Avian Science Notes

University of California • Cooperative Extension April 2005

Avian Bowl

Study packet for 2005 Qualifier and beyond.

The National Avian Bowl Study Packet was revised in 2002. Please make sure your team has the 2002 version. All questions at the National contest will come from the 2002 version.

The following sections and pages have been selected as study materials for the 2005 National 4-H Poultry & Egg Conference.

Section	Pages
Avian Systems (Female Reproductive System to Skeletal System)	pp. 37 -39
Small Turkey Flock Management	pp. 45 - 53
Growing Blue Ribbon Pullets	pp. 57 - 65
Breeds, Varieties, & Strains, (Asiatic to Mediterranean Class)	pp. 72 - 75
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General Care of Pet Birds	pp. 165 - 166
Fact Sheet: The Commercial Poultry Industry	pp. 175 - 176
Embryology	pp. 183 - 193
Fact Sheet: Avian Influenza	pp. *181- 183

*This is a new fact sheet. A copy is included in this newsletter for those of you who own a 2002 National Avian Bowl Study Packet.

Note: These study sections will not be used until the Qualifier in August 2005.

The 2002 version of the National Avian Bowl Manual is available from the Clemson University Bulletin Room. The cost is $12.00 per copy and may be ordered online using either a VISA or MasterCard by going to the following URL: http://cufan.clemson.edu/olos/

Payment should only be for $12.00 per copy. There is no tax or shipping/handling charges. Shipment is via USPS fourth-class mail.

If you prefer to pay by check, you may send payment to:

Clemson University Bulletin Room
96 Poole Agricultural Building
Clemson, SC 29634-0129
(864) 656-3261 – Phone
(864) 656-3261 – FAX

Checks should be made payable to: Clemson University.

Purchase order with the necessary authorized signatures may be mailed or Faxed to the above.

2005 California State Fair

State fair has changed its opening date and operational days for this year. Dates for activities during Junior Poultry Show are still being negotiated. More details will be published in the next issue of Avian Science Notes.

Cleaning and Disinfection

For a good biosecurity program, you need to practice proper cleaning and disinfection (not just one "spring cleaning"). Included in this issue is an excellent article by Poultry Research Assistant, Suzanne Kattija-Ari. Be sure to both read it and put it into practice.

Distribution of ***Avian Science Notes*** is made to 4-H Poultry Leaders and Youth Advisors. Anyone wishing to be placed on the mailing list may send a request to Jeri Hansen, Animal Science Department, University of California, One Shields Avenue, Davis, CA 95616-8521.

Trade and company names mentioned in this publication are for information only and does not imply University of California endorsement of the product.

Visit our website at:
http://animalscience.ucdavis.edu/avian

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Avian Influenza

Influenza is an acute contagious respiratory disease caused by a virus. Influenza can affect many animals such as horses, swine, and human beings. It is a disease with worldwide distribution and has been a costly disease to the poultry industry due to increases in production expenses which include extra feed, medication, additional care, quarantine measures, vaccines, cleaning and disinfection, decreases in carcass quality as well as losses of local and international trade.
Migratory waterfowl, imported pet birds, and live-bird markets are some of the sources of infection. Influenzas can be **zoonotic** which means the disease can be transferred from animals to humans. Influenza is commonly referred to as the flu. The term fowl plague was used in the past when referring to avian influenza outbreaks resulting in high mortality. Today, an outbreak of avian influenza that results in high mortality is referred to as "highly pathogenic" influenza.

Avian influenza can **affect** poultry (chickens, turkeys, ducks, pheasants, geese, guinea fowl, and chukars) as well as wild birds especially sea birds (sandpipers, sanderlins, ruddy turnstones, terns, swans, shearwaters, herons, guillemots, puffins and gulls). Avian influenza is caused by any Type A influenza virus belonging to the ***Orthomyxoviridae*** family. The disease syndromes associated with avian influenza can be **sub-clinical or mild,** meaning the bird is in the early stages of the disease and the signs of the disease are not apparent, to **acute** where the signs of the disease are severe and often lead to death. Many factors influence the outcome of infection. Some factors which determine whether the disease will be sub-clinical or acute are the biologic characteristics of the virus, environmental stresses, such as temperature, humidity, ventilation, crowding and the age and sex of the bird.

Avian Influenza can be **transmitted** via air currents, feces, humans, vehicles, water, feed, equipment, supplies, clothes, flies, litter, beetles, and other birds dead from the disease. Transmission occurs when susceptible and infected birds are in close contact with each other or when infectious material from infected birds is introduced into the susceptible bird's environment. The virus can be excreted from the respiratory tract, conjunctiva, and feces of birds. This is known as horizontal transmission. There is no evidence to indicate avian influenza is transmitted vertically, from hen into the egg. Since the virus is readily transported by people and equipment, it is important to establish strict bioscecurity measures.

Once Avian Influenza is transmitted, the **incubation period**, the time the bird first comes in contact with the disease until the first signs appear can be a few hours to 3 days and up to 14 days. The incubation period is dependent on the dose of the virus, route of exposure, the species exposed and the ability to detect the clinical signs.

