

UF/IFAS High Impact RESEARCH PUBLICATIONS



IFAS scientists are truly changing the world through the impacts of their research. New knowledge generated by IFAS researchers is evaluated and validated by the scientific community and shared in our research publications.

The impacts of our research are broad, and can be manifested in many different ways, including:

- *impacts on science by extending the frontiers of fundamental scientific understanding*
- *impacts on agricultural production by improving agricultural practices and creating new agricultural varieties and technologies*
- *impacts on human welfare by improving human health*
- *impacts on the environment by providing the key for environmentally sustainable practices*
- *impacts on the economy by spawning new products, technologies, businesses, and jobs.*

Inside are 44 of the recent UF/IFAS publications that are recognized as having especially important impacts. The 8 highlighted High Impact Publications have been selected for special recognition at the 2014 UF/IFAS Research Awards Ceremony.

Monaghan, P., E. Ott, W. Wilber, J. Gouldthorpe and L. Racevskis. 2013. Defining Audience Segments for Extension Programming Using Reported Water Conservation Practices. *Journal of Extension*. 51(6)6FEA8.

Mukherjee, A., D. A. Williams, G. S. Wheeler, J. P. Cuda, S. Pal and W. A. Overholt. 2012. Brazilian Peppertree (*Schinus terebinthifolius*) in Florida and South America: Evidence of a Possible Niche Shift Driven by Hybridization. *Biological Invasions*. 14:1415-1430. doi: 10.1007/s10530-011-0168-7.

Mukherjee, K., H. Campos and B. Koc-lackowski. 2013. Evolution of Animal and Plant Dicers: Early Parallel Duplications and Recurrent Adaptation of Antiviral RNA Binding in Plants. *Molecular Biology and Evolution*. 30(3):627-641. doi: 10.1093/molbev/mss263.

Nicholson, W. L., K. Krivushin, D. Gilichinsky and A. C. Schuerger. 2013. Growth of *Carnobacterium* spp. from Permafrost Under Low Pressure, Temperature, and Anoxic Atmosphere has Implications for Earth Microbes on Mars. *Proceedings of the National Academy of Sciences U.S.A.* 110(2):666-671.

Pannu, M. W., G. S. Toor, G. A. O'Connor and P. S. Wilson. 2012. Toxicity and Bioaccumulation of Biosolids-Borne Triclosan in Food Crops. *Environmental Toxicology & Chemistry*. 31(9):2130-2137.

Perez, H. E. and K. Kettner. 2013. Characterizing *Ipomopsis rubra* (Polemoniaceae) Germination Under Various Thermal Scenarios with Non-Parametric and Semi-Parametric Statistical Methods. *Planta*. 238: 771-784. doi: 10.1007/s00425-013-1935-8.

Ploetz, R. C., J. Hulcr, M. J. Wingfield and Z. W. de Beer. Destructive Tree Diseases Associated with Ambrosia and Bark Beetles: Black Swan Events in Tree Pathology? *Plant Disease*. 95(7):856-872.

Ritter, A. and R. Muñoz-Carpena. 2013. Predictive Evaluation of Hydrological Models: Statistical Significance for Reducing Subjectivity in Goodness-Of-Fit Assessments. *Journal of Hydrology*. 480(1):33-45. doi: 10.1016/j.jhydrol.2012.12.004.

Rodgers, J. C., S. L. Bird, J. E. Larson, N. Dilorenzo, C. R. Dahlen, A. Dicostanzo and G. C. Lamb. 2012. An Economic Evaluation of Estrous Synchronization and Timed Artificial Insemination in Suckled Beef Cows. *Journal of Animal Science*. 90:4055-4062. doi: 10.2527/jas.2011-4836.

Ryu, M-S., G. J. Guthrie, A. B. Maki, T. B. Aydemir and R. J. Cousins. 2012. Proteomic Analysis Shows the Upregulation of Erythrocyte Dematin in Zinc-Restricted Human Subjects. *American Journal of Clinical Nutrition*. 95:1096-102. PMID:22456662. PMC:3325834.

