



## School of Veterinary Medicine Agriculture and Natural Resources Update June 2016

### NEW FACULTY

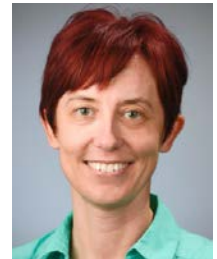


**Dr. Arathy Nair** recently joined the California Animal Health and Food Safety Laboratory System-San Bernardino and the Department of Pathology, Microbiology, Immunology as an Assistant Professor of Clinical Diagnostic Microbiology. Nair completed her veterinary training at Kerala Agricultural University, Thrissur, India. She received an MVSc in Animal Physiology from the Indian Veterinary Research Institute and a PhD in Biotechnology from Rajiv Gandhi Center for Biotechnology. Nair will be responsible for managing the activities of the Bacteriology Section, including the regulatory dairy pathogen monitoring program, the Milk and Dairy

Microbiology Laboratory and the Milk and Dairy Chemistry Laboratory. She will provide consultative advice and specialist information to veterinarians, producers, and government agencies.

<http://www.vetmed.ucdavis.edu/cahfs/about/locations/sanb.cfm>

**Dr. Deniece Williams** joined the Veterinary Medicine Teaching and Research Center as a Dairy Production Medicine Clinician. She received her DVM from UC Davis and her MPVM from UCD. Williams is a veterinarian with advanced training in livestock herd health and preventive medicine, and has several years of private dairy herd health practice experience in California. She will be involved in teaching the DVM professional curriculum and graduate clinical training, and work with faculty, residents and students to facilitate team development and research in the areas of Dairy Production Medicine and Herd Health. Williams will provide clinical veterinary herd health and reproductive services. Her research interests include neonatal calf disease, bovine respiratory disease (BRD), mastitis, and epidemiology of infectious disease in dairy cattle.



<http://www.vmtc.ucdavis.edu/>

### NEW LEADERSHIP



Dr. Maurice Pitesky has been appointed as Assistant Director for Veterinary Medicine Extension. Pitesky obtained his BS in biology from the University of California, Los Angeles, his MS in agriculture from California Polytechnic University, San Luis Obispo and his DVM and MPVM from UC Davis. He is currently an Assistant Specialist in the Veterinary Medicine Cooperative Extension Program with a focus on poultry health and food safety epidemiology. He will help the school elevate the visibility of Veterinary Medicine Extension among key clientele throughout California, nationally, and internationally; help strengthen the school's research and outreach programs

among the poultry and other key livestock industries, showcase Cooperative Extension and AES faculty projects, and be the lead contact for UC Davis state and federal relations.

<https://www.ucdavis.edu/news/pastured-poultry-farm-explore-solutions-small-chicken-farms>

## CURRENT FACULTY RECRUITMENT

- Specialist in Cooperative Extension-Beef Cattle Herd Health and Production – (PHR/Vet Ext)  
<https://recruit.ucdavis.edu/apply/JPF00782>
- Director, California Animal Health and Food Safety Laboratory

## UC DAVIS VETERINARY SCIENCE RANKED NO. 1 IN WORLD AGAIN

UC Davis held onto its top spot in veterinary science in the latest QS World University Rankings. As the No. 1 university in veterinary science, UC Davis is renowned for applying a “One Health” approach to addressing critical health concerns on a local and global scale. <https://www.ucdavis.edu/news/uc-davis-veterinary-science-ranked-no-1-world-again>

## MEETING CHALLENGES FACING ANIMAL AGRICULTURE

The school’s Center for Food Animal Health (CFAH) gathered faculty and representatives of California’s animal agriculture industry in February for a day-long advisory meeting focused on livestock, poultry, small ruminants and aquaculture. Participants received updates on food animal diseases, food safety, and environmental health, and helped identify the latest, most important issues and needs in food animal health and production for focused research efforts. CFAH serves as the veterinary medical component of the Agricultural Experiment Station (AES) of the UC ANR and establishes close collaborative research among CE specialists, AES faculty and related school programs.



Over the last 40 years, the center has provided seed funds to support new and innovative research to improve the health of food animals and solve problems impacting the state’s livestock and poultry industries, and environmental health. It also promotes collaboration among school faculty researchers. Examples of current projects presented at the meeting included intranasal vaccine development for pinkeye in cattle, mitochondrial markers in calves for feed efficiency, alternatives to antimicrobial therapy, colostrum management practices in organic dairy calves, Infectious Bronchitis Virus (IBV) variants in California poultry, risk mapping of Avian Influenza reservoirs for waterfowl surveillance, shellfish microbial standards and pathogen occurrence evaluation in Tomales Bay to help guide aquaculture policy development, and on-farm food safety. Partners represent a wide range of livestock industry and commodity groups including the California Cattlemen’s Association, Dairy Cares, the California Farm Bureau Federation, CDFA, USDA, and California Poultry Federation.

