



# Environmental Management & Byproduct Utilization Laboratory



**Mission:** To **reduce** the footprint of agricultural production on the environment through advances in science and engineering, To **discover** innovative technologies that address the environmental concerns in the production of food, fiber, feed, and fuel, and To **develop** environmentally-responsible uses for agricultural and industrial byproduct/waste streams.

BELTSVILLE AGRICULTURAL RESEARCH CENTER

- ✓ Research ranges from discovering molecular properties of byproducts to effects of landscape changes to the global fate of pollutants.
- ✓ Much of this research is conducted in collaboration with federal and state agencies, university scientists, and CRADA partners.

- ✓ Specific projects involve protecting air and water quality, preserving soil resources, characterizing plant-soil interactions, byproduct conversion to bio-energy and value-added products, developing analytical techniques, and risk assessment.

- ✓ Although special emphasis is given to environmental issues within the Chesapeake Bay and Mid-Atlantic Regions, EMBUL's scientists work in all areas of the US and collaborate with partners world wide.

EMBUL is composed of internationally-recognized scientists specializing in agronomy, chemistry, microbiology, and soil science.



**Matt Smith—Research Leader; Ag Engineer**  
Develops innovative technologies for bioenergy production from manures and alternative sources such as by-products/waste streams.

**Rufus Chaney—Research Agronomist**  
Characterizes uptake and bioavailability of metals and other pollutants in soils; assesses risk potential for vulnerable populations; develops remediation strategies to minimize risks.

**Eton Codling—Research Agronomist**  
Develops management practices that utilize byproducts to improve crop production and reduce nutrient losses; examines metal uptake in crops as a function of land use changes.

**Thanh Dao—Research Soil Scientist**  
Develops biological tools to examine processes of nutrient release and transport; investigates nutrient bioavailability as a function of management and environment.

**Cathleen Hapeman—Research Chemist**  
Examines processes that affect air and water quality as a function of land use; assesses risk potential of agricultural pollutants to nearby ecosystems at landscape and regional scales.

**Laura McConnell—Research Chemist**  
Conducts fundamental research on processes governing the environmental fate and transport of organic and inorganic pollutants emitted from agricultural production systems.

**Jack Meisinger—Research Soil Scientist**  
Develops management strategies to improve nitrogen efficiencies while decreasing losses to water and air; develops on-farm measurement techniques for nitrogen.

**Walter Mulbry—Research Microbiologist**  
Examines the fate of agricultural pollutants in composting and waste treatment; develops new approaches to minimize pollutant release.

**Jim Reeves—Research Chemist**  
Develops novel spectroscopic techniques to measure carbon and nutrients in soil and byproduct/waste streams; validates techniques in field experiments.

**Cliff Rice—Research Chemist**  
Investigates the environmental fate of agricultural pollutants in waterways and surrounding ecosystems; develops innovative analytical techniques for waterborne pollutants.

**Walter Schmidt—Research Chemist**  
Invents value-added byproducts derived from agricultural processes by exploiting their molecular properties; examines molecular processes that influence the fate of pollutants.

**Paul Schwartz—Staff Scientist**  
Serves as Coordinator for the ARS minor use pesticide research program to meet producer needs. Special emphasis is given to safer, more environmentally-friendly compounds.

**EMBUL support scientists and technicians** specialize in a diversity of disciplines. EMBUL also hosts a number of visiting scientists and several CRADA partners. Together with the program and office staff, they carry out EMBUL research programs effectively and efficiently.

### Support Scientists and Technicians

**Agronomists:** Peter Downey, Christopher Jennings

**Animal Scientist:** Guy Stone

**Biologists:** Shannon Kondrad, Sara McQueeney

**Biological Science Lab Technicians:** Reuben Anderson, Mebrat Gesese

**Chemists:** Krystyna Bialek Kalinski, Barry Francis, Anh Le

**Horticulturist:** Carrie Green

**Physical Scientist:** Emy Pfeil

**Soil Scientists:** Swati Mookherji, John White

### Visiting Scientists

Heekwon Ahn (S. Korea), Leigh Broadhurst (US), Tiziana Centosanti (Italy), Guido Fellet (Italy), Masud Huda (Bangladesh), Nuria Lozano (Spain), Bernard Schneider (US EPA), Mazyar Zeinali (US)

**Program Support Assistant:** Stephanie Strebe

**Office Staff:** Cheryl Campbell, Patricia Richardson

### ENVIRONMENTAL MANAGEMENT & BYPRODUCT UTILIZATION LABORATORY

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