

2020

UF/IFAS HIGH IMPACT RESEARCH PUBLICATIONS

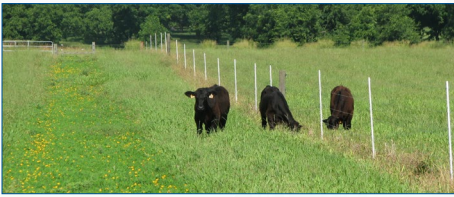
UF/IFAS scientists are making significant strides toward understanding and solving society's grand challenges, creating practical solutions to current and emerging threats to our environmental and socioeconomic systems, and having positive impacts in the lives of Floridians and people worldwide through their research. The new knowledge and discoveries generated by our researchers are published in some of the best nationally and internationally recognized peer-reviewed journals. Their work sets an example of excellence for academics and scientists around the globe.

Our research is having notable impacts, including:

- **Impacts on science** by extending the frontiers of fundamental scientific understanding.
- **Impacts on agricultural production** by improving agricultural practices, varieties, and technologies.
- **Impacts on human welfare** by improving human health and wellbeing.
- **Impacts on the environment** by developing sustainable practices and conservation measures.
- **Impacts on communities and the economy** by spawning new products, technologies, businesses, and jobs.

These 39 publications are excellent examples of how UF/IFAS researchers at our Gainesville campus and our Research and Education Centers (RECs) are making a difference and impacting our world. The eight publications listed on the inside cover were selected for special recognition.

PUBLICATIONS SELECTED FOR SPECIAL RECOGNITION



GRASSLAND MANAGEMENT

AGRONOMY

Sollenberger, L. E., M. M. Kohmann, J. C. B. Dubeux, Jr. and M. L. Silveira. 2019. **Grassland Management Affects Delivery of Regulating and Supporting Ecosystem Services.** *Crop Science* 59: 441-459.



EVOLUTIONARY BIOLOGY

ENTOMOLOGY AND NEMATOLOGY DEPARTMENT

Miller C. W., P. N. Joseph, R. M. Kilner and Z. Emberts. 2019. **A Weapons-Testes Trade-Off in Males is Amplified in Female Traits.** *Proceedings of the Royal Society of London B* 286: 20190906.



ZIKA VIRUS TRANSMISSION

FLORIDA MEDICAL ENTOMOLOGY LABORATORY

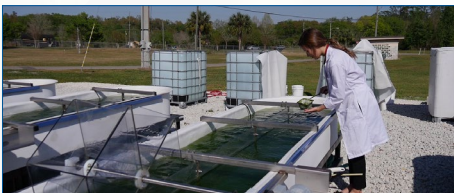
Paige, A. S., S. K. Bellamy, B. W. Alto, C. L. Dean and D. A. Yee. 2019. **Linking Nutrient Stoichiometry to Zika Virus Transmission in a Mosquito.** *Oecologia* 191: 1-10.



PEST MANAGEMENT

FOOD AND RESOURCE ECONOMICS

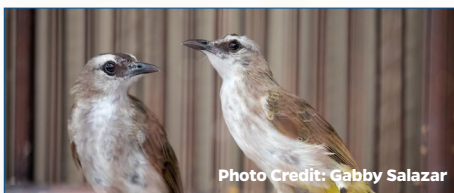
Singerman, A. and P. Useche. 2019. **The Role of Strategic Uncertainty in Area-Wide Pest Management Decisions of Florida Citrus Growers.** *American Journal of Agricultural Economics* 101(4): 991-1011.



HARVESTING ALGAE

SOIL AND WATER SCIENCES

O'Connell, R. and A. C. Wilkie. 2018. **Comparing Harvest Productivity of the Filamentous Alga *Oedogonium* with Microalgae.** *Journal of Undergraduate Research* 20(1): 1-9.



GLOBAL WILDLIFE TRADE

WILDLIFE ECOLOGY AND CONSERVATION

Scheffers, B.R., B. F. Oliveira, I. Lamb and D. P. Edwards. 2019. **Global Wildlife Trade Across the Tree of Life.** *Science* 366: 71-76.



