheitis. This approach identified MG organisms affecting commercial layers and defined their pathogenicity, which will be utilized as a baseline for future MG vaccine protection evaluations.

Of general concern were low virulence strains of *M. synoviae* that were detectable by ELISA and culture and/or PCR but failed to elicit antibody detected by the rapid serum agglutination test.

The Mycoplasma subcommittee proposed, during the meeting of the Committee, a recommendation to the USDA-APHIS-VS-CVB that there remains a need for continued support, review, and licensing of live mycoplasma vaccines that are safe and efficacious for both turkeys and chickens. This recommendation was based on a perceived fear by at least one manufacturer that CVB would contend that there were sufficient existing live mycoplasma vaccines. Although initially approved, after further discussion on the following day, it was rescinded.

Dr. Fred Hoerr also presented a review of the “Infectious Laryngotracheitis (LT) Eradication Guidelines” proposed by the Committee in 1990 (USAHA Proceedings 94:337-339, 1990). The plan had a four-phase implementation that included disease reporting, vaccine usage, diagnostics, surveillance, and biosecurity, and progressed to disease-free states or regions that prohibited vaccine usage and depopulated and indemnified positive flocks. In the past decade, LT epidemiology has improved using molecular analysis of the LT virus and Global Information System (GIS) mapping of outbreaks. The high prevalence of virus isolates indistinguishable from chick embryo origin vaccine virus is recognized. A fowl pox virus-vectored vaccine is now licensed and in use. In view of these developments, the reactivation of the LT Subcommittee was approved by general consent. Dr. Sherrill Davison of the University of Pennsylvania, who formerly chaired this subcommittee, agreed to resume the chair. The Subcommittee was charged to develop a white paper for presentation to the Committee at the 2005 meeting evaluating current diagnostic and epidemiological techniques and new vaccine technology, and proposing new control strategies in light of these advancements.

Dr. David Suarez, USDA-ARS, Southeastern Poultry Research Laboratory (SEPRL), of the AI and ND Subcommittee gave a report on Research Activities at USDA-ARS-SEPRL for Subcommittee chair Dr. David Swayne, who could not attend.

Dr. Lindsey Garber of USDA-APHIS-VS-CEAH reported on the NAHMS Poultry 2004 Study. NAHMS has launched its Poultry 2004 study. An information needs assessment process solicited input from potential poultry information users, including industry, researchers, and Federal and State government personnel. This needs assessment concluded with the recommendation from the Transmissible Diseases

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of Poultry Committee (2003) that NAHMS poultry activities in 2004 focus on the nontraditional poultry industries, such as backyard flocks and live-bird markets. Based on this recommendation, the NAHMS Poultry 2004 is taking a three-pronged approach, with studies addressing backyard flocks, game fowl breeders, and live poultry markets. The objectives of the studies are to: 1) help provide information to improve management practices that affect bird health, 2) assist animal health officials and industry members in identifying research needs, and 3) provide owners of small-production or backyard flocks with information on AI, END and effective biosecurity practices.

Data collection began for the small-production backyard flock component on October 1, 2004 and will continue through November 15, 2004 in the leading poultry states, which include: Alabama, Arkansas, California, Delaware, Georgia, Iowa, Indiana, Maryland, Minnesota, Missouri, Mississippi, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Texas and Virginia. The National Agricultural Statistics Service (NASS) randomly selected commercial poultry operations. Field data collectors will search for noncommercial premises that house birds within a 1-mile radius of each selected commercial operation. Animal health officials will then administer a confidential (will not include any identifying information) questionnaire to those who choose to participate in and contribute to the NAHMS Poultry 2004 study. The questionnaire focuses on bird health management, biosecurity practices, and movement patterns. Data collectors will not enter the bird areas or handle birds, and no testing of birds will be performed.

The LBM component of the study will be conducted from January 1, 2005 through April 30, 2005 in seven participating areas— California, Florida, New England, New Jersey, New York, Pennsylvania, and Texas. Animal health officials will visit every known market in these areas. The market visits will be incorporated into routine activities (e.g. AI surveillance). Questionnaires that focus on bird movement, cleaning and disinfecting information, and management will be administered one time to market owners or managers. For the purpose of this study, tests will not be conducted; however, the questionnaire does ask for historical information on AI testing. In order to maintain confidentiality, markets will be identified by coded identification numbers only.

NAHMS is also in the process of developing a survey to be mailed to the members of the United Gamefowl Breeders Association (UGBA). The purpose of this questionnaire will be to examine important issues in game fowl industry related to bird health management, biosecurity practices and movement.

Once all data have been collected and analyzed, NAHMS will generate national and regional summary reports for dissemination to owners/managers, producers, members of industry, researchers and ani-

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mal health officials.

Ms. Madelaine Fletcher, Public Affairs Specialist, USDA-APHIS-LPA presented an update on the USDA Newcastle Disease Outreach and Education Campaign.

In 2003, USDA received emergency funding for surveillance, outreach, and education for END. The outreach and education focuses on several key messages: recognition and reporting of sick birds to veterinarians and State and/or Federal authorities and practicing biosecurity. The messages are targeted to the owners of noncommercial poultry and birds currently outside normal communication channels, specifically in States where there is a large presence of backyard poultry. Secondary target audiences include veterinarians, extension agents, hatcheries and suppliers, auctions and sales, pet stores, and feed and bird supply outlets.

