

UF/IFAS

Range Cattle Research & Education Center

NEWS

3401 Experiment Station • Ona, FL 33865
863.735.1314 • rcrec-ona.ifas.ufl.edu

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IN THIS ISSUE

The UF/IFAS Range Cattle Research and Education Center (RCREC) Animal Science Program

Andrea Dunlap with Philippe Moriel



The UF/IFAS Range Cattle REC is fortunate to have 2 animal scientists, this quarter we are featuring Philippe Moriel, an assistant professor specializing in beef cattle nutrition and management. Philippe was born and raised in Brazil. In a recent interview when I asked him about these early years and if he'd grown up on a ranch he said, "I did not grow up on a ranch, but since I was a child I always dreamt about working with cattle and horses. Not sure exactly where this interest came from as none of my family members had a cow-calf operation. I guess it was meant to be this way, and I am happy I followed this pathway."

Philippe earned his BS in Ruminant Nutrition from Sao Paulo State University, Brazil, MS in Animal and Veterinary Sciences from the University of Wyoming, and PhD in Ruminant Nutrition from the University of Florida (UF). Eight months prior to graduation, Philippe was hired as an assistant pro-

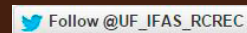
fessor at North Carolina State University and worked there from 2013-2016. In June 2016, Philippe returned to UF and joined the faculty at Ona.

Philippe is a member of several societies, including American Registry of Professional Animal Scientists, (2008 – present); FL Cattlemen's Association (2016 – present); American Forage and Grassland Council (2015 – present); NC Cattlemen's Association (2013 – present); and American Society of Animal Science (2008 - present). He is currently a committee member for the 2018 Extension Forum for Southern Section of the American Society of Animal Science. An editorial board member of the Journal of Animal Science, and section chair for the 2018 Southern Section of the American Society of Animal Science. In 2017, Philippe was Chair of the 2017 Annual Meeting of American Society of Animal Science – Ruminant Nutrition Symposium, overall program committee member of the 2017 Annual Meeting of American Society of Animal Science, and lead organizer of the 2017 Supplement Delivery Summit for the Southern Section of American Society of Animal Science.

Since arriving in 2016, Philippe has received several fund awards including 2 Florida Beef Enhancement Funds from the Florida Cattlemen's Association to evaluate the impact of year-round supplementation of mo-

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lasses and range cubes (Study #1) and concentrate supplementation during late gestation (Study #2) on growth and reproductive performance of beef cows and calves. And this year he received the 2018 Early Career Seed Fund (\$50,000) to investigate how the nutrition of pregnant cows can affect offspring growth, health, and epigenetics.

Research

The primary focus of Philippe's research laboratory is to evaluate multiple cost-effective nutritional management strategies to improve the reproductive performance of beef females and growth and immunity of stressed beef calves. Philippe shared the following overview of his current work:

"Management strategies to enhance beef female reproduction

Average annual cost of infertility is approximately \$1 billion for the US beef industry. As beef demand continues to rise, reproductive success of beef females will not only determine the overall efficiency of FL cow-calf operations, but also global food supply."

"Impact: Currently, 5 research studies are exploring novel supplementation strategies to increase pregnancy rates of beef females. Two of these studies successfully secured funding from the Beef Enhancement Board from FL Cattlemen's Association for 2 consecutive years, which demonstrates that my research goals are aligned with the needs of the FL beef industry. Assuming that 30% of producers adopt one of these supplementation strategies, the potential impact of my research could achieve \$16 million in additional annual calf production."

"Management strategies to enhance calf health

Cattle are inevitably exposed to stressful management procedures within beef production systems. The combination of these stressors predisposes cattle for health disorders, including bovine respiratory disease, costing the US beef industry approximately \$1

billion annually due to pharmaceutical treatment, decreased animal growth, and high death losses."

"Impact: Since 2014, my research program implemented 10 research studies (8 as PI) exploring multiple supplementation strategies to increase calf growth and immunity. We reported that a conventional supplementation approach widely used in Southeast US (decreasing the frequency of supplementation events while maintaining the weekly supplement amount) decreased calf growth by 21% compared to more frequent supplementation. We also successfully identified strategies that reduced production costs while maintaining calf performance and immunity (i.e., gradually reducing supplementation frequency, and increased protein supply)."

