



# POULTRY PONDERINGS



A QUARTERLY NEWSLETTER SUMMARIZING POULTRY RELATED WORK AT UC

## Coalition for Sustainable Egg Supply Behavior and Welfare Final Results

Richard Blatchford and Joy Mench, Animal Science, UC Davis

The egg industry in the United States has been in a state of transition of housing systems for laying hens, from conventional cages to alternative housing systems, but there is little research from commercial-scale studies in North America to help guide this transition in a holistic and sustainable manner. A multi-stakeholder group formed the Coalition for Sustainable Egg Supply to promote research that would help fill in the gaps in our current knowledge about housing systems. This research project assessed the impacts of housing hens in conventional cages, enriched colony cages, and a cage-free aviary on five pillars of sustainability: environment, hen health and well-being, food quality and safety, food affordability, and worker health and safety. The research was conducted on a commercial farm in the upper Midwest over two flock cycles. The final results of the Coalition for Sustainable Egg Supply research project were released in March 2015.

The trade-offs between these three housing systems were examined for each sustainability pillar. Environment results include indoor air quality (thermal conditions, ammonia and dust concentrations), air emissions at the house and farm levels, quantity and properties of manure, as well as energy consumption and carbon footprint. Hen health and well-being results include the physical condition of the hens, causes and correlates of mortality, resource use (e.g. nests, perches, scratch areas/litter) in the enriched and aviary houses, bone strength, and stress physiology. Food quality and safety research compared the interior and exterior egg quality of fresh and stored eggs from the three housing systems, as well as the micro-organisms found in the houses and on the egg shells. Food affordability research examined cost differences across the houses (operating, capital, and overall costs of production). Worker health and safety results include worker ergonomics, worker exposure to gaseous and dust pollutants, and the effects of that exposure on respiratory function.

The full results of this research can be found at <http://www2.sustainableeggcoalition.org/final-results>. These results include the final report of the research team, links to peer reviewed papers, and interactive infographics comparing the EC and AV to CC for each sustainability area.

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

PLEASE CONTACT MAURICE PITESKY AT MEPITESKY@UCDAVIS.EDU OR 530-752-3215 WITH  
QUESTIONS OR COMMENTS

## **Get to Know your Pathology Resident: Dr. Silvia Carnaccini**

When I graduated from Veterinary School at the University of Bologna, I aspired to acquire a strong knowledge in avian medicine, diagnostics and research. My decision to move to the other side of the world was taken as a personal challenge to face the risks that a totally new environment represents. It was the best decision of my life. At the Turlock, California Animal Health and Food Safety Lab (CAHFS),

My first experience with the California Animal Health and Food Safety Lab (CAHFS) was at the Tulare branch under the esteemed supervision of Drs. H.L. Shivaprasad and R. Chin. During my externship, I was given the basics of avian diagnostics. In addition, I was able to participate in numerous research projects. My extensive training continued into the Avian Medicine residency program at the Turlock diagnostic lab under the knowledgeable guidance of Drs. B. Charlton, C. G. Senties-Cué, A. A. Bickford, G. Cooper and S. Stoute. Also, I have had the opportunity to work with several outstanding poultry field veterinarians including Drs. G. Cutler, M. Bland, C. Corsiglia and N. Riemers. This combination of field and lab work has been an essential component of my training.



Dr. Silvia Carnaccini

As part of The University of California, Davis, the Turlock Branch of the CAHFS lab is strategically located at the center of the highest concentration of commercial poultry in California. This geographic proximity and the strong relationship between the commercial poultry industry and the CAHFS lab is crucial to the early diagnosis of high-consequence avian diseases in California. Specifically, the diagnosis of three of the four outbreaks of Avian Influenza H5 and H7 in California was done at the Turlock-CAHFS laboratory.

As a second-year resident at the Turlock laboratory I have gained an invaluable level of experience for preparation in my future career. The CAHFS diagnostic system confers a rapid and high-quality level of service with respect to disease surveillance and investigation. Routine diagnostics consists of a variety of bird species (such as chickens, turkeys, quail, pigeons, chukars, ducks, geese, psittacines, etc.), different types of production (meat-type, layer-type, pet, etc.) and clinical history. The great capability of the diagnosticians to share their experience and teach is truly unique. The CAHFS lab encourages exchange of opinions and experiences through weekly case-conferences and monthly histology and pathology rounds. The intense workload is managed by highly qualified personnel and staff. In addition, the CAHFS system has developed scientific partnerships and collaborations across the United States and world which enhance the overall skill and expertise of the laboratory system.

In the past two years we were able to integrate the routine diagnostic submissions with the investigation of unusual outbreaks of new and old-new diseases, such as avian influenza, goose venereal diseases, pullet hemorrhagic hepatopathy, vaccinal avian encephalomyelitis, and many others. This important work has been presented at regional and national scientific meetings and is being published in peer-reviewed journals.

In conclusion, the Avian Medicine residency program that the University of California offers at the CAHFS Turlock diagnostic lab has been a unique life opportunity for my own personal and scientific maturation.