The campaign began with focus group testing of messages and benchmark research. A public relations firm was hired to help develop and implement a communications strategy. Research showed that the target audience – owners of small flocks – did not know very much about END, AI or biosecurity.

Advertising, public relations, and marketing strategies are being employed in the campaign. Advertising placements include mainstream agricultural publications, rural electric cooperative newsletters, agriculture related newspapers, Hispanic, Filipino, Vietnamese and Native American local papers, Web banner ads, major bird magazines, and agriculture-related radio stations. Public relations activities to date include preparation of an electronic media kit, press releases, articles in media outlets, and radio public service announcements.

Marketing activities to date include a partnership with the Future Farmers of America (FFA) whereby they distributed literature at State and county fairs. A cooperative agreement has been signed with FFA to produce instructional materials for agricultural education teachers. Outreach has been done with private sector veterinarians, hatcheries and COSDA as well as the agricultural bankers group of the American Bankers Association. Assistance has been provided to at least 35 states, USDA's Cooperative State Research Education and Extension Service and FSA and others by providing campaign materials.

Materials developed include brochures, flyers, posters, giveaways, displays, advertising, a Web site, press kit, and public service announcements.

Dr. Donna M. Gatewood presented a report on Extraneous Avian Leukosis Virus (ALV) in Marek's Disease Vaccines by Drs. Scott P. Taylor and Donna M. Gatewood of USDA-APHIS-VS-CVB. Extraneous ALV was recently discovered in Marek's Disease vaccines (MDV)

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by Joseph Schultz, Director of Laboratory Services for Cobb-Vantress, Inc. This discovery has been corroborated by other laboratories including the ADOL and CVB.

The extraneous ALV was detected using ALV group specific antigen (gsa) p27 ELISA. The standard test used by the vaccine manufacturers for extraneous ALV is found in Title 9, Code of Federal Regulations (9CFR 113.31). SAM 405 describes the details of the COFAL assay which uses a complement fixation assay (CF) to detect the p27 gsa of ALV. CVB has confirmed that the COFAL assay failed to detect the extraneous ALV in 7 contaminated MDV serials.

Characterization performed by Dr. Guillermo Zavala at the University of Georgia, corroborated that the extraneous ALV found in these MDV's belong to subgroup A and behave as exogenous viruses. In vivo, the extraneous ALV established a short-lived viremia and induced a significant serological response. The use of these contaminated MDV's in the field and the results from laboratory experiments indicate that the extraneous ALV isolates are avirulent. For example, Dr. Zavala did not detect ALV-related clinical disease, mortality or tumors in specific pathogen free chickens challenged at one day of age and followed for 16 weeks.

Evidence suggests that the source of this extraneous ALV was likely from contaminated specific pathogen free eggs used in the production of these MDV serials.

CVB has tested 129 MDV serials, 7 of which were positive for extraneous ALV using p27 ELISA. Five of these serials were the initial serials discovered positive by Schultz's laboratory and by ADOL. The other two serials were found positive for extraneous ALV by the manufacturers and CVB using p27 ELISA. Again, the COFAL assay was unable to detect the extraneous ALV within these serials.

Other findings at the CVB laboratory indicate that this recent ALV contaminant behaves differently than other known subgroups of ALV. For example, the extraneous ALV will grow in chicken embryo fibroblasts as do other ALV controls however, the p27 gsa of this variant extraneous ALV will not react in the CF assay, whereas known controls for ALV subgroups A, B, C, D, & J will.

The ability of the p27 ELISA to detect the variant extraneous ALV indicates a broader spectrum of specificity than the CF assay. Preliminary work at the CVB laboratory also indicates that the p27 ELISA has a higher sensitivity than CF for known ALV subgroup controls.

Based upon this evidence, we have concluded that the existing CF assay for the detection of ALV gsa p27 is inferior to ELISA.

In regards to testing for extraneous ALV in poultry biologics, the poultry industry has made it clear that they are concerned about the presence of any extraneous ALV and specifically any replicating p27 activity. With this in mind, CVB continues to focus its attention towards

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test development that will amplify extraneous ALV from samples and detect the p27 gsa using ELISA.

A revision to SAM 405 has been completed which removed the use of CF and replaced it with p27 ELISA as the method for detection of ALV p27 gsa. Changes to 9CFR 113.31 regarding the standard requirements for extraneous ALV testing are being proposed. These changes will allow for the use of p27 ELISA instead of the CF assay.

Dr. Stanley H. Kleven, University of Georgia, Athens, Georgia presented the following update on National Animal Health Reporting System (NAHRS).

