

UF/IFAS

Range Cattle Research & Education Center NEWS

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summer 2016

The Soil and Water Sciences Program at the UF/IFAS Range Cattle Research and Education Center (RCREC)

Andrea Dunlap with Maria Silveira



The Soil and Water Sciences Program at the UF/IFAS Range Cattle REC is led by Maria Silveira, an Associate Professor of Soil and Water

Sciences who earned her M.S. and Ph.D. from the University of Sao Paulo in Brazil. Maria joined the RCREC faculty in August 2006 after doing Doctoral work at the University of California and Post-Doctoral training at the University of Florida and Texas A&M University.

Research

In a recent interview, I asked Maria about her research efforts and recent findings. Maria said, "My research addresses production and environmental aspects related to the dynamics of nutrients in cultivated and native grazingland ecosystems. Because of the multi-disciplinary nature of my research program, I have developed strong collaborations with faculty members from different areas of expertise, including agronomy, animal science, hydrology, and ecology. These collaborations produced more than 66 peer-reviewed papers and more than \$2 million in extramural funding."

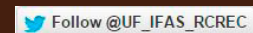
"My current projects are focused on developing, evaluating, and disseminating nutrient management strategies

that minimize fertilizer inputs necessary to sustain adequate forage/animal production while protecting the environment. For instance, one of these current projects (funded by the Florida Cattlemen's Association) is focused on evaluating the agronomic benefits of biosolids application to bahiagrass pastures and the potential impacts on water quality and gas emissions. Other field projects included on-farm trials focused on pasture phosphorus and potassium fertilization. My program has also emphasized understanding soil carbon dynamics in grazingland ecosystems and the impacts of pasture management on soil carbon sequestration and greenhouse gas emissions. Pasturelands can be important sinks of atmospheric carbon dioxide (CO₂) and play a major role in the overall carbon cycle fluxes. Our data demonstrated that proper grazing and soil fertility management can promote soil carbon accumulations. Because of the relatively high sequestration rates and extensive area, grazing lands in Florida represent an important component of terrestrial CO₂ offset and are a significant sink for long-term carbon sequestration and greenhouse gas mitigation. In addition, because improved management practices that enhance soil carbon sequestration are also beneficial to soil quality and fertility conditions and typically result in increased forage and livestock production, they

IN THIS ISSUE

The Soil and Water Sciences Program	1
Student News	3
Recent Publications	4
Upcoming Events	5
Youth Field Day Highlights	6
UF CALS News	6

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may also provide an incentive for producers to adopt strategies that enhance soil carbon pools. Research is currently being conducted to investigate the potential of pasturelands for generating synergies between carbon management and sustainable energy production. My goal is to provide science-based information that addresses the ecological benefits of enhancing carbon sequestration in pastures in Florida, thus farmers can potentially earn income from carbon sequestration credits for adopting practices that promotes soil carbon storage."

Extension

What good is knowledge if it isn't shared? Maria is active in extending her findings to Florida's cattle and grazinglands managers through extension efforts. When asked about extension, Maria said, "My extension program is complementary to my research efforts and addresses the agronomic and environmental challenges associated with soil nutrient management in forage-based livestock production in Florida. Because maintenance and management of soil fertility is central to the development of sustainable beef cattle production in the state, the major goal of my extension program is to develop, deliver, teach, and facilitate implementation of soil nutrient management programs that result in economically sound forage production while protecting soil and water resources. Through educational and outreach programs, I deliver science-based information to producers, extension faculty, industry professionals, and state regulatory agencies on topics related to soil fertility and pasture fertilization. One of my major priorities is to educate and promote successful management of soil resources to satisfy production needs while avoiding environmental degradation."

Excellence

For her dedicated research and extension efforts in the area of soil and

water sciences, Maria has been honored to receive two awards. The Florida Association of County Agricultural Agents (FACAA) recognized her as the 2013 Outstanding Specialist and the Florida Cattlemen's Association awarded her with the Researcher of the Year Award in 2013.

