8th Annual
AWARDS CEREMONY
UF/IFAS
Awards of Excellence for
GRADUATE RESEARCH
BEST MASTER’S THESIS

Optimizing Plasticulture Bed Geometries for Enhancing the Sustainability of Vegetable Production

Nathan L. Holt
Best Master’s Thesis
Agricultural and Biological Engineering

Sanjay Shukla
Chair, Supervisory Committee
Southwest Florida REC – Immokalee
Agricultural and Biological Engineering
BEST DOCTORAL DISSERTATION

Molecular Characterization of Candidate Genes for Quantitative Traits in *Populus*

Cintia Leite Ribeiro
Best Doctoral Dissertation
Major: Plant Molecular and Cellular Biology Program

Matias Kirst
Chair, Supervisory Committee
School of Forest Resources and Conservation
2015 UF/IFAS Early Career Scientist
SEED FUNDING
Damian Adams

Unit: School of Forest Resources and Conservation

Title: Assessment of Feasible Forest Water Yield Program Features and Landowner Preferences
Soohyoun Ahn

Unit: Food Science and Human Nutrition

Title: Detection and Molecular Identification of Viable Shiga Toxin-Producing *E.coli* (STEC) in Meat by Multiplex DNA Sensor Array System Combined with Nucleic Acid Photo-Labeling
Nikolay Bliznyuk

**Unit:** Agricultural and Biological Engineering

**Title:** Novel Methods for Spatio-Temporal Modeling and Inference for Infectious Diseases
Nathan Boyd

**Unit:** Horticultural Sciences/
Gulf Coast REC – Balm

**Title:** Development of Precision
Application Technology for Weed
Management in Vegetables
John Bromfield

Unit: Animal Sciences

Title: Uterine Infection and Immunity: What’s Protecting the Germline from Pathogens?
Samantha Brooks

Unit: Animal Sciences

Title: Identification of Heritable Genetic Components Contributing to Cryosurvival in Stallion Sperm
Phillip Lancaster

Unit: Animal Sciences/
Range Cattle REC – Ona

Title: Metabolic Differences in Growing Heifers and Mature Beef Cows Having Low and High Feed Efficiency
Guodong Liu

**Unit:** Horticultural Sciences

**Title:** Rapid Identification of Phosphorous-Efficient Genotypes from Tomato Germplasm Banks
Paul Monaghan

Unit: Agricultural Education and Communication

Title: Using Social Marketing Research to Understand the Dissemination of Innovations Promoted by Florida Friendly Landscaping Practices
Patricio Munoz

Unit: Agronomy

Title: Discovering the Molecular Mechanism of 2,4-D Herbicide Resistance
Gulcan Onel

Unit: Food and Resource Economics

Title: Creating Sustainable Workforce for Small Fruits and Vegetables Industry in Florida: The Impact of Federal Immigration Programs and Solutions to Labor Shortages
Joshua Patterson

Unit: School of Forest Resources and Conservation

Title: Intraspecific Variation in Phenotype and Gamete Compatibility of Caribbean Staghorn Coral *Acropora cervicornis*
Elizabeth Pienaar

Unit: Wildlife Ecology and Conservation

Title: Game Ranching in Southern Africa: Can Trophy Hunting Incentivize Conservation and Recovery of Both Game and Non-Game Species on Private Lands?
Paul Sarnoski

Unit: Food Sciences and Human Nutrition

Title: Developing Better Processed Tomato Products
Huiping Yang

Unit: School of Forest Resources and Conservation

Title: Application of Germplasm Cryopreservation for Molluscan Shellfish Aquaculture
2015 UF/IFAS RICHARD L. JONES

NEW FACULTY RESEARCH Awardee
UF/IFAS RICHARD L. JONES
NEW FACULTY RESEARCH AWARDEE

Dr. Jianping Wang
Assistant Professor
Agronomy
2015 UF RESEARCH FOUNDATION PROFESSOR

Michelle D. Danyluk
Citrus Research and Education Center – Lake Alfred
Food Science and Human Nutrition
2015 UF RESEARCH FOUNDATION PROFESSOR

Robert J. Fletcher, Jr.
Wildlife Ecology and Conservation
2015 UF RESEARCH FOUNDATION PROFESSOR

Bin Gao
Agricultural and Biological Engineering
2015 UF RESEARCH FOUNDATION PROFESSOR

