UF IFAS UNIVERSITY of FLORIDA
Department of Animal Sciences

Dairy Update

Quarterly Newsletter **Vol. 19 No. 4** **Fall 2019**

Rachel Garland joins Animal Sciences

Rachel Garland recently joined the Department of Animal Sciences as the Communications and Engagement Manager after working for the Florida Department of Agriculture and Consumer Services for 3 years. In this capacity, Rachel will handle internal and external communications for the Department, coordinate alumni relations and work with the UF/IFAS Development office to steward potential and current donors. Rachel grew up and currently lives on her family's beef cattle and row crop farm in White Springs, Florida. She received her B.S. in Agricultural Education and Communication and Master's of Agribusiness, both from the University of Florida. Rachel can be reached at 386-234-0402 or rachelgarland@ufl.edu.

Opportunity to Know Your Herd's Bovine Leucosis (Leukemia) Virus (BLV) Status

BLV causes serious economic loss to dairy herds, and knowing your prevalence is the first step to tackling the problem. UF researchers are conducting a study funded by the Southeast Milk Check-off to determine the prevalence of BLV in southeastern dairy herds. This will involve collection of blood samples from 40 lactating cows per herd and completion of a survey. Just a heads up that the researchers will be contacting dairy producers to identify those who are interested; 40 herds are needed. If you know you are interested in participating, please feel free to contact us to get signed up: Dr. Fiona Maunsell (maunsellf@ufl.edu, 352-317-2847) or Dr. Klibs Galvao (galvaok@ufl.edu). Maunsell and Galvao are with the Food Animal Reproduction and Medicine Service (FARMS) in the UF College of Veterinary Medicine.

Position Available: Manager UF/IFAS Dairy Unit

The Department of Animal Sciences, University of Florida, is looking for candidates for the position of manager of its Dairy Unit. Position description and how to apply: https://jobs.ufl.edu (job # 512536) or http://explore.jobs.ufl.edu/cw/en-us/job/512536/research-coordinator-ii

Applications close November 4, 2019 (or later until the position has been filled).

More information:

Audy Spell
Operations Manager
251-656-6972 cell
352-294-1059 office
aspell@ufl.edu

Dr. Albert De Vries
Professor and Assoc. Chair
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Proceedings 2019 Florida Dairy Production Conference Now Online

The 55th Florida Dairy Production Conference was held in Gainesville, FL, on September 18, 2019. The Conference attracted over 250 participants from all corners of the Florida dairy community and many came from outside Florida. The proceedings are now available at http://dairy.ifas.ufl.edu/dpc/

UF/IFAS Dairy Extension Offers On-farm Training for Employees and Managers

Izabella Toledo

University of Florida-Northeast Dairy Extension (Dr. Izabella Toledo) is offering three on-farm training sessions for employees and farm managers in Cow Handling, Animal Welfare Assessment and Milking Procedures and Milk Quality.

The "Low-Stress Handling of Dairy Cows" training covers dairy cow behavior, stockmanship principles and how to use good stockmanship skills. This training is available in both English and Spanish.

The "Dairy Cattle Welfare Assessment" training covers the conception, principles, parameters, criteria and importance of routine animal welfare assessments. In addition, this training covers steps and methods to improve animal welfare in dairy farms.

The "Milking Procedures and Milk Quality" training covers the importance of harvesting milk, the milk let-down reflex, milking best management practices, milking procedures, milk quality and mastitis identification, prevention and control. This training can be tailored to each specific farm according to their milking procedures.

The cow handling and animal welfare assessment trainings are certified by the National FARM program (FARM 4.0).

The trainings are free of charge. Attendants will get supplemental material (in both English and Spanish) and a certificate of completion at the end of each training session.

To schedule training or for more information, please contact **Izabella Toledo** at izatol@ufl.edu or at (352) 284-9395. Izabella will schedule a date and a time that works for the dairy farm, and she will come to the farm and give the requested training.

