Program Summary

Wednesday, September 7, 2022

Alumni Event Center

200 North Benbow Road, Greensboro, NC 27411

8:00 a.m.	PRE-CONFERENCE Alabama A&M University – Produce Safety Alliance Training Program (Classroom Setting/ Indoor Meeting)
12:00 p.m.	**Lunch**
4:00 p.m.	**Adjourn**
5:00-7:30 p.m.	**Registration**
5:00-6:00 p.m.	**Networking**
5:30-6:00 p.m.	**Session Chairs Meeting**
6:00-7:30 p.m.	**Reception**

Thursday, September 8, 2022

Alumni Event Center

200 North Benbow Road, Greensboro, NC 27411

8:00 a.m.– 5:00 p.m.	**Registration** Exhibits Open
8:00 a.m.–8:30 a.m.	**Continental Breakfast**
10:00 a.m.–5:00 p.m.	**Poster Session (Exhibit Hall)** Authors present from 10:00 a.m. – 11:30 a.m.

GENERAL SESSION

8:30 a.m.	**Welcome and Introductions**
8:40 a.m.	**Keynote Speakers and Remarks** 1890 Presidents/Chancellors/Deans/Association of 1890 Research Directors/1890 Universities Foundation/North Carolina Agriculture Commissioner or Designees/Other Dr. Kevin Kephart – Deputy Director, USDA NIFA's Institute for Bioenergy, Climate and the Environment (IBCE) **Environmental and Farm Justice** Dr. Godfrey Uzochukwu, NC A&T State University **Engaging Socially Disadvantaged Farmers and Ranchers – Policy Center Update** Erolis D. Speight, Alcorn State University
10:00 a.m.	**Overview of Small Business Innovations in Agriculture** Dr. Kathleen Liang, NC A&T State University
10:15 a.m.	**Networking and farmer-to-farmer interactions**

10:30 a.m.	**The Small Farm and Resource Innovation Center (SFRIC): A One-Stop Shop to Support Farmers and Rural Communities in North Carolina** Dr. Gregory Goins and Dr. Mark Blevins, NC A&T State University **AAMU Small Farms Research Center Outreach Efforts and Resources Available** Ms. E'licia L. Chaverest and Dr. Duncan M. Chembezi, Alabama A&M University
11:00 a.m.	**Round Table Discussions – Focus Groups** Overcoming Problems/Hurdles in Farm Business Small Business Innovations in Agriculture Dr. Brianna Posadas and Dr. Mark Williams, Virginia Polytechnic Institute and State University
12:00 p.m.	**Lunch**
1:30 p.m.–3:00 p.m.	**Technical Presentations I** Concurrent Sessions 1, 2 & 3

Session 1
Small Business Innovations in Agriculture

1:30 Financial Impacts of Climate Resilient Practices on Three Small Farms in North Carolina
Mark Blevins, Beverly Bowen, Vincent Gauthier, Connie Locklear, Millard Locklear and Holly Whitesides,
NC A&T State University

1:50 Technical and Price Efficiency Implications of Next-Generation Agricultural Technologies at the Farm Level
Aaron Dare, Godfrey Ejimakor and Terrence Thomas,
NC A&T State University

2:10 The Meat Price & Yield Calculator Tool: Pricing For Profit
Matthew N. LeRoux and Todd M. Schmit,
Cornell University
Lee Menius, and Sarah E. Blacklin,
North Carolina State University

2:30 Increasing Farmers Market Sales through POS Data Collection and Analysis
T.M. Schmit and M.N. LeRoux,
Cornell University

2:50 Small Agribusinesses' Perception of Climate Change and Adaptation Strategies: A Case in Missouri
Ye Su and Lan Tran
Lincoln University of Missouri

Session 2
Sustainable Farming Systems and Climate Adaptation

1:30 Applying Conservation Practices on Small Farms through Technical and Financial Assistance Programs
John Beck, NCDA&CS Division of Soil and Water Conservation, Raleigh, N.C, USA

1:50 Using Perennial Cover Crops to Reduce Inputs in Southeastern Production Systems
Eric D. Billman, Coastal Plains Soil, Water, and Plant Conservation Research Unit, USDA-ARS, Florence, S.C.

