



UC DAVIS
VETERINARY MEDICINE

Poultry Ponderings



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A quarterly newsletter detailing poultry related work at the UC system



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Questions or Comments?

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Keeping Your Birds Safe from Virulent Newcastle Disease

The California Department of Food and Agriculture (CDFA) has identified several cases of **virulent Newcastle disease** in small flocks of backyard birds in Los Angeles and San Bernardino Counties. The initial case was detected at the UC Davis School of Veterinary Medicine's California Animal Health & Food Safety Laboratory (CAHFS) when a private practitioner submitted a sick bird for testing. All detections are confirmed at the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Services (APHIS) National Veterinary Services Laboratory (NVSL) in Ames, Iowa. This was the first case of virulent Newcastle disease, previously referred to as exotic Newcastle disease, in the U.S. since 2003. CDFA is working with federal and local partners as well as poultry owners to respond to the incident. State officials have quarantined potentially exposed birds and are testing for the disease.

Virulent Newcastle disease is a highly contagious and deadly virus in birds; the virus is found in respiratory discharges and feces. Clinical signs in birds include: sneezing, coughing, nasal discharge, green watery diarrhea, depression, neck twisting, circling, muscle tremors, paralysis, decreased egg production, swelling around eyes and neck, and sudden death.

It is essential that all poultry owners follow good biosecurity practices to help protect their birds from infectious diseases such as virulent Newcastle. These include simple steps like washing hands and scrubbing boots before and after entering a poultry area; cleaning and disinfecting tires and equipment before and after moving them on/off the property; and isolating any sick birds. New or returning birds from shows

should be isolated for 30 days before placing them with the rest of the flock. For backyard flock owners, biosecurity measures also include using dedicated shoes and clothes when caring for birds and not wearing those clothes/shoes in other areas.

In addition to practicing good biosecurity, all bird owners should report sick birds or unusual bird deaths through California's Sick Bird Hotline at 866-922-BIRD (2473). Additional information on VND and biosecurity for backyard flocks can be found at www.cdfa.ca.gov/ahfss/Animal_Health/Newcastle_Disease_Info.html

Sick or dead backyard birds can be submitted to CAHFS laboratories for post-mortem examination (\$20 plus shipping and handling). Information on this program can be found at: cdfa.ca.gov/ahfss/Animal_Health/pdfs/CAHFS_NecropsyFactsheet.pdf

For additional information on who to contact for issues regarding backyard poultry, see: ucanr.edu/sites/poultry/contact.

Virulent Newcastle disease is NOT a food safety concern. No human cases of Newcastle disease have ever occurred from eating poultry products. Properly cooked poultry products are safe to eat. In very rare instances people working directly with sick birds can become infected. Symptoms are usually very mild, and limited to conjunctivitis and/or influenza-like symptoms. Infection is easily prevented by using standard personal protective equipment.

If you have any questions, please do not hesitate to call the Animal Health Branch Tulare District Office at 559-685-3500.

—Jennifer McDougale, MVB





Vaccinating Against Virulent Newcastle Disease

Focusing on good management and biosecurity to protect your backyard birds is the "lowest hanging fruit" with respect to protecting your flock. The virus can easily spread easily from contaminated birds to your birds via feces, respiratory excretions, feed, clothing, and equipment. If you purchase poultry internationally, poultry should be bought only from suppliers who can certify that the birds have been imported legally or bred in the U.S., and are healthy. In short, use common sense and good biosecurity!

