

2006-2007 Special Projects

Kissel: Video Education and Marketing for Soil Testing as a Best Management Practice in the Southern Region 2nd year Funding

This project will create two videos, a short 5-minute trailer and a second longer 15-minute training video covering the environmental benefits of nutrient management and the critical role of fertility testing in recommending environmentally responsible application rates of fertilizer and lime. The video will also cover proper steps for collecting a soil sample, interpreting/understanding soil test results, and marketing soil labs (public and private). The intended audiences are shoppers at lawn and garden centers, homeowners, forestland owners, those establishing wildlife food-plots, as well as traditional farmers. A host will present generic information; although to better capture the trust of the viewer, sections requiring unique state information will be produced separately and inserted into the generic template.

The video will inform the viewer of the great value of soil testing for amending soils properly, which in turn will increase the number of samples submitted to labs. Scientifically, increased soil testing by non-agricultural audiences will improve University databases on the nutrient status of urban soils. From this information a need may be found for special soil test calibrations. More data would also improve our understanding of the buildup or depletion of certain nutrients (phosphorus is one example), which could be compared between urban and agricultural soils.

Osmond: Extending Information Developed by the Nutrient Management Team: P Index

The Southern CSREES Nutrient Management Project Team has, for the past two years, been working on a comparison between 12 southern Phosphorus (P) Indices. The paper has just been accepted for publication in the Journal of Soil and Water Conservation. This is the first comparison between state P-Indices. The paper will, undoubtedly, have national impact on the P-Index debate; results show significantly different P-Index ratings between the states for the same set of conditions. In addition, the paper also highlights differences between state USDA-NRCS 590 standards. The paper is very long and it is anticipated that it will cost approximately \$2,000 for publication of this article. We are asking for funds to cover the cost of publication.

The comparison described above has shown that divergent ratings exist between the P-Indices for the same conditions. Since several states share cross-boundary watersheds, divergence of ratings will cause problems for the implementation of USDA-NRCS Conservation Security Program (CSP). It also calls into question the utility of the P-Index. A recommendation from the authors of the paper was for the 12 southern states to work together in order to modify or revise their respective P-Indices to enhance uniformity. This project will provide resources for this activity.

Buchanan: Development of a Field-Scale Protocol to Measure the Long Term Hydraulic Acceptance Rate of Mature Wastewater Drainfield Systems with Varying Interface Architecture

On June 27-28, 2006 the above listed Southern Region scientists met in Atlanta, Georgia to discuss the potential for measuring the actual absorption rate of mature drainfields with various styles of trench architecture. From this meeting, two hypotheses were determined: 1) hydraulic performance of a mature drainfield is not affected by trench architecture and 2) reduced length trenches do not renovate effluent as well as full length trenches.

In the past few years, these issues have become more significant because new technologies are being introduced that can potentially reduce the size of drainfields and therefore open more land up for development. For example, in-trench vaults are available that eliminate the need for gravel in the trench. Without the gravel, there is more effluent storage capacity and no masking of the soil-effluent interface.

Conceptually, less trench surface area is needed to absorb the effluent. Thus, many locations have allowed the vaulted-trench architecture to be installed with 20 to 50% trench size reductions as compared to conventional gravel systems. There is anecdotal evidence of increased system failures due to this reduction. However, it has not been quantified as to whether this reduction was within a presumed trench-design safety factor or if the vaulted system is a more efficient means of infiltrating effluent into the soil. The second hypothesis relates to the renovation potential of onsite wastewater systems. Can a reduced trench length have the same renovation potential as a full length trench? There is scientific evidence to suggest that the effluent-soil interface area needs to be maximized to obtain the full physical, chemical and biological renovation potential of soils. By reducing the trench area (based on hydraulics), is the renovation potential being compromised?

McCowan: Southern Region Rural-Urban Interface Issues

Scientific, environmental and economic benefit for this project is for researchers and educators to identify knowledge gaps regarding the interaction between rural and urban interface. Information from several geographical locations is a valuable tool to determine knowledge and research gaps. Assembling information into one location will enhance development of resource needs. Several examples of rural/urban resources in Southern Region were identified at a rural/urban committee meeting. Some of the resources and locations are listed below:

- ❖ The forestry department at Auburn University held a conference, March 13-16, 2005 titled “Emerging Issues along Urban/Rural Interfaces: Linking Science and Society.”
- ❖ Alabama Cooperative Extension Service held “The Urban-Rural Interface Conference” to educate participants on how to collaborate and build partnerships.
- ❖ The University of Tennessee held a workshop in 2005 that covered a variety of topics dealing with land-use changes from rural to urban spaces.
- ❖ A paper was written by Lawrence Libby, Ohio State University and Michael Dicks, Oklahoma State University titled “Rural-Urban Interface Issues.”

The relevance of this project is promoting and assembling papers, fact sheets, and promoting conferences addressing rural/urban issues.

Vendrell: Southern Region Down-Well Camera Team 2nd year Funding

This is to request a second year of funding to enhance the development of a Southern Region team for inspecting groundwater well bores using a down-well camera. Funds are need to cover travel expenses for training, equipment for a new team member (Tuskegee University), and travel expenses to bring the team together to discuss goals and development of a Southern Region Groundwater Symposium, and travel expenses for participation in the New England Region Water Well Symposium.

Last year’s funding was used entirely to pay a portion of the cost for equipment. Currently, seven institutions are participating on this team, Tuskegee University, University of Kentucky, Louisiana State University, Oklahoma State University, Tennessee State University, Texas A&M University, and University of Georgia.

Smolen: Water Policy Forum

Currently several states in our region have recognized the need for public education and policy deliberation in this area. New Mexico State University State University has established a team of technical and educational specialists to address issues of utilization of water resources and water

allocation among competing users. Oklahoma State University, Texas A&M University, and University of Arkansas are also planning programs to address their water issues.

In the proposed project, researchers and educators from the four states will come together in a forum to share expertise, ideas, and insights to help in planning their own states' programs. Prior to the forum, each state will lay out what it has to offer and what it hopes to gain from the meeting. Facilitated sessions with note takers will help capture information and recommendations concerning research needs, public policy education, and the public deliberation process.

Fletcher & Larson: Yards and Neighborhoods Program Training and Publication Development

The proposed project will help establish a new program in Louisiana (Louisiana Yards and Neighborhoods, LY&N) targeting specific watersheds using the educational outreach and research currently being conducted in Florida with the Florida Yards and Neighborhoods program. In addition, the programs currently in place in Alabama, North and South Carolina will also be reviewed and modeled for the Louisiana program.

Implementation of the LY & N program will provide residents with the opportunity to take steps to reduce the impacts of population growth and urban development by adopting home landscape practices that minimize harmful effects on the environment. Work in recent years has shown that adoption of environmentally friendly landscaping practices can slow down the effects of environmental degradation caused by nonpoint source (NPS) pollution. Success can only be measured over time as more and more participants are educated through the LY & N program and begin to utilize those practices in their own landscapes. The collaborative efforts of using the research-based information from the Florida faculty members will enhance regional collaboration as well as an expansion of results.