

USDA-NRCS Conservation Innovation Grants: 2014 Report to Congress

A Report to Congress
Pursuant to Section 2207 of the
Agricultural Act of 2014

U.S. Department of Agriculture
Natural Resources Conservation Service
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USDA-NRCS Conservation Innovation Grants: 2014 Report to Congress

Table of Contents

I.	Executive Summary	2
II.	Introduction	3
III.	Authority	3
IV.	Purpose	3
V.	Basic Requirements	4
VI.	Competition and Grant Management Process	4
VII.	Types of Competitions	6
VIII.	Funding Awarded	8
IX.	Technology Transfer and Integration	11
X.	Project Examples and Incorporation of Results	12
XI.	Contact	17

I. Executive Summary

The Agriculture Act of 2014, Section 2007, requests the Secretary of Agriculture to report to the Committee on Agriculture, Nutrition, and Forestry of the Senate and the Committee on Agriculture of the House of Representatives on the status of projects funded through the USDA Natural Resources Conservation Service (NRCS) Conservation Innovation Grants (CIG) Program. Specifically, it is requested that the report address funding awarded, project results, and incorporation of project findings into conservation efforts implemented by the Secretary. The following report is provided to comply with this request.

For almost 80 years, NRCS (previously Soil Conservation Service) has provided science-based, technically sound and proven conservation practices, advice, and alternatives to America's farmers and ranchers. Traditionally, NRCS has worked with other USDA agencies, universities, and nongovernmental organizations to identify and refine new cutting-edge technology through on-farm demonstrations and research. This information is used by NRCS as it continually reviews and revises conservation practices to incorporate new research and technological advances.

Through Conservation Innovation Grants, NRCS engages these traditional entities along with tribes and others, to identify and demonstrate new technologies and approaches to enhance conservation. Funded through the NRCS Environmental Quality Incentives Program (EQIP), CIG is a voluntary program where agricultural producers participate because they want to contribute to conservation adoption. The purpose of CIG is to stimulate adoption of innovative conservation approaches and technologies in agricultural production and leverage additional investments in conservation. The goals are to:

- Identify new conservation technologies and innovative approaches,
- Use on-farm demonstrations and field tests to promote adoption, and
- Integrate widely applicable technologies and approaches into NRCS practices and guidelines.

Since the program's inception in 2004, the number of grant applications and value of funding requests received annually have approximately tripled. From 2004-2014, approximately \$216.5 M has been awarded for 586 projects under national competition. Competitiveness for these awards has correspondingly increased, with approximately 12% of grant applications recently selected for funding at the national level. Water quality is the predominant resource concern for which CIG projects have been awarded.

Relatively recent efforts to enhance transparency, technology transfer, and adoption of project results have included developing networks of CIG recipients having related projects, establishing a National Technology Integration Subcommittee to ensure project evaluations, and developing an on-line searchable database of CIG projects and their associated results. The Conservation Innovation Grants Program has yielded numerous successful projects that have been incorporated into NRCS practices, technical notes, training, and programs to enhance conservation of our nation's soil, water, air, plant, animal, and energy resources; while benefitting farmers, ranchers, forest landowners, and the public across the United States.

II. Introduction

The USDA Natural Resources Conservation Service (NRCS) first offered Conservation Innovation Grant (CIG) awards in 2004, investing in ways to demonstrate and transfer new approaches and technologies into agricultural conservation. Conservation Innovation Grants have played a critical role for developing and demonstrating creative ways for conserving America's private lands and strengthening rural communities. The CIG program inspires creative problem-solving that boosts production on farms, ranches, and private forests; and ultimately improves water quality, air quality, soil health, and wildlife habitat. In the 10 years that NRCS has administered the program, grants have helped develop and demonstrate more efficient ways to manage nutrients, reduce on-farm energy use, increase efficiency of irrigation, accelerate development of water quality trading and greenhouse gas markets, and many others. CIG projects have contributed to some of the most pioneering conservation work on America's agricultural and forest lands. The following provides an overview of the program, the investments made thus far, and examples of the technologies incorporated as a result of the CIG program.

III. Authority

Section 2301 of the Farm Security and Rural Investment Act of 2002 (Public Law 107-171) amended section 1240H of the Food Security Act of 1985 (Public Law 99-198) to establish the CIG program with funding from the Environmental Quality Incentive Program (EQIP). Section 2509 of the Food, Conservation, and Energy Act of 2008 (Public Law 110-246), and Section 2207 of the Agricultural Act of 2014 (Public Law 113-79) reauthorized CIG. Notably:

- The Secretary delegated authority for administering EQIP, including CIG, to the Chief of NRCS, who is a Vice President of the Commodity Credit Corporation (CCC). EQIP is administered by NRCS under the authority of the CCC.
- The Chief may delegate authority to implement a separate state-level CIG program to each State Conservationist.
- The State Conservationist may delegate authority to manage items for which he/she has responsibility, unless specifically prohibited by the program manual or other agency policy.

IV. Purpose

The purpose of the CIG component of EQIP is to provide a competitive grants program that stimulates innovative approaches to leveraging Federal investments in environmental enhancement and protection in conjunction with agricultural production.