[http://www.vetmed.ucdavis.edu/cfah/local\\_resources/pdfs/VM\\_Food\\_Animal\\_Health\\_Annual\\_Report\\_web.pdf](http://www.vetmed.ucdavis.edu/cfah/local_resources/pdfs/VM_Food_Animal_Health_Annual_Report_web.pdf)

## UC CENTER SACRAMENTO FEATURES EXPERTS ON LIVESTOCK AND ANTIBIOTICS



The school's Terry Lehenbauer (an ANR I&R and AES faculty member), and UCSF Pediatrician Thomas Newman participated discussed 'Antibiotics in Livestock: The Intersection of Human and Animal Health' at a recent event as part of the UC Center Food and Agriculture Series, a collaboration of UC Center Sacramento and the UC Global Food Initiative, in partnership with the World Food Center. More than 80 audience members, including UC Center students, legislative aides and staffers, members of the policy community and non-profits with a policy interest in the topic, were present. <http://www.abc10.com/news/are-animal-antibiotics-a-growing-problem-/188164877>

**Additional events on judicious use of antibiotics featured UCD experts** - Lehenbauer also spoke on antimicrobial use and resistance in food animals at the Spring 2016 Meeting of Academy of Veterinary Consultants and the Stanford One Health Symposium 2016.



Lehenbauer, along with the school's Lisa Tell, Michael Payne and Richard Pereira, participated in working meetings with the California Department of Food and Agriculture to begin implementation of components of SB-27 including antimicrobial use data collection and resistance monitoring in livestock, and development of antimicrobial stewardship guidelines. In addition, Lehenbauer was one of two scientists from the United States that participated in the 8th International Global Challenges University Alliance Workshop

("Livestock production in the post antibiotic era") held at the Swedish University of Agricultural Sciences and presented a case study on how a calf-raising operation has cut its antibiotic use in half.

## UC DAVIS RESEARCH EXPLORES ALTERNATIVES TO ANTIBIOTICS AND BETTER DISEASE DETECTION

Several projects at the UC Davis School of Veterinary Medicine Teaching and Research Center focus on promoting judicious use of antibiotics in livestock. Examples include:

- Clinical trials using zinc compounds to prevent diarrhea in young dairy calves
- Research to reduce or eliminate 'blanket treatment' of all cows at end of lactation (ANR funding)
- Better diagnostics through a Validated Bovine Respiratory Disease (BRD) Scoring System that allows for earlier and more accurate detection, and helps identify when to treat and when to wait (ANR funding)

[http://ucanr.edu/sites/anrstaff/Divisionwide\\_Programs/2015\\_ANR\\_Competitive\\_Grants\\_Program/](http://ucanr.edu/sites/anrstaff/Divisionwide_Programs/2015_ANR_Competitive_Grants_Program/)

## PRODUCE FOOD SAFETY EDUCATION & OUTREACH

Extension and education programs at the Western Institute for Food Safety and Security (WIFSS) <https://www.wifss.ucdavis.edu> are identifying and preventing future foodborne outbreaks, by focusing on reducing the risk factors leading to contamination of raw agricultural products and the pathogens associated with animal products. Director of Veterinary Medicine Extension and WIFSS Robert Atwill participated in updates and discussions to stakeholders on topics including:



\*E. coli O157:H7 in beef cattle and recent regulatory speculations on the link between cattle shedding and produce foodborne outbreaks from nearby regions in Paso Robles, California to the **San Luis Obispo Chapter of the California Cattlemen's Association**.

\*The role of wild and domestic animals and contaminated water in produce food safety to undergraduate students from **Nanjing Agricultural University**.

\*The challenge of implementing irrigation water quality criteria for FSMA at the **66th Biennial Conference for Northwest Irrigation Operators** in Boise, Idaho.

\*Microbiological safety in the food production chain and what microorganisms will be an issue in the future at the **Universidad de Catolica, Santiago, Chile**. In addition, there was much discussion about building an organization like WIFSS that could bring together industry, academia, and the government to solve complex issues in food safety.

### VETERINARY SCIENCE INSPIRES KIDS AT TULARE COUNTY AGVENTURES DAY

In May, Tulare County Farm Bureau hosted AgVentures Day at the International Agri-Center for more than 1,700 children. Staff at the Veterinary Medicine Teaching and Research Center demonstrated some basic elements of the diagnosis of animal medical conditions with a cardboard cow and inspired students by providing hands-on experience with real cow bones, models, training, and stethoscopes.