"Epigenetic mechanisms to enhance beef production

This is an emergent area within beef cattle research, centered on epigenome modifications (without changes in DNA sequence) caused by environmental factors including diet and stress. These modifications take place during fetal development (fetal programming) and early life phases (metabolic imprinting), and permanently impact biological traits relevant to cattle production."

"Impact: Our laboratory has identified that short periods of energy deficiency during late gestation can lead to decreased calf post-weaning immunity, which can be detrimental to calf susceptibility to respiratory diseases. We also explored how calf management at early life stages impacted future growth and reproductive performance. Since 2014, 7 research studies identified novel dietary strategies that hastened puberty achievement and pregnancy of beef heifers and carcass quality of beef steers. In 2015, one of these studies was selected as the UF/IFAS High Impact Research Publication Award (Moriel et al. 2014; J. Anim. Sci. 92:3096-3107)."

Extension

Philippe's appointment is 60% research

and 40% Extension. About Extension Philippe says, "My extension program was designed to spread science-based information to stakeholders. More specifically, the program focuses on nutritional management of Florida beef females to help stakeholders to better understand the importance of 4 major topics:

- basic concepts of nutrition and supplementation strategies;
- economic impact of beef female infertility on cow-calf profitability;
- use of body condition scoring to assess nutritional status of beef females;
- impact of body condition score and supplementation strategies on reproductive performance of beef females and subsequent offspring growth and health."

"Hence, our group has been delivering multiple extension programs with specific objectives:"

"Objective 1: Immediately after attending the annual trainings, the knowledge and skills of beef cattle producers and livestock agents on body condition scoring and nutritional management of beef females will increase by at least 20% as determined by pre- and post-training surveys."

"Objective 2: Within 3 years of attending the annual trainings, 20% of beef cattle producers will adopt cow or heifer pre-breeding supplementation strategies to increase annual calf production as measured by annual follow-up surveys, and phone interviews, or on-farm visits."

Example of success: Our most recent extension programs in Okeechobee, Polk, and Hendry Counties (Jan and Feb 2018) increased the knowledge of attendees about the impacts of body condition score on future performance of cows by 49%, which 2 times greater than our target goal. This program also included an interactive training on how to body condition

score beef cows. We successfully improved the average percentage of people selecting the correct body condition score of 10 cows from 49% before the training to 62% after the training.”

International Activities

“International programing is a crucial component of my teaching, research, and extension programs.” says Philipe. “My mission is to expand relationships with international institutions worldwide. More specifically, I developed a 1-week course entitled “Nutritional and Reproductive Management Practices for Beef Females,” which has been taught for 2 years at Sao Paulo State University – Botucatu Campus (2015 and 2016). The course has received over 40 graduate students from Veterinary and Animal Sciences majors from multiple Brazilian universities.”

“I was an invited speaker for: (1) the 2014 and 2018 New Concepts in Production and Reproduction of Bovines Conference (Sao Paulo State University, Uberlândia, Minas Gerais, Brazil), which is the largest animal science conference in Brazil with an average annual attendance of 1,500 people, including students, industry personnel, faculty members, and producers; and (2) 2018 Animal Nutrition Conference (Edmonton, Alberta, Canada) with an average annual attendance of 300 people. These invitations are clear evidences of the global outreach and recognition for my research program.” “Outcomes of my international exposure include: (1) the development and implementation of 2 research trials in Brazil in collaboration with Sao Paulo State University, and sponsored by nutrition and pharmaceutical companies, (2) served as a committee member of 1 masters and 1 PhD student from Sao Paulo State University, Botucatu, Sao Paulo, Brazil; (3) hosted multiple groups for on-farm visits in FL cow-calf operations (total of 60 people including producers and professionals of Brazilian beef

industries); and (4) attracted 6 visiting scholars that participated in my extension and research efforts. This involvement in international student training also benefits UF students by exposing them to diverse cultures and new experiences. International impact has also enhanced my research and extension programs, as evidenced by 2 consecutive years of research funding in Brazil.”