CIG's goal is to stimulate adoption of conservation approaches or technologies that have already been studied sufficiently by universities, USDA agencies, or other organizations to indicate a high likelihood of success. CIG is not a research program; rather, it supports innovative, on-the-ground conservation projects such as pilot activities and on-farm field demonstrations. In doing so, CIG serves as a bridge connecting promising results from previous research with enhanced adoption opportunities.

Using EQIP funds, CIG provides grants through a competitive process to eligible individuals, nongovernmental organizations, private businesses, tribes, and state and local governments. Projects are expected to have benefits that can be applied to a larger geographic area, whether watershed, regional, or national in scope. They may be single- or multi-year projects, but have a 3-year maximum.

V. Basic Requirements

CIG funding availability is announced each year through an announcement for program funding (APF) issued through www.grants.gov. The APF identifies the topic areas eligible for CIG funding in that year, along with application details.

Eligibility: Applicants may be state or local units of government, federally recognized Indian tribes, nongovernmental organizations, or individuals. Applications are accepted from all 50 states, the District of Columbia, and the Caribbean and Pacific Islands Area. Proposed projects must involve farmers or ranchers eligible to participate in EQIP, and funds are subject to EQIP payment limitations. To encourage participation of historically underserved producers, including beginning and limited resource farmers and ranchers, as well as Indian tribes, up to 10 percent of national CIG funds each year are set aside for applicants who qualify in those categories.

Matching Contributions: Selected applicants may receive CIG grants of up to 50 percent of their total project cost, not to exceed the APF Federal project cap. CIG recipients must match the USDA funds awarded on a dollar-for-dollar basis from non-Federal sources with cash and/or in-kind contributions. Grantees must also provide the technical assistance to complete the project successfully.

NRCS Oversight: NRCS provides administrative and technical oversight of each project and, after project completion, evaluates whether the demonstrated practices should be offered on an ongoing basis in the Field Office Technical Guide. The technical oversight is conducted by NRCS specialists at regional and state levels and often comes from one of the three NRCS National Technology Support Centers. The technical contacts specialize in fields relevant to the grant activity, provide support for issues and concerns, and track project milestones with grantees.

VI. Competition and Grant Management Process

The CIG Program funds projects targeting innovative, on-the-ground conservation, often employing pilot projects and field demonstrations. The high priority natural resource concerns/issues eligible for funding are identified in a funding announcement, and proposals are required to describe the use of innovative technologies or approaches to address that concern/issue.

Funds for single- or multi-year projects, not to exceed 3 years, are awarded through a nationwide competitive grants process. National CIG competitions emphasize projects that have a goal of providing benefits over a large geographic area. These projects are generally watershed, regional, or national in scope.

In addition to the nationwide grants competition, a state component of CIG is available in select states each year. The state component emphasizes projects that have a goal of providing benefits within a limited geographic area. Projects may be farm-based, multi-county, small watershed, or statewide in scope. Public notices in each participating state announce the availability of funds for state CIG competitions.

As depicted in Figure 1, once funds are allocated an APF is developed and posted on the Federal electronic grants portal, [Grants.gov](https://www.grants.gov). (The funding notice can also be accessed from the NRCS website at: www.nrcs.usda.gov/technical/cig/index.html.) Pre-proposals are requested and reviewed for basic program eligibility. Those determined eligible are invited to submit a full proposal. Applications are reviewed by a technical peer-review panel against criteria identified in the funding notice.

A Grants Review Board reviews those technical evaluations and makes a recommendation to the Chief, who selects projects for funding. An agreement is developed with those receiving an award, and the resulting CIG agreements are administered according to 2 CFR Part 200 and the NRCS Federal Grants and Cooperative Agreements Handbook. NRCS technical specialists are assigned to each project and work with grantees throughout the life of the award. Following receipt of the final project report, the agreement is closed and a National Technology Integration Subcommittee evaluates project results for adoption potential.

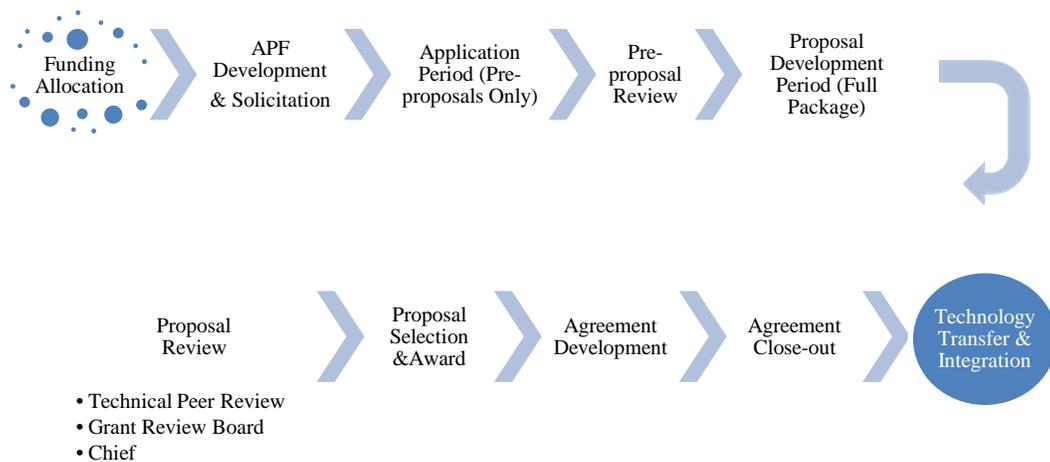


Figure 1. Schematic flow of the CIG process.

