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Soil and Water Science Department

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Soil and Water Science Distinguished Speaker Seminar

Presented at the 16th Annual Soil and Water Science Research Forum
[Co-Sponsored by the UF Water Institute]

Speaker: **Dr. Andrew Sharpley**
Professor of Soils and Water Quality
Crop, Soil, and Environmental Sciences
Division of Agriculture - University of Arkansas System

Title: **Exploring Phosphorus Paradoxes to Avoid Unintended Consequences**

Date: **Thursday, September 17, 2015**

Time: **9:30 am – 10:30 am**

Location: **J. Wayne Reitz Union - Grand Ballroom**

Recent, well publicized harmful algal blooms have drawn greater attention to the contribution of agricultural management to phosphorus (P) inputs. This, coupled with an inability to meet targeted nutrient load reductions in large basins, has brought into question the effectiveness of conservation programs. Despite a long history of P research, management questions still exist and water-use impairment continues as a result of P enrichment. This raises several paradoxes related to the management of agricultural P.

Conservation legacy P paradox. Many conservation practices have been implemented to retain (e.g., no-tillage, cover crops) and trap P (e.g., buffer strips, riparian zones, wetlands) on the landscape rather than enter waterways. Yet, the capacity of these practices to retain P is finite and there are more examples of conservation practices transitioning from P sinks to P sources.

The grain for fuel paradox. A large number of acres have gone back into grain production, with much of the land tiled drained, increasing source areas and connectivity of soils directly to streams and bypassing the soil matrix where P might have otherwise been sorbed; and in other areas crop residue is removed as biomass fuel increasing the potential for runoff and erosion.

Blue–green paradox. Most of us take for granted cheap, reliable food sources and inexpensive clean, safe water for essential and recreational use. Even so, we face many challenges in balancing competing demands for protecting and restoring water quality and aquatic ecology, with sustainable and efficient agricultural production. It is important to recognize that market prices do not always motivate farmers to manage nutrients in an environmentally sustainable way.

A finite resource and environmental abundance paradox. While we are dealing with potential food security issues with supplies of P containing ores limited to a handful of countries, we are dealing with water quality impairment that has resulted from an overabundance of P in certain agricultural sectors. It is estimated that less than 20% of mined fertilizer P reaches the food products consumed and only 10% of the P in human wastes is recycled back onto agricultural land.

The link to the live video streaming and recording is available by clicking here: Streaming Link & Recording.

For additional details about Dr. Sharpley's visit, please contact Dr. James Jawitz at jawitz.ufl.edu