Students

Philipe believes in a well-rounded and structured approach to student training. In his two years at Ona he has served as chair for two MS students, an a 2017 graduate, Gleise Silva and another set to graduate later this year, Matheus Piccolo. With two PhD students set to join his program later this fall. Philipe is also a committee member for three PhD students Jose Dias, Joao Sanchez, and Gleise Silva.

He said, “Although excellent academic performance is desirable, I believe that students need to focus on developing interpersonal skills and enriching research and experiences to be successful and competitive in academia or industry careers. As an advisor, I strive to promote critical thinking and an excellence mindset in



Matheus Piccolo

my students. Therefore, my advisory goals are to develop independence and proactivity skills of my students, and improve their communication abilities on preparing and delivering high-quality, science-based presentations for a wide variety of audiences, which will place them into a successful professional career.”

“In terms of graduate student training, I begin my guidance process by asking each student to determine the desired date to complete their degree, and then work closely with each student to develop the steps and deadlines to achieve this goal. During this conversation, I share my expectations in terms of academic performance, but also demand strong participation on all ongoing research and extension activities of my program. Although some students will require adjustments, this

Construction Update

After 7-months of construction, the new labs, student work room, and collaboration room are complete and we have begun moving in! Landscaping and sod will be completed soon.



approach shows them the importance of proper planning and seeing the big picture. It also highlights that the degree of success to be achieved in their training is primarily determined by their own actions (early proactivity, desire to strive, and commitment). I challenge students to review research manuscripts to promote critical thinking, and participate in multiple projects from peers to increase their productivity, and stimulate creativity and team-oriented mindset."

Since 2014, a total of 7 exchange visitors have been trained through his program. Philippe said, "Most students

pursued graduate degrees and completed their undergraduate training with at least 1 peer-reviewed manuscript and 1 extension publication."

Program Support

Philippe's program is supported by biological scientist, Julie Warren. Philippe said, "Julie is a crucial member that significantly contributes to our program. She is responsible for coordinating all research-related activities and for overseeing our laboratory."

Learn More

Philippe resides in Bradenton.



Julie Warren

Visit Philippe's page on the RCREC website at <http://rcrec-ona.ifas.ufl.edu/> to learn more about his work. Contact him at pmoriel@ufl.edu

or 863-735-1314 ext. 208.

Faculty News



Joao Vendramini

Three faculty are now recipients of UF Term Professorships. Two in Research (Silveira and Vendramini) and one in Extension (Sellers). This UF "Term Professorship Award" recognizes faculty excellence in recent contributions along with potential for future accomplishment. The term of this professorship is 2017-2018 to 2019-2020.



Philippe Moriel

In January, Philippe Moriel was recognized as one of 15 University of Florida researchers awarded the 2018 Early Career Scientist Seed Grant (\$50,000). This award was implemented by the UF/IFAS Dean for Research office, in partnership with the Senior Vice President for Agriculture and Natural Resources and the Vice President for Research to facilitate development of new faculty research, jumpstart their research programs, and to provide a platform for their future success.

This grant will be used for Philippe's research on nutritional manipulation of pregnant beef cows to impact offspring epigenetics, growth, and immunity. Philippe explains, "Fetal programming is the concept that maternal nutritional manipulation during a critical period of gestation has long-term effects on the offspring performance and health. Due to their parasite resistance and tolerance to elevated environmental heat and humidity conditions, *Bos indicus*-influenced cattle are predominant across the southeastern US and tropical/subtropical regions of the world. It is important to highlight that all existing published studies were conducted with *Bos taurus* cows (primarily English breeds) grazing high-quality, cool-season forages. We are unaware of studies evaluating nutritional methods for beef cows having *Bos indicus* genetics and consuming low-quality, warm-season forages. We will investigate novel nutritional strategies to transform beef cattle production in tropical/sub-tropical grazinglands, while simultaneously identifying and advancing the awareness of maternal nutrition-induced effects on the offspring. Our group will evaluate the impact of maternal diet fortification with energy and methionine (primary limiting amino acid for grazing animals) during a critical window of fetal development (last trimester of gestation) on: (1) post-calving growth and immunity of beef calves; and (2) expression of genes essential for proper calf muscle development and immunity."



