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For questions or comments, please contact Maurice Pitesky at 530-752-3215 or mepitesky@ucdavis.edu

Please Welcome our Newest UC Davis Vet Med Extension Specialist!

Dr. Roselle (Rosie) Busch recently (9/1/2019) joined the Vet Med Extension team at the UC Davis School of Veterinary Medicine. Dr. Busch will fill focus her research and extension efforts on Sheep & Goat Herd Health and Production.

Dr. Busch received her BS in Animal Science (2005) and her DVM (2009) from the University of California, Davis. She then became an Associate Veterinarian (2009-2010) at the Ausaymas Veterinary Service in an Benito County. Dr. Busch completed her residency in Large Animal Internal Medicine (2010-2013) at the University of California Veterinary Medical Teaching Hospital at UC Davis and continued on as a Staff Veterinarian (2013-2017). Dr. Busch was a Veterinarian Specialist (2017-2019) at the California Department of Food & Agriculture in the Antimicrobial Use & Stewardship program.

During her first year Dr. Busch is hoping to meet many of ewe err you to understand the production and health challenges that your (or your client's) herds and flocks encounter. Through relationship building within our various small ruminant industries she hopes to elucidate which aspects of our management systems optimize animal health while encouraging production efficiency and long-term resilience.



On a personal note, Dr. Busch was born and raised in San Francisco, CA. At 6 years old, on a school field trip to a sheep ranch in Marin County, amidst the smells of fresh cut hay, manure, and lanolin, the sounds of wind rustling the leaves in the trees and lambs bleating, she knew she was destined for a life outside of the city in a career with livestock.

With the addition of Dr. Busch, Vet Med Extension has a total of 9 Cooperative Extension Specialists serving California. You can learn more about what each of them do at <u>vetext.vetmed.ucdavis.edu</u>. If you would like to contact Dr. Busch or learn more about her planned research and extension program you can reach out to her at rcbusch@ucdavis.edu or visit her <u>faculty web-page</u>.

-Maurice Pitesky

Jnnovative Educator Professional Development for 4-H Presented Internationally

The 4-H Youth Development Program, a leading nonformal educational organization, offers learning opportunities to youth aged 5-18 in out-of-school time settings, including clubs, afterschool programs, and camps. The 4-H program reaches millions of youth across the United States and internationally. A recent study indicated, however, that professional development for 4-H educators – staff, adult volunteers, and teen volunteers – needs improvement (Smith et al., 2017).

Lesson study represents an opportunity to introduce a professional development model that is consistent with the pedagogical foundations of the 4-H program, namely social constructivism and experiential learning (Rupp, 2015), to 4-H educators. Although common in school-based settings nationally and internationally, there have been only two studies published on the use of lesson study in nonformal education. These studies (Smith, 2013; Schmitt-McQuitty, Worker, & Smith, 2019) were implemented with 4-H by UC ANR academics.

Martin Smith, and a UC ANR colleague, Lynn Schmitt-McQuitty, presented a paper entitled *The Use of Lesson Study in a Nonformal Youth Education Program: A Case Study* at the annual conference of the World Association of Lesson Studies (WALS) in 4-H in Amsterdam, Netherlands, in September 2019. In addition to their research being well received by their peers at the conference, Smith and Schmitt-McQuitty were asked to work with the conference organizers for the 2020 WALS Conference in San Francisco to help develop a conference strand specific to the use of lesson study in out-of-school time education settings.



-Martin H. Smith

Old Remedies for *Postpartum Paresis* (Clinical Hypocalcemia)



Calcium is currently the treatment of choice for clinical hypocalcemia. This treatment was proposed back in 1925 after the consistent observation of very low blood calcium concentrations in cows with postpartum paresis. However, calcium supplementation was not the first successful treatment for hypocalcemia.

The first reference in the literature to postpartum paresis dates back to 1793. This condition was described as cows experiencing an inexplicable tetany, loss of consciousness and paralysis that affected mostly high yielding cows. Before understanding the cause of clinical hypocalcemia, a total of 30 hypothesis were postulated for postpartum paresis and they ranged from nervous derangements to hormonal and nutritional deficiencies. For almost a century, cows were treated following popular treatments for other illnesses, hot packs to induce sweat, bleeding, and purges; but they were unsuccessful.

In 1897 Schmidt, a veterinarian practitioner from Denmark, discovered the first successful treatment of postpartum paresis. He placed under a microscope colostrum collected from affected cows and observed large particles. His observations most likely corresponded to normal immune cells surrounded by fat globules. However, without comparing with samples from healthy cows, he assumed those were toxins produced by an infectious agent. Infusion of intramammary potassium iodide (1%) was the Sproposed treatment to kill the causative infectious agent. This treatment was extraordinarily successful reducing mortality of cows with postpartum paresis from 60-70% to 15%, however, it had important side effects on udder health.

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Old Remedies for *Postpartum Paresis* (Clinical Hypocalcemia) cont.

Later, in 1901, it became apparent that the treatment was successful even when only air was insufflated into the udder. This led to the design of the Zehl's double catheter apparatus for udder insufflation (Fig 1), that if used under aseptic conditions was expected to minimize the negative effects on udder health. The mechanism of action of udder insufflation was still unknown at the time. Some proposed that the strong stimulation of the peripheral nerve endings in the gland was the main mechanism. It was not after hypocalcemia was found to be associated with postpartum paresis that there was a better understanding of the mechanism of udder insufflation; it reduced milk synthesis and decreased the amount of calcium drained from the blood into the milk.



