CONSERVATION INNOVATION GRANTS

Semi-annual Progress Report

Grantee Name: NC State University
Project Title: Harmonizing Southern Phosphorous Assessment Tools Based on Recent Comparisons and State Priorities
Agreement Number: 69-3A75-17-45
Project Director: Deanna Osmond
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Period Covered by Report: April 1, 2020 – August 31, 2020
Project End Date: 8/31/2020

A) Summarize the work performed during the project period covered by this report:

Project Objectives:

1) The major objective of this project is to use the water quality data, modelled outputs

(APEX, APLE and TBET), and southern State P-Index results, which were just finalized and synthesized in a prior project, to better understand strengths and weaknesses of each States' P Index in order to harmonize P-Index results across State boundaries and provide more robust factors in Indices.

2) As more linkages occurs across southern States, information should be transferred to and from other regions (i.e., Heartland, Coastal Plain, and Northeastern Bay), in order to increase coordination across agroecological regions; this is a second objective. Note: we are unable to fulfill this objective since two of the other regional projects that were supposed to be part of this work were not funded.

Reminder: After presenting information about southern P Indices to southern NRCS personnel, all agreed that providing similar soil test recommendations (particularly for phosphorus and potassium) was much more important than working on P Indices.

Work Performed During this Quarter:

Dr. Zhang, working with 14 soil fertility specialist, developed a draft journal article from efforts started under this project over a year ago. The article discusses the problems around soil fertility recommendations across state lines. The paper was reviewed by all the authors and is being reworked to be sent to an appropriate journal (Soil Science Society of America Journal) in late fall. NRCS will be acknowledged in the paper.

Soil fertility testing and recommendation survey was finalized in Qualtrics and was released early February 2020. Responses were returned from 48 of the 50 states and 60 individual participants. Data is currently being analyzed

The *Minimum Data Set* and the *Correlation/Calibration Protocol* is still being revised through targeted conference calls and should be finalized by late fall.

The post-doc hired from other funds has entered over 1200 trials consisting of soybean, corn, cool season grasses, rice, bahia grass, wheat, cotton, bermudagrass, and peanuts. These trials include 30 states. She has many more files to add.

Due to Covid-19, the planned multi-region working meeting and the next meeting of the CIG-P team was canceled. We continue to work on the project, however, through targeted conference calls and monthly conference calls of the entire team.

B) Describe significant results, accomplishments, and lessons learned. Compare actual accomplishments to the project goals in your proposal:

1. This project has had far more significance than imagined when we wrote the original grant. By refocusing the project, with NRCS' concurrence, on soil testing correlation and calibration, this project moved from a regional project to a national project. We have 32 states participating, which includes 31 land grant institutions, 1 private university, 2 not-for-profit organizations, and our 2 federal partners (ARS and NRCS). Being awarded a symposium at the SSSA annual meeting increased the profile of this project, as did the national survey. Both these efforts, including individual outreach, has helped us recruit additional soil fertility land-grant faculty. This project will highlight the issue of cross-border differences in soil fertility and propose a solution in the development of a fertilizer recommendation support tool (Fertilizer Recommendation Support Tool – FRST) to harmonize recommendations across state lines.

2. Paying for in-person meetings was critical to the development of the project. It was at the first in-person meeting that soil fertility faculty understood that they are not even using the same vocabulary to describe sufficiency and critical level of soil test nutrients.

3. This project allowed us a foundation to receive additional funds from other groups. Starting the database and collecting information from faculty that are retiring is critical as part of the project's value is to secure soil fertility correlation and calibration data before it disappears and we have no historical basis.

C) Describe the work that you anticipate completing in the next six-month period:

FUNDS FOR THIS PROJECT ARE CLOSING BUT THE PROJECT WILL CONTINUE WITH ADDITIONAL FUNDING

1. Conference calls of the FRST team (Fertilizer Recommendation Support Tool), which includes nutrient management faculty from across the country and our federal partners, will occur monthly. We will continue to discuss project activities: development of the soil test correlation and calibration database, analysis and reporting of results from the national soil test correlation and calibration survey, finalizing the minimum dataset, development of appropriate soil test correlation and calibration algorithms, and development of decision tool (FRST).

2. Deliver several talks on FRST at the annual Agronomy and Soil Science Societies meeting in November 2020

D) Provide the following in accordance with the Environmental Quality Incentives Program (EQIP) and CIG grant agreement provisions:

1. A listing of EQIP-eligible producers involved in the project, identified by name and social security number or taxpayer identification number; **None to date.**

2. The dollar amount of any direct or indirect payment made to each individual producer or entity for any structural, vegetative, or management practices. Both biannual and cumulative payment amounts must be submitted. **$0.0**

3. A self-certification statement indicating that each individual or entity receiving a direct or indirect payment for any structural, vegetative, or management practice through this grant is in compliance with the adjusted gross income (AGI) and highly-erodible lands and wetlands conservation (HEL/WC) compliance provisions of the Farm Bill. **Not applicable.**