



**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?

Contact Maurice Pitesky at [mepitesky@ucdavis.edu](mailto:mepitesky@ucdavis.edu) or 530-752-3215

Editor: Anny Huang

## Virulent Newcastle Disease: The Big Picture

While ending the current virulent Newcastle Disease (vND) outbreak in Southern California is an essential step toward poultry health and food security, thinking about prevention after the outbreak is also essential. We need to face the fact that this is the third vND outbreak in the last 50 years in Southern California which is due in large part to the practices and connectivity of poultry (backyard, game fowl and commercial) in a relatively small geographic area. As the saying goes "the definition of insanity is doing the same thing over and over again and expecting different results." To that point CDFA and UC Davis are about to begin a novel long-term collaboration to help identify, model, and target outreach related to high risk practices. Specifically, over the next 3-years we will be working on the following:

1. Utilizing Social Network Analysis (SNA) to better understand the ebbs and flows of backyard poultry movements in Southern California and between Southern California and other parts of California, other states, and countries.
2. Utilizing various disease modeling methods linked to the SNA data to better pre-

dict disease spread and to better understand how various approaches such as vaccination work on different types of flocks (show, game fowl etc).

3. Employ "computational linguistics" to better synthesize social media with respect to backyard poultry.
4. Utilize the above 3 approaches to better target outreach events with respect to content and location.

In order to keep the results relevant, our goal is to develop interactive web-apps that allow stakeholders to use these novel tools in real-time and better respond to future outbreaks.

While these tools alone will not eliminate the risk of vND coming back or spreading, the goal is to explore new concepts and approaches to identify the "next generation" tools and outreach methods to help make the risk of outbreaks less likely, and - when outbreaks do occur mitigate the overall scope of the outbreak.

- Maurice Pitesky, Rodrigo Gallardo, & Annette Jones





## Bacterial Isolation from Backyard Poultry

Little is known about the use of antibiotic in backyard poultry and its subsequent contributions to antimicrobial resistance. Antimicrobial resistance occurs when microbes (such as bacteria, viruses, fungi, parasites) develop resistance to antimicrobial drugs.

A survey of backyard poultry premises was conducted throughout California with the assistance of citizen scientists. Overall, the aim of the study was to observe antimicrobial resistance trends in common foodborne pathogens, specifically *Enterococcus* spp., *E. coli*, *Campylobacter* spp., and *Salmonella* spp..

As part of this study, bacteria were

isolated from boot and cloacal swabs from 32 premises across California. Samples were collected once per season for 4 seasons (Summer 2018 through Spring 2019).

A total of 238 *Enterococcus* spp. (100% isolation), 212 *E. coli* (89.08% isolation), 14 *Campylobacter* spp. (5.88% isolation), and 9 *Salmonella* spp. (3.78% isolation) isolates were recovered from both boot and cloacal swabs and confirmed by the California Animal Health and Food Safety (CAHFS) Davis Laboratory.

Keep in mind that while isolation rates of *Enterococcus* spp. and *E. coli* are high, these bacteria are normal in the intestinal tract and

most strains are harmless! However, good biosecurity and sanitation practices are important to ensure backyard poultry owners do not get sick from handling their birds. More information can be found at our website at [ucanr.edu/sites/poultry](http://ucanr.edu/sites/poultry).

Data analysis of the phenotypic and genotypic expressions of antimicrobial resistance of the isolates is still pending. Phenotypic expressions, or observable characteristics of the bacteria, will be represented by minimum inhibitory concentration (MIC) values while genotypic expressions, or the genes that contribute to resistance, will be represented through metagenomic analyses.

-Sarai Acosta & Anny Huang



## Healthy Animals, Healthy People Survey

**If you have backyard livestock or poultry or are a small-scale producer of livestock or poultry, this survey is for you.** This questionnaire asks about the specific practices and perceptions that you apply to your animals' health, husbandry, and antimicrobial use. It is being conducted for research and outreach purposes in order to find better ways to serve people and communities with backyard and small-scale livestock or poultry.

This survey, conducted by the University of California Cooperative Extension and School of Veterinary Medicine and funded by the California Department of Food and Agriculture, will take about 20 min to complete. Provided information will be kept strictly confidential. We will not connect your name with your responses.

Originally created as part of the Healthy Animals, Healthy People workshop series in California, the survey is now open to all owners and small-scale producers of livestock and poultry in California regardless of workshop attendance. We would appreciate your time and participation in this survey, accessible at the following link:

<http://bit.ly/HAHPsurvey>

If you have any questions, please contact the questionnaire administrator, Jasmin Bardales, at [jabardales@ucdavis.edu](mailto:jabardales@ucdavis.edu), or the principal investigator, Dr. Alda Pires; Extension Specialist in Urban Agriculture & Food Safety ([apires@ucdavis.edu](mailto:apires@ucdavis.edu), 530-754-9588), Veterinary Medicine Extension, UC Davis School of Veterinary Medicine).