<http://www.vmtrc.ucdavis.edu/>



### UC DAVIS PICNIC DAY SHOWCASES LARGE ANIMAL HEALTH AND ANATOMY, RESCUE INITIATIVES

In April the UC Davis veterinary hospital hosted a Picnic Day open house for the first time in five years. Hospital staff and students presented many activities for visiting alumni, clients, perspective students, parents and members of the local community. A 12-stop guided tour included opportunities to learn more about several aspects of the hospital including blood banking, ophthalmology, cardiology, imaging, large animal health and anatomy.



The UC Davis Veterinary Emergency Response Team showcased its large animal rescue initiatives with a demonstration in the veterinary hospital's horse arena. Additional activities included information booths on how to support student programs, school activities open to

the public, and animal care services offered at the hospital. Since its inception in 1909, Picnic Day has become the signature event of UC Davis, attracting tens of thousands of visitors to campus every spring. Believed to be the largest student-run event in the nation, Picnic Day showcases the richness of diversity and achievement at UC Davis and the surrounding community in the areas of research, teaching, service, and campus life.

## LIVESTOCK SERVICES ENHANCE STUDENT TRAINING



Whether veterinary students plan to enter a career in livestock medicine or not, fourth-year clinical rotations through the school's livestock services can be a valuable resource. For those actively pursuing a livestock career path, the rotations are necessities, but there are many aspects of the rotations that enhance the futures of students who may never encounter large animals again. Basic technical skills and knowledge of livestock are impressed upon students in their third year so they can be utilized in fourth-year clinical rotations. Many of these skills—basic understanding of diseases, pathophysiology, efficient physical examinations and basic surgical skills—are transferrable to any species. For those geared toward livestock paths, the skills are expanded in the clinics.

Rotations through the *Livestock Medicine Service* allow students to participate in surgeries such as castrations, common abdominal surgeries, C-sections and leg fracture repairs. Many small animal track students want to rotate through livestock medicine to gain additional hands-on surgery experiences, giving them more practice suturing and with tissue handling and manipulation – skills they will utilize when performing surgery on cats and dogs. This rotation also offers students additional experience with CTs, MRIs, radiology, laparoscopy and endoscopy. In the *Livestock Herd Health and Reproduction Service*, future livestock clinicians have the opportunity to hone their skills in some of the newest techniques being offered. Students become skilled in artificial insemination, embryo transfers and other advanced reproductive technologies, as well as gaining better understandings of basic herd health concepts like preventive medicine, vaccinations, disease outbreak investigations and interventions during a crisis, improving their critical thinking skills.

[http://www.vetmed.ucdavis.edu/vmth/large\\_animal/livestock/](http://www.vetmed.ucdavis.edu/vmth/large_animal/livestock/)

## SCHOOL OF VETERINARY MEDICINE STUDENTS HONORED



**Kimberly Conway**, a second-year veterinary student was chosen for the Smith-Kilborne Foreign Animal Disease Program. The Smith-Kilborne Program is designed to familiarize veterinary students with various foreign animal diseases that potentially threaten the nation's domestic animal population and combines classroom presentations on diseases and their implications with laboratory experiences. This position follows their experiences as a contractor under USDA-APHIS as an Avian Influenza Emergency Responder. **Roxann Brooks Motroni**, an alumni of the Veterinary Scientist Training Program (VSTP), completed a Ph.D. in Comparative Pathology

(2012) and a DVM (2013) now serves as AAAS Science and Technology Policy Fellow with the U.S. Department of Homeland Security, Agriculture Defense Branch. Since 1999, 24 graduates have completed the VSTP and gone on to leadership careers in academia, government, and industry.

<http://www.vetmed.ucdavis.edu/vstp/index.cfm>



## MITIGATING ZONOTIC AND ANIMAL DISEASE RISKS IN 4-H ANIMAL SCIENCE PROJECTS

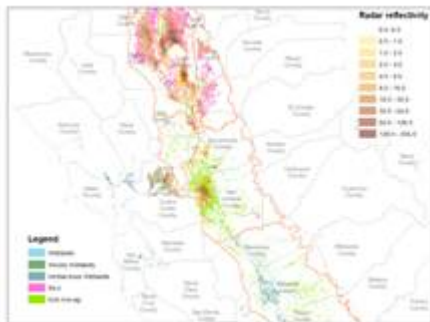
A project mitigating zoonotic and animal disease risk in 4-H science projects has focused on 4-H youth and county fairs in California over the past year. Coordinated research and education will help:

- Reduce risk transmission of pathogenic zoonotic bacteria and parasites from animals to 4-H youth who raise food animals and from animals to members of public who attend fairs.
- Reduce inadvertent microbial contamination of food products among young producers who interface with commercial agriculture via fairs and exhibitions.
- Introduce best practices for risk mitigation through innovative outreach to young producers
- Advance scientific literacy through engagement of 4-H youths in the 4-H Bio-Security Proficiencies Program, an education program that has demonstrated positive effects on youth's knowledge and skills, and places an emphasis on the application of understanding and abilities in real-life situations.