Maria Silveira



Brent Sellers



In December, Dr Joao Vendramini taught the "Methods of Forage Evaluation" class for graduate students and visiting research trials at the Federal University of Tocantins in the Amazon region in Brazil.

Staff News

The following staff & friends of the Center were recognized at the annual Range Cattle REC Christmas Party.



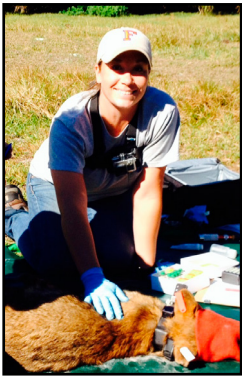
UF/IFAS Range Cattle REC Superior Accomplishment Awardee, Tom Fussell.



Kevin Heinicka of UF/IFAS Facilities was recognized for his outstanding support and services to the Center.



Receiving service pins are Tom Fussell (5 yrs.) and Dennis Kalich (25 yrs.).



Bethany Wight, a Research Biologist in the Rangeland Wildlife and Ecosystem Program here at Ona just published a paper about the influence of edge effects associated with ecotones on the distribution of the native Florida apple snail (*Pomacea paludosa*) and their eggs in the Everglades. Bethany previously worked 6 years for a research team studying the apple snail, including completing her Master's thesis research in 2013.

Bethany R. Wight, Philip C. Darby, Ikuko Fujisaki; Quantifying edge effects on apple snails (*Pomacea paludosa*) and their eggs at the junction of two wetland habitat types, *Journal of Molluscan Studies*, Volume 83, Issue 3, 1 August 2017, Pages 351–359, <https://doi.org/10.1093/mollus/exx025>

Congratulations to the RCREC's own Julie Warren for being selected to receive the UF/IFAS Superior Accomplishment Award in the Community Service category! In March, Julie will be recognized at a special reception in Gainesville and will receive a \$200 check, a certificate, a commemorative mug, and a gift bag. She is now eligible to be considered for the campus-wide award in that category. We wish you the best Julie! Thank you for all your community service efforts! June will mark Julie's fifth year at the RCREC as a biological scientist supporting Philippe Moriel's Animal Science Program. In her time off she is very active with 4-H, Send Me Missions, and her church.



Student News



Brent Sellers and Jose Luiz Dias, a PhD student in his program, have just completed a 2 week trip to Australia. During this busy trip they met with researchers and cattlemen to talk about issues with smutgrass management. You can view photos from their trip on our [Facebook page](#). This trip was made possible through an internal grant funded through the Dean of Research to foster international relationships and activities.



In February, Graduate students, Wes Anderson and Sam Baraoidan attended the Vertebrate Pest Conference in California with Raoul Boughton. Here they are seen standing by some redwoods.

Connect with us



Joao with Michael Vieira

Listen or download the latest **Joe What? Podcasts:**

- Zach Adams, a fourth generation rancher at Adams Ranch in Kenansville, Florida. They discuss Adams Ranch history and cattle and the opening of their restaurant "The Bradford" in Ft. Pierce.

- Ralph Pelaez, the owner of Pelaez & Sons cow/calf ranch in Okeechobee.

Listen in as Ralph shares about heifer development, including their breeding and nutrition programs.

- Michael Vieira, the owner of A Legacy Genetics in Haworth, Oklahoma. Listen in as Michael shares about his work with dairy, poultry, and beef cattle, including his purchase of the Ona White Angus and its development and marketing.

These monthly podcasts can be found at: <http://ufifasrcrec.podbean.com>.

New Video Recordings Available

View these recordings and a PDF of the slides at: <http://rcrec-ona.ifas.ufl.edu/vclassroom/video/vcmedia.shtml>

Rangeland Wildlife and Ecosystems Highlight with Raoul Boughton - "Using Drones to Assess Feral Swine Damage on Florida Rangeland" - 12/12/17

Animal Science Program Highlight with John Arthington - "Selenium Nutrition of Grazing Beef Cattle in Florida" - 1/22/18

Soil & Water Science Program Highlight with Maria Silveira - "How to interpret your soil test results" - 2/13/18

Upcoming Ona Program Highlights

- attend in person or by webinar!

