U.S. Natural Climate Solutions Accelerator
Round 2 Finalist: Soil Health Institute and Ecosystem Services Market Consortium (ESMC)
Initiative: Reducing the Costs of Measurement, Reporting, and Verification (MRV) of an Ecosystem Services Market (ESM) for Soil Health
NCS Pathway: Soil Health Enhancement
Location: Southern Great Plains, the Corn Belt, and additional locations

"Reducing the Costs of Measurement, Reporting, and Verification (MRV) of an Ecosystem Services Market for Soil Health" initiative aims to develop and pilot-test advanced technologies and approaches for a national Ecosystem Services Market (ESM) trading program for agriculture, as a voluntary, market-based approach to incentivize farmers and ranchers to adopt conservation practices that provide beneficial quantified ecosystem service outcomes.

To accelerate change in the management of working agricultural lands the program will help to monetize soil health enhancement strategies that sequester carbon, and avoid and remove GHGs. By advancing the state of science on ecosystem dynamics, the aim is to transform the way corporations and government entities account for and mitigate environmental impacts. The team plans to launch a national ESM trading program for agriculture by 2022, and sees a potential for broader impacts in agricultural management across the U.S. and the global landscape.

How it works: The Ecosystem Services Market (ESM) program is designed to enable farmers and ranchers to voluntarily adjust crop and livestock production systems in ways that increase soil carbon sequestration and retention, improve water quality, and conserve water use. Field tests will be completed on 150,000 acres of agricultural operations in three ESMC pilots in the Southern Great Plains, the Corn Belt, and additional locations. Quantified improvements will be measured, documented, and verified to create ecosystem services credits for sale in a national market.

Innovative Feature: Carbon and GHG fluxes and water quality impacts are challenging to quantify and verify at field, farm, and geographic scales. Past efforts to develop agriculture credit trading programs have not been successful in part due to inappropriately high Measurement, Reporting and Verification (MRV) costs. Current MRV approaches are time- and resource-intensive and require extensive site visits in lieu of technology-based solutions that can verify practice changes. The team plans to replace existing verification sampling methods with scientifically valid randomized sampling approaches supported by data and advanced technology documentation. The scientifically advanced verification requirements and improved quantification technologies are planned to result in significant cost savings.

Scaling/Replication: Successful completion of the proposed advanced technologies and science-based, randomized verification approach on 50,000 acres in the corn belt pilot, will enable ESMC to field test these advancements in real-world settings with members of the agricultural supply chain, before scaling their use in ESMC's national program. ESMC plans to continue to grow its membership, to adapt protocols, and to pilot on 300,000 acres in six major US agriculture production systems and geographies by the time it launches its nationwide ESM market program in 2022. The team would like to build out the pilot further, to calibrate and validate in other regions and agricultural production systems post-launch, and to further scale the program by enrolling a target of 30% of available farmland and rangeland in the top four crop regions and top four pasture regions, aiming to impact 250-300 million of acres by 2030.

Carbon Sequestration: An economic assessment by Informa Agribusiness estimates the total potential GHG reductions from farmers adopting best management practices on all land uses to be 324 million tonnes CO2e. ESMC plans to test new MRV technologies on 150,000 acres during 18 months of the grant, or 1.6% of U.S agricultural land, sequestering 5 million tCO2e. Scaling to a fully functional program with a 2022 national launch, ESMC would like to enroll 30% of available U.S. farmland and rangeland in the top four crop and top four pasture regions to impact 250 million acres by 2030, sequestering approximately 97 million tCO2e.

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