2:10 A Review of Low-Cost Precision Agricultural Technologies: Implications for Sustainable Farming Systems
Brianna B. Posadas, Kim L. Niewolny and Maaz Gardezi,
Virginia Tech

2:30 Small-Scale Cover Crop-Based No-Till: Finding the Right Termination Method and Equipment
Mark A. Dempsey, Mary Carroll Dodd, Gena Moore and Karen McSwain
The Carolina Farm Stewardship Association, Pittsboro, NC, USA
Red Scout Farm, Black Mountain, NC, USA

2:50 Strategies for Improving Soil Health for Degraded and Damaged Soils
Thomas F. Ducey, Coastal Plains Soil, Water and Plant Research Center, ARS-USDA, Florence, SC

Session 3
Food and Bioproducts Processing Technology

1:30 Modular Eco-Efficiency Assessment for Production of Insects as a food Protein Source
Raphaela Spykman[1]; Sayed Mahdi Hossaini[1]; Daniela A. Peguero[2]; Ashley Green[2,3]; Volker Heinz[1]; Sergiy Smetana1
[1] German Institute of Food Technologies
[2] Laboratory of Sustainable Food Processing, ETH Zurich
[3] Life Cycle Assessment Research Group, Agroscope, Zurich, Switzerland

1:50 A Novel Approach to Reduce Fat-Uptake in Fried Chicken Using Edible Coating
Reza Tahergorabi, Lovie Matthews and Daniel Ananey-Obiri
NC A&T State University

2:10 Utilization of low-value apples to produce colorful, nutrition-fortified apple chips by osmotic dehydration
Xiaojuan Wang, University of Illinois at Urbana-Champaign
Hao Feng, NC A&T State University

2:30 Reducing Fat-Uptake in Fried Chicken Using Edible Coating and Sweet Potato Starch Batter
Reza Tahergorabi, Lovie Matthews and Daniel Ananey-Obiri
NC A&T State University

3:00 p.m.	**Overview of small farms outreach program – Virginia State University** Herbert Brown
3:20 p.m.	**Small Farms Field Research, Applications, and Profits** Dr. Sanjun Gu, NC A&T State University
3:40 p.m.	**Networking and farmer-to-farmer interactions**
4:00 p.m.–5:30 p.m.	**Technical presentations II** Concurrent Session 1 & 2

Session 1
Environmental and Farm Justice

4:00 Enhancing Microbial Safety of Microgreens by Ultrasound and Organic Acid Combined Treatment as an Environment-Friendly Seed Sanitation Method
Mengyi Dong, University of Illinois at Urbana-Champaign
Hao Feng
NC A&T State University

4:20 The Digital Agriculture Revolution: What to consider Making it Work for Small or Marginalized Farmers?

Jenny Melo-Velasco and Mary Hendrickson,
University of Missouri

4:40 Emerging Pollutants in Drinking Water and Their Potential Impact on Animal Health
Priyanka Rahul Pande, Sarah Adjei-Fremah, Mulumebet Worku, Sowmya Jagana, Navya Inupala and Dongyang Deng.
NC A&T State University
Winston-Salem State University

5:00 Small Farmers Keep Resilient Through The COVID-19 Pandemic
Ye Su
Lincoln University of Missouri
Jasper Grashius
University of Missouri, Columbia

5:20 Recovery of Value-Added Products from Swine Manure and Waste Peaches
Matias Vanotti, Ariel Szogi and William Brigman
U.S. Department of Agriculture, Agricultural Research Service (USDA-ARS), Coastal Plains Soil, Water and Plant Research Center, Florence, SC

Session 2

Sustainable Farming Systems and Climate Adaptation

4:00 Diversifying agroecosystems research for small-scale producers and sustainable technologies
J.D. Wulfhorst
University of Idaho

4:20 Adapting New, Sustainable Hydroponic Technology for Small-Farmers and Hobbyist
Chris Mullins
Virginia State University

4:40 Effects of Plastic Layers of High Tunnel and Plastic Mulching on the Quality of Two Varieties of Tomatoes
Augustina Odediran, Jianmei Yu, Nona, Mikiashvili, Peter L. Coffey and Sanjun Gu
NC A&T State University

5:00 Effects of Different Inclusion Levels of Onion Peel on Total Gas Production and Methane Emision of High Concentrate and High Forage Diets
Lydia. K. Olagunju, Peter A. Dele, Olutreru E. Orimaye, Michael Wuaku, Rosetta Brice, Yasmine Shaw and Uchenna Y. Anele
NC A&T State University