## New Graduate Level Food Safety Epidemiology Course at UC Davis

Maurice Pitesky, UC Davis School of Veterinary Medicine, Cooperative Extension

During the Spring Quarter of 2015, a new food safety epidemiology course was offered to graduate students and DVMs in the Masters of Preventive Veterinary Medicine (MPVM) program. The 10 week course was split between poultry and livestock food safety epidemiology. In the poultry section, students were given a data set and were instructed to use their epidemiology and statistics training to “figure out” potential sources of *Salmonella* contamination through-out the poultry production supply chain. In addition, the class of 4 students visited a live production and processing plant at Foster Farms as part of their instruction. The course will be offered annually and seeks to attract graduate students in epidemiology, animal science, food science and pathology.

## UCD Students Attend Western Poultry Disease Conference as Part of US Poultry and Egg Industry Education Recruitment Funding Grant

Maurice Pitesky , UC Davis School of Veterinary Medicine, Cooperative Extension and Rodrigo Gallardo UC Davis School of Veterinary Medicine

As part of funding obtained from the US Poultry and Egg Association’s Egg Industry Education and Recruitment Grant, six UC Davis students were able to attend the 64<sup>th</sup> Western Poultry Disease Conference in Sacramento, California . The 3-day meeting offered students the opportunity the listen and learn about a variety of subjects including: avian influenza response and surveillance and novel IB vaccination approaches. For two of the students this was their first opportunity to attend a scientific conference. From left to right: Blanca Camacho, Myrna Cadena, Alejandra Figueroa, Ali Nazmi and Rodrigo Gallardo. Not shown Alex Moreo



From left to right: Blanca Camacho, Myrna Cadena, Alejandra Figueroa, Ali Nazmi and Dr. Rodrigo Gallardo. Not shown Alex Moreo



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

## Researchers at the UC Davis School of Veterinary Medicine are working towards improving food security for families living in rural Africa by enhancing resistance to Newcastle disease and heat stress in chickens.

By Rodrigo Gallardo, UC Davis School of Veterinary Medicine

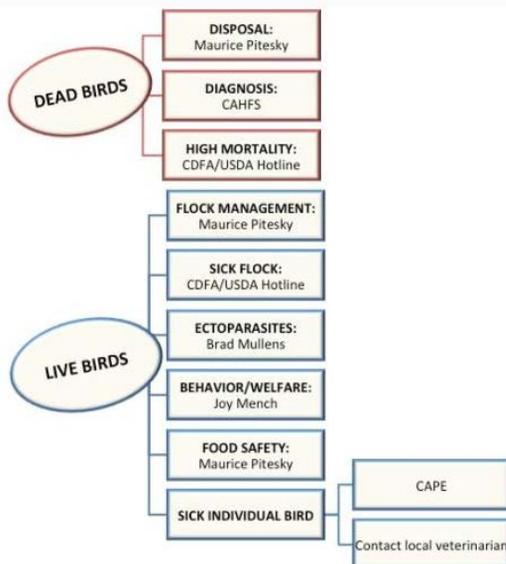
Exotic Newcastle Disease (END) is an infection of domestic poultry and other bird species characterized by respiratory, digestive and nervous signs. In addition, it causes up to 100 percent mortality in affected flocks. It is the most devastating disease in endemic places and the major constraint to chicken production in rural Africa, such as villages in Ghana and Tanzania.

This five-year USAID funded program, "Feed the Future: Innovation Lab for Genomics to Improve Poultry," is a collaboration between the UC Davis Animal Sciences Department, UC Davis School of Veterinary Medicine, Iowa State University, University of Ghana, and Sokoine University of Agriculture in Tanzania.

Principal Investigator Dr. Huaijun Zhou from the CAES Animal Sciences Department in collaboration with Program Director Dr. David Bunn and Co-Principal Investigator Dr. Rodrigo Gallardo of the SVM Population Health & Reproduction Department, are looking at chickens from different ecological locations of East and West Africa, called "ecotypes", to find genes in local chicken populations that provide greater heat tolerance and resistance to the END virus. The detection of these genes will allow their incorporation into the genetic pool of domestic chickens in Africa and improve the success of village chicken production.

*Continued on the following page.*

## Remember Who to Call if you have Poultry Questions



## Getting Ready to Hatch ...

The UC Davis Winter Conference for veterinarians will be 2/20 and 2/21. The **Backyard Poultry Track** will include lectures on coop construction, pathology, sedation/anesthesia, radiology and more. More information can be found at: [http://www.vetmed.ucdavis.edu/ce/small\\_animal/winter\\_conference.cfm](http://www.vetmed.ucdavis.edu/ce/small_animal/winter_conference.cfm)

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

Gallardo cont.

“In addition to meat and eggs for family consumption, village poultry production is an important source of income for households in rural African villages. It helps pay their basic expenses like food and medical bills,” said Dr. Gallardo. “Our goal is to breed chickens in these developing regions that are resistant to the Newcastle disease virus to improve poultry production and food security for families that depend on it for their livelihoods.”



Dr. Rodrigo Gallardo trains veterinarians in Tanzania to collect samples that detect concentrations of Newcastle disease virus.

## POULTRY PONDERING PONTIFICATIONS

Ostrich eggs are big but not the biggest eggs ever laid. What species laid the biggest egg of all time (~ 150x bigger than a hens egg!)?



The dominant avian species on the Hawaiian Islands before humans arrived was the kula (flightless geese)