

FIU

FLORIDA
INTERNATIONAL
UNIVERSITY



Graduate Training in Agroecology at Florida International University

Agroecology Program
at FIU



**Krish Jayachandran, Mahadev Bhat,
and Kateel Shetty**

Earth & Environment Department

Institute of Environment

School of Environment, Arts & Society

College of Arts, Sciences & Education

Florida International University, Miami,

Florida

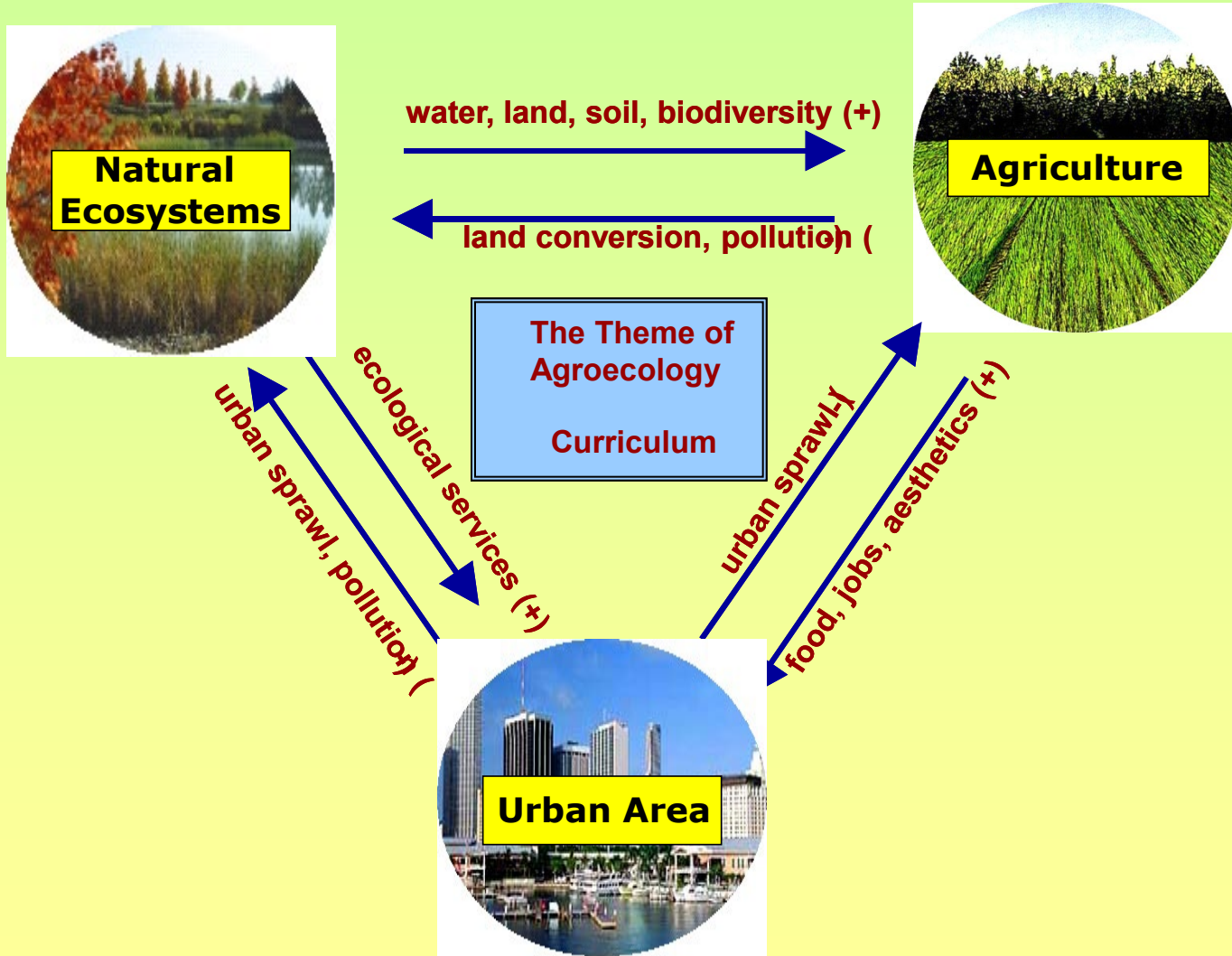


Agroecology Theme

**Promoting Student-Centered
Learning and Engagement**

FIU's Vision and Mission

**Student-Centered Urban Public
Research University**



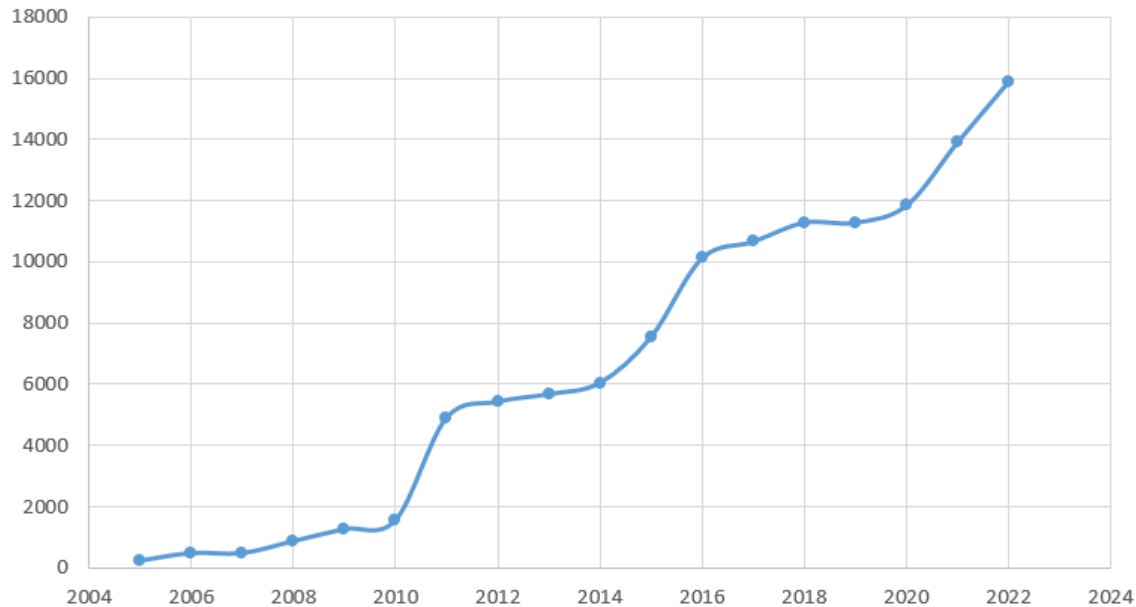


Objectives of the FIU-Agroecology Program

- ❖ Continue to offer a comprehensive agroecology program at FIU
- ❖ Incorporate scientific instrumentation into the agroecology curriculum
- ❖ Engage in Research Activities and Publications
- ❖ Establish campus organic garden and a farm to provide students with hands on experience – experiential and experimental learning activities
- ❖ Develop leadership skills, provide internship opportunities, timely graduation, and career job placement

FIU Agroecology Funding History – Teaching, Research and Outreach Grants

Florida International University - Agroecology Program
Cumulative Teaching, Research and Outreach Grant Total,
2005 - 2022 (000 \$)



\$15.89 million in
total grant
funding since
2005



Novelty and Innovation for Graduate Student Success

- ❖ **Mentoring**
- ❖ **Academic experiences**
- ❖ **Experiential learning**
- ❖ **Career development**
- ❖ **Leadership**
- ❖ **Institutional Support**
- ❖ **Recruitment and Retention**

Agroecology curriculum and
increase the enrollment of
graduate students

Graduate Program

Major in Agriculture Sciences

Degree: MS Environmental Studies & PhD in Natural Resource
Sciences & Management

Some of the Courses:

Ecological Agriculture

Sustainable Farming System

Advanced Soil Resource Analysis

Soil Biology

Precision Agriculture

Crop Production

Farm Economics



Exp. Learning Activities







Study Abroad

Experiential and Experimental Learning and Cultural Exchange – International Experience

Costa Rica, Colombia, India





Research Activities

- ❖ Incorporate scientific lab and field experiments to promote research experience
- ❖ Agroecology class students conducted various lab and field experiments. The focus of these projects is sustainable agriculture practices and production
- ❖ 300 students took part in different lab and field experiments





Students Research









Outreach Activities

Annual Agroecology Symposium:



Tuesday, February 24th, 2009
Florida International University
MARC Building Pavilion



Registration at 9:00 am

❖ Goal:

- bring together academicians, agricultural agency and extension personnel, and farmers to FIU to address emerging issues in sustainable agriculture science for the benefit of students and faculty
- showcase the agroecology student projects & provide them with professional experience of communication and interaction









Collaborative Education, Engagement and Research Network

Academic Collaborators



Active grant and program collaborations with other HSIs & land grant universities, community colleges in the country (8)

Non-academic or non-funded collaborators



USDA Agencies collaborations (6)

Program Impacts on Students by the Numbers



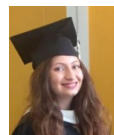
Students internships with USDA grant support (~250)



USDA Career placement in FAS, ARS, NRCS (~20)



Students graduated with USDA support (~500)



Masters & PhD students graduated from FIU with USDA support (~30)



Advancing to other graduate schools for masters & PhDs (~20)



AAHHE best thesis awards (4)



Organic Garden (1) & Agroecology, Soils and Plant labs (4)



Summer Agroecology workshops for K-12 teachers (6 years)



Summer Internships for High School students (70 interns over 15 years)

2020 Agroecology Symposium
Future Climate Change and Implications for U.S. and Florida Agriculture

Dr. Steven McNulty is the Director of the USDA Southeast Regional Climate Hub, located in Research Triangle Park, NC. He has a Ph.D. in Natural Resources from the University of New Hampshire and has spent over 30 years researching environmental stress impacts and adaptive management options for forests, and more recently for agriculture and rangelands. Dr. McNulty has authored over 250 papers and he has contributed to many national and international assessments on climate change impacts on ecosystems. Dr. McNulty has served as a U.S. Congressional Fellow, Climate Change Chair of the North American Forestry Commission, and on the USFPO Global Forest Expert Panel. He is the recipient of US Forest Service Distinguished Scientist Award, among other honors.

Ms. Holly Bell is the Director of Cannabis for the Florida Department of Agriculture and Consumer Services. Ms. Bell was appointed by Florida Commissioner of Agriculture, Nikki Field, and was made in charge of overseeing the development of a state hemp program. Ms. Bell had a 30-year career in entertainment banking and financial services. It was in her banking role that she was first asked to help a client with a cannabis-related business over 10 years ago. After retiring from banking, Ms. Bell consulted on cannabis business issues in numerous states. She also worked to help build the infrastructure to support the creation of Tennessee's hemp industry. Ms. Bell earned a bachelor's degree in Agricultural Economics from Purdue University. She has also been a 10-year 4H member, FFA member, and a past President of the American Junior Chemists Association.

Featuring

Dr. Steven McNulty
 Director of Southeast Regional Climate Hub,
 U.S. Department of Agriculture

Ms. Holly Bell
 Director of Cannabis,
 Florida Department of Agriculture
 and Consumer Services

Monday, March 23rd, 2019
GC 243 | Modesto Maidique Campus
Florida International University

Annual Agroecology Symposium

16 years in a row since 2006, showcasing students research, internships, engagement and leadership

- ~ 70% Hispanic
- ~ 85% all minorities
- ~ 60% female students
- ~ more than 90% graduation rate

Examples of High Quality Research & STEM Education

CASE News
The College of Arts, Sciences & Education


Arts + Culture Education Environment Science + Health Spotlight Student Life Opportunities

Earth Systems Science Ph.D. student continues her STEM journey

Written by **Contributing Writer**
April 7, 2020

Share

By **Ashley Garcia**



Christina Estela Brown is a postdoctoral scholar with the National Center for Integrated Coastal Research and the Department of Tourism, Events & Attractions in the Rosen College of Hospitality Management at the University of Central Florida.

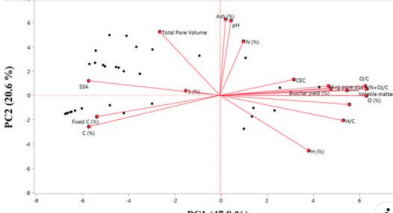
Brown received a Ph.D. in Earth Systems Science from FIU in 2019. She wanted to study environmental and ecological economics, but also wanted a deep understanding of the ecosystems she was studying. The Earth Systems Science program, she says, "gave me an opportunity to really develop a transdisciplinary framework for understanding socio-ecological systems."