March 13	Philippe Moriel, Animal Science Program
April 10	Joao Sanchez, Agronomy PhD Student Highlight
May 15	Brent Sellers, Weed Science Program

These informative presentations are held in the Grazinglands Education Building. They begin at 11:00 a.m. and last about 30 minutes. You may attend in person (call to register: 863-735-1314) or by webinar. Visit <http://rcrec-ona.ifas.ufl.edu/events.shtml> to register online.

Past webinars (recordings and slides) are available on the RCREC website, go to: <http://rcrec-ona.ifas.ufl.edu/> look under **Extension** in the left navigation panel and then visit the "Virtual Classroom."

Upcoming Events

Animal Science Program Highlight with Philippe Moriel

- March 13, 11:00 a.m.

Webinar, register at: <https://register.gotoweinar.com/register/1689281257303944962>

UF/IFAS Range Cattle REC Field Day

- April 5, 2018

Register by 4/2 at: <https://rcrec-fd-2018.eventbrite.com>

Fee, \$15 includes steak lunch & a copy of the proceedings. See the flyer enclosed.

Graduate Student Highlight with PhD Student Joao Sanchez

- April 10, 11:00 a.m.

Webinar, register at: <https://register.gotoweinar.com/register/6796992154728997123>

Weed Science Program Highlight with Brent Sellers

- May 15, 11:00 a.m.

Webinar, register at: <https://register.gotoweinar.com/register/2593716432567835393>

67th Florida Beef Cattle Short Course

- May 9-11

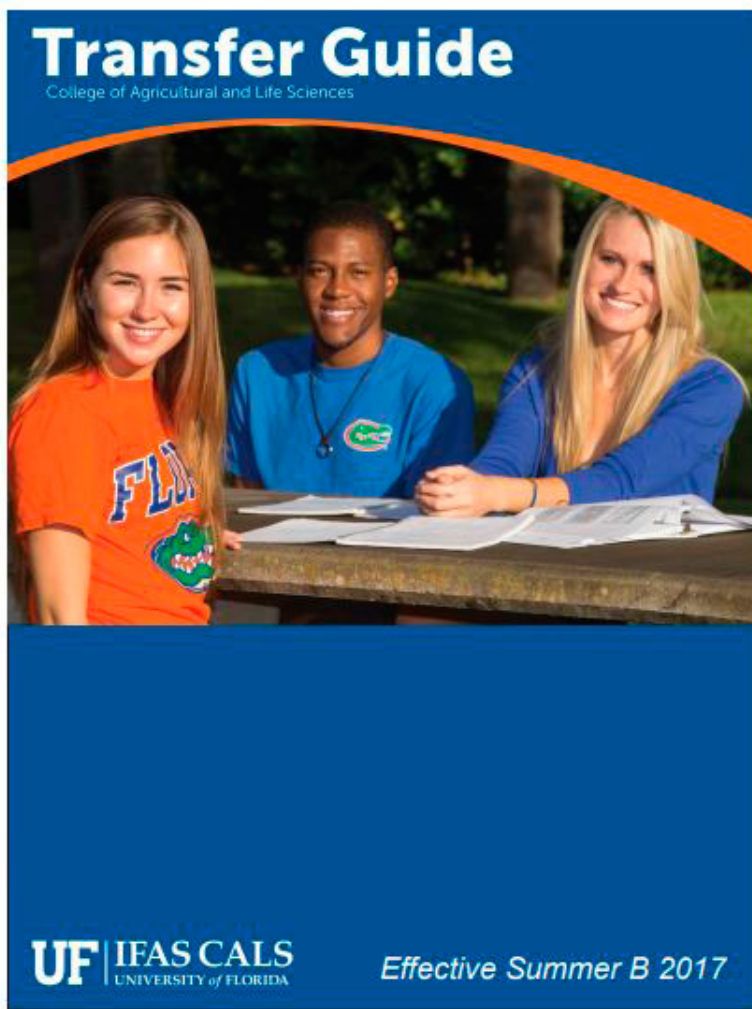
Alto and Patricia Straughn IFAS Extension Professional Development Center, located at 2142 Shealy Drive, Gainesville

Register: <https://www.eventbrite.com/e/67th-florida-beef-cattle-short-course-tickets-42786511608?aff=es2>

UF/IFAS Range Cattle REC Youth Field Day

- June 28, 2018





Are you or someone you know thinking of possibly transferring to the University of Florida College of Agricultural and Life Sciences? If so, check out their helpful transfer guide for admissions information, learn about opportunities at CALS, distance education options and CALS majors.

