

New Horizons

College of Agriculture, Environmental and Human Sciences

LU Undergraduate Student Wins Award at National Research Symposium



*Above and left: Tori Spencer, a junior biology major, won second place in the "Animal Health and Production and Animal Products" category. She completed her research, "Optimal Feed Enhancement Methods for Non-domesticated Largemouth Bass *Micropterus salmoides* Fingerlings Feed-trained at Two Initial Sizes," under the supervision of Dr. Jim Wetzel.*

Florida A&M University hosted the 19th Biennial Research Symposium of the Association of 1890 Research Directors (ARD) in Jacksonville, Florida, from March 30 to April 3. The theme was "Making Critical Contributions to Rural Prosperity and Solving Challenges in Food and Agriculture."

Faculty, staff and students from the nineteen 1890 land-grant universities shared research in more than 700 sessions and poster presentations. The symposium focused on food safety and security, nutrition, public health, small farm production and marketing, natural resource stewardship, the bio-economy, and job growth and economic health.

The symposium also marked the ARD's 40th anniversary and debuted the first Evans-Allen Memorial Lecture, which was given by US Rep. Alma Adams (D-NC).

Adams, who is entering her third term, is Vice Chair of the House Agriculture Committee, founder of the Congressional Bipartisan Historically Black Colleges and Universities (HBCU) Caucus and a member of the Progressive Education Caucus, among others.

Left: Faculty and students at the ARD, in front of the Lincoln University exhibit booth.



Greetings from the Interim Dean

It is my pleasure to share the great news and accomplishments from our college since the beginning of 2019 in our first newsletter. *New Horizons* represents all of us in the College of Agriculture, Environmental and Human Sciences as well as our collective work and the programs that we extend throughout Missouri. We are proud to serve our small farmers and the underserved communities in our great state.

Happy summer to all of our team members, families and stakeholders,



Dr. El-Dweik



*Majed El-Dweik, Ph.D.,
Interim Dean and 1890
Adminstrator, College of
Agriculture, Environmental
and Human Sciences.*



LINCOLN UNIVERSITY
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COLLEGE OF AGRICULTURE,
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*Introducing the new College of
Agriculture, Environmental and
Human Sciences mascot, “Lorretta.”
She will be our goodwill ambassador
as we spread the word about our
NEW HORIZONS!*



For more information, visit the CAEHS/LUCER Media Center publications page by scanning this QR code with your smartphone.

New Extension and Research Multipurpose Facility

Cooperative Extension and Research will be getting a new home thanks to a \$1,185,117 grant from the United States Department of Agriculture (USDA). This multipurpose agriculture building will be located on the main campus in Jefferson City. The center will house state-of-the-art laboratories as well as classrooms and will enable LU to host conferences.

All of the monies will be provided by the federal government, with no state matching funds required. Planning is still in the formative stage, and the exact site has yet to be finalized.

Dr. Majed El-Dweik, Interim Dean of the College of Agriculture, Environmental and Human Sciences, states that this “will have a positive impact on our Research and Extension activities and the learning opportunities for our students and populations we serve.”

USDA Provides Scholarship Funding

Over the next three years, Lincoln University will be eligible for federal money to support student scholarships under the Agriculture Improvement Act of 2018, otherwise known as the 2018 farm bill. The newly added Section 7117 of the farm bill provides for scholarships for students at 1890 institutions. Applicants, who must enroll within a year of their acceptance, are required to have future careers in food and agricultural science.