ECOSYSTEM SERVICES

SCHOOL OF FOREST RESOURCES AND CONSERVATION

Qiu, J., S. C. Zipper, M. Motew, E. G. Booth, C. J. Kucharik and S. P. Loheide. 2019. **Nonlinear Groundwater Influence on Biophysical Indicators of Ecosystem Services.** *Nature Sustainability* 2(6): 475-483.



DOMESTICATION OF ROOT TRAITS

HORTICULTURAL SCIENCES

Singh, J., S. A. Gezan and C. E. Vallejos. 2019. **Developmental Pleiotropy Shaped the Roots of the Domesticated Common Bean (*Phaseolus vulgaris*).** *Plant Physiology* 180(3): 1467-1479.

AGRICULTURAL AND BIOLOGICAL ENGINEERING

Rosenzweig, C., A. C. Ruane, J. Antle, J. Elliott, M. Ashfaq, A. Ahmad Chatta, F. Ewert, C. Folberth, I. Hathie, P. Havlik, G. Hoogenboom, H. Lotze-Campen, D. S. MacCarthy, D. Mason-D'Croz, E. Mencos Contreras, C. Müller, I. Perez-Dominguez, M. Phillips, C. Porter, R. M. Raymundo, R. D. Sands, C-F. Schleussner, R. O. Valdivia, H. Valin and K. Wiebe. 2018. **Coordinating AgMIP Data and Models Across Global and Regional Scales for 1.5°C and 2.0°C Assessments.** *Philosophical Transactions Royal Society A* 376: 20160455.

AGRICULTURAL EDUCATION AND COMMUNICATION

Warner, L. A., C. J. Silvert and M. Bengé. 2019. **Using Adoption and Perceived Characteristics of Fertilizer Innovations to Identify Extension Educational Needs of Florida's Residential Audiences.** *Journal of Agricultural Education* 60(3): 155-172.

AGRONOMY

Pradhan, S., M. A. Babar, K. Robbins, G. Bai, R. E. Mason, J. Khan, D. Shahi, M. Avci, J. Guo, M. Maksud Hossain, M. Bhatta, M. Mergoum, S. Asseng, P. S. Amand, S. Gezan, B-K. Baik, A. Blount and A. Bernardo. 2019. **Understanding the Genetic Basis of Spike Fertility to Improve Grain Number, Harvest Index, and Grain Yield in Wheat Under High Temperature Stress Environments.** *Frontiers in Plant Science* 10: 1481.

ANIMAL SCIENCES

Teng, L., S. Lee, A. Ginn, S. M. Markland, R. A. Mir, N. DiLorenzo, C. Boucher, M. Prospero, J. Johnson, J. G. Morris, Jr. and K. C. Jeong. 2019. **Genomic Comparison Reveals Natural Occurrence of Clinically Relevant Multidrug-Resistant Extended-Spectrum- β -Lactamase-Producing *Escherichia coli* Strains.** *Applied and Environmental Microbiology* 85(13): e03030-18.

Yang, G., B. L. Artiaga, C. L. Lomelino, A. D. Jayaprakash, R. Sachidanandam, R. McKenna, and J. P. Driver. 2019. **Next Generation Sequencing of the Pig $\alpha\beta$ TCR Repertoire Identifies the Porcine Invariant NKT Cell Receptor.** *The Journal of Immunology* 202: 1981-1991.

CITRUS REC

Li, J., Z. Pang, S. Duan, D. Lee, V. Kolbasov and N. Wang. 2019. **The in Planta Effective Concentration of Oxytetracycline Against 'Candidatus Liberibacter asiaticus' for Suppression of Citrus Huanglongbing.** *Phytopathology* 109: 2046-2054.

Ha, P. T., R. He, N. Killiny, J. K. Brown, A. Omsland, D. R. Gang and H. Beyenal. 2019. **Host-Free Biofilm Culture of "Candidatus Liberibacter asiaticus," the Bacterium Associated with Huanglongbing.** *Biofilm* 1: 100005.

ENVIRONMENTAL HORTICULTURE

Begcy, K., T. Nosenko, L-Z. Zhou, L. Fragner, W. Weckwerth and T. Dresselhaus. 2019. **Male Sterility in Maize after Transient Heat Stress During the Tetrad Stage of Pollen Development.** *Plant Physiology* 181: 683-700.