Led by the school's CE specialist Martin Smith and Woutrina Smith, successes include 4-H youth groups completing education proficiencies and proactively initiating dialogue with county fair boards about improving biosecurity practices during subsequent county fairs. <http://4h.ucanr.edu/>

## WEATHER RADAR DATA WILL ASSIST WITH CALIFORNIA AVIAN INFLUENZA DETECTION AND SURVEILLANCE



A new project at the School of Veterinary Medicine allows researchers to use existing weather radar maps and data to better understand and detect waterfowl movement patterns and concentrations, in hopes of preventing avian influenza (bird flu) through improved testing and surveillance. The avian influenza (AI) virus is found in wild waterfowl and can spread to chickens causing mortality and economic loss. In 2015 the country experienced its worst bird flu outbreak in history. Waterfowl migrate to California in millions via the Pacific Flyway from September through March where they winter in wetlands and rice and corn fields. In the

Central Valley alone, there are three million birds at the height of migration. This multi-year project - *a collaboration with Jeff Buler with the University of Delaware, United States Geological Survey, California Department of Food and Agriculture, the California Poultry Federation and the Pacific Egg and Poultry Association* – is funded by ANR, and led by CE Specialist Maurice Pitesky and Research Associate Todd Kelman. They will develop maps of waterfowl movement in California in respect to poultry operations and help identify locations to test the wild birds for AI. The data gathered can assist the state's chicken producers and more than 100,000 backyard chicken owners better protect their flocks' health with knowledge – currently unavailable - of when their chickens are at high risk for exposure to the virus. [http://igis.ucanr.edu/Welcome\\_91/](http://igis.ucanr.edu/Welcome_91/)

[http://ucanr.edu/sites/anrstaff/Divisionwide\\_Programs/2015\\_ANR\\_Competitive\\_Grants\\_Program/](http://ucanr.edu/sites/anrstaff/Divisionwide_Programs/2015_ANR_Competitive_Grants_Program/)

## CALIFORNIA ANIMAL HEALTH AND FOOD SAFETY LABORATORY SYSTEM (CAHFS)

### DEDICATION OF TULARE STATE-OF-THE ART LABORATORY



Dedication of a new state-of-the-art CAHFS laboratory in Tulare will take place on October 28, 2016. The new lab will feature enhanced animal health surveillance and diagnostics including rapid detection and response to catastrophic and emerging animal diseases like Foot and Mouth, and Avian Influenza (bird flu). The new CAHFS lab operates in partnership with the California Department of Food and Agriculture, UC Davis School of Veterinary Medicine, veterinarians, and livestock and poultry producers to protect the health of animals, people and our food supply.

#### Highlights from the June CAHFS Connection include:

##### Bovine

- **Lead intoxication** was diagnosed in a 4-month-old beef calf that had acute onset of circling and head bobbing, and soon after seized and died.

##### Equine

- Lesions compatible with **pemphigus foliaceus** were found in a 13-year-old Arabian gelding with a history of long-lasting recurrent skin lesions that were responsive to corticosteroid therapy.
- A 12-day-old foal with history of being unable to rise, hypermetria, stiff head and neck, and horizontal nystagmus was received for necropsy. Morphology of the nematode was consistent with **Halicephalobus gingivalis**.

##### Small Ruminant

- An approximately 45-day-old goat kid with acute onset of disease succumbed to **Clostridium type D enterotoxemia** after approximately eight hours of observation of the first clinical signs.
- **Clostridium perfringens Type C** was diagnosed in a 3-day-old reindeer submitted from a farm that previously had two neonatal fawns get weak and die.

##### Poultry & Other Avian

- **Pigeon paramyxovirus (PPMV) infection** was diagnosed in a group of racing pigeons with nervous system signs consisting of ataxia and droopy wings; followed by rapid death.

##### Small Animal

- A domestic cat with history of vision loss and unilateral epistaxis was submitted for necropsy by a 50-year-old woman who complained about progressive episodes of fever, loss of memory, muscle weakness and skin rash. In addition, a sample of the environment was submitted for fungal culture. The fungal culture revealed **Cryptococcus gattii**. The environmental sample culture resulted as **Mucor spp.** Both fungi (Cryptococcus and Mucor) are zoonotic pathogens, known to cause disease in humans, affecting mainly elder and immunosuppressed individuals.