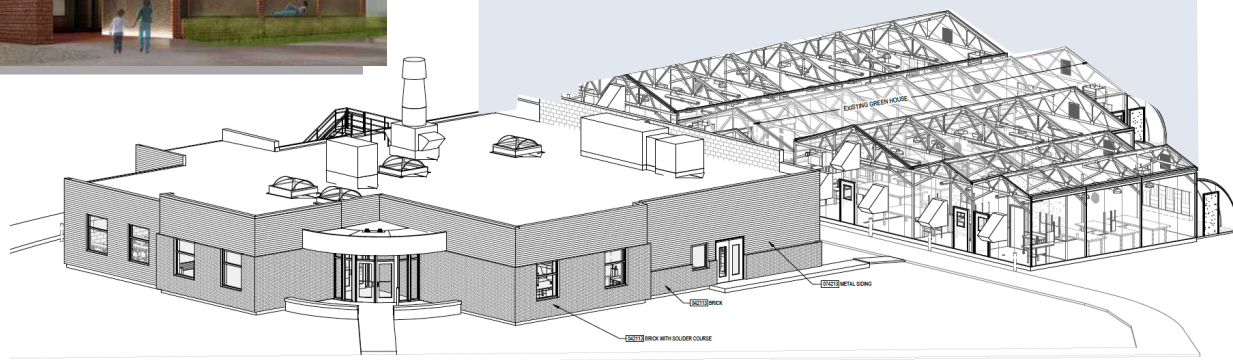
These careers can include those in “agribusiness; energy and renewable fuels; or financial management.” 1890 Institutions, including Tuskegee University, must have a “competitive scholarship awards process” to receive this scholarship grant from the United States Department of Agriculture (USDA). For the academic year beginning July 1, 2020, and for each of the following three academic years, the total grant funding will not exceed \$10,000,000 annually. Each grant will be funded in the amount of \$500,000 or more.