Overview: The purpose of NAHRS is to help protect the global market share of America's animals and animal products. NAHRS is part of the United States' comprehensive, integrated National Animal Health Surveillance System and is one source of information used to complete World Organisation for Animal Health (OIE) reports by USDA-APHIS-VS. The NAHRS program is a collaboration of participating States, the American Association of Veterinary Laboratory Diagnosticians, United States Animal Health Association, and USDA-APHIS. NAHRS is designed to gather data on the confirmed presence of OIE Lists A and B diseases of cattle, sheep and goats, horses, pigs, birds, and fish. NAHRS is a voluntary program. Confirmed clinical disease data are provided by the State Veterinarians (or representatives) of participating States utilizing disease reporting criteria developed by the NAHRS steering committee and set forth in the NAHRS Uniform Methods and Rules (UM&R). Reporting criteria for each disease include references to compatible clinical signs, the specified standard of laboratory testing, and any additional epidemiological information. Additional information about NAHRS and its reporting criteria can be obtained at the Center for National Animal Health Surveillance Web site at: http://www.aphis.usda.gov/vs/ceah/cnahs/nahrs_

State Participation: Participation in NAHRS is increasing. To date, all except 9 states have participated in NAHRS. These are AR, CT, GA, IA, KS, MO, NM, OK, and RI. Four states, AR, KS, NM, and CT are moving toward participation. Only two states (GA, OK) have definitely elected not to participate. In 2003, 35 states reported all 12 months.

Reporting Data: NAHRS annual summary is presented without any information that identifies the State, owner, or premises of origin. When reviewing 2003 NAHRS summary data, it is important to remember that NAHRS is currently a qualitative reporting system. The system collects data on the confirmed clinical presence of OIE List A and B diseases in the reporting States. A "yes" response from a State indicates that at least one new positive case of disease was confirmed during that specific month. A "no" response indicates that no new positive confirmed cases of disease were noted in the State during that

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specific month. Endemic diseases, as with all NAHRS reportable diseases, are reported only when there is a confirmed report of clinical disease, as determined by the Chief State Animal Health Official utilizing NAHRS disease reporting criteria.

NAHRS Poultry Working Group: C. W. Beard, Lee Myers, Greg Cutler, R. J. Eckroade, Fred Hoerr, Tom Holder, Jim Pearson, Marshall Putnam, Willie Reed, Wes Towers, Sue Trock, Stan Kleven, Chair.

(Excerpted from NAHRS 2003 annual report and from recent data presented at the NAHRS Steering Committee meeting in Fort Collins in September 2004).

Dr. Spangler “Buzz” Klopp, Townsends, Inc., Georgetown, Delaware gave an update on the National Animal Health Surveillance System (NAHSS) Steering Committee (SC). NAHSS-SC is a steering committee for USDA disease surveillance in animals throughout the United States. The SC is comprised of 14 members from different areas of perspective—APHIS, university, state veterinarians and producer (pork, cattle and poultry) personnel.

USDA-APHIS is changing the way it conducts disease surveillance. Dr. Valerie Ragan of USDA-APHIS put this change into focus. NAHMS will stay under the direction of Dr. Nora Wineland. However, surveillance for FAD, Emerging Disease (ED) and Program Disease (PD) will be under the direction of the National Surveillance Unit (NSU) headed by Dr. Brian McCloskey.

The SC will focus heavily on the NSU, but will “steer” the NAHSS, which includes NAHMS. Additionally, the SC will be a source of expertise for APHIS-VS personnel in the development of surveillance systems for the three types of diseases mentioned above (FAD, ED and PD). Currently, AI and END are the diseases of concern for poultry. The poultry representative is the information source for these diseases. As the poultry representative, my intention is to consult with other broiler veterinarians and especially turkey and table egg veterinarians since those segments of the industry are not currently represented on the committee. BSE, classical swine fever (hog cholera) and foot and mouth disease are examples of diseases of other animals that are of concern.

A great deal of the change in NAHSS results from concerns about protection of the food supply from both terrorists and from natural phenomena. This focus gives the Undersecretary of Agriculture access to information from DHS (Department of Homeland Security) that was previously unavailable. Accordingly, access of marketing and food service groups to this information will be restricted from Freedom of Information Act and available only on the basis of “need to know.”

NAHSS will not involve endemic disease such as IBD, cholera, etc. as this agency does not have authority or the desire to do so. Also,

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NAHSS will interact with NPIP. The intent is to maximize cooperation and communication.

Dr. Charles W. Beard of the United States Poultry and Egg Association (USPEA) gave an update on the Research Programs Sponsored by USPEA. USPEA awarded \$1,093,464.88 in competitive research grants in 2003. In the first 6 months of 2004, \$528,870.00 has been awarded. These grants have funded research at a number of universities, government laboratories, and private research institutions, and cover all areas of interest to the poultry industries, including diseases, poultry nutrition, food safety, production management, processing, poultry products, environmental issues, and worker health and safety.

Symposium on Avian Influenza

Dr. Bill Smith of USDA-APHIS-VS gave an update on the H7N2 case in Connecticut. A large commercial layer complex in Connecticut developed signs of disease in January 2003, and was diagnosed with LPAI H7N2 in February 2003. Due to lack of funds for and the likely economic impact of depopulation, the decision was made to quarantine and vaccinate. The replacement pullets were vaccinated twice and the hens in lay were vaccinated once with a killed H7N2 vaccine. In August 2003 the supplies of H7N2 vaccine were exhausted, and an H7N3 vaccine was used. Unvaccinated sentinel birds were maintained and tested exhaustively. The last positive virus isolation was in June 2003. On September 30, 2004, 21 months post infection, the program was brought to a successful conclusion.