Silveira, M. L., J. L. Driscoll, C. P. Silveira, D. A. Graetz, L. E. Sollenberger and J. M. B. Vendramini. 2013. Land Application of Aluminum Water Treatment Residual to Bahiagrass Pastures: Soil and Forage Responses. *Agronomy Journal*. 105(3)796-802.

Silveira, M. L., K. Liu, L. E. Sollenberger, R. F. Follett and J. M. B. Vendramini. 2013. Short-Term Effects of Grazing Intensity and Nitrogen Fertilization on Soil Organic Carbon Pools Under Perennial Grass Pastures in the Southeastern USA. *Soil Biology and Biochemistry*. 58:42-49. doi: 10.1016/j.soilbio.2012.11.003.

Song, X. and Z. Deng. 2013. Powdery Mildew Resistance in Gerbera: Mode of Inheritance, Quantitative Trait Locus Identification, and Resistance Responses. *Journal of the American Society for Horticultural Science*. 138(6):470-478.

Stansly, P. A., H. A. Arevalo, J. A. Qureshi, M. M. Jones, K. Hendricks, P. D. Roberts and F. M. Roka. 2013. Vector Control and Foliar Nutrition to Maintain Economic Sustainability of Bearing Citrus in Florida Groves Affected by Huanglongbing. *Pest Management Sci.* Published on-line 20 Jun 2013. doi: 10.1002/ps.3577.

Watling, J. I., D. N. Bucklin, C. Speroterra, L. A. Brandt, F. J. Mazzotti and S. S. Románach. 2013. *Validating Predictions from Climate Envelope Models*. PLOS ONE. 8(5)e63600.

Wilson, P. C. and J. P. Albano. 2013. Novel Flow-Through Bioremediation System for Removing Nitrate from Nursery Discharge Water. 2013. *Journal of Environmental Management*. 130:192-198. doi: 10.1016/j.jenvman.2013.08.011.

Contact

UF/IFAS Dean for Research Office
Florida Agricultural Experiment Station
1022 McCarty Hall D – Gainesville, FL 32611-0200
Phone: 352-392-1784
Website: <http://research.ifas.ufl.edu>

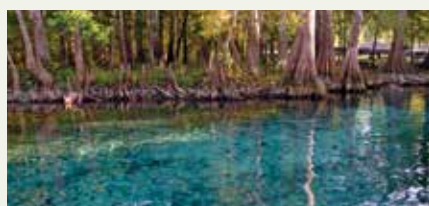
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Invasive Species



Agricultural Sustainability



Ecosystem Health

Invasive Species

Chouvenc, T., C. A. Efstathion, M. L. Elliott and N-Y. Su. 2013. Extended Disease Resistance Emerging from the Faecal Nest of a Subterranean Termite. *Proceedings of the Royal Society B: Biological Sciences*. 280(1770):20131885.

Agricultural Sustainability

Cochran, S. D., J. B. Cole, D. J. Null and P. J. Hansen. 2013. Discovery of Single Nucleotide Polymorphisms in Candidate Genes Associated with Fertility and Production Traits in Holstein Cattle. *BMC Genetics*. 14:49.

Ecosystem Health

Cohen, M. J., M. J. Kurz, J. B. Hefferman, J. B. Martin, R. L. Douglass, C. R. Foster and R. G. Thomas. 2013. Diel Phosphorus Variation and the Stoichiometry of Ecosystem Metabolism in a Large Spring-Fed River. *Ecological Monographs*. 83(2):155-176. doi: 10.1890/12-1497.1.



Food Quality



Energy Production

Food Quality

Colquhoun, T. A., M. L. Schwieterman, J. L. Gilbert, E. A. Jaworski, K. M. Langer, C. R. Jones, G. V. Rushing, T. M. Hunter, J. W. Olmstead, D. G. Clark and K. M. Folta. 2013. Light Modulation of Volatile Organic Compounds from Petunia Flowers and Select Fruits. *Postharvest Biology and Technology*. 86:37-44.

Energy Production

Jung, J. H., W. Vermerris, M. Gallo, J. R. Fedenko, J. E. Erickson and F. Altpeter. 2013. RNA Interference Suppression of Lignin Biosynthesis Increases Fermentable Sugar Yields for BioFuel Production from Field-Grown Sugarcane. *Plant Biotechnology Journal*. 11:709-716.