Southeast Dairy Stewardship- 5th Module (Training and Communication)

Please join us for an educational program addressing communications and training to comply with FARM requirements and 3rd party auditors. Completion of this program will count towards annual animal care employee training required within NMPF's National Dairy FARM Program. The program will be held from 4pm to 8pm in Quitman, GA (November 19th), Trenton, FL (November 20th) and Okeechobee, FL (November 21st). The cost of the program is $25 (includes dinner). For more information or registration, please contact the persons below:

- **Quitman, GA:** Ricardo Chebel (rcchebel@ufl.edu), Izabella Toledo (izatol@ufl.edu) or Michasia Dowdy (michasia@uga.edu)
- **Trenton, FL:** Ricardo Chebel (rcchebel@ufl.edu) or Izabella Toledo (izatol@ufl.edu)
- **Okeechobee, FL:** Colleen Larson (cclarson@ufl.edu)

Info: Izabella Toledo, UF/IFAS Dairy Extension, 352-284-9395, izatol@ufl.edu

Connecting the Cow Genome and Rumen Microbiome to Improve Milk Production Efficiency

Francisco Peñagaricano, Rafael Bisinotto, and José Santos

Feed represents more than 50% of the operating costs in dairy production. Therefore, developing novel strategies to improve feed efficiency and nutrient utilization in dairy cattle are becoming increasingly important. Improving feed efficiency has the potential to improve dairy farm profitability and also reduce the environmental impact of dairy farming.

The rumen microbiome is a very diverse and complex ecosystem that plays a critical role in the transformation of fiber and other components in feedstuffs into usable nutrients for ruminants. Research has shown that variations in the rumen microbiota are associated with cow performance, including milk production, disease status and feed efficiency. Although external factors, such as diet, directly contribute to the establishment and composition of the microbial populations, there is growing evidence that the cow genome regulates, at least in part, the rumen microbiome.

Recently, the National Institute of Food and Agriculture, U.S. Department of Agriculture, funded a research grant for half a million dollars aimed to improve our understanding of genome-microbiome interactions and, more importantly, how this

complex network affects feed utilization and milk production efficiency. This project is a multi-institutional effort involving researchers from University of Illinois, Cornell University, and the University of Florida. Our plan is to measure feed efficiency and characterize the rumen microbiome of about 1,000 dairy cows on research facilities where it is possible to precisely determine individual cow feed intake, collect rumen fluid, and evaluate diet chemical composition. We will investigate the functional links among three factors of the biology of the cow (Figure 1): the cow genome, the composition of the rumen microbiome, and residual feed intake as a measure of feed efficiency. The idea is to dissect the complex genome-microbiome network, with the ultimate goal of being able to genetically manipulate the rumen microbiome for improvements in production efficiency. We will also perform an experiment where we will exchange the rumen content between high and low feed efficiency cows in order to evaluate the effect of the host on the microbiome re-establishment.

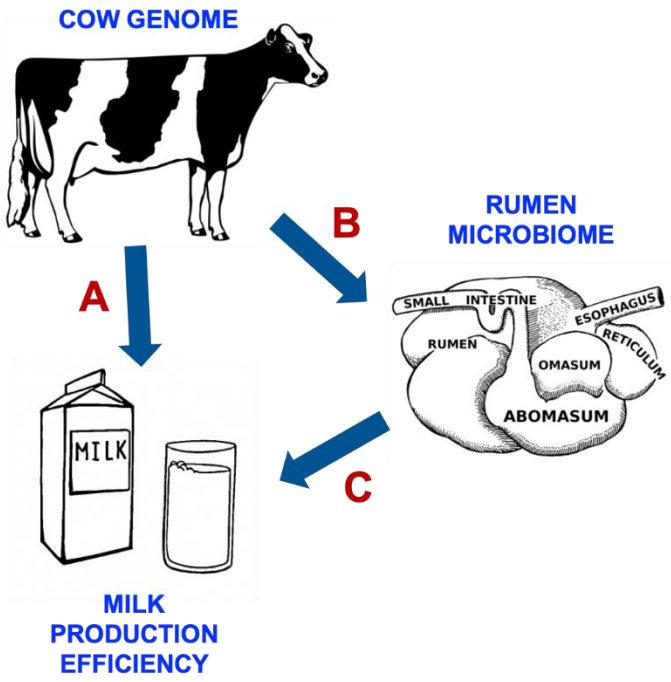

Figure 1. Complex network involving the cow genome, the rumen microbiome, and the expression of different phenotypic traits, such as feed efficiency. The genetics of the cow directly affects the phenotype (A), and modulates the rumen microbial composition (B), which in turn contributes with the phenotypic performance (C).

