Science and Innovation in Natural Resources Conservation

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Overview

NRCS is focused on delivering innovative, science-based assistance to producers to address their natural resource objectives in balance with their operational goals.

Science-based Solutions

Cleaner, more abundant water for farmers, ranchers, their communities, and wildlife is possible when the right conservation practices are in the right places. NRCS is advancing a science-based approach to conservation through edge-of-field water quality monitoring. Edge-of-field water monitoring enables scientists and agricultural producers to quantify the impacts of conservation work on water quality.

Through the innovative National Water Quality Initiative (NWQI), NRCS and partners work with producers in high-priority watersheds to implement voluntary conservation practices that improve water quality while maintaining agricultural productivity. Since 2012, USDA has invested more than $100 million in contracts with producers participating in this initiative, leading to conservation systems placed on almost 500,000 acres in priority watersheds. Results in NWQI watersheds include delisting of streams formerly identified as impaired on States' 303(d) lists.

Using science to focus conservation efforts to achieve the greatest benefit delivers more cost-effective results. The Conservation Effects Assessment Project (CEAP) is building a solid science-based foundation for the dialogue on conservation benefits. CEAP has demonstrated that conservation works, and that conservation systems applied in the most vulnerable areas deliver the greatest benefits. CEAP results are helping stewards target their conservation efforts to reduce nutrient and sediment losses from agricultural land.

The Resource Stewardship Evaluation Tool (RSET) is designed to help producers assess how their farm or ranch is operating, the value of conservation already in place, and to identify areas they may want to improve and practices they may want to implement and the results they can expect. Piloted in FY 2015, RSET is already helping producers better manage their conservation objectives. In 2016, NRCS will expand the use of RSET in selected NWQI watersheds.

Innovative Tools and Technology

NRCS invests in cultivating science though Conservation Innovation Grants (CIG). Since 2004, approximately $236 million has been awarded to over 630 national projects that have addressed a diversity of natural resource concerns, such as demonstrating more efficient ways to manage

nutrients, reduce on-farm energy use, increasing irrigation efficiency, and accelerating the development of water quality trading and greenhouse gas markets.

CIG projects are delivering a wide range of new tools and opportunities for conservation, from decision support tools to precision nutrient application and cover crop options that benefit soil health. Using Farm Bill programs, NRCS also has been accelerating adoption of soil health practices and helping producers advance soil health management and build resilience in their production systems. These benefits lead to greater resiliency to adverse conditions such as drought but also boost yields and bottom lines.

Locally Led, Partner-Driven Stewardship

Science-based solutions and innovative tools are also supporting the locally led approach. NRCS is advancing innovative partner-driven conservation through the Regional Conservation Partnership Program (RCPP). Created by the 2014 Farm Bill, RCPP is a locally led conservation approach that is already showing results. Now in its second year, RCPP has demonstrated high demand, with over 2,000 partners leading nearly 200 projects nationwide. All told, in the first two years of the program, NRCS will have invested about $500 million while another $900 million is being brought in by partners to address locally defined, nationally significant natural resource issues. For the next round of RCPP funding, NRCS will challenge partners to consider environmental markets and conservation finance systems with agricultural opportunities.

NRCS also is using science and innovation to drive new partnerships that benefit agriculture and wildlife. Consider the NRCS Working Lands for Wildlife (WLFW) partnership and the unprecedented voluntary collaboration over the past 6 years to restore public and private rangeland and young forests on private land. In part because of these voluntary efforts, the U.S. Fish and Wildlife Service has either delisted or taken off the candidate list six species since September 2014 – determining that these populations were now healthy enough that they did not warrant Federal protections under the Endangered Species Act (ESA).

Summary

New science and innovative tools and technologies are helping to forge stronger and broader partnerships that are generating benefits for agriculture and the environment. Recent accomplishments demonstrate that the nation's farmers and ranchers can achieve production and operational goals in balance with the natural resource objectives that benefit rural communities and the nation as a whole.