



A quarterly newsletter detailing poultry related work, research, and events in California

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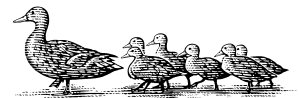
Staying vigilant in biosecurity practices can save your flock this fall.

Mrs. Theresa Gendreau, Creative Director, UC Davis School of Veterinary Medicine Cooperative Extension Poultry Lab

While no cases of highly pathogenic avian influenza (HPAI) were recorded in California poultry this summer, it's essential to remain vigilant as we transition into the cooler months. The risk of HPAI outbreaks tends to increase during the fall and winter, making biosecurity practices around poultry an all year long priority.

Low temperatures, higher humidity and increased waterfowl migration combine to create an ideal environment for HPAI transmission. To protect your flock and the poultry industry, please remember these biosecurity basics:

1. Quarantine new birds
2. Limit access to your coop
3. Regularly clean and disinfect high-touch surfaces
4. Monitor for wild birds
5. Stay informed and keep yourself updated on HPAI outbreaks



One easy way to stay informed is by checking out the **USDA-APHIS Wild Bird Avian Influenza Surveillance** tool at this [link](#). Read more about the surveillance program [here](#).

[P.S. We had a little help writing this article! This list was created by prompting ChatGPT 3.5 to write an article regarding the absence of HPAI in California this summer, how cooling weather increases the risk, and that practicing good biosecurity is still important. However, it did generate a pretty repetitive list by including things like both "limit access" and "control visitor access" as main points. While no perfect replacement for human writers, this tool has potential to be at the very least helpful to us editors.]



Questions or Comments?

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Poultry? We have an app for that!

Backyard Poultry Central is your hub for the latest information on husbandry practices for new and experienced backyard owners. Get notified of outbreaks as soon as they happen, and receive critical information at your fingertips.

Download the "Backyard Poultry Central" app on the Google Play Store



Scan Me!



Tools of the Trade

Esri User Conference Ignites Improvements in Poultry Disease Mapping

Ms. Myrna Cadena, PhD Candidate, UC Davis, School of Veterinary Medicine, Cooperative Extension Poultry Lab



During the summer, Myrna Cadena, a member of Dr. Maurice Pitesky's Poultry Lab at UC Davis, attended the Esri User Conference. Esri is a leading company in the field of mapping technology, and its annual conference serves as a hub for mapping professionals and researchers from around the world.

Already well-versed in mapping software like ArcGIS Pro, Myrna expanded her geospatial skills at the conference. One notable addition to her toolkit was Esri's ArcGIS Notebooks, versatile digital tools that not only document analyses but also automate tasks within ArcGIS Pro. These tools hold significant potential for enhancing the efficiency of poultry disease outbreak mapping, a crucial aspect of their virulent Newcastle Disease (vND) project. Additionally, she discovered the power of storytelling through maps using Esri's web application, StoryMaps. This dynamic tool empowers her to create engaging map-based narratives on the fly, which can enhance communication about their poultry disease research. Myrna is now eager to integrate these best practices and tools into the lab's vND project, with the goal of streamlining both poultry disease mapping and storytelling.

Community Corner

A departing interview with Mr. Grant Koziol, newly graduated software engineering intern in the CE Poultry Lab.

Can you provide an overview of your role at the CE Poultry Lab?

I worked with different aspects of the software side of the lab. This included many different projects such as web scraping popular backyard chicken websites to see if we could analyze the data and predict outbreaks of diseases such as vND. Another project I worked on was the development of the wildfire app we are developing to allow animal owners to find staging areas and information during wildfires.

What were the languages/tools that were important to use for your work in the lab?

I used many different languages such as python, kotlin, and more. One I had to learn specifically for the lab was using dart and flutter for app development. I learned to use the framework and language through online tutorials and just by trying to develop the wildfire app. I found that discovering what I needed to do and then using online resources to aid me when I didn't know something helped me learn the language and framework.

Did any part of working in the lab surprise you?

How many different and cool projects different people were working on throughout the lab. There are a lot of different backgrounds, interests, and knowledge bases throughout the lab so it was cool to see where I could fit in as a software person whilst seeing more typical veterinary members work on other projects.



Food Waste to Feed

Can it work?

Mr. Zachary Tobar, Graduate Group of Epidemiology, UC Davis

Globally approximately 1.3 billion tonnes of food are lost or wasted each year. We may define wasted food broadly as food that was taken to retail but was not for some reason consumed, either being discarded at retail or post retail. We may further define food scraps as potentially edible organic portions of food that are not typically eaten by humans such as rinds, peels, bones, pits, and cores. Food wastage represents a loss of agricultural labor, natural resources, and energy expenditure. Moreover, the negative environmental impacts of food production such as greenhouse gas production and ecotoxicity are incurred without creating a useful product. As such strategies to reduce wasted food are increasingly considered by governments around the world. One such strategy is termed “food waste valorization” which redirects wasted food away from landfills towards use in livestock feed. While feeding discarded wasted food and food scraps is frequently used in backyard livestock production – the practice is more complicated when considering a wide scale redirection of entire cities’ or nations’ wasted food to industrial livestock production facilities. Wide scale wasted food valorization is regularly practiced in nations such as South Korea and Japan and while redirection of wasted food towards animal feed is part of United States Department of Agriculture’s Food Recovery Hierarchy, regular practice of using wasted food in animal feed in the US and many other nations remains relatively rare. Obstacles to regular incorporation of wasted food into livestock feed is that wasted food’s nutritional profile is variable; what type of food is wasted may vary from household to household, store to store, and city to city. Moreover, raw wasted food and food scraps may contain pathogens such as Salmonella, Avian Influenza Virus, trichinella, as well as toxins like microplastics, heavy metals, stones, glass; and so on.