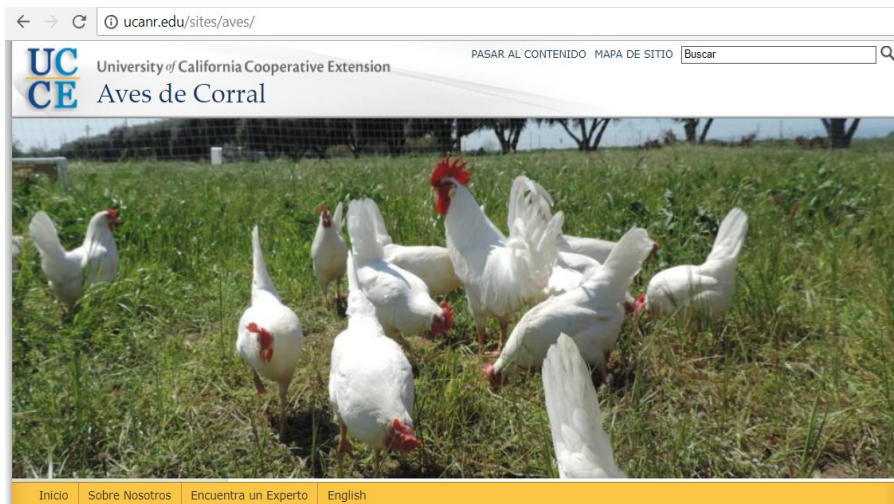
In addition to biosecurity, vaccines are appropriate to consider if you live in affected areas and want an extra level of protection. However, vaccines are not a "bandaid" for poor management. The LaSota and B1 vaccines are often available from feed stores. Make sure they are licensed in the U.S. In addition follow the instructions and/or consult a veterinarian. A list of small animal veterinarians who treat poultry in California by county can be found at ucanr.edu/sites/poultry/contact.

The best way to deliver the vND vaccine is via the eye drop method. Be aware that the vaccines can produce some mild clinical signs including a drop in egg production and some mild respiratory signs. Be aware that vaccinations against vND often need to be given at least 2x a year to remain efficacious. Again, vaccination is not a substitute for good biosecurity which is the best way to prevent your flock from getting infected from all infectious diseases including vND.

Lastly, use your network. If you suspect you have a sick bird (vND or otherwise) UC Davis, the California Department of Food and Agriculture (CDFA) and the California Animal Health and Food Safety Lab (CAHFS) have resources to help answer questions.

Feel free to contact Dr. Maurice Pitesky from the UC Davis School of Veterinary Medicine-Cooperative Extension at mepitesky@ucdavis.edu or 530-219-1407 if you have questions, comments or suggestions.

UCCE Poultry Webpage Now in Español!



The UC Cooperative Extension (UCCE) poultry website is now available in Spanish. The website offers similar content as the English version for Spanish speakers who own poultry in California and beyond. Information on avian diseases, biosecurity and basic husbandry among other

topics is provided. In addition, expert contact information is provided which includes contact information for experts in infectious disease, parasites, welfare and food safety among other topics. In addition, contact information for over 30 small animal veterinarians

from over 20 California counties who treat backyard poultry is provided

According to the U.S. Census Bureau, 44.6% of California's 39 million residents speak a language other than English at home. With respect to Spanish, over 9.5 million residents (28%) identify Spanish as the most spoken language in their homes. This webpage is designed to provide science based information regarding commercial and backyard poultry to this audience.

The above work is a collaborative effort between the UC Davis School of Veterinary Medicine-Cooperative Extension and the Animal Health Branch within the California Department of Food and Agriculture (CDFA).



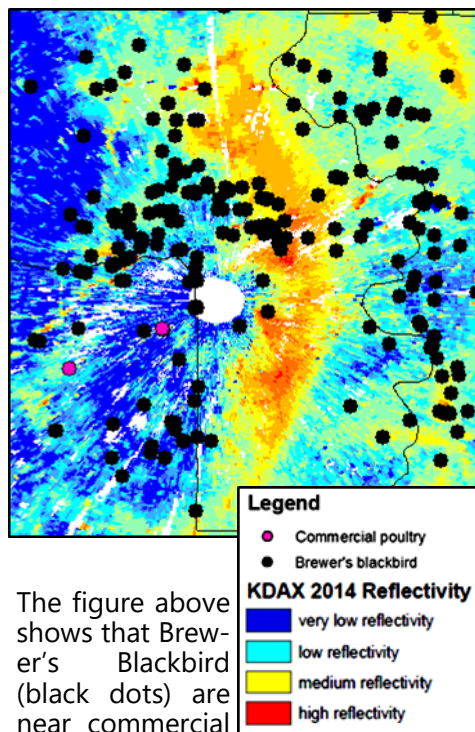
Testing for antibodies against Avian Influenza (AI) in small wild birds identified as high priority for avian influenza testing in Northern California