VII. Types of Competitions

As previously mentioned, the NRCS Chief has the authority to offer two components of CIG, a national component and a state component.

National Competition

The national component may be divided into geographic, natural resource, technology, or other categories as identified in the APF. The priorities are reviewed and updated each year by the NRCS Chief to ensure that the technologies and approaches funded by CIG continue to address critical, current and emerging natural resource conservation needs.

When first offered in 2004, approximately 150 proposals were received. Popularity of the CIG program has significantly increased, and since 2009, approximately 400-500 applications have been received each year (Fig. 2). Competitiveness has correspondingly increased from 2004 when approximately 25% of applicants received awards, to 2014 when approximately 12% of applications were funded. Similarly the gap between funds requested and awarded has increased substantially since 2004, with considerably more funding requests than awards. Specifically, from 2009-2014, only 6-8% of the funds requested were awarded (Fig. 3).

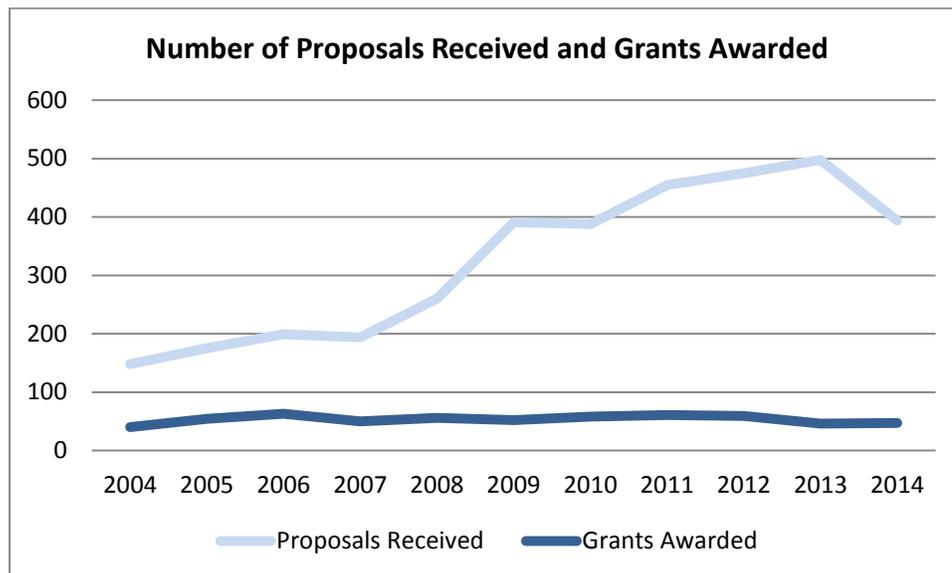


Figure 2. Number of national proposals received and awarded from 2004-2014.

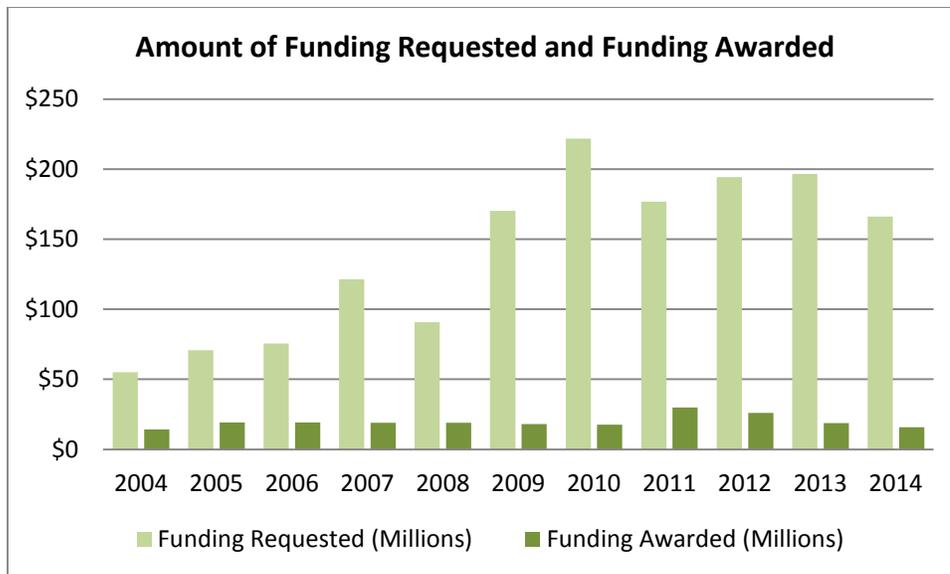


Figure 3. National CIG requests and awards from 2004-2014.

State Competition

In addition to the national competition, some NRCS state offices offer their own state-level competitions. State-funded CIG projects are farm-based, multi-county, small watershed, or statewide in scope. They are administered with the same guidelines as the national competition, but focus on resource concerns identified within the particular state.