When asked about her efforts and how she feels her program stands apart from others, she said, "My research and extension programs have been playing a key role on the development, evaluation, and implementation of fertilizer recommendations for Florida pastures and hayfields. The main components of my mission are to (i) improve forage production and environmental protection by facilitating producer adoption of sustainable, science-based soil nutrient management programs and (ii) promote the critical ecological services associated with native and cultivated pastures in Florida through education and promotion of best management practices."

"To respond to our clientele's needs and the increased concerns over water quality and high cost of commercial fertilizer, I have dedicated significant effort on the evaluation and dissemination of sustainable pasture fertilization programs in Florida. Pasture fertilization and water quality continue to be identified as major research and educational priorities by the Florida Cattlemen's industry and state environmental and regulatory agencies. During the past 10 years, I have taken the lead role in the development of nutrient management strategies, with special emphasis on bahiagrass phosphorus fertilization. The main reason for the efforts on bahiagrass is that this grass species currently occupies about 1 million hectares in Florida and is the predominant planted forage species in the state. Most forage-based beef cattle systems in Florida rely on bahiagrass pastures as the major source of energy and



The Soil and Water Science faculty, staff, and students: (L-R) Maria, Cindy Holley, Amanda Baldo and Yanyan Lu.

protein for most of the growing season. Bahiagrass fertilization is often limited to nitrogen application but in some circumstances such as continuous grazing and/or haying production, other soil fertility related issues such as acidic soil pH and low levels of soil P may become limiting factors to sustain proper forage growth and stand health."

"Beef cattle ranchers contribute significantly to maintaining and restoring Florida's unique ecosystems. Research has shown that properly managed pastures use water more efficiently than improperly fertilized crops and also protect the environment. Thus, aside from increased yields, effective soil fertility programs can also increase water use efficiency and contribute to preserving water resources for both urban areas and ranchers. As the state continues to urbanize, preserving Florida's green ranchlands is fundamental to maintaining a balance between urban settings, agriculture, and natural resources. Generating and disseminating science-based information about the benefits of forage-based cow-calf operations and the important roles that grassland ecosystems play in protecting Florida's environment has been a key component of my research and extension programs."

Students

Maria feels graduate student training is a critical component to the success of her research program. During the 10 years she has been at Ona she has served as chair, co-chair, or committee member for more than 31 graduate students and has hosted more than 20 undergraduate and graduate students and visiting scientists from various international institutions. Additionally, she has hosted many exchange visitors who come to the Center to strengthen or expand their research knowledge, gain practical hands-on-experience, learn about American culture, and improve their English skills. Regarding graduate students, Maria said, "I presently advise 2 Ph.D. students as chair/co-chair and also serve on 11 student committees as a member. Since my employment, 3 masters and 3 Ph.D. students successfully completed their graduate programs and successfully continued their professional careers in both academia and private sector. Besides the academic training, I also strive to provide the students with the skills to be competitive in their future careers."

"My program maintains strong collaborative relations with individuals and institutions in Brazil and, more recently, Australia. As a part of this effort, I have hosted 11 visiting doctoral students ("sandwich" program) and 2 visiting professors seeking to enhance their research skills and expertise in Soil and Water Science. The doctoral 'sandwich' program typically involves a 6-month to 1-year internship at UF in which the students develop their research concept and then return to their home university to complete their degree."

Current graduate Ph.D. student, Yanyan Lu, began her program this summer which focuses on land application of biosolids to Florida pastures. Amanda Baldo is a prospective M.S. student who is presently completing a program as an



Exchange Visitor, Research Scholar, is expected to start her M.S. degree in spring 2017. Her project will be focused on evaluating the impacts of soil amendments on nutrient dynamics and their ability to reduce nutrient losses.

International Activities

About International programs, Maria said they play a vital role in her research and extension programs. "My mission is to continue working on fostering relationships with international institutions worldwide. I have lead numerous international activities including involvement in international projects, invited presentations and seminars, undergraduate and graduate student training. More recently, I developed a short-course specifically designed for international graduate students. I also engaged in several joint projects with research partners in Brazil and Australia on global issues related to grassland sustainability."