After the 2014-2015 HPAI outbreak that resulted in the depopulation of over 48 million chickens and turkeys and about \$3.3 billion in economic losses in the U.S. alone, a lot of the focus has gone into studying waterfowl (ie. ducks, geese and swan), the main carriers of Avian Influenza (AI). However, waterfowl rarely interact with commercial poultry. In contrast, small perching birds such as Barn Swallows have been observed near or even inside poultry facilities. In addition, small perching birds may also interact with waterfowl and/or their environment (ie. ponds). Therefore, small perching birds may act as the “bridge” between waterfowl and commercial poultry hence the term bridge host. Whether bridge hosts can transmit AI by carrying it on their body and into barns or by shedding it in their feces is not well understood.

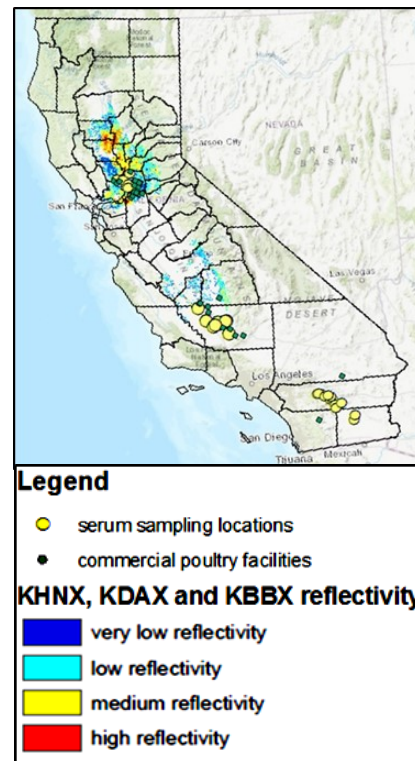
In order to better characterize the risk of AI transmission to commercial poultry from these bridge species, we tested historic serum samples from Dr. Barker’s lab from the UC Davis School of Veterinary Medicine for antibodies against AI. The collection of historic serum samples consisted of about 69,451 samples collected from small wild birds in California from 1996 to 2009. Out of 69,451 samples, we found that 1,555 were from bridge species of high priority for AI testing. Specifically, Brewer’s Blackbirds (*Euphagus cyanocephalus*), European Starlings (*Sturnus vulgaris*) and Red-Winged Blackbirds (*Agelaius phoeniceus*) were identified as high priority bridge hosts of AI with the help of United States Geological Service (USGS) and a literature search.

Next, we mapped waterfowl, bridge hosts and commercial poultry

facilities to verify that the selected bridge species were overlapping with waterfowl and commercial poultry. In order to map waterfowl distribution we used NEXt Generation RADar (NEXRAD). NEXRAD, the same technology used to track weather, can capture waterfowl moving from their feeding to their roosting site. Sightings of bridge species were mapped using eBird data (online citizen science database) such as species, bird counts and coordinates.



The figure above shows that Brewer’s Blackbird (black dots) are near commercial poultry locations (pink dots) and overlap with waterfowl (red background color symbolizes high waterfowl density). The same trend was seen with European Starlings and Red-winged Blackbirds (data not shown). Similarly, serum sampling collection sites, waterfowl and commercial poultry facilities were mapped. As seen in the figure to the right, the serum sampling locations from Northern California were seen overlapping with com-



mercial poultry and waterfowl. In the end, 279 samples from bridge host species were submitted to the California Animal Health and Food Safety lab for AI antibody testing via Agar Gel Immunodiffusion (AGID).