This component of CIG enables NRCS state leadership to make funding available to individuals and organizations with promising innovations that might be too small to compete well in national-level competition. Each State Conservationist or Director determines whether to offer CIG funding and the funding level. A grant's Federal contribution may not exceed \$75,000.

VIII. Funding Awarded

From 2004-2014, the number of national CIG awards has ranged from 40-63 per year, with a funding range from \$14.2-\$29.9 M per year (Table 1). The number of state-level projects has ranged from 32-91 per year, with substantially lower award amounts owing to the \$75,000 per award Federal share for state-level CIG projects.

Table 1. Projects awarded and funds approved (millions) in national and state competitions from 2004-2014.

Fiscal Year	National Competition		State Competitions		Total	
	Projects Awarded	Funds Approved (\$ M)	Projects Awarded	Funds Approved (\$ M)	Projects Awarded	Funds Approved (\$ M)
2004	40	14.2			40	14.2
2005	54	19.1	32	1.8	86	20.9
2006	63	19.3	63	4.0	126	23.3
2007	50	19.0	72	3.7	122	22.7
2008	56	18.9	55	2.6	111	21.5
2009	52	18.1	91	5.0	143	23.1
2010	58	17.7	81	5.2	139	22.9
2011	61	29.9	60	3.0	121	32.9
2012	59	26.1	52	2.9	111	29.0
2013	46	18.4	68	3.7	114	22.1
2014	47	15.8	na*	na	47	15.8
Total	586	\$216.5	574	\$31.9	1,160	\$248.4

*na = not available at the time of this writing

CIG awards have been distributed widely across the U.S. and received by applicants in every U.S. state and area (Fig. 4). In each NRCS administrative region, water quality is the predominant resource concern for which CIG projects have been awarded (Fig. 5), with 45% of the funds awarded in the Northeast directed to water quality related projects. Other significant topics funded included soil, energy, and ecosystem service markets. CIG funding to address wildlife and air quality are proportionally greater in the West Region than in other regions of the U.S. (Fig. 5).