[Click here for the full article](#)

Dr. Christina Brown, FIU graduate, 2019
Research Economist, **USDA Economic Service**, Kansas City, KS

Krish Jayachandran
April 9 at 8:51 AM

Congratulations to Shagufta Gaffar for publishing her first paper in Agronomy. This is a trans-disciplinary collaborative research among Environmental Scientists, USDA-ARS, and Mechanical Engineering to elucidate role of Biochars in maintaining Soil Health, Carbon Sequestration, and Climate Change mitigation.



MDPI.COM
Physiochemical Characterization of Biochars from Six Feedstocks and Their Effects on the Sorption of Atrazine i...

<https://www.mdpi.com/2073-4395/11/4/716>

 **agronomy**

Physiochemical Characterization of Biochars from Six Feedstocks and Their Effects on the Sorption of Atrazine in an Organic Soil

by Shagufta Gaffar ¹ Sanku Dattamudi ¹ Amin Rabiei Baboukani ² Saoli Chanda ¹ Jeffrey M. Novak ³ Donald W. Watts ³ Chunlei Wang ² and Krishnaswamy Jayachandran ¹

Over 500 conference/symposia presentations, refereed publications and popular articles from students and faculty

 **JOURNAL OF SOIL AND WATER CONSERVATION**
The science and art of natural resource management for sustainability

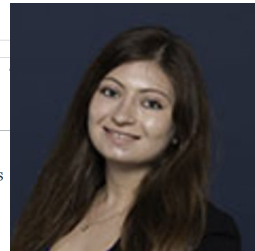
Home Content Info For About

Research Article | Research Section

Adoption and perception of cover crop implementation for tropical fruit growers

A. Freidenreich, M. Bhat and K. Jayachandran
Journal of Soil and Water Conservation December 2021, 00084. DOI: <https://doi.org/10.2488/jswc.2022.00084>

[Click here for the full article](#)



Dr. Ariel Freidenreich, FIU graduate, 2020, Research Scientist, **USDA Agricultural Research Service**, Nebraska



CASENEWS.FIU.EDU
Student works to save endangered orchids with friendly fungi

[Click here for the full article](#)

[Click here for the full article](#)

EconPapers
Economics at your fingertips

A Game-Theoretic Model of Crop Flood Indemnity in South Florida

Christina E. Brown and Mahadev Bhat

No 274470, 2018 Annual Meeting, August 5-7, Washington, D.C., from Agricultural and Applied Economics Association

Keywords: Risk and Uncertainty; Natural Resource Economics; Resource and Environmental Policy Analysis (search for similar items in EconPapers)

Date: 2018-06-20

New Economics Papers: this item is included in [nep-gth](#)

References: [View references in EconPapers](#) [View complete reference list from CitEc](#)

Citations: [View citations in EconPapers](#) (1) [Track citations by RSS feed](#)

Agroecology Core Faculty Members



Dr. Mahadev Bhat
Professor



Dr. Krish Jayachandran
Professor



Dr. Amir Khoddamzadeh
Assistant Professor



Dr. Kateel Shetty
Associate Research Professor



Dr. Maruthi Sridhar Balaji Bhaskar
Associate Professor



Dr. Cara Rockwell
Assistant Professor

Agroecology Affiliated Faculty Members



Dr. Hong Liu
Professor



Dr. Diego Salazar-Amoretti
Assistant Professor



Dr. Assefa Melesse
Professor



Dr. Christopher Baraloto
Professor & Director, International Center for Tropical Botany



Thank You

<http://agroecology.fiu.edu>

This entire program success is possible by funding through:

USDA-NIFA-NNF

USDA-NIFA-MSP

USDA-NIFA-HSI

USDA-NIFA-REEU

USDA-OPPE and BFRDP

USDA-NRCS, SSARE

Collaborators, Partners, Faculty, and Students



Thank You

<http://agroecology.fiu.edu>

Krish Jayachandran

Mahadev Bhat

Kateel Shetty

Amir Khoddamzadeh

Maruthi Sridhar Bhaskar

Cara Rockwell

Diego Salazar

Julio Soto

Kiara Taibi-Briz