Zhenli He
Indian River Research and Education Center – Ft. Pierce
Soil and Water Science
2015 UF RESEARCH FOUNDATION PROFESSOR

Gary F. Peter
School of Forest Resources and Conservation
José Eduardo P. Santos
Animal Sciences
Title: Effect of Trap Design, Bait Type, and Age on Captures of *Drosophila suzukii* (Diptera: Drosophilidae) in Berry Crops

Authors: L. E. Iglesias, T. W. Nyoike, and O. E. Liburd

Journal: *Journal of Economic Entomology*
IMPACT ON:

Air Quality

**Title:** Reforestation as a Novel Abatement and Compliance Measure for Ground-Level Ozone

**Authors:** T. Kroeger, F. J. Escobedo, J. L. Hernandez, S. Varela, S. Delphin, J. R. B. Fisher, and J. Waldron

**Journal:** Proceedings of the National Academy of Sciences of the United States of America (PNAS)
IMPACT ON:

Human Health

**Title:** Vitamin B-6 Restriction Reduces the Production of Hydrogen Sulfide and its Biomarkers by the Transsulfuration Pathway in Cultured Human Hepatoma Cells

**Authors:** B. N. DeRatt, M. A. Ralat, O. Kabil, Y. Y. Chi, R. Banerjee, and J. F. Gregory III

**Journal:** *Journal of Nutrition*
Quantifying Biodiversity

**Title:** Decomposing Biodiversity Data Using the Latent Dirichlet Allocation Model, a Probabilistic Multivariate Statistical Method

**Authors:** D. Valle, B. Baiser, C. W. Woodall, and R. Chazdon

**Journal:** *Ecology Letters*
IMPACT ON:

Virus Transmission

**Title:** Transcriptomics of Differential Vector Competence: West Nile Virus Infection in Two Populations of *Culex pipiens quinquefasciatus* Linked to Ovary Development

**Authors:** D. Shin, A. Civana, C. Acevedo, and C. T. Smartt

**Journal:** *BMC Genomics*
IMPACT ON:

Crop Management

Title: Measurement and Modeling of Phosphorous Transport in Shallow Groundwater Environments

Authors: G. S. Hendricks, S. Shukla, T. A. Obreza, and W. G. Harris

Journal: Journal of Contaminant Hydrology
IMPACT ON:

Youth Drug Use

**Title:** The 4-H *Health Rocks!* Program in Florida: Outcomes on Youth Tobacco, Alcohol, and Other Substance Abuse Prevention

**Authors:** M. Kumaran, K. Fogarty, A. Terminello, and W. M. Fung

**Journal:** *Journal of Youth Development*
IMPACT ON:

Coral Reef Health

Title: Members of Native Coral Microbiota Inhibit Glycosidases and Thwart Colonization of Coral Mucus by an Opportunistic Pathogen

Authors: C. J. Krediet, K. B. Ritchie, A. Alagely, and M. Teplitzki

Journal: The ISME Journal
IMPACT ON:

**Citrus Greening**

**Title:** Citrus tristeza virus-based RNAi in Citrus Plants Induces Gene Silencing in Diaphorina citri, a Phloem-Sap Sucking Insect Vector of Citrus Greening Disease (Huanglongbing)

**Authors:** S. Hajeri, N. Killiny, C. El-Mohtar, W. O. Dawson, and S. Gowda

**Journal:** Journal of Biotechnology
University of Florida
UNITED STATES PLANT VARIETY PROTECTION
No. 201200394

Drs. Daniel W. Gorbet and Barry L. Tillman

July 30, 2013
In recognition of your outstanding contribution in the
development of the ‘Spain’ Peanut

University of Florida
UNITED STATES PLANT VARIETY PROTECTION
No. 201300199

Drs. Daniel W. Gorbet and Barry L. Tillman

September 30, 2013
In recognition of your outstanding contribution in the
development of the TUFRunner Brand ‘727’ Peanut
University of Florida
UNITED STATES PLANT PATENT
No. PP24,043

Dr. Zhanao Deng

November 26, 2013
In recognition of your outstanding contribution in the
development of the Lantana camara plant named
‘UF-T4’

University of Florida
UNITED STATES PLANT PATENT
No. PP24,057

Dr. Zhanao Deng

December 3, 2013
In recognition of your outstanding contribution in the
development of the Lantana camara plant named
‘UF-T3’
University of Florida
UNITED STATES PLANT PATENT
No. PP24,327