New Facilities for Sikeston and Dickinson Research Greenhouse

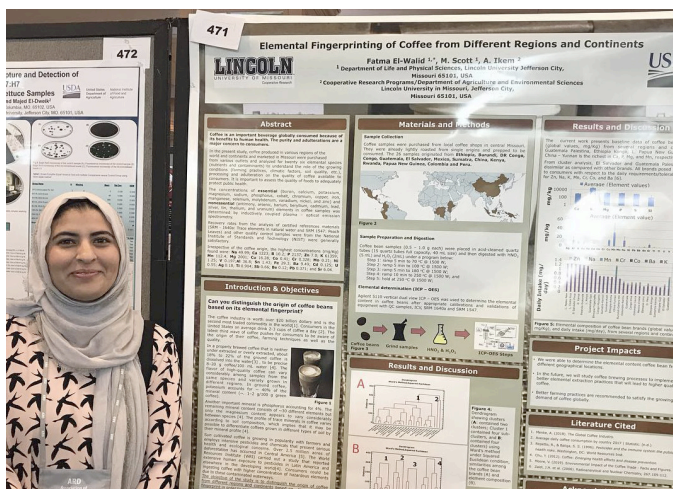
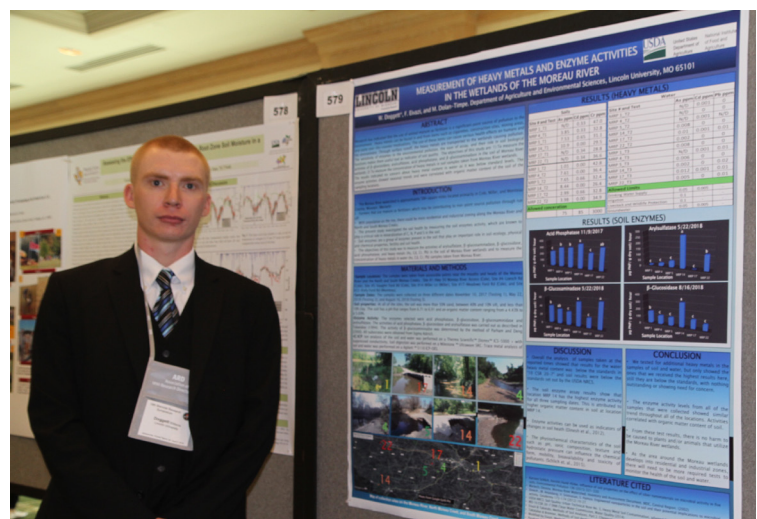
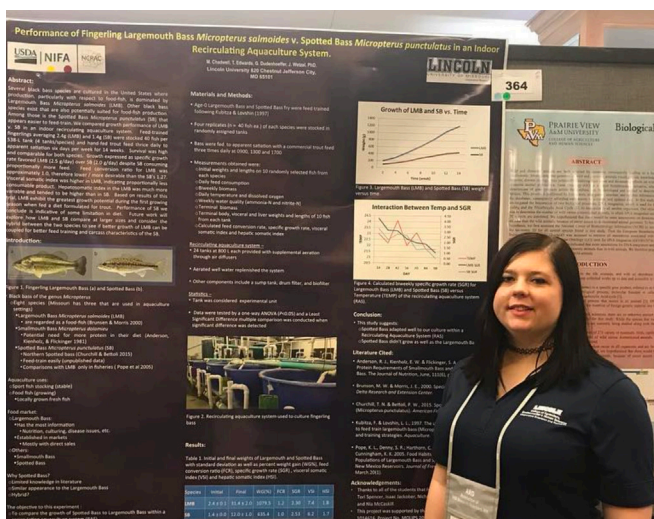
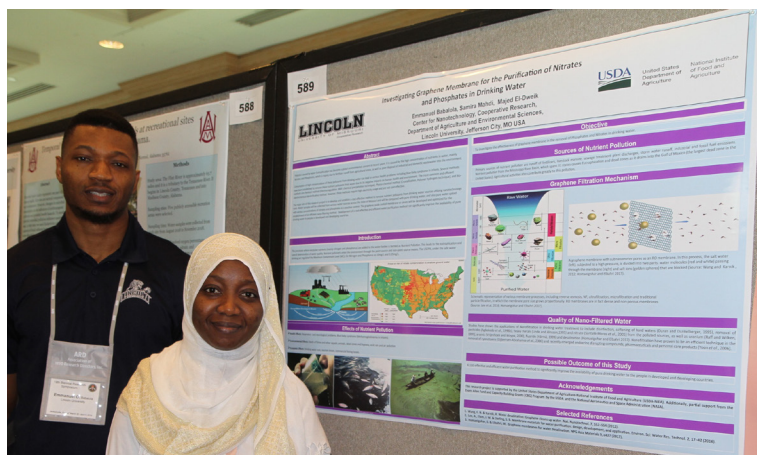
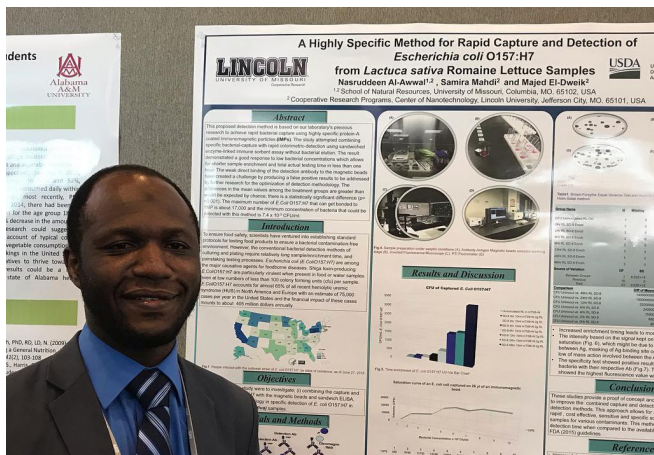


Buildings have been designed and construction will begin soon for the Sikeston Outreach Center and the Dickinson Research Greenhouse on campus.

The Sikeston Outreach Center rendering is at left, and the greenhouse design is shown below.