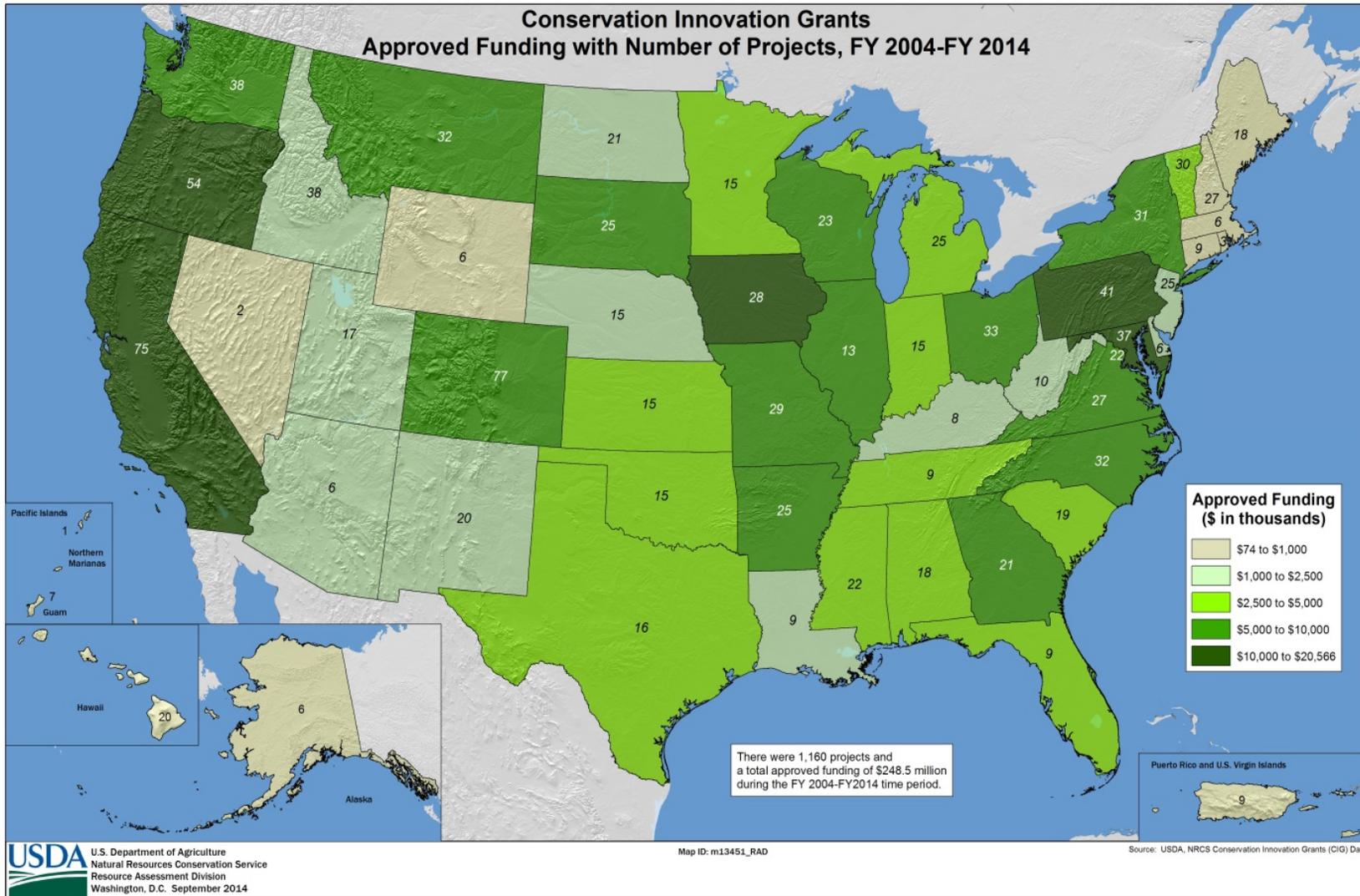


Figure 4. Distribution of CIG awards across the U.S. from 2004-2014.

Conservation Innovation Grants Approved Funding, FY 2004-FY 2014 For Major Resource Concerns, By NRCS Region

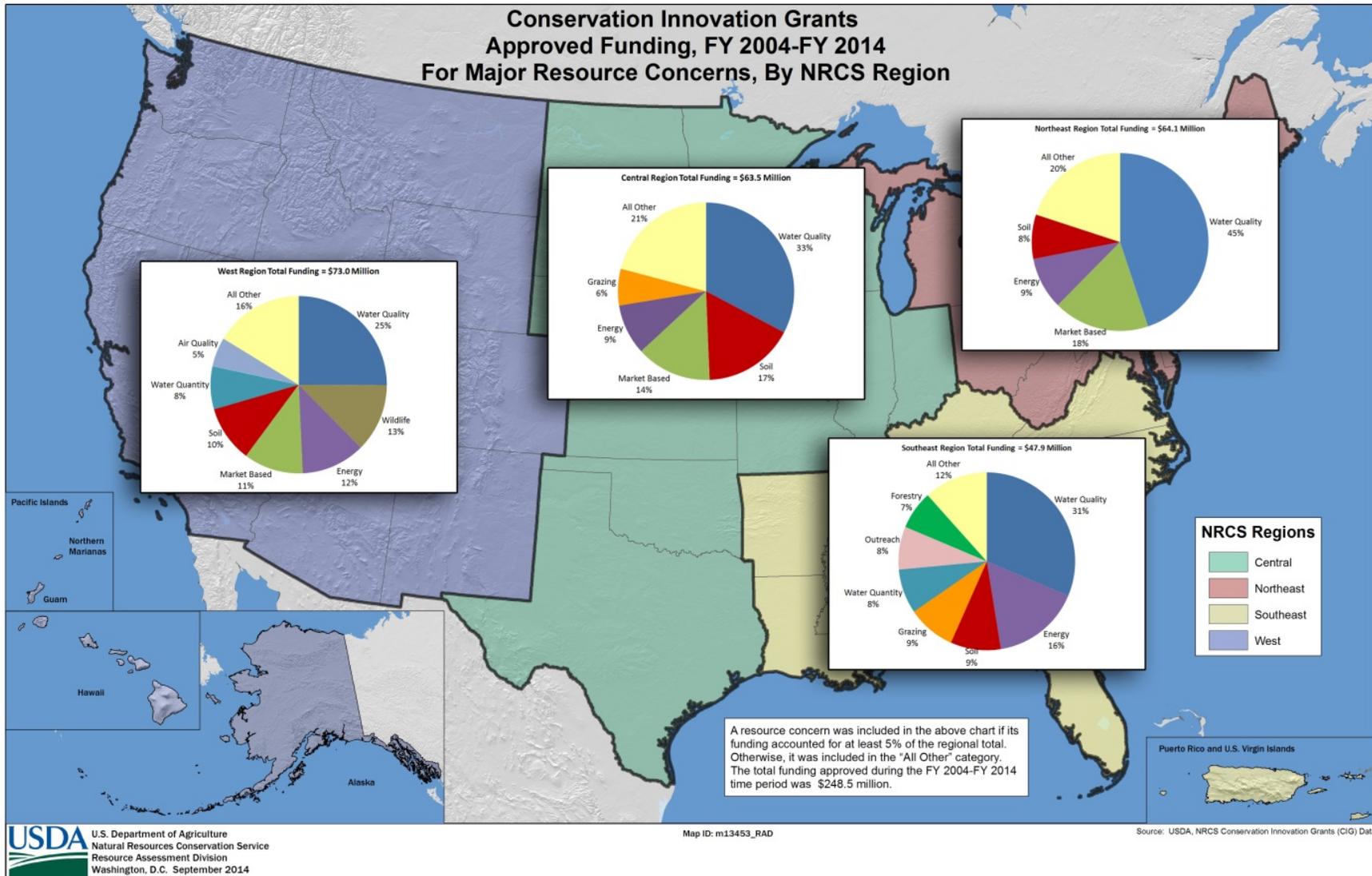


Figure 5. Distribution of CIG awards by resource concern/topical category for each NRCS administrative region.