Dr Annette Whiteford of the California Department of Food and Agriculture presented a review of the H6N2 situation in California. The H6N2 outbreak in California was successfully managed by industry-imposed biosecurity plans along with the use of a killed vaccine. The last positive virus isolation in commercial birds was in September 2003. There have been 27,000 negative tests in commercial birds since then. Isolations were made in custom slaughter plants in February and April of 2004, and on a quail farm in July 2004. Vaccination of commercial birds was stopped in June 2004.

Dr. Bruce Stewart-Brown of Perdue Farms, Salisbury, Maryland gave a report on the H7N2 outbreak in Delaware and Maryland. The Delmarva Peninsula is a well established, mature, and complex mix of poultry growing programs. We have four integrated poultry companies that contract with producers who own and maintain a variety of farm and house styles. This peninsula has some of the most densely populated poultry areas in the United States. These are just a few of the issues that have historically meant that infectious diseases were very difficult to isolate quickly.

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AI is one of the most contagious viruses we deal with in poultry (particularly this H7N2 virus). To have only 3 flocks infected in the late winter/early spring of 2004 was surprising and a result about which all in the poultry industry were elated. The basics of our approach to the plan and the progression of the Delmarva Surveillance and Eradication Program will be described and discussed

Guiding Principles:

With the help of our previously developed MOU, we had a strong sense of what our approach to AI would be if and when there was an introduction into the commercial industry. The MOU allowed us to go forward with the following process without a time consuming philosophical discussion of approach. These principles were either already established or developed quickly as we worked:

- Two-mile radius - quarantine zone is established and immediately tested. Geographical ties are not always a problem early in an outbreak but proximity breaks are an obvious risk that has one of the highest priorities;
- Six-mile radius - buffer zone is established and tested. Six-mile zones generally catch a number of opportunities to test the next potential infected farm. A six-mile zone will have a larger number of farms that contract with the integrator that may have had the initial infected farm. It will have the opportunity to catch traffic that may be common to the infected farm and another farm – planned (grower, flock supervisor, feed truck, etc) and unplanned (whatever you can think of);
- High mortality flocks. This would be our highest priority. It was how we found both the infected commercial flocks. Although it is always likely to be a very high priority in any break, the type of virus and type of poultry will likely alter how useful it will be in finding positive flocks. It is also the experience of other AI outbreaks that some of the positive flocks found towards the end of the eradication effort are found positive very early in the infection and little if any of the typical clinical picture has had time to develop.
- Determine epidemiological links to the positive farm and test. Epidemiological links are determined from grower and integrator interviews. The obvious things include grower movement to any other farm, grower relatives (if applicable), electrical service calls (any other service call), flock supervisor visit (included to time of virus introduction not just time of diagnosis), and even traffic that would not include anyone entering the poultry house (such as feed truck visits).
- Don't move any flocks to processing that have been infected. It is generally accepted as a very high-risk practice to move

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flocks to processing in the middle of an infection. Virus is shed in large amounts through various materials and increases the likelihood of spread to neighboring flocks as well as flocks along the transportation route.

- Business processes will be disrupted. The poultry industry can and does work around challenging issues everyday. It has been very successful in determining options and figuring out how to be a consistent and dependable supplier of poultry products. Having said that, this is a disease eradication process and we weren't looking for compromises that put the eradication effort at risk (even small risk). If a test was missed but they were on the processing list for that night, the flock was held until tested. All companies were fully supportive of this principle.

Types of Tests Defined:

The tests were all performed from trashcans at the end of the lane to the farm. Twelve birds from each house were placed in the trashcans early in the morning of the scheduled test day. We had two types of sample collection groups available: Federal and State veterinarians and technicians - local flock supervisors that had been trained by the Federal and State teams – both in the classroom and in the field.

Table 1. Types of Testing			
Test	Sample Collection by	Goal to complete	Follow-up Required
2 mile quarantine	Federal and State Teams	If over 3 weeks old, within 24 hours of initial diagnosis	Retest every 7-10 days after initial test
6 mile buffer	Federal and State Teams	Within 72 hours of initial diagnosis	Retest every 7-10 days after initial test
High mortality	Federal and State Teams	Within 24 hours of initial diagnosis	Retest if cause of mortality is not identified and if mortality continues
Epi Links	Federal and State Teams	Some within 24 hours, some within 5 days	Determined on a case-by-case basis
Pre-Slaughter	Within 6 mile - Federal and State Teams Outside 6 mile - Local Teams	2 and 6 mile radius farms cannot move until tested Expansion of pre-slaughter testing - as needed	NA

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As discussed in the Guiding Principles above, there were five different reasons for testing a flock. Table 1 defines the test, responsible group for collection, our expectation for completion, and any follow-up testing requirement. It is obvious that the goals are difficult to accomplish in the initial case. However, they were very attainable for the 2nd commercial break.