COVER STORY



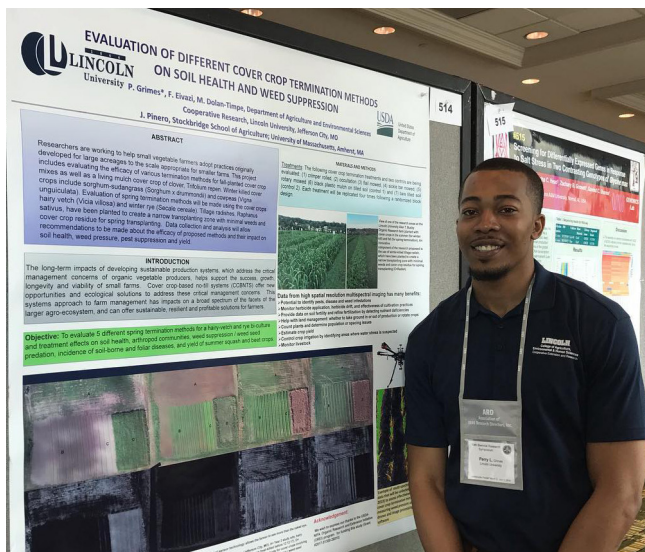
Pictured left to right: **Nasruddeen Al-Awwal** presented “A Highly Specific Method for Rapid Capture and Detection of *Escherichia coli* O157:H7 from *Lactuca sativa* Romaine Lettuce Samples.”

Emmanuel Babalola and Samira Mahdi presented “Investigating Graphene Membrane for the Purification of Nitrates and Phosphates in Drinking Water.”

Mary Chadwell presented “Performance of Fingerling Largemouth Bass *Micropterus salmoides* v. Spotted Bass *Micropterus punctulatus* in an Indoor Recirculating Aquaculture System.”

William Doggett presented “Measurement of Heavy Metals and Enzyme Activities in the Wetlands of the Moreau River.”

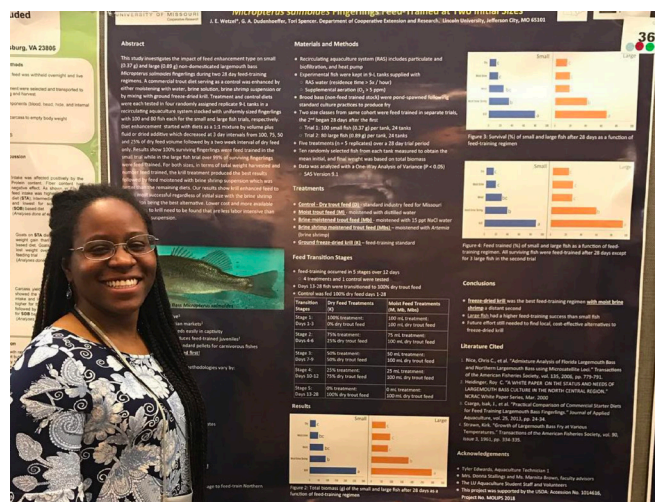
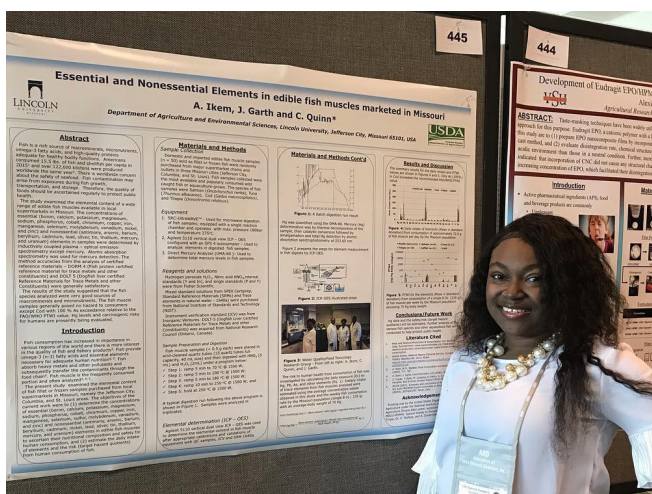
Fatma El-Walid presented “Elemental Fingerprinting of Coffee from Different Regions and Continents.”



Pictured from top to bottom: Perry Grimes Jr. presented on the “Evaluation of Different Cover Crop Termination Methods on Soil Health and Weed Suppression.”

Chanelle Quinn presented “Essential and Nonessential Elements in Edible Fish Muscles Marketed in Missouri.”

Tori Spencer presented “Optimal Feed Enhancement Methods for Non-domesticated Largemouth Bass *Micropterus salmoides* Fingerlings Feed-trained at Two Initial Sizes.” Spencer’s research presentation won second place in the “Animal Health and Production and Animal Products” category.