Drs. Zhanao Deng and Brent K. Harbaugh
March 18, 2014
In recognition of your outstanding contribution in the development of the Caladium plant named ‘UF-48-5’

University of Florida
UNITED STATES PLANT PATENT
No. PP24,432

Drs. Zhanao Deng and Brent K. Harbaugh
May 6, 2014
In recognition of your outstanding contribution in the development of the Caladium plant named ‘UF-172’
University of Florida
UNITED STATES PLANT PATENT
No. PP24,431

Drs. Zhanao Deng and
Brent K. Harbaugh

May 6, 2014

*In recognition of your outstanding contribution in the development of the Caladium plant named ‘UF-18-49’*
University of Florida
UNITED STATES PLANT PATENT
No. PP24,422

Dr. Rosanna Freyre

May 6, 2014

In recognition of your outstanding contribution in the development of the Ruellia plant named ‘R10-102’
University of Florida
UNITED STATES PLANT PATENT
No. PP24,441

Dr. Donald L. Rockwood

May 13, 2014

In recognition of your outstanding contribution in the development of the Eucalyptus tree named ‘G5’
University of Florida
UNITED STATES PLANT VARIETY
PROTECTION
No. 201000002

Dr. Kenneth H. Quesenberry

February 6, 2013

In recognition of your outstanding contribution in the development of the Ocoee ‘UFWC5’ White Clover
Increased Stress Tolerance, Yield and Quality Via Glutaredoxin Overexpression

Balasubramani Rathinasabapathi and Sabarinath Sundaram
Increased Stress Tolerance and Enhanced Yield in Plants

Balasubramani Rathinasabapathi and Walid Fouad
Viral-Based Transient-Expression Vector System for Trees

William Dawson, Svetlana Folimonova and Alexey Folimonova
Method and Apparatus for Measuring Gas Transmission Rate of Semi-Barrier Materials

Bruce Welt and Ayman Abdellatif
Materials and Methods for Synthesis of a Flavor and Aroma Volatile in Plants

Harry Klee and Denise Tieman
UTILITY PATENTS

Recombinant Host Cells and Medial for Ethanol Production

Brent Wood, Lonnie Ingram, Lorraine Yomano and Sean York
Re-Engineering Bacteria for Ethanol Production

Lorraine Yomano, Sean York, Shengde Zhou, Keelnatham Shanmugam and Lonnie Ingram
Materials and Methods for Efficient Succinate and Malate Production

Kaemwich Jantama, Mark Haupt, Xue Li Zhang, Jonathan Moore, Keelnatham Shanmugam and Lonnie Ingram
Semiochemical Reservoir to Attract Subterranean Termites Tunneling in Soil

Nan-Yao Su
Method of Inhibition of Enzymatic Browning in Food Using Hypotaurine and Equivalents

Kurt Schulbach and Maurice Marshall
UF/IFAS
SPECIAL RECOGNITION
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCES (AAAS) FELLOWS

Andrew D. Hanson
Eminent Scholar
Horticultural Sciences

Robert J. Cousins
Eminent Scholar
Food Science and Human Nutrition
2015 RESEARCH PROFESSOR EMERITUS

Barry J. Brecke
Professor Emeritus
West Florida REC Milton and Jay Agronomy
8th Annual
AWARDS CEREMONY
Transcriptomics of differential vector competence: West Nile virus infection in two populations of Culex pipiens quinquefasciatus linked to ovary development

Background: Understanding mechanisms that contribute to viral dissemination in mosquito vectors will contribute significantly to creating an effective public health strategy. We chose West Nile virus (WNV) to study vector competence and mechanisms involved in mosquito ovary development because it is the most important vector-transmitted alphavirus in the Americas and the most significant mosquito-borne disease in the United States.

Methods: Using RNA-seq, we compared gene expression levels between competent and non-competent populations using Culex pipiens quinquefasciatus mosquitoes. The Gainesville population of mosquitoes is highly competent for WNV infection, while the Vero Beach population is less competent.

Results: A total of 15,176 transcripts were combined for comparison of expression differences between the two populations. We found that the WNV strain was significantly upregulated in the Gainesville population compared to Vero Beach, indicating that the WNV strain is more competent in mosquitoes from the Gainesville population.

Conclusion: The study suggests that transcriptional changes in ovary development may be associated with differential vector competence for WNV. This information could be used to develop new strategies for mosquito control and public health interventions.
8th Annual AWARDS CEREMONY