Challenges for the future:

We had many planning and logistics challenges and those will have been addressed through other papers and other speakers. Beyond a discussion of scale-up, the logistics of collecting the samples or running the samples was never really a significant consideration in the design of the surveillance and eradication program. This is a tribute to all involved. We determined relatively early in this outbreak that we would need to preslaughter test the complete shore area for us to be confident of this eradication process. On February 16th we had made this decision to preslaughter test the complete shore – starting as soon as possible - for up to 4 weeks following the last positive. This gave us some confidence that we still were under some control when the 2nd commercial flock was diagnosed on March 5th. We had been preslaughter testing flocks throughout the area of the second break for several weeks and knew we had not moved any positive flocks to processing. We have more densely populated areas for poultry than the two commercial farms that became infected. It is apparent that a positive in one of these most populated areas presents an even more daunting challenge for planning, collecting, and performing the tests needed.

In a disease eradication situation, there is a tremendous strain on all involved. Days generally lose their names and become numbers following the last positive flock. Weekends are a concern because people generally want to or need to relax and think about other things – early in an eradication effort this can be a detriment.

Practice and planning are all very important parts of our success in any future challenges we are likely to have. The more the tools are utilized for everyday aspects of poultry health or company processes the more we will be able to expect from them in an emergency. Use of GIS is an example of a tool very important in a disease outbreak that is very useful in the every day management of a poultry industry.

Dr. Jose A. Linares gave a report prepared by Jose A. Linares, Tom Blount, Lelve Gayle, Lloyd Sneed, Gayne Fearneyhough, Floyd Golan and William Wigle, Texas Veterinary Medical Diagnostic Laboratory (TVMDL), on the H5N2 and H7N3 cases in Texas. In February of 2004, H5N2 AI was diagnosed in black and red broiler chickens grown for sale at the Houston LBM's. The chickens were submitted on February 16 to the TVMDL, Poultry Diagnostic Laboratory in Gonzales, Texas. The flock had a history of gasping and the chickens submitted to the

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laboratory had easily heard moist rales. Given the history and lesions observed, pooled sinus/tracheal exudate was tested immediately with the BD Directigen™ Flu A test. The Directigen™ result was positive. Arrangements were made to deliver sinus/trachea swabs for AI PCR to TVMDL, College Station. The next day four of six serum samples collected at necropsy tested AI AGID positive and College Station reported AI Matrix RRT-PCR positive and AI H5 RRT-PCR positive results. Subsequently, NVSL, Ames, IA confirmed our results and isolated H5N2 AI. The index flock was depopulated on February 21 and a total of 6,608 chickens were destroyed. In addition, epidemiological investigations conducted by the Texas Animal Health Commission (TAHC) identified two live birds markets in Houston with AI positive chickens. These two markets were depopulated and three additional markets voluntarily depopulated. On February 27, USDA reported that the amino acid sequence of the hemagglutinin cleavage site of our isolate was compatible with Highly Pathogenic Avian Influenza (HPAI). On March 1, NVSL completed their intravenous pathogenicity index (IVPI) testing and reported that no deaths or illness were observed in the inoculated chickens. A joint USDA/TAHC surveillance program was conducted in order to regain HPAI-free status for Texas and the U.S. A total of 2,938 serum samples were tested by AI AGID and a total of 3,595 trachea and cloacal swabs were tested by AI RRT-PCR. No additional positive flocks were identified. On April 1, the outbreak was declared over.

On the positive side, TVMDL was ready for the diagnosis and the TAHC was ready for control activities. An experienced TAHC/USDA response team was assembled. This was a very limited outbreak but resources and personnel were stretched beyond our limits. The declaration of the isolate as HPAI based on sequence analysis took us by surprise as the clinical findings, diagnostic findings and IVPI were consistent with low pathogenicity. The resulting media frenzy generated headlines such as “Deadly strain of avian flu in Texas” and “...first high pathogenic strain in 20 years.” This limited outbreak had serious logistical and economic implications for the poultry industry, the state and country.

In May of 2004 sera from a 50 wk-old broiler breeder flock submitted to TVMDL, Gonzales for regular AI surveillance tested AI AGID positive. Follow-up HI serology performed also at the Gonzales laboratory was H5 negative and H7 positive. NVSL confirmed our results and added complete serotyping as H7N3. Follow-up surveillance found another seropositive breeder flock and a backyard flock. The three flocks were depopulated. TAHC tested nearly 600 flocks. TVMDL processed, tested and reported results for 17,460 AI AGID's and 2,724 trachea/cloacal swabs for AI RRT-PCR. The H7N3 virus was not isolated. The TAHC/USDA Command Center was closed on August 6, 2004.

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AI is an ever-present worldwide challenge and it is thriving in the clash between “new” and “old” poultry husbandry practices. Wild birds, LBM's and commercial poultry combined with breaches in biosecurity lead to predictable consequences. The politicization of AI due to the globalization of the poultry trade has a heavy toll on everyone. The emergence of public health issues is a worrisome trend. Active surveillance is the key to early detection, limited outbreaks and a quick resolution.

Dr. Erica Spackman of USDA-ARS-SEPRL presented a report on the H73 outbreak in British Columbia.