Faculty ARD Presentations

Babalola, E., Borgwordt, C., and M. El-Dweik. “Community Based Technical Assistance and Training Reaching New Audiences to Help Small Processors Reach FSMA Compliance.”

Hua, B., and J. Yang. “Characterizing Dissolved Organic Carbon/Nitrogen by Fluorescence Excitation-Emission Matrix and X-ray Photoelectron Spectroscopy for Watershed Management.”

Ikem, A. “Multivariate Analysis of Five-year Stream Chemistry Dataset in a Mixed Land Use Watershed (Missouri).”

Pathan, S. “Performance of Promising Quinoa Lines in the Midwest.”

Tesfaye, S. “Utilizing High Spatial Resolution, Multispectral Satellite Imagery to Investigate Rapid White Oak Mortality (RWOM) in Central East Missouri.”

Wetzel, J. “Juvenile Bluegill *Lepomis macrochirus* Growth and α -Amylase Activity When Fed Graded Levels of Dextrin or Corn Starch.”

Calendar of Events - Summer 2019

May/June

Youth Summer Programs

During the summer months, the Lincoln University Cooperative Extension satellite offices conduct specialized programming for youth. The summer programs are designed to provide hands-on learning experiences and teach skills such as leadership, science, culture, life skills and anti-bullying strategies. Highlights for the summer activities will include tours of the Nelson-Atkins Museum of Art in Kansas City, and Sikeston students will benefit from a grant that was received by the Sikeston Public Library for \$11,000. The grant will provide reading enhancement activities so that students will not lose their skills during the summer.

Summer Institute 2019

June 16-22

Lincoln University Cooperative Extension and Research will host high school students on the LU campus for Summer Institute 2019. The experiential learning program is sponsored by the United States Department of Agriculture (USDA). The activities will prepare students for agriculture and environmental science degree programs. Pupils will gain knowledge about chemical analysis, geographic information systems (GIS), aquaculture, sheep and goats, horticulture/hydroponics, food systems/vegetable production, agronomic crops, insect pollinators and pest management. The program is offered at no cost to participants.

July

Ag-DISCOVERY

July 7-20

Lincoln University will host the two-week summer outreach program Ag-Discovery, from July 7 through July 20, 2019. The program targets diverse students (14-17 years of age) from across the country who have displayed an interest in agriculture. Hands-on experience will be gained through labs, workshops and

site visits with leading agricultural industry leaders. Students will learn about Lincoln University, organic farming, plant pathology aquaculture, value-added economics, health and management of animals, human nutrition, composting and urban gardening, civic engagement and leadership.

Food Safety Preventive Control FSMA

July 15 and 16

A Food Safety Preventive Control Food Safety Modernization Act (FSMA) class will be presented by the Iowa State University Food Safety Program and hosted by Lincoln University on July 15 and 16, 2019, in Jefferson City, Missouri. This course meets the requirements for anyone processing human food to make their safety plan. Farmers, processors, students, regulators and agency staff are all encouraged to participate. Contact Cindy Borgwordt by emailing BorgwordtC@LincolnU.edu for more information.



Calendar of Events, *continued*

Geospatial Information Science Workshop (GIS) **July 21-26**

The GIS workshop is for K-12 educators. Participants who complete the workshop can earn two continuing education credits.

Workshop Topics:

- Small Unmanned Aerial Vehicles (Drones).
- Global Positioning System (GPS).
- Geographic Information System (GIS).
- Remote Sensing.

Carver Farm Field Day **July 25**

Carver Farm Field Day will be held on Thursday, July 25, 2019, from 9:00 a.m. to 4:00 p.m. at Lincoln University's George Washington Carver Farm. The field day will consist of presentations in the classroom and a tour of the farm research projects, along with more presentations. Lunch will be provided. For more information, contact Dr. Touria Eaton at (573) 681-5174 or EatonT@LincolnU.edu.