Rumen microbes are essential to convert feed into milk precursors, and hence, understanding and quantifying the complex network between the cow genome and rumen microbiome holds promise for improving feed utilization and milk production efficiency, which in turn ensure sustainability and profitability of the dairy industry.

For more information, contact Dr. Francisco Peñagaricano at fpenagaricano@ufl.edu or call (352) 294-6988. Francisco Peñagaricano is Assistant Professor of Dairy Cattle Genetics and Genomics in the Department of Animal Sciences at the University of Florida.

UF/IFAS Dairy Unit Update

Albert De Vries

The UF/IFAS Dairy Unit is undergoing some major restructuring. Here is an update of recent developments.

The Department of Animal Sciences operates the UF/IFAS Dairy Unit, which is located in Hague between the cities of Gainesville and Alachua. The unit comprises 850 acres, of which 450 are used for forage production and the remainder is occupied by facilities, pastures, and wooded areas. The four main barns have room for over 550 cows. A separate Heifer Unit, located half a mile north of the cows, houses the heifers from birth to calving. Heifers live on pasture after weaning.

The Dairy Unit is used for research in all phases of dairy production. Special infrastructure on the farm is for example the 116 Calan gates that allow for feeding individual diets and measuring individual feed intakes. In addition, the Unit is used for teaching and training of undergraduate and graduate students, and veterinary students. Occasionally we host Extension events such as Family Day at the Dairy Farm.

Until recently, the labor pool existed of permanent staff and 14 temporary workers. Changes in the way temporary workers can be hired at UF caused a reduction in the work force. In addition, the ability to pay overtime has been restricted through changes in UF regulations. These limitations resulted in too much work for the remaining labor pool and the decision was made to sell approximately 140 cows. Heifers were not sold. The Dairy Unit is currently milking 340 cows. The

herd size will grow again as we are able to restructure the existing labor pool and improve labor efficiency. In addition, the charge from the UF/IFAS administration is to be close to budget neutral. This has been a problem, caused in part by low own forage yields when fields were wet. The Dairy Unit was built on swampland in the 1950s.

Plans exist to improve the facilities too. Upgrades of the manure management system should be completed within several months. New headlocks and stall loops are being installed. Another plan is to move the Heifer Unit near the facilities at the Dairy Unit. We are also seriously looking at installing automatic milking robots. These larger upgrades will depend on successful fundraising and partnerships with the dairy community.

We are hopeful that restructuring of the labor resource and upgrades in the facilities will continue to make the Dairy Unit relevant for research, teaching and Extension in the years to come. Want to know more? Contact Albert De Vries, devries@ufl.edu or (352) 294 6983.

Google Satellite map of the UF/IFAS Dairy Unit

Dairy Extension Agenda

- **Southeast Dairy Stewardship** - 5th Module: Training and Communication. The program will be held from 4pm to 8pm in Quitman, GA (November 19th), Trenton, FL (November 20th) and Okeechobee, FL (November 21st). More details: see elsewhere in this newsletter.

Sign up for **UFL-DAIRYUPDATE-L**: Receive *Dairy Update* and other announcements of UF Dairy Extension events by email. Subscribe and unsubscribe by visiting http://dairy.ifas.ufl.edu/dairyupdate-L.shtml

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Dairy Update is published quarterly by the Department of Animal Sciences, Institute of Food and Agricultural Sciences, University of Florida. Please address any comments to Albert De Vries, Editor, Dairy Update, PO Box 110910, Gainesville, FL 32611-0910. Phone: (352) 294-6983. E-mail: devries@ufl.edu.
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