The **clinical signs** for Avian Influenza can vary widely depending on the species of bird affected, the age of the bird, if the bird has another infection concurrently, the strain of virus, and environmental factors. The respiratory, reproductive, digestive, or nervous systems of the bird are affected with respiratory signs being most common. The most commonly reported signs of the disease are pronounced depression, decreased activity, decreased feed consumption and emaciation, with decreased egg production and increased broodiness in hens. Respiratory signs include coughing, sneezing, rales (abnormal respiratory sounds), excessive lacrimation (tearing) from the eyes, huddling or ruffling of feathers, along with edema (accumulation of fluid) of the head and face, cyanosis (turning blue due to lack of oxygen to the tissues) of unfeathered skin (legs, combs, wattles), nervous disorders, and diarrhea. These signs may occur alone or in any combination depending on the severity of the disease. All birds in a flock will become sick (moribund) but morbidity (death) will vary from very low to 100% depending on the strain of virus, the species affected, and other environmental factors.

In order to determine the **causative agent** of any disease, including Avian Influenza, the causative agent must be identified. In the case of Avian Influenza, the virus must be isolated and identified. The virus can be recovered from swabbing the trachea, and/or cloaca of live or dead birds or taking samples of every organ from dead birds. Also, blood can be taken from live birds and used to demonstrate the presence of antibodies to the Avian Influenza virus.

There is no practical **treatment** for Avian Influenza. Infected flocks must be quarantined by state animal-disease regulatory agencies and procedures recommended by theNational Poultry Improvement Plan (NPIP). Quarantine continues until the flock is de-populated. All buildings should be cleaned and disinfected after the poultry have gone. Poultry litter/manure should be composted before application to cultivated lands. Any treatment for Avian Influenza is supportive and tries to relieve the respiratory distress. Antibiotics are **not** effective against viruses and are only used as supportive treatment for Avian Influenza to reduce the effects of secondary infections caused by bacteria or mycoplasmas.

Prevention is the only practical approach to Avian Influenza. **Biosecurity** should be the first line of defense in the prevention of Avian Influenza and since other birds are the most likely source of infection, it is important to keep susceptible birds away from infected birds' excretions and secretions. Transmission occurs when birds are introduced to contaminated footwear, clothing, vehicles, insemination equipment, feed and water that have been exposed to Avian Influenza virus. The presence of the Avian Influenza virus in fecal material is a likely means for movement by equipment and people. Another approach is serological monitoring at harvest of turkeys and chickens.

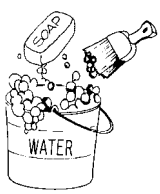
References:

Easterday, B. C., V.S. Hinshaw, and D. A. Halvorson. 1997. Diseases of Poultry, 10th Edition. 1997. Edited by B. W. Calnek with H. John Bartnes, Charles W. Beard, Larry R. McDougald, Y. M. Saif. Iowa State University Press, Ames, Iowa. 583-605.

Schwartz, L. Dwight. 1994. Poultry Health Handbook, 4th Edition. The Pennsylvania State University Press. University Park, PA. 41-42.

Proper Cleaning and Disinfection for the Health of Poultry

Suzanne Kattija-Ari, Poultry Research Assistant. University of California, Davis



Poultry viruses and bacteria can survive on tools, cages, and other equipment for days or even months. Contaminated equipment can spread disease from one group of birds to another. However, most viruses and bacteria can be killed with the proper use of disinfectants. This paper will explain how to properly use disinfectants in order to help keep your birds healthy.

- Feathers and feces must be completely removed from all surfaces. Use scrub brushes, water, and elbow grease. Be very critical. Disinfectants cannot kill viruses or bacteria if they are inside a clump of dirt. Therefore, all surfaces need to be cleaned before a disinfectant is applied.

- After the item is completely free of feathers and feces, apply an appropriate disinfectant and allow it to work for the recommended time.

Disinfectants

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.

- Phenols such as One-Stroke Environ™
- Hypochlorites such as bleach

Preventing the Spread of Disease

Now that you know how to use disinfectants properly, here are a few key points to help control the spread of any poultry disease

- Make sure that any vehicles coming near your birds are not contaminated with litter or feces. Wash and disinfect the tires and wheel wells of all vehicles coming onto your property, even if they already look clean.

- Pay special attention to all bird hauling and manure handling tools, equipment, and vehicles.

- Put any dead birds that are going to CAHFS Laboratory in plastic bags. Put live birds in cardboard boxes so that the boxes can be thrown away instead of returning to your farm. Disinfect any vehicles returning from the Laboratory inside and out. Be sure to disinfect the floor mats. Do not let anyone who has been to the Laboratory return to your birds without showering and changing clothes first.

- Pests, like rats, insects, and wild birds and animals, can carry contaminated feces and feathers from one group of birds to another. When this happens, the pest is called a "vector." It is very important to keep these vectors away from your birds. Rat traps, fencing, and insect controls should be part of your disease control plan. The area around your poultry house should be free of bushes or other piles of objects so that there is no shelter or food for vectors. All feed spills should be cleaned up promptly.

- Some poultry germs build up over time. To prevent this, poultry houses should be emptied of all birds and cleaned periodically. When empty, all surfaces of the house should be cleaned completely and allowed to dry before applying disinfectants. Apply the disinfectant twice, allowing it to dry between applications. The poultry house should be left empty for 2-3 weeks before new birds are brought in.