



POULTRY PONDERINGS



A QUARTERLY NEWSLETTER SUMMARIZING POULTRY RELATED WORK AT UC

UCD Veterinary Students in the Field

by Dr. Rodrigo Gallardo

More than a dozen veterinary students this fall semester have visited poultry farms in California as part of their curriculum, and there are more to come. This initiative is part of the Veterinary Medicine Teaching Hospital (VMTH) rotation, VET407 and VET 416 for first and second year veterinary students. A year ago the choices in this rotation involved spending time in the teaching hospital shadowing clinicians in their small or large animal duties. Now they have the opportunity to choose a poultry farm visit and learn some of the duties a poultry veterinarian performs in the field. Students have been requesting to be part of this experience, which as they comment change their perspective of the poultry business and broadens their knowledge about veterinary medicine. Recent farms visited include Gemperle and Sunrise farms. A strict biosecurity plan is used before and during these visits, biosecurity forms are signed before the trip, and all the necessary protective equipment is used during the visit.

If you would like to receive students at your farm or offer externship possibilities please contact Dr. Rodrigo Gallardo at UCD (530) 752 1078.

Mixing and Matching Avian Influenza Viruses in Quail

by Dr. Beate Crossley

Did you know that influenza viruses have the ability to mix and match genes? Recombination, the technical term for the viral process of trading genes, is the reason we need to have a new flu vaccine formulated every year. Scientists are able to predict the most probable outbreak influenza virus strains each year, based on their knowledge of which specific flu viruses had been circulating in the population in the prior year. Birds are extremely helpful in providing the information, not just for making the most effective new flu vaccine each year, but also for giving us a better understanding of the small and subtle changes happening as the flu viruses naturally evolve. Influenza viruses make many mistakes in their genome as they replicate, as all living things do. *(cont. on next pg)*



Corurnix Quail. Image courtesy of poultryhelp.com

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QUESTIONS OR COMMENTS

However, the flu viruses do not have a “repair unit”, so the mistakes made stay uncorrected. Most of those mistakes are lethal to the virus, but some of them will actually cause the virus to be more efficient in terms of its ability to survive and infect a range of different host species.

Non-commercial/backyard poultry play an important role in influenza monitoring, since these birds are housed in a manner that tends to allow frequent exposure to or contact with wild and free-ranging birds that can expose them to the diseases that migratory birds can carry over long distances. All avian species, including chickens, ducks, and quail can be affected by flu viruses. As an example, CAHFS recently identified a specific type of influenza virus in quail that was of high interest to the scientific community. This specific virus is a H4N2 flu virus, meaning, it was not a type of flu virus that regulatory agencies or U.S. trade partners are concerned about which are the H5 or H7 flu viruses. What made this specific virus very worrisome was that it contained a genetic mistake in the “H” gene that was only one minor change from making the virus very destructive for poultry and pet birds. The “H” gene controls how the virus makes initial contact and invades the hosts’ cells. Using gene sequence analysis, CAHFS found that the particular genetic sequence (known as a pathogenicity marker) in the quail virus H4 gene was uncomfortably close to genetic patterns that have been only reported in highly pathogenic H5 and H7 types of influenza. Knowing that these genetic patterns which indicate serious potential for high pathogenicity might be also found in flu viruses that commonly circulate changes the way we look at all flu viruses now. The finding is so significant to the scientific community that studies influenza viruses that we have been asked to share the virus CAHFS isolated with the European community, so they can learn from it as well. In the long term, the finding will help us with flu monitoring activities and preparations for potential influenza outbreak situations.

Just as a reminder, influenza sampling can be performed on live birds, and CAHFS also offers free necropsies for backyard/non-commercial flocks (<1,000 birds) and will specifically check for indications of infectious diseases.

Avian Encephalomyelitis (AE) in Vaccinated Chickens

H. L. Shivaprasad, G. Senties-Que and R. Gallardo

Avian Encephalomyelitis (AE) also called “epidemic tremor” is an infectious viral disease of chickens, turkeys, quail and pheasants. AE is characterized by neurological signs such as ataxia and paralysis in one to three week-old chicks and by a transient drop in egg production in layers. Some of the survivors can develop cataracts and can have impaired vision. AE is caused by a picornavirus, an enterovirus. Isolates of AE are enterotropic but some show tropism to the nervous system. *(cont. on next pg)*



11-week-old chickens with ataxia, recumbency and head tilt due to AE.

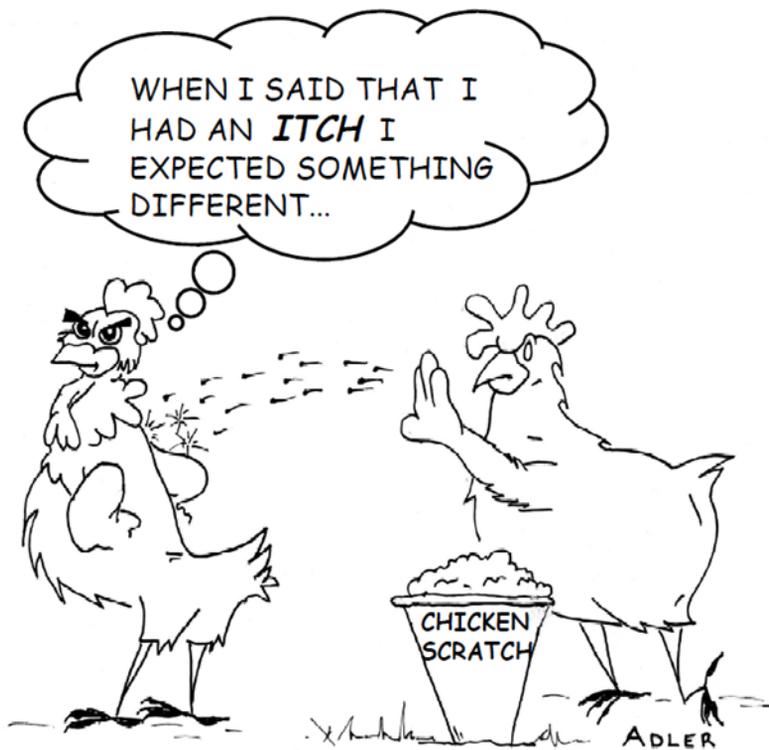
Information on the most recent outbreak of Highly Pathogenic Avian Influenza can be found at:

http://www.cdfa.ca.gov/ahfss/Animal_Health/Avian_Influenza.html

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The virus is shed in the feces during infection and it can be transmitted orally from flock to flock through various means including fomites. It can also be transmitted vertically. The virus can survive in the environment for long periods of time. AE has been controlled by vaccination of breeders and pullets. Chicks with maternal antibodies are protected from AE.

AE was diagnosed in three separate flocks of chickens submitted to CAHFS by three different companies in the central valley of California. The age of the chickens ranged from 11 to 14 weeks. The chickens had been vaccinated for AE and fowl pox in the wing web one or two weeks prior to the onset of clinical signs. Clinical signs included ataxia, paralysis, lateral recumbency and occasionally head tilt in 5 to 8 % of the chickens. Mortality and culls in affected flocks ranged from 1 to 3 %. Microscopically there was disseminated non-suppurative encephalomyelitis with characteristic swollen neurons and central chromatolysis and aggregation of lymphocytes in the muscular layers of the proventriculus. AE was confirmed by RT-PCR on the brain and peripheral nerves. It is well known that if the vaccines for AE are adapted to egg embryos and not passed through chickens orally periodically during manufacturing they will not multiply in the intestine of chickens and can become neurotropic thus causing AE. It is most likely this is what occurred in the three outbreaks described here.



Cartoon by Dr. Evan Adler (veterinarian and amateur cartoonist).

Increasing California's Chicken IQ

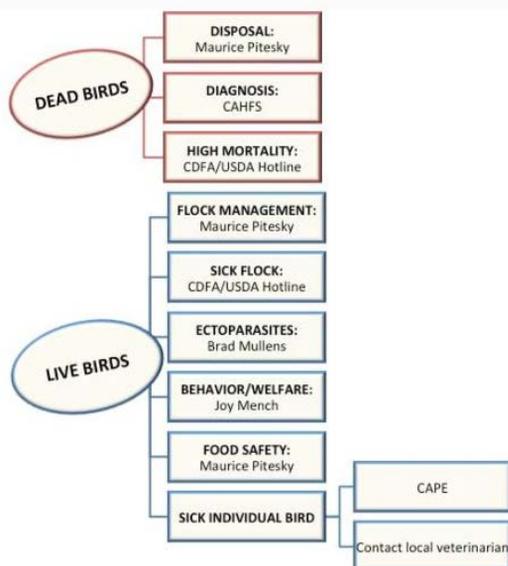
By Dr. Maurice Pitesky

Everyone knows that there are a lot of backyard chickens in California and not a lot of veterinarians who work with those chickens. In order to address this, the UC Davis School of Veterinary Medicine has hosted 2 symposium over the last year designed to increase the knowledge of veterinarians interested in continuing education related to backyard poultry. Topics have included food safety, nutrition, biosecurity, behavior, doctoring, pathology and an overview of the CAHFS diagnostic laboratory. Over 75 veterinarians have participated in the continuing education courses and more are planned (see getting ready to hatch).

In addition to poultry related continuing education for veterinarians, over the last year several faculty members from UC Davis, UCD veterinary students and members of the commercial poultry industry have written articles for "Hobby Farms Chickens" and "The Chicken Whisperer Magazine." Articles have covered topics including "to worm or not to worm, how to deal with Mycoplasma, nutrition, food safety, incubation, lead toxicity, and general resources for backyard enthusiasts. More articles are planned and new subject experts from UCD and UCR will participate.

Finally in order to increase California's backyard poultry expertise and resources, UC Davis in collaboration with the CDFA is developing two, 2-day short courses for the summer of 2015. The targeted audience will include agricultural commissioners, farm advisors and other stakeholders. Please contact Maurice Pitesky with comments and suggestions at mepitesky@ucdavis.edu.

Remember Who to Call if you have Poultry Questions



The web address for the this flow chart along with individual contact information is at: <http://ucanr.edu/sites/poultry/>

Getting Ready to Hatch ...

The 6th annual **Davis Tour de Cluck** will be help on May 30th from 9AM to 3PM. This year's activities will encompass the whole month of May, starting with "Chicken Skool" talks. For more information please visit: www.tourdecluck.org

The **UC Davis Winter Conference for veterinarians** will be 3/28 and 3/29. The **Backyard Poultry Track** will include lectures on Marek's Vaccination, Drugs to use and not use in backyard poultry, backyard poultry nutrition, backyard poultry toxicology, backyard poultry necropsy essentials, backyard poultry behavior and building your practice with backyard poultry. More information can be found at:

http://www.vetmed.ucdavis.edu/ce/small_animal/winter_conference.cfm

POULTRY PONDERING PONTIFICATIONS

What was the dominant avian species on the Hawaiian Island before humans arrived?



Answer to last quarter's trivia: Alektorophobia is the technical term for fear of chickens.