FAMILY, YOUTH AND COMMUNITY SCIENCES

Liu, Y., J. Ruiz-Menjivar, L. Zhang, J. Zhang and M. Swisher. 2019. **Technical Training and Rice Farmers' Adoption of Low-Carbon Management Practices: The Case of Soil Testing and Formulated Fertilization Technologies in Hubei, China.** *Journal of Cleaner Production* 226: 454-462.

Scarton, L., I. Velazquez, L. J. O'Neal, S. Iyerm, T. Cannady, A. Choate, C. Mitchell, and D. J. Wilkie. 2019. **Developing a Culturally Tailored Multigenerational Intervention to Prevent and Manage Type 2 Diabetes in American Indian Families Living in Rural Settings: Findings from a Focus Group Study.** *Research in Nursing & Health* 42(3): 226-233.

FLORIDA MEDICAL ENTOMOLOGY LABORATORY

McGregor, B. L., K. E. Sloyer, K. A. Saylor, O. Goodfriend, J. M. Campos Krauer, C. Acevedo, X. Zhang, D. Mathias, S. M. Wisely and N. D. Burkett-Cadena. 2019. **Field Data Implicating *Culicoides stellifer* and *Culicoides venustus* (Diptera: Ceratopogonidae) as Vectors of Epizootic Hemorrhagic Disease Virus.** *Parasites & Vectors* 12(1): 258.

FOOD AND RESOURCE ECONOMICS

Heng, Y., R. W. Ward, L. A. House and M. Zansler. 2019. **Assessing Key Factors Influencing Orange Juice Demand in the Current US Market.** *Agribusiness* 35(4): 501-515.

FORT LAUDERDALE REC

Koelmel, J. P., J. E. Campbell, J. Guingab-Cagmat, L. Meke, T. J. Garrett and U. Stingl. 2019. **Re-Modeling of Foliar Membrane Lipids in a Seagrass Allows for Growth in Phosphorus-Deplete Conditions.** *PLoS ONE* 14(11): e0218690.

Mazzotti, F. J., B. J. Smith, M. A. Squires, M. S. Cherkiss, S. C. Farris, C. Hackett, K. M. Hart, V. Briggs-Gonzalez, and L. A. Brandt. 2019. **Influence of Salinity on Relative Density of American Crocodiles (*Crocodylus acutus*) in Everglades National Park: Implications for Restoration of Everglades Ecosystems.** *Ecological Indicators* 102: 608-616.

GULF COAST REC

Hilbert, D. R., A. K. Koeser, L. A. Roman, K. Hamilton, S. M. Landry, R. J. Hauer, H. Campanella, D. McLean, M. Andreu and H. Perez. 2019. **Development Practices and Ordinances Predict Inter-City Variation in Florida Urban Tree Canopy Coverage.** *Landscape and Urban Planning* 190: 103603.

Whitaker, V. M., N. A. Peres, L. F. Osorio, Z. Fan, M. C. do Nascimento Nunes, A. Plotto and C.A. Sims. 2019. **'Florida Brilliance' Strawberry.** *HortScience* 54(11): 2073-2077.

HORTICULTURAL SCIENCES

de Bem Oliveira, I., M. F. R. Resende Jr., L. F. V. Ferrão, R. R. Amadeu, J. B. Endelman, M. Kirst, A. S. G. Coelho and P. R. Muñoz. 2019. **Genomic Prediction of Autotetraploids; Influence of Relationship Matrices, Allele Dosage, and Continuous Genotyping Calls in Phenotype Prediction.** *Genes/Genomes/Genetics* 9(4): 1189-1198.

INDIAN RIVER REC

Danyluk, M. D., L. M. Friedrich, L. L. Dunn, J. Zhang and M. A. Ritenour. 2019. **Reduction of *Escherichia coli*, as a Surrogate for *Salmonella* spp., on the Surface of Grapefruit During Various Packingline Processes.** *Food Microbiology* 78: 188-193.

MICROBIOLOGY AND CELL SCIENCE

Wang, C., X. Huang, Q. Li, Y. Zhang, J.-L. Li, and Z. Mou. 2019. **Extracellular Pyridine Nucleotides Trigger Plant Systemic Immunity Through a Lectin Receptor Kinase/BAK1 Complex.** *Nature Communications* 10: 4810.