All 279 serum samples came back negative for antibodies against AI. While the results suggest small perching birds may not be active shedders. It is important to keep in mind that these birds may still be able to physically carry the virus into barns. Future studies could help us better understand the role of small perching birds in the transmission of AI.

— Myrna Cadena, Elliot Matchett,
Jeff Buler, Rodrigo Gallardo,
Simone Stoute, Todd Kelman,
Chris Barker, Caroline Brady,
and Maurice Pitesky



The Case of the Druggie Chickens: Jimsonweed Toxicity in Chicken Pullets

In July of 2017, a veteran chicken owner in the Lake Isabella Valley noticed that her four month old Ameraucana and Australorp pullets were eating the Jimsonweed (*Datura stramonium*) plants in their enclosure. She had left the plants in the enclosure to provide some shade for the young chickens during the hot summer months. At first she disregarded their behavior as the pullets never showed any adverse behavior or went off their normal feed, but after they had eaten half of the leaves off about 12 large plants, she decided she better remove the plants anyway. The pullets consumed only the leaves, no seeds, over a period of about two weeks.



The owner thought nothing more about it as the young chickens were growing normally, until the pullets hit six months, seven months, and then eight months old and they still weren't laying eggs. After doing some research on her own and not finding much infor-

mation that was specific to chickens, she contacted the UC Cooperative Extension office in Kern County to try to learn if her chickens would ever lay eggs, and if they did, would the eggs be safe to eat.

Jimsonweed is a member of the Nightshade family and is known to contain alkaloid toxins that are poisonous to humans and livestock. All parts of the plant contain the toxins, but they are especially concentrated in the seeds. Jimsonweed grows up to about 5,000 feet in elevation and is found in many parts of California and the United States. A literature search turned up an article by Kovatsis et al., from 1994, which documented a study from Greece where the alkaloid toxins found in Jimsonweed were fed to a group of laying hens. There were four dosing levels 1.5, 15, 75, and 150 mg/kg fed to the study groups. Effects were seen only at the 150 mg/kg dose. For the first five to six weeks the high dose group saw a decrease in egg production. After five weeks, significant increases in heart rate were observed in the same group. Egg weight, egg shell thickness, and body weight were unaffected. Further, upon necropsy, no obvious signs of alkaloid toxicity were observed. A sister study was conducted by Kovatsis et al (1993) on broilers. The general conclusion from the two studies is that meat and eggs

from chickens that have ingested Jimsonweed are safe for human consumption.



In mid-December 2017, the Australorp hens began laying eggs and about two weeks later the Ameraucana hens also began laying. The hens look and act normal, however, they all insist on laying their eggs in the same nest box.

If you have concerns regarding your chickens' health, contact your private veterinarian, county advisor, UCC poultry specialist, or the CAHFS diagnostic lab.

— Julie Finzel, Livestock and Natural Resources Advisor (UCCE: Kern, Tulare, and Kings Counties)

Sources:

Kovatsis, A., J. Flaskos, E. Nikolaidis, V.P. Kotsaki-kovatsi, N. Papaioannou, and F. Tsafaris. 1993. Toxicity study of the main alkaloids of *Datura ferox* in broilers. *Food and Chemical Toxicology*. 31: 841-845.