Outbreak History: On February 19, 2004 AI was detected on a commercial chicken breeder farm in British Columbia, Canada. The virus was characterized as an H7N3 subtype. Clinical signs on the index farm initially were mild drops in egg production and feed consumption and a minor increase in mortality. Gross lesions observed included lung lesions and inflamed tracheas. Within two weeks of the initial virus detection mortality in a second, younger flock on the index farm increased drastically.

Characterization of the virus isolated from the first flock by the National Center for Foreign Animal Disease determined the virus to be LPAI and the virus isolated from the second flock on the same farm was determined to be HPAI. During late-March the number of infected commercial operations and back-yard flocks had increased to 20 and 6 respectively, and a pre-emptive slaughter of all poultry in the high-risk zone was ordered. On April 5th, all poultry in the larger “control area” were ordered to be depopulated, an estimated 19,000 birds. In mid-April a third group of farms were determined to be positive for the virus, all birds within a 3 Km radius of any infected farm were immediately depopulated. By May spread of the virus slowed and ended; the last positive commercial premise was identified on May 13th and the last positive back-yard flock was identified on May 18, 2004. By the end of the outbreak 42 infected commercial farms and 11 infected back yard flocks had been identified. Approximately 17 million birds were destroyed during the outbreak. Furthermore, during the outbreak two human cases of H7N3 influenza were confirmed in two individuals, who had extensive exposure to HPAI infected poultry. Mild symptoms including conjunctivitis, runny nose, cough, headache and sore throat were reported by both individuals. Both patients were treated with the anti-flu drug Oseltamivir, and symptoms resolved in about a week.

Bibliography:

CFIA avian influenza website: <http://www.inspection.gc.ca/english/anima/heasan/disemala/avflu/bccb2004e.shtml>

Health Canada Avian Influenza Information website: <http://www.hc-sc.gc.ca/english/diseases/flu/avian.html>

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Dr. David Suarez of USDA-ARS-SEPRL presented a paper on the International AI Situation. A case of H5N1 HPAI was reported in Korea on December 3, 2003. Between January and February 2004, and number of other Asian nations were affected, and by June 2004 nine countries were affected. It is likely that this virus was present in many of these countries for some time before they were detected or reported by the governments. All of these H5N1 viruses can be traced back via molecular lineage to the Goose/Guangdong/1/96 virus. The 1997 Hong Kong virus had the same H gene, and the 1999 Hong Kong goose virus was almost identical to the 1996 virus. A second wave of infections has been reported since July 2004, and a tenth country (Malaysia) has been reported to be infected, but most of these new cases likely represent a recrudescence of the previous outbreaks.

An update on Prevention and Control of H5 and H7 LPAI Virus in the LBMS – Uniform Standards for a State-Federal-Industry Cooperative Program by Drs. Lynne Siegfried, TJ Myers, Fidelis Hegngi, USDA-APHIS-VS Certification and Control Team and Dr. Andrea Miles, USDA-APHIS-VS Eastern Regional Office was given by Dr. Siegfried.

At the 107th Annual Meeting of the USAHA (2003), the Committee responded to the presentation on the LPAI-LBMS program with a number of questions. Since that time, Dr. Ernie Zirkle has chaired a subcommittee of the Committee to address them. Results of a survey questionnaire from this subcommittee were provided to APHIS-VS to assist in further development of the Program. To build on the activities of this Subcommittee, the State-Federal-Industry Live Bird Market Working Group was reactivated. All interested individuals were added to the Working Group resulting in more than 60 members. Daylong meetings of the Working Group were held on May 13 and September 23, 2004 to work on the undecided Program issues. The product of these interactions is the completed first edition of the Program, "Prevention and Control of H5 and H7 Low Pathogenicity Avian Influenza Virus in the Live Bird Marketing System -Uniform Standards for a State-Federal-Industry Cooperative Program." The Uniform Standards document was distributed at this meeting.

The Program addresses requirements for premises licensing, worker education, AI testing, record keeping, premises sanitation and biosecurity, disease surveillance, and response when AI-positives are found. Each of these requirements is covered for the LBM's, for the various distributors of the marketing system, and for the suppliers (or producers) for the LBM's. Appropriate States regulations are required for compliance with the Program Standards. APHIS supports the Program through providing personnel resources at the Federal level and personnel and laboratory resources at the State level, the latter through cooperative agreements. In addition, APHIS Investigative and Enforce-

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ment Services is being funded to provide personnel assistance to the States in enforcement of their AI regulations. Under the Program, all participants must be licensed and have a premises identification number and biosecurity protocol. All personnel working within the LBMS must have been trained in biosecurity principles and procedures. All bird movement must be accompanied by paperwork that includes origin of the birds with Global Positioning System coordinates, test certificates, dates for all sales and movements, and numbers of birds and species. Federally approved laboratories in the northeast perform rapid turn-around virus-identification tests, allowing AI-positives to be addressed immediately. The Program Standards include specific protocols for inspections and specimen collection by animal health officials and the procedures to follow when positives are found at any level of the marketing system. Efforts will be made to trace all positives to their origin.

Indemnification and assistance with cleaning and disinfection and depopulation will be provided at all levels of the LBMS; a standard for calculating indemnity is under development. APHIS is currently funding a project that will provide information needed for the addition of a feasible bird identification requirement in the Program Standards. It is thought that the Standards will be revised to include this bird identification component by October 2006.