It has been documented that back in the 50's, it was a common practice among dairy producers to milk cows incompletely for a few days after

parturition to prevent hypocalcemia. Many of our senior veterinarian colleagues can testify about this! Nowadays this practice is not common in California dairies, but we have had some reports of consultants and dairy producers rooting for incomplete milking specially in old multiparous cows. Ainhoa Valldecabres (PhD student) is studying various postpartum milking strategies and their effects on postpartum calcemia. She has presented her preliminary results at the 2019 AABP meeting (St Louis, MO; Fig 2). We will keep you posted on our final results!

-Noelia Silva-del-Rio & Ainhoa Valldecabres



Dairy Farm Profitability in Times of Low Milk Prices

an dairy famers be profitable in times of low milk prices? Milk prices are positively associated with dairy profitability. However, for the past 3 years, the supply and demand dairy markets have caused a drop in milk prices received by farmers that has caused many dairyman to close their doors. In California, from 2015 to 2017 only, 107 dairies exited the market. However, even when markets are unfavorable, there are strategies that dairyman can take to guarantee positive returns per hundredweight of milk. To achieve that, dairy managers must be aware of the financial opportunities on their daily management - and from where the money might be leaving the dairy. To address these challenges and opportunities. Dr. Fernanda Ferreira was invited by Zoetis, a pharmaceutical company, to give a talk on their annual Hispanic Dairy Wellness Summit meeting, that happened on June 19th at the Harris Ranch Restaurant and Inn. The objective of the meeting is to update dairy managers with the state-of-the-art research related to their daily activities on the dairy, such as milk quality, reproduction, transition cow health, and labor related issues. Dr. Ferreira presented, in Spanish, the most recent research results that have investigated how health and management strategies at the dairy affects dairy profitability. In addition, she presented preliminary results from a study she is conducting looking into 15 years of data from the California Department Food and Agriculture dairy cost of production and dairy statistics reports. Her objective is to identify characteristics of California herds that were profitable even when milk price was low to help dairy farmers and managers in California to make better informed decisions that will guarantee the sustainability of their businesses.



-Noelia Silva-del-Rio & Ainhoa Valldecabres

Beef Quality Assurance Program

The Beef Quality Assurance Program, or BQA in short, is an industry-driven, voluntary safety and quality assurance program for the preharvest production segments of the industry where training is provided directly to the people handling cattle on a daily basis. Trainings and demonstrations are given by extension specialists, veterinarians, BQA program staff and other qualified individuals working with the BQA program.

The National Cattlemen's Beef Association issues and updates a manual on best practices for responsible cattle management. Initiated in the 1980s, this program has been hugely successful in improving the quality of the end-product beef. For example, giving injections such as vaccines or drugs into the muscle can cause scarification of the tissue, which results in reduced carcass value, because obvious blemishes are trimmed at slaughter, or unpleasant eating experiences if such meat makes it to the consumer. BQA has focused on educating ranchers to give injections subcutaneously (under the skin) and in the neck region, an area of the animal that is not used for expensive cuts of meat. As a result, injection site lesions found at slaughter declined from 21.6% to 2.5% during the decade between 1990 to 2000.

The importance of strictly adhering to withdrawal times for drugs and vaccines before an animal can go to slaughter is a further emphasis of the training and violative residues in meat have now been almost completely eliminated. Other topics typically taught during training sessions include low stress cattle handling, safe and biosecure transportation of cattle, proper euthanasia technique, record keeping, environmental stewardship, worker safety and emergency action planning. An audit that takes place every five years at slaughter plants evaluates carcass data and how they may relate to pre-slaughter practices. In order to stay certified, a ranch needs to have at least one person attend a training every three years, although it is encouraged that everyone on the ranch who handles cattle be certified. Programs such as BQA instill confidence in consumers not only within the U.S, but also in foreign markets. There may also be financial incentives to become certified. A recent study by researchers at Colorado State showed that cattle sold through the Wester Video Market sale that mentioned BQA in the lot description sold for a premium of \$2.69/hundred pounds of body weight of cattle between 2000 and 2017.

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Beef Quality Assurance Program

UC Davis Vet Med Extension has recently become active in delivering BQA trainings with hands-on opportunities for ranchers to practice skills. CE specialist Dr. Gaby Maier, livestock advisors Josh Davy and Larry Forero were invited to a large beef operation south of Redding to give a training for employees and neighboring ranchers. Veterinary student Festus Samah assisted the team. In addition to the lecture style presentation, participants were able to determine proper anatomical landmarks for euthanasia, practice record keeping for a scenario of giving an antibiotic to treat a sick animal, learn about the advantages and techniques of body condition scoring of the adult breeding herd and how to give a proper subcutaneous injection at a chute-side demonstration on some of the ranch's animals. The goal of these workshops besides delivering the information and training is also to bring producers, specialists and advisors together to exchange knowledge and experiences. The flow of information is always in both directions. The BQA program will continue to grow and be re-evaluated in order to promote current animal health and welfare as well as food safety standards.

-Gaby Maier



www.vetmed.ucdavis.edu/vetext/

School of Veterinary Medicine University of California One Shields Avenue Davis CA 95616

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Maurice Pitesky, editor in chief

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