Special Thanks

She is very grateful for the support of her lab and field assistant, Cindy Holley, who has worked alongside her since her arrival in 2006. Cindy, a Biological Scientist, has been with the RCREC since 1990.

In closing, Maria said she is privileged to have the opportunity work and serve such a wonderful group of people and feels the past 10 years have been a pleasant and rewarding

experience. She looks forward to continued contributions to the success of the cattle industry in Florida.

Maria resides in Wauchula with her husband, Joao Vendramini, and their two daughters.

Learn More

To learn more about Maria and her program, visit her faculty page or the Soil & Water Science page on the RCREC Website: <http://rcrec-ona.ifas.ufl.edu/>



Joao and Maria

Student News

Congratulations Graduates!



Jane Griffin Cant, M.S., Agroecology, summer 2016. (non-thesis)

This will be Jane's second year teaching, and her first as a Biology, Environmental Science, and Agriculture Foundations

teacher at Okeechobee High School.



Connor Crank, M.S., Wildlife Ecology and Conservation, summer 2016.

Connor is presently applying to governmental research positions within Florida and would like to focus on mammalian biology.

Connor's thesis: "Potential resource competition between feral swine and white-tailed deer on Florida rangelands."

Recent Publications

Abe, D.G., B.A. Sellers, J.A. Ferrell, R.G. Leon, and D.C. Odero. 2016. Tolerance of bermudagrass and stargrass to aminocyclopyrachlor. *Weed Technology*. 30:499-505.

Boughton, E.H., R.K. Boughton, C. Griffith, and J. Bernath-Plaisted. 2016. Reproductive traits of *Lachnanthes caroliniana* (Lam.) Dandy related to patch formation following feral swine rooting disturbance. *The Journal of the Torrey Botanical Society*. 143(3):265-273.

Krueger, N.C., L.E. Sollenberger, J.M.B. Vendramini, C. Na, M.K. Mullenix, A.D. Aguiar, and A.R. Blount. 2016. Blackberry Regrowth and Persistence Responses to Defoliation in Mixed Rhizoma Peanut-Grass Swards. *Crop Sci*. 56:1349-1355.

Marques, R., R. F. Cooke, M. C. Rodrigues, T. G. Filho, B. I. Cappellozza, P. Moriel and D. W. Bohnert. 2016. Effects of organic or inorganic cobalt, copper, manganese, and zinc supplementation to late-gestating beef cows on productive and physiological responses of the offspring. *Journal of Animal Science*. 94:1215-1226

Martins, P. G. M., P. Moriel, J. M. B. Vendramini, and J. D. Arthington. 2016. Evaluation of two sugarcane molasses feeding strategies on measures of growth and reproductive performance of replacement beef heifers. *The Professional Animal Scientist*. 32:302-308.

Mercadante, V. R. G., P. L. P. Fontes, F. M. Ciriaco, D. D. Henry, P. Moriel, A. D. Ealy, S. E. Johnson, N. DiLorenzo, and G. C. Lamb. 2016. Effects of recombinant bovine somatotropin administration at breeding on cow, conceptus, and subsequent offspring performance of beef cattle. *Journal of Animal Science*. 94:2128-2138.

Moriel, P., L. F. A. Artioli, M. B. Piccolo, R. S. Marques, M. H. Poore, and R. F. Cooke. 2016. Effects of timing of anabolic implant insertion on growth and immunity of recently weaned beef steers. *Journal of Animal Science*. doi:10.2527/jas.2016-0470

Moriel, P., L. F. A. Artioli, M. B. Piccolo, M. H. Poore, R. S. Marques, and R. F. Cooke. 2016. Decreasing the frequency and rate of wet brewers grains supplementation did not impact growth but reduced humoral immune response of preconditioning beef heifers. *Journal of Animal Science*. doi: 10.2527/jas.2015-0250

Moriel, P., L. F. A. Artioli, M. B. Piccolo, M. H. Poore, R. S. Marques, and R. F. Cooke. 2016. Frequency of wet brewers grains supplementation during late gestation of beef cows and its effects on offspring postnatal growth and immunity. *Journal of Animal Science*. 94:2553-2563.