IX. Technology Transfer and Integration

NRCS incorporates successful CIG technologies and approaches into programmatic and technical manuals, guides, activities, and references. The focus of CIG is to identify, test, and demonstrate new technologies, or new applications of existing technologies. Therefore, technology transfer (sharing ideas and experiences during and after the life of the grant) and technology integration (incorporating the findings and lessons into NRCS and other conservation activities) are important aspects for both the grantee and the agency.

NRCS evaluates findings from CIG projects to determine whether results indicate that new practices should be added to the NRCS practice standards offered, previous practices should be modified or eliminated, or additional study and pilot projects are needed.

The integration process includes the following elements:

- Identifying and training technical contacts at the national and state levels,
- Reviewing project progress and final reports,
- Conducting project evaluations,
- Distributing findings and recommendations for use by national and state technical specialists, and
- Incorporating innovative technologies and approaches into NRCS manuals, practice standards, programs, etc.

NRCS assigns staff to serve as national technical contacts for all CIG project awardees. These technical contacts are trained to conduct status reviews, evaluate implementation progress, and to ensure that CIG projects achieve their objectives and align with grant agreement deliverables. They provide technical feedback on any proposed agreement amendment. The status review process is a key internal control to ensure conservation activities are properly applied and meet the goals of both the participant and USDA.

Owing to the wide range of natural resource concerns addressed by NRCS programs, a correspondingly wide range of CIG project topics has been funded. Technology transfer of these results has taken different forms since the first projects (awarded in 2004) were completed in 2007. Between 2007 and 2010, a primary mechanism for transferring technology was through NRCS collaboration with the Soil and Water Conservation Society (SWCS). At each annual conference, SWCS provided a “CIG Showcase” so grantees could present their results to a national audience representing multiple disciplines. This effort also helped develop networks of grantees and other interested parties often conducting relevant research or having a stake in the outcome. However, travel restrictions have reduced the viability of that approach in recent years.

Since 2011, NRCS has helped facilitate and lead networks of CIG recipients to build synergies and transfer knowledge across related projects. In 2013, NRCS established a National Technology Integration Subcommittee (NTIS) to enhance the technology transfer process. The NTIS assesses project evaluations and final reports for all completed CIG projects, and uses those results to provide recommendations for technology transfer and integration. The new NTIS process has proven successful in providing new recommendations for integration that

include:

- New NRCS Web-based planning tools,
- Revised NRCS conservation practice standards and specifications,
- Revised NRCS program incentive payment schedules, and
- New NRCS guidelines on such topics as pollinator habitat improvement and vegetative specifications.

In 2014, NRCS developed an on-line CIG [Project Search Tool](#) to enhance transparency, technology transfer, and technology adoption. This searchable database significantly increases public access to information on CIG project objectives, methods, and results.

X. Project Examples and Incorporation of Results

Following are examples of specific CIG projects that have benefitted NRCS conservation programs, agricultural producers, and the environment:

- Nutrients are essential for food production, but loss of excess nutrients can degrade water quality. With support from a 2004 CIG award, the Iowa Soybean Association, in partnership with the Environmental Defense Fund, worked directly with producers to evaluate an adaptive nutrient management process for refining nutrient management on their farms. Results from this project showed that 80% of farmers participating changed their nutrient management practices within 2 years. The greater nutrient use efficiency made possible through adaptive nutrient management not only allowed producers to reduce their fertilizer inputs and associated costs, but also reduce the risk of nutrient loss to the environment. These results led NRCS to include adaptive nutrient management in its revised Conservation Practice Standard (CPS) 590, Nutrient Management. NRCS then developed and provided guidelines and training to field staff on implementing adaptive nutrient management, and is currently providing financial and technical support to increase adoption of this practice nationwide.
- Cover crops can dramatically reduce nutrient losses to surface and ground water, provide nutrients to the following crop, and can enhance water infiltration, thereby improving resiliency to extreme weather. Through a CIG award and other contributions, the Midwest Cover Crops Council developed a Cover Crop Decision Tool that incorporated expert knowledge across several states into a decision support system for farmers. As a result of this project, producers throughout the Midwest U.S. can evaluate their options and receive cover crop recommendations, such as species and seeding rates, tailored to their local conditions, soils, and management goals. This not only helps farmers be profitable, but also contributes public value through benefits to the environment.
- Small dairy farms in the United States help supply approximately 39% of the country's dairy needs. However, these dairies, limited by economics and their manure management technology, must often treat nutrient and bacteria rich wastewater through crop application or conventional septic systems. The Clinton Conservation District, in partnership with Michigan State University, used a 2009 CIG award to work directly with small dairy farmers to evaluate the performance of a filter mound technology for treating milking center wastewater. Results from this evaluation demonstrated both economic

and environmental viability of the filter mound technology for small dairies, reporting 90% or more removal efficiencies for total phosphorous, ammonia, suspended solids, and *E. coli* bacteria. Based on these results, NRCS in Michigan developed a conservation practice standard, *Milking Center Wastewater Treatment*, and design guide, *Michigan Filter Mound for Treating Milking Center Wastewater*, that are now available for use by such dairies.