Proper wasted food management infrastructure may remove or reduce such hazards through mechanisms like heating, manually sorting, minimizing exposure to air or uv radiation; as well as improving the digestibility of the food through addition of things such as antioxidants. To ensure that feed augmented with wasted food meets the proper nutrition for livestock is a bit more complicated. Research has indicated that for some livestock, such as broiler chickens, wasted food may be incorporated into the diet at up to 20% with no negative effect. However, optimal inclusion rates vary based on species with swine tolerating a higher inclusion rate of approximately 50%. Principally, research has demonstrated that wasted food incorporation is safe and may be used to offset some of the cost of feed production along with reducing the negative environmental and economic consequences of wasted food. However, wide scale adoption of incorporating treated wasted food into livestock feed requires dedicated infrastructure and logistics for transporting wasted food, properly treating it, and assessing that feed augmented with wasted food is regularly meeting nutrient requirements for the feed’s intended animal. As such developing this infrastructure remains the major obstacle to widespread adoption of wasted food valorization into livestock feed. At the University of California, Davis the Pitesky laboratory is currently working with Dr. Chris Simmons in the food science department and have recently published research modeling optimal inclusion rates of treated residential wasted food and food scraps for broiler and layer chickens.* In the future, we aim to expand on this research with our food science colleagues to develop methods of properly treating and incorporating wasted food and food scraps into poultry feed in resource limited developing nations.

[**Assessment of the variation in nutritional composition and safety of dried recovered food from United States households and prospects for use in chicken feed**](#)

Community Corner continued

Were there any key lessons or takeaways in your experience in the lab that you believe have prepared you for future roles?

I think that working on the projects themselves will help me in future endeavors. It was engaging to be given different types of tasks and not necessarily be told exactly how to do them. I was able to devise my own strategy and learn which is a skill I will take forward. It was also nice to know that I always had support from Joseph when I didn’t know something.

Mr. Grant Koziol graduated from UC Davis with a Bachelor of Science in Computer Science and a minor in History. He starts his full-time journey as a software engineer at Workday. Thank you for your hard work Grant!



Farmer Field Day: Iowa

Integrating poultry and vegetable production

Ms. Faye Duan, Assistant Specialist, UC Davis, School of Veterinary Medicine, Cooperative Extension Poultry Lab **Ms. Celin Montoya**, Research Assistant, UC Davis, School of Veterinary Medicine, Cooperative Extension Poultry Lab.

UC Davis Cooperative Extension traveled to Iowa State University (ISU) to participate in the Integrated Poultry-Vegetable Field Day. Taking place on September 7 and led by Dr. Ajay Nair of ISU, this field day brought together collaborators from UC Davis, ISU, the University of Kentucky, and the National Center for Appropriate Technology. The event offered the opportunity for new farmers to see integrated poultry-vegetable crop production in action at the ISU Horticulture Research Station in Ames, Iowa.

The field day was accompanied by presentations on the results of recent field trials conducted in IA, CA and KY. Researchers shared findings on questions such as how meat quality differed between pastured chickens in the integrated systems vs. those raised indoors (presented by Dr. Dong Ahn) and how yields of different vegetables were impacted by chicken integration (presented by Anne Carey, Phd candidate) amongst many other topics including outcomes related to stocking density, insect populations, food safety, and animal welfare in integrated poultry operations. Practical takeaways for farmers were also emphasized—with Dr. Maurice Pitesky presenting disease models for avian influenza, and how to best reduce the risk of an outbreak on a farm and Dr. Liz Bobeck emphasizing the business implications of finding higher feed conversion ratio in outdoor raised vs. indoor raised birds.

Her advice to farmers: measure your chickens' feed intake and pay attention to their feed conversion ratio. Feed costs are higher for outdoor birds, so you should be charging more for them. The field day and research findings were funded by the Organic Agriculture Research and Extension grant titled "Integrating vegetable, poultry, and cover cropping practices to enhance resiliency in organic production systems" led by Dr. Ajay Nair and also made possible by funding from USDA's Beginning Farmer and Rancher Development Program .



Above: Cabbage crop at ISU Horticulture Research Station
Photos courtesy of Celin Montoya



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UNIVERSITY

Above: Water tower at ISU
Below: Chicken tractors at ISU Horticulture Research Station
Photos courtesy of Celin Montoya



Join the [mailing list](#) to be notified of when videos from the field day become available and to hear about upcoming webinars and workshops on integrated poultry-crop production for beginning farmers!

Dr. Cluck's Vacation!

Oops! Dr. Cluck lost some luggage on the way home!
Can you find all 10 differences in these two pictures?



Have you seen our series, ‘The Sitch’?

Sit down with Dr. Maurice Pitesky as he answers the most common questions for new and experienced backyard poultry owners alike. Get insightful and accurate information on the best practices for raising your own birds.

Visit our channel at:

<https://www.youtube.com/c/ucdpiteskiylab>