Moriel, P., L. F. A. Artioli, M. B. Piccolo, M. H. Poore, R. S. Marques, and R. F. Cooke. 2016. Short-term energy restriction during late gestation and subsequent effects on postnatal growth performance, and innate and humoral immune responses of beef calves. *Journal of Animal Science*. 94:2542-2552.

Moriel, P., M. B. Piccolo, L. F. A. Artioli, G.S. Santos, M. H. Poore, and L.F.Ferraretto. 2016. Method of propionic acid-based preservative addition and its effects on nutritive value and fermentation characteristics of wet brewers grains ensiled in the summertime. *The Professional Animal Scientist*. doi: 10.15232/pas.2016-01513.

Mullenix, M. K., L. E. Sollenberger, M. O. Wallau, A. R. Blount, J. M.B. Vendramini, and M. L. Silveira. 2016. Herbage Accumulation, Nutritive Value, and Persistence Responses of Rhizoma Peanut Cultivars and Germplasm to Grazing Management. *Crop Science*. 56:907-915.

Mullenix, M. K., L. E. Sollenberger, M. O. Wallau, D. L. Rowland, A. R. Blount, J. M.B. Vendramini, and M. L. Silveira. 2016. Sward Structure, Light Interception, and Rhizome-Root Responses of Rhizoma Peanut Cultivars and Germplasm to Grazing Management. *Crop Science*. 56:899-906.

Vendramini, J. M. B., A. D. Aguiar, A. T. Adesogan, L. E. Sollenberger, E. Alves, L. Galzerano, P. Salvo, A. L. Valente, K. G. Arriola, Z. X. Ma and F. C. L. Oliveira. 2016. Effects of genotype, wilting, and additives on the nutritive value and fermentation of bermudagrass silage. *Journal of Animal Science*. doi:10.2527/jas.2016-0306



Register
Now!

75th Anniversary Celebration & Field Day October 27

See the flyer in this edition of RCREC News!



Upcoming Ona Report Webinars

Sept. 15, at 12:00 p.m.

"Should I Buy Stocker Calves This Fall or a Fishing License?"

the Ona Report for September 2016, presented by Chris Prevatt

Register: <https://attendee.gotowebinar.com/register/5765861342668956675>

October 18, at 12:00 p.m.

"Managing Soil Quality in Pasture Systems" the Ona Report for October 2016, presented by Maria Silveira

Register: <https://attendee.gotowebinar.com/register/5613575683952782593>

November 30, at 12:00 p.m.

"Recent nutritional strategies to enhance reproductive performance of heifers – A summary of Range Cattle REC studies"

the Ona Report for November 2016, presented by Philippe Moriel

Register: <https://attendee.gotowebinar.com/register/7496424475530968324>

Past presentations are available for viewing on our website: <http://rcrec-ona.ifas.ufl.edu/> click on "Virtual Classroom". You may also attend in person (call 863-735-1314 ext. 204).

Upcoming Events

Grazing Management School

- September 22-23, 2016

Manatee Co. Ext. Office

Register: <http://www.eventbrite.com/e/grazing-management-school-tickets-25973907657>

Pasture Weed Day

- October 13, 2016

Deseret Ranch, St. Cloud

Register: <https://rcrec-pwd-2016.eventbrite.com>

Range Cattle REC's 75th Anniversary Field Day

- October 27, 2016

Range Cattle REC, Ona

Register: <http://rcrec-fd-2016.eventbrite.com>

Reproductive Management School

- November 15 - 17, 2016

Longino Ranch, Sidell

Register: <https://drive.google.com/file/d/0B-NpU6csGGkxT0JEd0VRSW84U3c/view>



UF/IFAS RCREC Graduate Students who participated in the 2016 Youth Field Day. L to R, top to bottom: Logan Martin, Sam Baraoidan, Gleise Medeiros da Silva, Juliana Ranches, JK Yarborough, Yanyan Lu, Jose Luiz Carvalho de Souza Dias, Wes Anderson, Joao Marcelo Dalmazo Sanchez, and Connor Crank.