Invasive Species



Economic Health



Plant Physiology

Invasive Species

Mann, R. S., R. L. Rouseff, J. Smoot, N. Rao, W. L. Meyer, S. L. Lapointe, P. S. Robbins, D. Cha, C. E. Linn, F. X. Webster, S. Tiwari and L. L. Stelinski. 2012. Chemical and Behavioral Analysis of the Cuticular Hydrocarbons from Asian Citrus Psyllid, *Diaphorina citri*. *Insect Science*. 20:367-378.

Economic Health

Moss, C. B., D. A. Klinefelter and M. A. Gunderson. 2012. Accounting for Complex Entities: Implications for ARMS. *Agricultural Finance Review*. 72(2):201-209. doi: 10.1108/00021461211250438.

Plant Physiology

Paul, A-L., C. E. Amalfitano and R. J. Ferl. 2012. Plant Growth Strategies are Remodeled by Spaceflight. 2012. *BMC Plant Biology*. 12:232. doi: 10.1186/1471-2229-12-232.

Alto, B.W., B. R. Wasik, N. M. Morales and P. E. Turner. 2013. Stochastic Temperatures Impede RNA Virus Adaptation. *Evolution*. 67:969-979. doi: 10.1111/evo.12034.

Asseng, S., F. Ewert, C. Rosenzweig, J. W. Jones, J. L. Hatfield, A. C. Ruane, K. J. Boote, P. J. Thorburn, R. P. Rotter, D. Cammarano, N. Brisson, B. Basso, P. Martre, P. K. Aggarwal, C. Angulo, P. Bertuzzi, C. Biernath, A. J. Challinor, J. Doltra, S. Gayler, R. Goldberg, R. Grant, L. Heng, J. Hooker, L. A. Hunt, J. Ingwersen, R. C. Izaurralde, K. C. Kersebaum, C. Mueller, S. N. Kumar, C. Nendel, G. O.'Leary, J. E. Olesen, T. M. Osborne, T. Palosuo, E. Priesack, D. Ripoche, M. A. Semenov, I. Shcherbak, P. Steduto, C. Stoeckle, P. Stratonovitch, T. Streck, I. Supit, F. Tao, M. Travasso, K. Waha, D. Wallach, J. W. White, J. R. Williams, J. Wolf. 2013. Uncertainty in Simulating Wheat Yields under Climate Change. *Nature Climate Change*. 3:827-832. doi: 10.1038/NCLIMATE1916.

Bargielowski, I. E., L. P. Lounibos and M. C. Carrasquilla. 2013. Evolution of Resistance to Satyrization Through Reproductive Character Displacement in Populations of Invasive Dengue Vectors. *Proceedings of the National Academy of Sciences*. 110(8):2888-2892. doi: 10.1073/pnas.1219599110.

Bocsanczy, A. M., U. C. M. Achenbach, A. Mangravita-Novo, J. M. F. Yuen and D. J. Norman. 2012. Comparative Effect of Low Temperature on Virulence and Twitching Motility of *Ralstonia solanacearum* Strains Present in Florida. *American Phytopathological Society*. 102(2):185-194.

Carillo, D., R. E. Duncan, J. N. Ploetz, A. F. Campbell, R. C. Ploetz and J. E. Peña. 2013. Lateral Transfer of a Phytopathogenic Symbiont Among Native and Exotic Ambrosia Beetles. *Plant Pathology*. 63:54-62. doi: 10.1111/ppa.12073.

da Silva, V. R., L. Rios-Avila, Y. Lamers, M. A. Ralat, Ø. Midttun, E. P. Quinlivan, T. J. Garrett, B. Coats, M. N. Shankar, S. S. Pervical, Y-Y. Chi, K. E. Muller, P. M. Ueland, P. W. Stacpoole and J. F. Gregory, III. 2013. Metabolite Profile Analysis Reveals Functional Effects of 28-Day Vitamin B-6 Restriction on One-Carbon Metabolism and Tryptophan Catabolic Pathways in Healthy Men and Women. *Journal of Nutrition*. 143:1719-1727. doi:10.3945/jn.113.180588 Epub 2013 Aug 21. PubMed PMID: 23966327; PubMed Central PMCID: PMC3796343.