Rites of Passage - Lincoln University Teenage Pregnancy Prevention Program **July 26**

Lincoln University's Cooperative Extension Teenage Pregnancy Prevention Program will host their annual Rites of Passage Ceremony on Friday, July 26, 2019. Approximately 250 students from around the state will gather in Central Missouri to celebrate the completion of eight weeks of training on the abstinence approach

to teen pregnancy and HIV /STD Prevention. Students are recognized for their commitment, willingness to be leaders in their community and their ability to make positive, healthy decisions.

August

Missouri State Fair **August 8-18**

Lincoln University's College of Agriculture, Environmental and Human Sciences will have a booth for outreach and education at the Missouri State Fair in Sedalia, Missouri.



Missouri Institute on Minority Aging (MIMA) **August 26-28**

Holiday Inn Executive Center-Columbia Mall

MIMA is a forum to address health issues and provide solutions applicable to underserved senior citizens in Missouri. MIMA includes educational presentations that cover a variety of topics, including strategies for the delivery of health care information and programs as well as current research and data on health issues impacting older, underserved individuals.

Achievements, Grants and Publications

Achievements

Dr. Majed El-Dweik, Interim Dean of the College of Agriculture, Environmental and Human Sciences/Professor of Biological Engineering at Lincoln University, and Dr. Mahmoud Almasri, Associate Professor of Electrical Engineering and Computer Science at the University of Missouri (Columbia campus), along with their team of students, had their invention approved and a patent issued by the United States Patent and Trademark Office (Patent Number 10,274,492) for their biotechnology entitled "HIGH SENSITIVITY IMPEDANCE SENSOR."

Current testing methods for *E. coli* take approximately three days to obtain results for contamination. Dr. El-Dweik and his team's state-of-the-art biotechnology reduces the testing time to 14 hours. Food processing companies will be able to test their food products rapidly prior to shipping to ensure safe food for consumers.

Dr. Samson Tesfaye was nominated by Lincoln University to receive the Governor's Award for Excellence in Teaching. Dr. Tesfaye is a Professor of Geospatial Information Technology in the College of Agriculture, Environmental and Human Sciences.

Grants

Dr. Tunsisa Hurisso, Assistant Professor – Soil Science, Lincoln University Cooperative Research, received a grant from the United States Department of Agriculture (USDA) – Natural Resources Conservation Service (NRCS) Soil Health Training and Hands-on Demonstration for Minority and Limited-resource Farmers and Ranchers in the amount of \$25,694.00 for the first year.

The USDA – NRCS has awarded \$175,000 to the Lincoln University Horticulture Program for a one-year project. The project will be a collaboration

with LU's Innovative Small Farmers' Outreach Program (ISFOP). **Dr. Touria Eaton**, State Extension Specialist – Horticulture, was the grant awardee. The overall goal of this project is to conduct statewide outreach events and activities to promote the programs and services of Lincoln University and of the NRCS as well as to provide farmers throughout the state access to and benefit from these programs and services.

Dr. John Yang, Associate Director of Research/Professor of Environmental Science, received a half-million dollar research grant award from the National Science Foundation. Dr. Yang's research is focused on plant uptake and the ecological impacts of agricultural nanoparticles.

Publications

Dr. Guolu Zheng, Principal Investigator/Associate Professor of Microbiology, Lincoln University Cooperative Research, published "*E. coli*, or not *E. coli*, That is the Question," in the February issue of "ARD Updates," published by the Association of 1890 Research Directors. You can read Dr. Zheng's article here: https://bluetigerportal.lincolnu.edu/c/document_library/get_file?uuid=a736e71f-9c2a-4bc5-98e1-696a3b7234b2&groupId=13583.

Dr. John Yang, Associate Director of Research/Professor of Environmental Science, published the following:

Wang, J., Cui, J., Yang, J., Zhou, J., and A. Chan.
2019. "Nonlinear Effects of Increasing Nitrogen Deposition on Rice Growth and Heavy Metal Uptake in a Red Soil Ecosystem of Southeastern China." *Science of the Total Environment* 670: 1060-1067.