- Water quantity is a significant issue in many parts of the country, and particularly in the arid Southwest. Many producers in Navajo Nation work their land beyond the reach of the energy grid, so they must choose from diesel-generated power or renewable energy options for irrigation. Tó Lání Enterprises (TLE) received a 2012 CIG award to conduct a 3-year national pilot project to demonstrate the environmental, agricultural, economic, and sociocultural effectiveness and benefits of solar energy systems for pumping irrigation water. The project was designed to encourage and facilitate adoption of such systems among Navajo, Hopi, and other Tribal conservation districts, farmers, and ranchers in the arid and semiarid Southwest. Although demonstration sites were only recently completed (August 2013), results have been so promising that the solar powered system has already been adopted by many Navajo farmers.
- Nitrogen is required for plant growth, but loss of excess nitrogen can contribute to water quality impairments and greenhouse gas emissions. Determining the right rate to apply is difficult, because weather influences how much nitrogen is needed. With funding from a CIG and others, Cornell University developed and tested a publicly available, cloud-based N recommendation tool, *Adapt-N*, on farms over three years. The tool models local weather, soil, and management to provide better nitrogen recommendations. Results showed that *Adapt-N* saved producers \$30/acre and decreased N inputs by 44 lbs/ac, without decreasing yield. The model has been successfully tested throughout the Northeast U.S. and is now being evaluated in the Midwest.
- Subsurface drainage systems, used extensively in the Midwest, can contribute to nutrient transport to lakes and streams. With support from a 2006 CIG award, a multistate team led by the Agricultural Drainage Management Coalition, worked directly with producers in the Upper Mississippi River Basin to evaluate nutrient savings and assess the economic effects of drainage water management, a practice employing control structures to manage water table depths to reduce nutrient transport. Results from evaluations in Iowa, Minnesota, Illinois, Indiana, and Ohio showed 20-60% reductions in nitrate loss to surrounding waterways. Responding to these positive results, NRCS formed a National Agricultural Drainage Water Management Team charged with developing regional recommendations to accelerate adoption of drainage water management. By adopting conservation practices to manage subsurface runoff, producers not only promote water quality by intercepting excess nutrients, but also realize agronomic benefits by reducing water deficits during the growing season.
- The conversion of forestland to cropland adjacent to streams or rivers without existing conservation buffers increases water temperature and degrades fish and wildlife habitat. With support from a 2006 CIG award, Oregon State University monitored water temperature and habitat value on riparian forest buffer restoration sites established by Clean Water Services (the storm and wastewater agency for the Tualatin Basin in

Oregon) and Tualatin Basin landowners. A tool was developed to provide landowners with estimates of solar heat loading along user-defined sections of streams. As a result users can now assess the degree to which management practices, such as adding or removing riparian trees, create heat-loading credits or deficits that can be traded in local ecosystem service markets. This provides a more cost effective approach for reducing stream temperature to meet habitat requirements (e.g. compared to installing chillers), as well as provides another income source for landowners.

- The abovementioned CIG project success led to a subsequent 2011 CIG award that was lauded by President Obama for its impact in developing a water temperature credit trading program in the Pacific Northwest. This was the first time a standing President addressed the issue of emerging markets for ecosystem services. Over the last 5 years, The Freshwater Trust has worked with the Willamette Partnership and numerous other organizations to build the science and credibility standards necessary to calculate and quantify the ecosystem services nature provides into “credits” that can be traded and purchased—in this case, by wastewater treatment facilities and power plants—to meet regulatory compliance for salmon habitat.
- Nutrients derived from animal manure can contribute to water quality impairments. A 2005 CIG award to Washington State University led to development of a National Feed Management Education effort that has been incorporated into NRCS’ activities to encourage producers to adopt an NRCS feed management conservation practice. Feed management reduces nutrient concentrations in animal manure, which can improve nutrient use efficiency and reduce nutrient inputs to ground and surface water.
- Growers using traditional cranberry irrigation systems have to turn their systems on and off manually; wasting time, money, and water. With support from a 2005 CIG award, the Cape Cod Cranberry Growers Association worked with growers to install automated sprinkler systems that conserve water and reduce costs. These systems have sensors among the cranberry vines that monitor temperature and other weather conditions. A grower can monitor and control the systems from the Internet. Growers using these systems can save more than 9,000 gallons of water per acre on a frost night. During the study period, the systems reduced water application times by 2 hours per application. For a typical growing season, 280,000 gallons of water per acre can be conserved employing this system.
- For several years, NRCS has funded efforts by a consortium of universities working to develop a National Air Quality Site Assessment Tool (NAQSAT) for livestock and poultry operations. The first CIG funding this effort was awarded in 2007. After many years of development, refinement, and testing, the NAQSAT is poised to become accepted as NRCS’ official Air Quality Site Assessment Tool, pending review and approval. The present online version can be found at <http://naqsat.tamu.edu>.
- People depend on pollinators for about 30% of their food supply; however, habitat for pollinators has declined in recent years. A 2009 CIG award to the Xerces Society developed new NRCS guidelines for improving native bee habitat. The project demonstrated that establishing native pollinator habitat in previously abandoned agriculture areas significantly increased native bee populations. The project was carried

out in California where most of the Nation's fruit and vegetable crops are located. The guidelines developed led to publication of an NRCS bee habitat improvement reference guide. NRCS is now providing funding to establish bee habitat on previously unused farm areas on hundreds of thousands of acres across the Nation.