Duncan, L. W., R. J. Stuart, F. E. El-Borai, R. Campos-Herrera, E. Pathak, M. Giurcanu and J. H. Graham. 2013. Modifying Orchard Planting Sites Conserves Entomopathogenic Nematodes, Reduces Weevil Herbivory and Increases Citrus Tree Growth, Survival and Fruit Yield. *Biological Control*. 64:26-36.

Fletcher, Jr., R. J., A. Revell, B. E. Reichert, W. M. Kitchens, J. D. Dixon and J. D. Austin. 2013. Network Modularity Reveals Critical Scales for Connectivity in Ecology and Evolution. *Nature Communications*. 4:2572. doi: 10.1038/ncomms3572.

Flory, S. L. and K. Clay. 2013. Pathogen Accumulation and Long-Term Dynamics of Plant Invasions. *Journal of Ecology*. doi: 10.1111/1365-2745.12078.

Garrott, R. A. and M. K. Oli. 2013. A Critical Crossroad for BLM's Wild Horse Program. *Science*. 341:847-848.

Gerber, S., L. O. Hedin, S. G. Keel, S. W. Pacala and E. Shevliakova. 2013. Land Use Change and Nitrogen Feedbacks Constrain the Trajectory of the Land Carbon Sink. *Geophysical Research Letters*. 40:5218-5222. doi: 10.1002/grl.50957.

Gwinn, D. C., M. S. Allen, F. D. Johnston, P. Brown, C. R. Todd and R. Arlinghaus. 2013. Rethinking Length-Based Fisheries Regulations: The Value of Protecting Old and Large Fish with Harvest Slots. *Fish and Fisheries*. doi: 10.1111/faf.12053.

Hapeman, C. J., L. L. McConnell, T. L. Potter, J. Harman-Fetcho, W. F. Schmidt, C. P. Rice, B. A. Schaffer and R. Curry. 2013. Endosulfan in the Atmosphere of South Florida: Transport to Everglades and Biscayne National Parks. *Atmospheric Environment*. 66:131-140. doi: 10.1016/j.atmosenv.2012.04.010.

Khachatryan, H., J. Joireman and K. Casavant. 2013. Relating Values and Consideration of Future and Immediate Consequences to Consumer Preference for Biofuels: A Three-Dimensional Social Dilemma Analysis. *Journal of Environmental Psychology*. 34:97-108.

Krediet, C. J., K. B. Ritchie, A. Alagely and M. Teplitski. 2013. Members of Native Coral Microbiota Inhibit Glycosidases and Thwart Colonization of Coral Mucus by an Opportunistic Pathogen. *International Society for Microbial Ecology Journal*. 7(5):980-90. doi: 10.1038/ismej.2012.164 Epub 2012 Dec 20.

Leon, R. G. and D. Kellon. 2012. Characterization of 'MD-2' Pineapple Planting Density and Fertilization Using a Grower Survey. *HortTechnology*. 22(5):644-650.

Linster, C. L., E. Van Schaftingen and A. D. Hanson. 2013. Metabolite Damage and its Repair or Pre-Emption. *Nature Chemical Biology*. 9(2):72-80. doi: 10.1038/nchembio.1141.

Lu, H., and R. Raid. 2013. A Novel Screening Method for Evaluation of Lettuce Germplasm for Bacterial Leaf Spot Resistance. *HortScience*. 48(2):171-174.

Maltz, E., L. F., Barbosa, P. Bueno, L. Scagion, K. Kaniyamattam, L. F. Greco, A. De Vries and J. E. P. Santos. 2013. Effect of Feeding According to Energy Balance on Performance, Nutrient Excretion, and Feeding Behavior of Early Lactation Dairy Cows. *J. Dairy Science*. 96(8):5249-5266.

McCray, J. M. and R. W. Rice. 2013. Sugarcane Yield Response to Elemental Sulfur on High PH Organic Soils. *Proc. Int. Soc. Sugar Cane Technologists*. 28:280-287.