Mr. Andrew R. Rhorer of the NPIP gave a report on NPIP AI Program Activities. He also proposed a recommendation that the Committee support a recommendation from the NPIP to provide AI Hemmagglutination Inhibition (HI) reagents to approved regional laboratories. NPIP Resolution 1, approved by the Official Delegates of the 37th Biennial Conference of the National Poultry Improvement Plan, July 10, 2004 San Francisco, California was:

Whereas: Avian influenza is an important disease to domestic poultry production and to the population of the United States as well as to the export of poultry and poultry products; and

Whereas: Diagnostic testing is essential to the control of avian influenza; and

Whereas: The rapid identification of H types of avian influenza is valuable in the control of avian influenza.

Therefore be it resolved: That National Veterinary Services Laboratories (NVSL) provide the Hemagglutination Inhibition antigens for all avian influenza Hemagglutinin types in carefully selected reference laboratories in each region of the country where commercial poultry is produced. All H5/H7 sample positives must be confirmed by NVSL, and, Be it Further Resolved: That the Senior Coordinator distributes copies of this resolution to the Deputy Administrator, USDA, Animal and Plant Health Inspection Service, the director of NVSL and Chair-

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person of the Transmissible Diseases of Poultry Committee of USAHA.

In response to the presentation of this NPIP resolution to the Committee, Mr. Paul Brennan, Indiana State Poultry Association, proposed the following Committee resolution:

The current importance of AI to bird health and trade in poultry products needs no elaboration. The USDA-APHIS-VS, in concert with the states and industries, is making great strides in addressing this threat to the domestic poultry industry via programs such as the Live Bird Market Working Group and the NPIP AI monitoring and control programs. An important component of these programs is rapid identification of AI and typing of the Hemagglutinin subtype by HI testing. While final determination of the subtype and pathotype of AI isolates should remain in the hands of NVSL, rapid preliminary determination of the HI subtype by carefully selected, trained, and qualified laboratories in each poultry-producing region of the country would enable more rapid application of control measures in the case of suspected outbreaks.

The proposed resolution would have recommended that the USDA-APHIS-VS-NVSL provide HI antigens, training in performance of the HI test, certification of proficiency, and periodic test monitoring to carefully selected NPIP reference laboratories in the major poultry producing regions of the United States.

Dr. Hashim Ghori of the Arkansas Livestock and Poultry Commission proposed an amendment to limit the reagents to H5 and H7 only. After considerable debate with observations by numerous Committee members, the resolution was not approved by the Committee.

Dr. Thomas J. Myers of USDA-APHIS-VS gave a progress report on USDA-APHIS-VS plans for control of LPAI H5 and H7 in commercial poultry. In 2004 a line item appropriation of \$870,000.00 was made for control of LPAI. The creation of a line item is a positive development because it suggests the possibility of continued funding. In addition, \$13.5 million was released on May 12, 2004 from CCC funds for the highly pathogenic AI outbreak in Texas (\$2.8 million) and the LPAI program (\$10.7 million). Of the latter, \$6 million was earmarked for indemnity, \$2.2 million for state cooperative agreements, \$1 million for NPIP reagents and laboratory support from the NVSL, \$600,000 for personnel and support, \$500,000 for an AI vaccine bank, \$300,000 for the bird identification study, and \$200,000 for education and training. For fiscal year 2005, the President's budget calls for \$12 million for LPAI. Appropriations bills have not been passed. The Senate version calls for \$12 million for LPAI, while the House version calls for \$23 million. It is hoped that the actual figure will be somewhere between these two, and the breakdown of funds would be similar to this year.

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Current regulations authorize 50% indemnity for LPAI. NPIP has requested 100%, and it remains to be seen whether the agency will support this level. The vaccine bank contract has been awarded to Fort Dodge Animal Health. The current contract calls for production of 10 million doses of frozen antigen for each of two H5 and two H7 antigens, for a total of at least 40 million doses. It is anticipated that this amount will expand if funding is continued. There have been extensive discussions within the live bird market working group concerning the possibility of another market-wide closure. The current thinking is to get the system up and running and then evaluate the need for a market-wide closure at that time.

Dr. Michael J. David, Director of Sanitary International Standards, National Center for Import and Export, USDA-APHIS-VS reported on the "New OIE Disease Notification System and Updates to AI Code Chapter."

OIE disease notification system:

Recent resolutions passed by the International Committee (OIE Member Countries) asked the OIE's Central Bureau to establish a single list of notifiable diseases for terrestrial animals to replace the current List A and List B disease lists. The criteria for listing a given disease are as follows:

- Could it have significant international spread?
- Is it an emerging agent?
- Does it have zoonotic potential?
- Will it have significant spread in naïve populations?