—Jasmine Bardales and Alda Pires



## FREE Small Flock Egg Producers Workshop

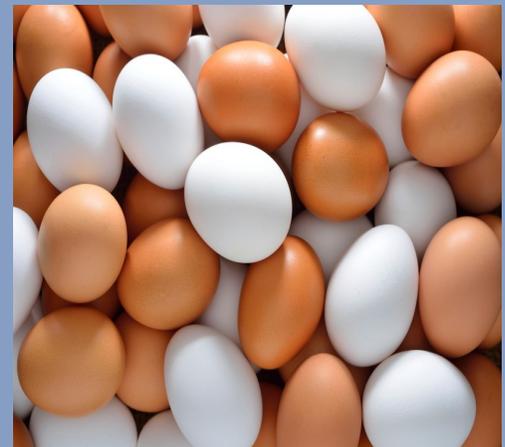
**CDFA's Egg Safety and Quality Management Program invites you to join them for their outreach and educational workshops!**

Workshops will be presented by Rebecca McCallister, Ginny Carlson, and Kathryn Tockey with the California Department of Food and Agriculture's Egg Safety and Quality Management program.

The workshops will take place through October 2019 throughout the state of California.

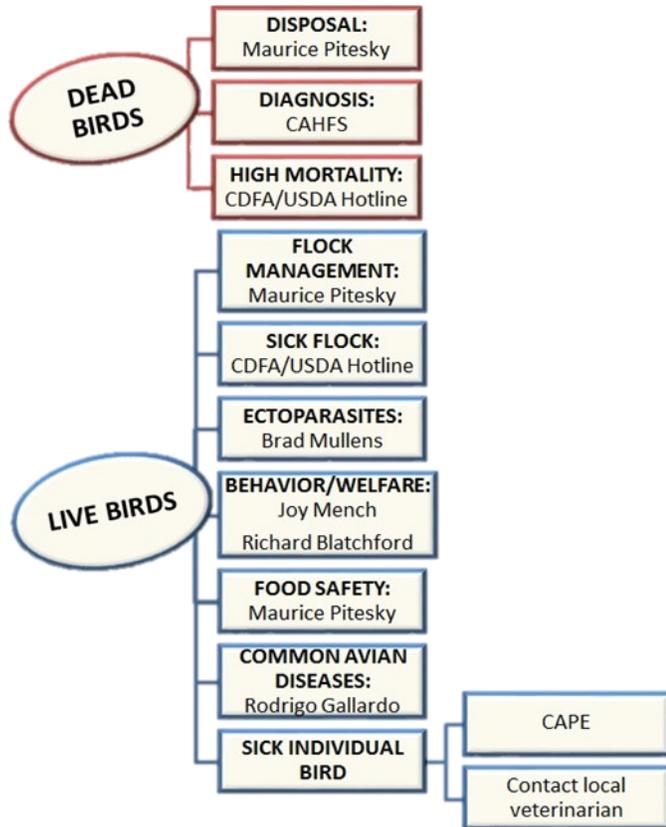
**RSVP to receive take-home materials and a Certificate of Completion. Drop-ins are welcome upon available space.**

**For more information or to RSVP, visit**  
[www.cdfa.ca.gov/ahfss/mpes/spop.html](http://www.cdfa.ca.gov/ahfss/mpes/spop.html)



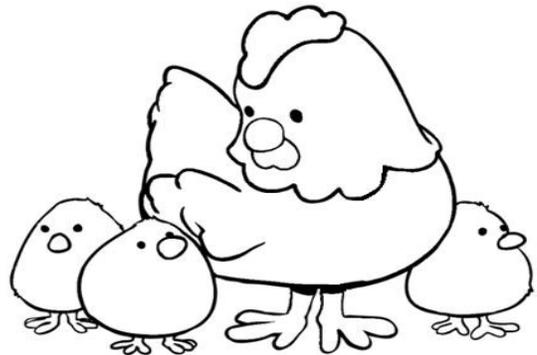


### Who can you contact with poultry-related questions?



### Starting your own backyard chicken flock?

In this coloring book, Dr. Cluck will teach you and your family how to best care for your new chickens!



UC CE 2019-2020 

Developed by the University of California Cooperative Extension (UCCE) and the California Department of Food and Agriculture (CDFA)

The new Eggercise Book is now available at: <https://ucanr.edu/sites/poultry/files/302032.pdf>

### Dr. Cluck's Trivia



What was the first country to require eggs to be washed before being sold?

Email [mepitesky@ucdavis.edu](mailto:mepitesky@ucdavis.edu) with your answer!

Last quarter's trivia: *Why is it almost impossible for a fertilized double yolked egg to produce two viable chicks?*

**Answer:** One embryo typically outcompetes the other so ultimately, only one chick survives to hatch. According to the British Egg Information Service, the odds of having a double-yolk egg are about 1/1000 and the odds of a triple-yolker is one to 25 million!

Useful information on Virulent Newcastle Disease can be found at:

[https://www.cdffa.ca.gov/ahfss/Animal\\_Health/Newcastle\\_Disease\\_Info.html](https://www.cdffa.ca.gov/ahfss/Animal_Health/Newcastle_Disease_Info.html)