5:20 Evaluation of Garlic Extracts for Sustainable Meat Goat Production
S. Jagana, S. Inupala, P. Pande, MD. Rasel, M. Worku
NC A&T State University

Friday, September 9, 2022

Farm Pavilion

3020 McConnell Rd.
Greensboro, NC 27405

8:00 a.m.	**Registration** Exhibits Open
8:00 a.m.	**Continental Breakfast (Great Room)**

N.C. A&T Farm

8:30 a.m.	**Field demonstrations and tours** Dr. Sanjun Gu Alabama A&M University – Mobile Farm Innovation Facility – outdoor

Fort Valley State University – Mobile Information Technology Center – outdoor

Computers, Internet Access and Databases

Hydroponic Demonstration - Virginia State University

Farm Pavilion

12:00 p.m.	**Lunch**
1:00 pm	**Round Table Discussion on Next Generation Sustainable Technologies for Small-Scale Producers – Gaps, Needs, and Recommendations**
2:30 p.m.	**Concluding Remarks**

POSTERS

Thursday, September 8, 2022

Alumni Event Center Exhibit Hall

8:00 a.m.-5 p.m.

Authors present 10 a.m.-11:30 a.m.

001 CSA & SNAP: BUSINESS OPPORTUNITY FOR FARMERS, IMPROVED NUTRITION FOR THE COMMUNITY

Diane K. Smith

Washington State University

002 ASSESSMENT OF DATE FRUIT-FLAVORED DRINKABLE YOGURT

Amira A. Ayad, Maria M. Ortiz de Erive, Guibing Chen and Leonard L. Williams

NC A&T State University

003 IN VITRO NUTRIENT DEGRADABILITY AND METHANE PRODUCTION OF TWO DAIRY DIETS AS AFFECTED BY NUTRACEUTICAL PLANT INCLUSION LEVELS

Peter A. Dele, Oluteru E. Orimaye, Michael Wauku, Kelechi A. Ike, Rosetta M. Brice, Lydia K. Olagunju, Yasmine A. Shaw and Uchenna Y. Anele

NC A&T State University

004 PRECISION AGRICULTURE (PA) TECHNIQUES FOR SMALLHOLDER FARMERS: REVIEW OF CURRENT TECHNOLOGIES, CHALLENGES, AND OPPORTUNITIES

Rajveer Dhillon, Qianna Moncur, Sakthi Kumaran, Alcinda Folck, Cadence Lowell and Deng Cao

Central State University, Wilberforce, OH

005 CONTROLLING MAIZE WEEVIL IN STORED ORGANIC CORN GRAINS USING ESSENTIAL OILS

Sawo Eesiah, Jianmei Yu, Barbara Amoah, Beatrice Dingha

NC A&T State University

006 GARLIC FOR SUSTAINABLE PRODUCTION OF HAIR SHEEP DIVERSIFIED PRODUCTION IN THE US

SreeNavya Inupala, Sowmya Jagana, Priyanka Pande, M Rassel Uzzaman and Mulumebet Worku

NC A&T State University

007 FAT UPTAKE REDUCTION BY USING OLEOGEL AND CITRUS PEEL FIBER IN DEEP-FRIED SURIMI PRODUCTS: A REVIEW

Joinul Islam and Reza Tahergorabi

NC A&T State University

008 FUNGICIDAL POTENTIAL OF ESSENTIAL OILS IN ORGANIC CORN GRAINS DURING STORAGE

Esther Iwayemi, Jianmei Yu, Nona Mikiashvili and Ivana Pedroso

NC A&T State University

009 SUSTAINABLE USAGE OF BIOCHAR AS SOIL AMENDMENT AND THE PROSPECTS FOR CLIMATE CHANGE MITIGATION

LaShaunda D. McDaniel
Alcorn State University

010 WASTE TO WEALTH: RECYCLING AGRICULTURAL WASTES AS FEED ADDITIVES

Lydia K. Olagunju, Peter A. Dele, Yasmine Shaw, Rosetta Brice, Oluteru E. Orimaye, Michael Wuaku, and Uchenna Y. Anele
NC A&T State University