In general, each criterion is associated with a given set of parameters, and if a disease agent meets at least one of these parameters, it becomes a notifiable disease. In addition to the disease agent, events of epidemiological significance associated with the disease become notifiable. Such events will require immediate notification and are as follows:

- The first occurrence of a listed disease and/or infection in a country or zone/compartiment;
- The re-occurrence of a listed disease and/or infection in a country or zone/compartiment following a report declaring that the outbreak has ended;
- First occurrence of a new strain or pathogen of a listed disease in a country or zone/compartiment;
- A sudden and unexpected increase in the distribution, incidence, morbidity or mortality of a listed disease prevalent within a country or zone/compartiment;
- Evidence of change in the epidemiology of a listed disease

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(including host range, pathogenicity, strain) in particular if there is zoonotic impact

These changes become effective beginning January 2005. Routine reports will be required to be submitted every 6 months, and emergency reports, as they are currently, will be required to be submitted within 24 hours of disease confirmation.

Progress on the proposed revised chapter on AI:

The United States has supported the efforts to have the Chapter reviewed and clarified, as long as such revisions are consistent, science-based and non-discriminatory. The latest draft revision redefines notifiable AI, and addresses various issues such as the definition of poultry, compartmentalization, control strategies including the use of vaccination, surveillance, the waiting period to regain freedom, and the safety of poultry commodities as it pertains to notifiable AI. The recommended import measures for trading in poultry commodities are based on the presence or absence of notifiable AI.

APHIS-VS, with significant input from industry, provided the OIE with comments to most of the Articles outlined in this second draft proposal. Due to the significance of our comments as well as of those from other Member countries, the OIE will re-convene its AI expert ad hoc group during November 2004 to review the comments and to make further recommendations to the Terrestrial Animal Health Standards Commission. A third draft of this AI Code Chapter should become available to the Member countries in February 2005 for review and further comment. It is anticipated that this third iteration will be adopted by the Member countries during the May, 2005 General Session and thus become the new international standard.

Dr. Bob H. Bokma, Regional Coordinator for the Americas, USDA-APHIS-VS National Center for Import and Export, gave the following report on Current AI reporting requirements of certain trading partners (Russia, Japan, others).

The United States has an obligation to report to the OIE any findings of HPAI. At this time, there is no requirement to notify OIE of non-reportable avian influenza findings, including LPAI H5 or H7. As a result of negotiations between trade policy and/or technical staff of the United States and their governmental counterparts in a variety of importing countries, the U.S. is also obliged separately from its OIE obligations to report findings of otherwise non-reportable AI.

The U.S. has entered into formal reporting agreements with the Russian Federation and Japan, and takes action to suspend exports to those countries. Russia requires reporting any avian influenza subtype finding in poultry, as well as action by the U.S. to suspend exports. Japan requires reporting of any H5 or H7 subtype only and places bans as a result. Other trading partners such as Mexico and Cuba also

TRANSMISSIBLE DISEASES OF POULTRY AND OTHER AVIAN SPECIES

expect the U.S. to report both reportable and non-reportable AI and may place bans. Many countries do not acknowledge having avian influenza in their bird populations. Based on the confirmation by NVSL of AI breaks, APHIS reports to the appropriate trading partners and to OIE as discussed here.

The media makes it obvious to all when there has been a finding of AI in the U.S. and has gone so far as to report subtypes such as H2 or H3 when they have learned of these. Media reports of non-H5 and H7 AI may be come from reports given by State laboratories, State Departments of Agriculture, county agents, and poultry companies. With the heightened interest in AI, reporters may not wait for information to come from an APHIS spokesperson or check on the importance of the subtype. In fact, APHIS may learn about the public report from the media. These reports quickly go international. When premature or unwarranted reports occur, trade disruptions may follow regardless of how minor the related influenza break may be.

Dr. T. J. Myers of USDA-APHIS-VS reported that he had contacted Dr. Byron Ripke of USDA-APHIS-VS-CVB in regard to the Committee's proposed resolution on mycoplasma and had received assurances that the number of existing vaccines had never been and would not be a criterion for the decision to review or approve any vaccine. After some discussion, the Committee agreed that the recommendation approved the previous day was unnecessary and voted to rescind it.

Dr. Stanley H. Kleven, University of Georgia, Athens, Georgia nominated Dr. John Hahn of USDA-APHIS-VS and Mr. Dennis Senne of USDA-APHIS-VS-NVSL to represent the Committee on the NAHRS Steering Committee. No further nominations were received from the floor and this slate was accepted by acclamation.

The Committee approved one two-part recommendation. At the urging of the ENDTF, the Committee recommended that USDA-APHIS-VS Deputy Administrator designate someone from the National Animal Health Programs and Policy staff who will establish a process to exchange information and work collaboratively on poultry health issues throughout the year with the Committee. In addition, USDA-APHIS-VS should prepare a final report on the expenditures, milestones and performance outcomes (including number of birds tested) from the \$9.4 million CCC funds allocated for an END National Surveillance Program and share this with the Committee.

The Committee approved two resolutions and forwarded them to the Committee on Nominations and Resolutions for approval by the general membership. The resolutions addressed:

1. *Salmonella* performance standards. This resolution was also approved by the Committee on Salmonella.
2. Establishment of a process with USDA-APHIS-VS to exchange information and work collaboratively on poultry health issues

REPORT OF THE COMMITTEE

throughout the year with the Committee. In addition, this resolution would request a final report on the expenditures, milestones and performance outcomes (including number of birds tested) from the \$9.4 million CCC funds allocated for the END National Surveillance Program.