- Enhancing the health of our nation's soils can simultaneously increase yield, economic return, resilience to extreme weather, water quality, water availability, carbon sequestration, and wildlife habitat (including habitat for pollinators). The NRCS Cover Crop Practice Standard is one of the most utilized standards for improving soil health; however, refinements were needed for tropical and subtropical areas. With support from a 2007 CIG award, the Oahu Resource Conservation and Development (RC&D) Council produced new NRCS guidelines for cover crop establishment in tropical and subtropical regions, along with a new cover crop handbook that was translated into six languages. As a result, farmers in these areas can derive the benefits of improved soil health by successfully incorporating cover crops into their production systems. As a major consumer of water in many areas of the Nation, agriculture producers are increasingly pressured to reduce water use. Higher fuel prices also increase pressure on producers to irrigate more efficiently. With support from a 2005 CIG award, the Georgia Soil and Water Conservation Commission initiated a project to accelerate use of a computerized irrigation scheduling system to help farmers improve management of their irrigation water. Farmers who used this technology reported both water and energy savings. NRCS Georgia now recommends use of this technology for improving water use efficiency.
- Environmental markets have the potential to generate new revenue streams for agricultural producers while enhancing natural resource conservation. Ducks Unlimited used a 2011 CIG award to develop a protocol for measuring and quantifying the amount of carbon stored by avoiding the conversion of grasslands to cropland. This protocol was then approved by the American Carbon Registry and used by private landowners to generate carbon credits on ranch lands in North Dakota. In 2014, Chevrolet became the first entity to purchase these credits as part of its corporate sustainability initiative. This success is being used as a model for future environmental markets to enhance conservation of our natural resources.
- In 2011, NRCS awarded a CIG grant to the Delta Institute to develop a protocol that would allow farmers to generate greenhouse gas reduction credits arising from voluntary implementation of more efficient nitrogen fertilizer management techniques. The Delta Institute engaged a variety of partners in the project, including American Farmland Trust, Conservation Technology Information Center, Environmental Defense Fund and agricultural retailers. The end result was a methodology approved by the American Carbon Registry that allows for the generation of carbon credits (converted nitrogen oxide credits) on cropland. In a first-of-its-kind transaction, the Climate Trust purchased credits developed using the methodology in early 2014, providing a new income stream for those farmers generating the credits. This demonstrates how improving nitrogen management can be used to generate marketable credits that improve the environment and provide additional income for producers.

- Efforts to drain the greater Everglades over the past century changed the hydrology of the Everglades ecosystem to allow for rapid urban and agricultural development across south Florida. However, these developments also contributed to degraded water quality and flow into Lake Okeechobee and nearby estuaries, threatened vulnerable wildlife habitat, and resulted in massive loss of freshwater into the ocean. A 2005 CIG award to the World Wildlife Fund launched the Florida Ranchlands Environmental Services Project, a stakeholder partnership that included ranchers, environmental groups, State and Federal agencies, and research scientists. The pilot project's goal was to design a Payment for Environmental Services program in which willing ranch-owner "sellers" could enter into contracts with state-agency "buyers" to provide water retention and nutrient load reduction services above and beyond regulatory requirements critical to improving the health of Lake Okeechobee and the estuaries, as well as contributing to greater Everglades' restoration. The successful pilot led to creation of the Dispersed Water Management Program by the South Florida Water Management District.

Due to potential environmental concerns associated with animal manure, numerous CIG projects have successfully demonstrated innovative technologies focused on appropriate utilization of animal manure, as briefly exemplified by the following:

- The University of Georgia Research Foundation demonstrated the feasibility of growing an alternative crop (Pearl Millet) on soils with high nutrient content that restrict manure application. Growing Pearl Millet on these lands will not only help improve water quality, but the Millet can also be used as poultry feed by these same farmers.
- The Wisconsin Department of Agriculture, Trade, and Consumer Protection evaluated various conservation practices that provided NRCS with a basis for making recommendations to mitigate odors, ammonia, and hydrogen sulfide from dairies.
- The Cayuga County Soil and Water Conservation District successfully demonstrated how a community-scale digester can be used to digest not only manure, but also other community-generated wastes.
- The Environmental Credit Group provided carbon credit incentives for adopting lagoon covers on hog farms in NC and dairies in NY. This project found that the possibility of covering lagoons to flare methane is entirely possible.
- The National Fish and Wildlife Foundation demonstrated how a plenum flooring system in poultry houses can be used to reduce ammonia production (having animal health and environmental benefits).
- Cornell University demonstrated how animal waste can be used in vermin compost for recycling the manure nutrients in greenhouse systems that also protect the environment.

XI. Contact

For more information about the USDA-NRCS Conservation Innovation Grants Program, please contact the CIG National Program Manager, 1400 Independence Avenue SW, Room 6143-S, Washington, D.C., 20250, telephone: (202) 720-8644, fax: (202) 720-0248 or at nrcsig@wdc.usda.gov.

Additional information is available on the World Wide Web at:
www.nrcs.usda.gov/technical/cig/index.html

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