Visit: <http://cals.ufl.edu/>

Recent Publications

Dias, J.L.C.S., A. Banu, B.P.Sperry, S.F. Enloe, J.A. Ferrell, and B.A. Sellers. (2017) Relative Activity of Four Triclopyr Formulations. *Weed Technology* 31:928-934

Marques, R.S., Cooke, R.F., Rodrigues, M.C., Brandao, A.P., Schubach, K.M., Lippolis, K.D., Moriel, P., Perry, G.A., Lock, A., and Bohnert, D.W. (2017) Effects of supplementing calcium salts of polyunsaturated fatty acids to late-gestating beef cows on performance and physiological responses of the offspring. *Journal of Animal Science*, 95, 5347-5357.

Silva, G.M., Poore, M.H., Ranches, J., and Moriel, P. (2018) Effects of timing of vaccination relative to weaning and post-weaning frequency of energy supplementation on growth and immunity of beef calves. *Journal of Animal Science*, 96, 318-330.

Silva, G.M., Poore, M.H., Ranches, J., Santos, G.S., and Moriel, P. (2018) Effects of gradual reduction in frequency of energy supplementation on growth and immunity of beef steers. *Journal of Animal Science*, 96, 273-283

Silva, L.G.T., Cooke, R.F., Schubach, K.M., Brandao, A.P., Marques, R.S., Schumacher, T.F., Moriel, P., and Bohnert, D.W. (2017) Supplementing a yeast-derived product to enhance productive and health responses of beef steers. *Animal*, Dec 26:1-8. doi: 10.1017/S1751731117003585

Tracy, B. F., Foster, J. L., Butler, T. J., Islam, M. A., Toledo, D., and Vendramini, J. M. B. (2018) Resilience in Forage and Grazinglands. *Crop Science*, 58, 1-12.

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ABOUT THIS NEWSLETTER

This newsletter is a publication of the UF/IFAS Range Cattle Research and Education Center (RCREC) located in South Central Florida in the heart of Florida's cattle country. Our goal is to keep you up to date on RCREC happenings, publications, research, faculty & student news, upcoming events and bring you beneficial information you can use in your beef cattle or forage operation.

CONTACT INFORMATION

UF/IFAS Range Cattle Research and Education Center
3401 Experiment Station, Ona, FL 33865
Phone: 863-735-1314
Fax: 863-735-1930
E-Mail: ona@ifas.ufl.edu
Website: <http://rcrec-ona.ifas.ufl.edu>
Newsletter Contact: Andrea Dunlap



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Range Cattle Research and Education Center
– FIELD DAY –

April 5, 2018 · 8:00 a.m.—3:00 p.m.

8:00 a.m. Visit sponsor and program booths and view student posters

9:30 a.m. Welcome Message & Special Remarks —

Moderator, Bridget Stice, UF/IFAS Extension Polk County

John Arthington, Center Director, UF/IFAS Range Cattle REC

Elaine Turner, Dean, UF College of Agricultural and Life Sciences

Ken Griner, President, Florida Cattlemen's Association

Faculty Presentations

Chris Prevatt — Beef Cattle Market Outlook

Philippe Moriel — Nutrition of Beef Females — FCA studies

Raoul Boughton — Florida Calf Loss — Summary of Herd Results

11:30 a.m. Ribbon Cutting Ceremony— newly completed laboratories

12:00 p.m. Steak Lunch

1:15 p.m. Field Tour of Beef Enhancement Projects

Brent Sellers — Updates on Smutgrass Management

Joao Vendramini — Warm-season Perennial Grass Establishment

Maria Silveira — Land Application of Biosolids to Bahiagrass Pastures

Register by April 2nd to attend!

Online— <http://rcrec-fd-2018.eventbrite.com> or call: 863-735-1314

Registration Fee—\$15, includes literature & steak lunch

An Equal Opportunity Institution.