2016 Youth Field Day Highlights

The Youth Field Day held on June 23 was a great success! Attendees learned about taking care of their pastures and the benefits of rotational grazing, how to safely handle cattle in the cowpens, how researchers use game cameras to monitor wildlife, what parasites are and how to prevent them, and what kind of career they may enjoy, in the career explorations class. All enjoyed a hamburger lunch and time at the learning expo, visiting with college representatives, community/business organizations, and others, who gave their time to share their knowledge. We are very grateful to all of this year's sponsors for their support, to all the class instructors, and to those who took part in the learning expo!



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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.

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College of Agriculture and Life Sciences

(CALS) News

\$2.6M legislative allotment lets UF/IFAS complete Beef Teaching Unit expansion

GAINESVILLE, Fla. (5/10/16)— Students in the University of Florida Institute of Food and Agricultural Sciences animal sciences department will benefit from a top-notch cattle-teaching facility in Gainesville, thanks to a \$2.6 million legislative allotment this year.

That's one of many advantages of the \$3.6 million expansion to the UF/IFAS Beef Teaching Unit. The facility will house 5,000 square feet of multipurpose enclosed space and another 15,000 square feet for cattle pens and working area. The Legislature allotted \$1 million toward the Beef Teaching Unit in its 2015 session. Phase 1 of the expansion is expected to be complete by August or September, while Phase 2 should be done in 2017, said Geoff Dahl, chair of the UF/IFAS animal sciences department.

Jack Payne, UF senior vice president for agriculture and natural resources, lauded the expanded Beef Teaching Unit. "With the expansion of the UF/IFAS Beef Teaching Unit, our students, faculty and staff can learn, teach and conduct cattle research and Extension programs that are second-to-none in the nation," Payne said. "We thank the Legislature for its allocation."

To view the complete news release visit: <https://news.ifas.ufl.edu/2016/05/2-6m-legislative-allotment-lets-ufifas-complete-beef-teaching-unit-expansion/>



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**UF/IFAS RANGE CATTLE
RESEARCH &
EDUCATION CENTER**

75th Anniversary Celebration & Field Day

October 27, 2016

Register by Oct. 25 • <https://rcrec-fd-2016.eventbrite.com> • Registration Fee \$20

Field Day Opens 8:00 a.m.
Sponsor booths open, student posters displayed, light refreshments provided

Program 9:05 a.m.

Welcome	John Arthington, UF/IFAS Range Cattle REC, Professor and Center Director
UF/IFAS Remarks	Jack Payne, UF Senior Vice President for Agriculture and Natural Resources
FCA Remarks	Ned Waters, President, Florida Cattlemen's Association Jim Handley, Executive Vice President, Florida Cattlemen's Association
UF/IFAS Range Cattle REC Faculty Presentations	Raoul Boughton, Asst. Prof., Rangeland Ecosystems and Wildlife Chris Prevatt, Regional Specialized Agent II, Livestock and Forage Economics Philippe Moriel, Asst. Prof., Beef Cattle Nutrition and Management
Key Note Speakers	Erik Jacobsen, Deseret Cattle & Citrus Jim Strickland, Strickland Ranch
Historical Perspectives	Looking back on 75 years with Faculty, Staff, & Students

Lunch 12:15 p.m.

Sponsor Booths / Student Posters & Exhibits / Lab Tours 12:15 – 4:00 p.m.

Field Tour of Faculty Beef Enhancement Projects. Departure options: 1:30 or 2:00 p.m.

John Arthington	“Managing Free Choice Intake of Mineral among Grazing Beef Cows” Prof. and Center Dir., Beef Cattle Nutrition and Management
Brent Sellers	“Insight into Broomsedge Management in Bahiagrass Pastures” Assoc. Prof. and Assoc. Center Dir., Pasture and Rangeland Weed Management
Joao Vendramini	“Fertilizer Efficiency of Limpograss Cultivars” Assoc. Prof., Forage Management
Maria Silveira	“Biosolids Research and Demonstration Site” Assoc. Prof., Soil Fertility and Water Quality

Field Day Ends / Special Tours By Request 4:00 p.m.