Yuan, Y., R. Zallot, T. L. Grove, D. J. Payan, I. Martin-Verstraete, S. Šepić, S. Balamkundu, R. Neelakandan, V. K. Gadi, C.-F. Liu, M. A. Swairjo, P. C. Dedon, S. C. Almo, J. A. Gerlt and V. de Crécy-Lagard. 2019. **Discovery of Novel Bacterial Queuine Salvage Enzymes and Pathways in Human Pathogens.** *Proceedings of the National Academy of Sciences* 116(38): 19126-19135.

NORTH FLORIDA REC

Funderburk, J., X. Martini, J. Freeman, I. Stryzewski, E. Traczyk, T. Skarlinsky, S. Adkins. 2019. **Sampling for Estimating *Frankliniella* Species Flower Thrips and *Orius* Species Predators in Field Experiments.** *Journal of Visualized Experiments* 149: e59869.

Hallas, J. F., C. L. Mackowiak, A. C. Wilkie and W. G. Harris. 2019. **Struvite Phosphorus Recovery from Aerobically Digested Municipal Wastewater.** *Sustainability* 11(2): 376.

RANGE CATTLE REC

Boughton, R. K., B. L. Allen, E. A. Tillman, S. M. Wisely, and R. M. Engeman. 2019. **Road Hogs: Implications from GPS Collared Feral Swine in Pastureland Habitat on the General Utility of Road-Based Observation Techniques for Assessing Abundance.** *Ecological Indicators*. 99: 171-177.

Silveria, M. L., G. A. O'Connor, Y. Lu, J. E. Erickson, C. Brandani and M. M. Kohmann. 2019. **Runoff and Leachate Phosphorus and Nitrogen Losses from Grass-Vegetated Soil Boxes Amended with Biosolids and Fertilizer.** *Journal of Environmental Quality* 48: 1498-1506.

PLANT PATHOLOGY

Sun, Y.-D. and S. Y. Folimonova. 2019. **The p33 Protein of *Citrus tristeza virus* Affects Viral Pathogenicity by Modulating a Host Immune Response.** *New Phytologist* 221(4): 2039-2053.

Timilsina, S., J. A. Pereira-Martin, G. V. Minsavage, F. Iruegas-Bocardo, P. Abrahamian, N. Potnis, B. Kolaczowski, G. E. Vallad, E. M. Goss and J. B. Jones. 2019. **Multiple Recombination Events Drive the Current Genetic Structure of *Xanthomonas perforans* in Florida.** *Frontiers in Microbiology* 10: 448.

SCHOOL OF FOREST RESOURCES AND CONSERVATION

Lowerre-Barbieri, S. K., R. Kays, J. T. Thorson and M. Wikelski. 2019. **The Ocean's Movescape: Fisheries Management in the Bio-Logging Decade (2018-2028).** *ICES Journal of Marine Science* 76(2):477-488.

SOIL AND WATER SCIENCES

Bae, H.-S., F. E. Dierberg, and A. Ogram. 2019. **Periphyton and Flocculent Materials are Important Ecological Compartments Supporting Abundant and Diverse Mercury Methylator Assemblages in the Florida Everglades.** *Applied and Environmental Microbiology* 85(13): e00156-19.

TROPICAL REC

Sung, J., J. H. Suh, A. H. Chambers, J. Crane and Y. Wang. 2019. **Relationship Between Sensory Attributes and Chemical Composition of Different Mango Cultivars.** *Journal of Agricultural and Food Chemistry* 67: 5177-5188.

Zhang, S., X. Fan, Y. Fu, Q. Wang, E. McAvoy and D. R. Seal. 2019. **Field Evaluation of Tomato Cultivars for Tolerance to Tomato Chlorotic Spot Tospovirus.** *Plant Health Progress* 20: 77- 82.

WILDLIFE ECOLOGY AND CONSERVATION

Damschen, E. I., L. A. Brudvig, M. A. Burt, R. J. Fletcher, Jr., N. M. Haddad, D. J. Levey, J. L. Orrock, J. Resasco, and J. J. Tewksbury. 2019. **Ongoing Accumulation of Plant Diversity Through Habitat Connectivity in an 18-Year Experiment.** *Science* 365: 1478-1480.



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