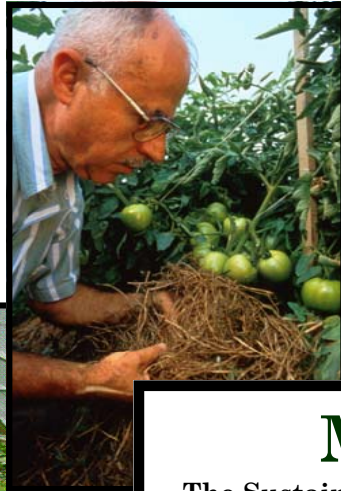


FARMING SYSTEM PROJECT

- Agroecology of Long-Term Systems
- Economic Analysis
- Weed Population Dynamics
- Organic Farming Research



CROPPING SYSTEM MANAGEMENT

- Cover Crop Management
- Breeding Soybeans and Cover Crops
- High Tunnels for High Value Crops
- On-Farm Organic Farming Research
- Molecular Basis for Cover Crop Effects



BIOLOGICAL PEST MANAGEMENT

- Bacterial Control of Soilborne Diseases
- Bacterial Control of Weeds & Invasive Species
- Compost/Suppressive Soils
- Cover Crops for Pest Suppression



ANNUAL EVENTS

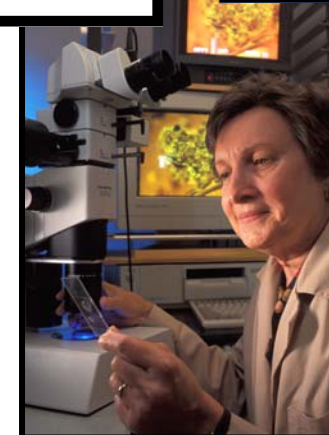
- Farming for Profit & Stewardship Conference
- Conferences for Underserved Farmers
- Farming Systems Project Focus Group
- Tours of Sustainable Systems Plots
- Field Days Held on Local Farms

MISSION

The Sustainable Agricultural Systems Lab determines principles and practices that support the development of sustainable crop production while preserving natural resources. Emphasis is placed on multi-disciplinary research to understand fundamental agro-ecological processes underlying the functioning of sustainable systems. Communication with the community of growers, suppliers, information specialists, and consumers that value sustainable agriculture is integral to the definition of research problems and the transfer of technology.

TECHNOLOGY TRANSFER PARTNERS

- Maryland Cooperative Extension
- Future Harvest - Chesapeake Alliance for Sustainable Agriculture (CASA)
- Accokeek Foundation
- Small Farms Success Consortium (IFAFS Funded)
- High Tunnel Consortium (SARE Funded)



SOIL BIOLOGY/ECOLOGY

- Microbial Diversity
- Rhizosphere Ecology
- Mycorrhizae
- Glomalin

SASL STAFF

Dr. John R. Teasdale, Research Leader

Integrated weed management systems and weed population dynamics. teasdale@ba.ars.usda.gov

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Cover crop-based systems for vegetable and fruit production. abdul-ba@ba.ars.usda.gov

Dr. Jeffrey S. Buyer, Research Chemist

Microbial diversity in soils and rhizosphere in conventional and alternative systems.

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Dr. Thomas E. Devine, Geneticist

Soybean genetics and breeding for forage and edamame. Breeds hairy vetch as a cover crop.

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Dr. Donald Krizek, Plant Physiologist

Physiological and biochemical basis for production of high-value crops in high tunnels.

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Economic analysis of new technologies and alternative farming systems. lu@ba.ars.usda.gov

Dr. John Lydon, Plant Physiologist

Biological control of weeds using bacteria with enhanced virulence. lydonj@ba.ars.usda.gov

Dr. Autar Mattoo, Plant Physiologist

Molecular biology of sustainable, alternative agricultural systems and nutritional enhancement of crops. mattoo@ba.ars.usda.gov

Dr. Patricia Millner, Microbiologist

Microbially-mediated processes for disease suppression and resource protection. millnerp@ba.ars.usda.gov

Dr. Daniel P. Roberts, Microbiologist

Beneficial bacteria for the suppression of soilborne plant pathogens. robertsd@ba.ars.usda.gov

Dr. Sara Wright, Soil Scientist

Soil-stabilizing glycoprotein, glomalin, produced by arbuscular mycorrhizal fungi. wrights@ba.ars.usda.gov

RECENT ACCOMPLISHMENTS

Glomalin, a glycoprotein produced by arbuscular mycorrhizal (AM) fungi, is a unique and abundant component of soil organic matter.

Contact: Dr. Sara Wright

Release of forage soybean cultivars and edamame soybeans with exceptionally tall (up to six feet) stature and lodging resistance.

Contact: Dr. Tom Devine

Developed an economically viable cover crop-based system as an alternative to methyl bromide for tomato production in subtropical Florida.

Contact: Dr. Aref Abdul-Baki

Soil type is more important than plant species in determining rhizosphere microbial communities. Contact: Dr. Jeff Buyer

Identified genes that encode key enzymes that control root colonization by organisms for the biological control of soilborne diseases.

Contact: Dr. Dan Roberts

Identified genes required for tagetitoxin, a phytotoxin produced by *Pseudomonas syringae* pv. *tagetis*, as a potential biological control agent of Canada thistle.

Contact: Dr. John Lydon

Identified genetic fingerprint of tomato plants grown in the hairy vetch based alternative agriculture system and metabolite profiles regulated by polyamines

Contact: Autar Mattoo

Methods have been developed to enhance the activity of compost for disease suppression.

Contact: Pat Millner



Agricultural Research Service
U.S. Department of Agriculture

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