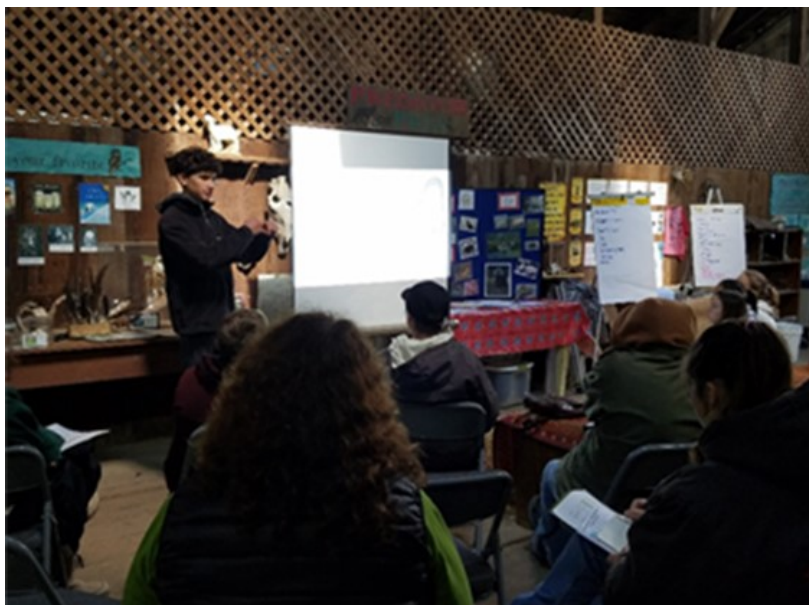
Kovatsis, A., V.P. Kotsaki-kovatsi, E. Nikolaidis, J. Flaskos, S. Tzika, and G. Tzotzas. 1994. The influence of *Datura ferox* alkaloids on egg-laying hens. *Veterinary and Human Toxicology*. 36: 89-92.



Backyard Poultry Workshop Delivered by 4-H Youth!

In collaboration with UC Cooperative Extension (UCCE) faculty, and staff a recent backyard poultry workshop at Elkus Ranch in San Mateo County involved 4-H youth delivering talks on a variety of topics relevant to backyard poultry enthusiasts. Specific topics included: predator control, biosecurity and welfare.

In order to deliver their talk, each 4-H youth worked with a UCCE faculty mentor. UCCE faculty mentors included Richard Blatchford (welfare), Martin Smith (biosecurity) and Maurice Pitesky (predator control). In addition to each talk, the youth used the UCCE Elkus Ranch poultry flock and coop as an example to assist each speaker deliver practical information related to each subject.



4-H youth giving a talk on predator control at Elkus Ranch in San Mateo County to backyard poultry enthusiasts (3/17/2018)

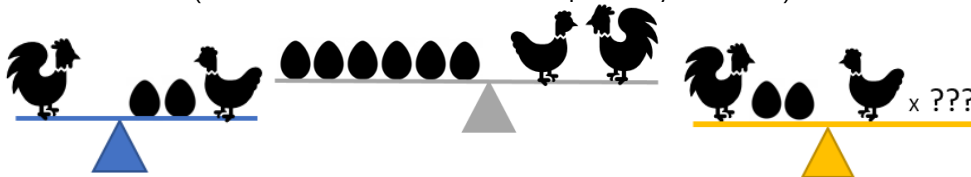
The collaboration with 4-H is integral for extension as it pertains to backyard poultry. Previous research based on Social Network Analysis (SNA) has shown that 4H plays an integral role in communication of best practices to the larger backyard poultry community in California. New outreach methods including workshops delivered jointly by 4-H youth, 4-H volunteers and UCCE faculty offer opportunities for effective extension.

—Maurice Pitesky, Martin Smith, Kathi Baxter, and Richard Blatchford

Dr. Cluck's Brain Teaser



How many hens would you need to add on the right to balance the yellow scale?
(Assume the first two scales are perfectly balanced)



Email mepitesky@ucdavis.edu with your answer!

Last quarter's trivia: A truck driver is carrying a cargo of birds. All of a sudden all the birds fly inside the truck in unison without touching any of the four walls. Is the cargo of the truck the same, lighter or heavier?

Answer: When the birds lift up off the floor, the truck is lighter... but only momentarily! As soon as the birds start their descent in the air (even before they physically touch the floor), the truck's weight increases two-fold. This is due to the force of the air caused by the birds' wings flapping. However, this is only true if all the birds lift up at the same time. In a real-life example, the weight of the truck would likely stay the same due to the desynchronization of the birds.