011 DIFFERENTIAL EFFECTS OF GARLIC FOR USE IN NON-CHEMICAL DAIRY PRODUCTION

P. Pande, S. Inupala, S. Jagana, MD. Rasel and M. Worku
NC A&T State University

012 FAT REDUCTION IN DEEP-FRIED CHICKEN PRODUCTS USING OLEOGEL AND CITRUS PEEL FIBER: A REVIEW

Niaz Mahmud and Reza Tahergorabi
Food and Nutritional Sciences Program
NC A&T State University

013 IDENTIFICATION OF SINGLE NUCLEOTIDE POLYMORPHISMS FOR SMALL RUMINANTS' HEALTH AND ADAPTATION

Md. Rasel Uzzaman, Zewdu Edea, Rabiul Islam, Kwan-Suk Kim and Mulumebet Worku
NC A&T State University
Ethiopian Biotechnology Institute, Addis Ababa
Institute of Animal Science (IAS), Chinese Academy of Agricultural Sciences (CAAS)
Chungbuk National University, Cheongju, Chungbuk Province, Republic of Korea

014 NEXT-GENERATION AGRICULTURAL TECHNOLOGIES: ASSESSING MARKET AND POLICY IMPLICATIONS

Roger Vorsah, Godfrey Ejimakor and Obed Quaicoe
NC A&T State University

015 BARRIERS FACED BY SOCIALLY DISADVANTAGED FARMERS AND RANCHERS AND HEIR PROPERTY OWNERS—POLICY CENTER RESEARCH ANALYST UPDATE

Kara A. Woods
Alcorn State University

016 NITROGEN: AN EFFECTIVE COMPONENT FOR THE GROWTH AND VIABILITY OF LACTOBACILLUS DELBRUECKII SUBSP. BULGARICUS

Raphael D. Ayivi, Salam A. Ibrahim, Philip J. Yeboah, Albert Krastanov, Abishek Somani, Shahida A. Siddiqui and Sayed M. Hossaini
NC A&T State University
University of North Carolina at Greensboro
University of Food Technologies, Plovdiv, BULGARIA
Ohly Gmbh, Wandsbeker Zollstrasse Hamburg, GERMANY
Technical University of Munich (TUM), 94315 Straubing, GERMANY
DIL e.V.–German Institute of Food Technologies, 49610 D-Quakenbrück, GERMANY

017 HIGH TUNNELS, A SUSTAINABLE TOOL FOR VEGETABLE PRODUCTION UNDER CLIMATE CHANGE

Sanjun Gu
NC A&T State University

018 PLASTICULTURE AND ITS TREND IN VEGETABLE AND STRAWBERRY PRODUCTION

Randy Fulk and Sanjun Gu
NC A&T State University

019 VEGETABLE GRAFTING, THE NEXT BIG THING IN SUSTAINABLE PRODUCTION OF FRUITING VEGETABLES

Sanjun Gu

NC A&T State University

020. CLIMATE MITIGATION AND ADAPTATION IS FOR THE FAINT OF HEART

Cynthia Rice, Buddhi Gyawali, Marion Simon, Whitney Maynard; Kentucky State University, Frankfort, Kentucky, USA

021. REMOVAL OF PATHOGENS IN AGRICULTURAL WASTEWATER USING PASSIVE BIOFILTER

James Pinkney, Jr, Z. Tang, N. Aryal
NC A&T State University

022. REGENERATIVE, SUSTAINABILITY, PERMACULTURE, HOLISTIC: JUST WHAT IS A SUSTAINABLE FARMING SYSTEM

Cynthia Rice, Buddhi Gyawali, Marion Simon, Whitney Maynard
Kentucky State University

23. THE FATE AND REMOVAL OF GLYPHOSATE IN CONSTRUCTED WETLAND MICROCOSMS

D. A. Smith, N. Aryal, Z. Tang
NC A&T State University

024. ENVIRONMENTAL CONCERNS ARE NOT AT CROSS PURPOSES TO FARM JUSTICE / FOOD SECURITY

Cynthia Rice, Buddhi Gyawali, Marion Simon, Whitney Maynard
Kentucky State University

025. INTEGRATED CLIMATE SMART PRACTICES TO ENHANCE SOIL HEALTH AND CROP PRODUCTION

Leonard C. Kibet, Girish Panicker, Frank Mrema and Samuel Mwangi
Alcorn State University