



Cover Crop Interseeding for Clean Water in Northeast Kansas Using the CWSRF Program

A Nonpoint Source Pilot Project



Helping Farmers Protect Water Quality and Reduce Production Costs

Agriculture is a major industry in Kansas. In 2023 alone, the estimated value of crops produced in the state exceeded [\\$7.5 billion](#). Because agricultural operations disturb the land, nonpoint source pollutants such as sediment, fecal coliform, nutrients, herbicides and pesticides can enter surface waters. The [Kansas Nonpoint Source Management Plan](#) identifies agriculture as primarily responsible for pollutant loadings and/or impairments to the state's streams and lakes, making nonpoint source pollution control a priority. The state is seeking innovative ways to support agricultural best management practice implementation, including taking advantage of the opportunities provided by the Kansas Clean Water State Revolving Fund, or CWSRF.

This document highlights an example of local, state and federal partners using CWSRF to facilitate farmers' adoption of cover crop interseeding, an important practice used to protect water quality and soil health while ensuring the sustainability of agricultural lands. Cover crop interseeding requires expensive specialized equipment that plants cover crops into a primary crop while it's still growing. These cover crops protect and improve the health and fertility of the underlying soil, which helps maintain high crop yields and plant growth while requiring less irrigation and fertilizer inputs.

Over time, investing in cover crop interseeding can enhance a farmer's bottom line by increasing efficiencies and lowering operational costs. However, financial and time constraints and a lack of technical knowledge can prevent farmers from implementing these practices. Therefore, they are often receptive to receiving financial and technical assistance from programs such as the CWSRF and *Clean Water Act* Section 319.

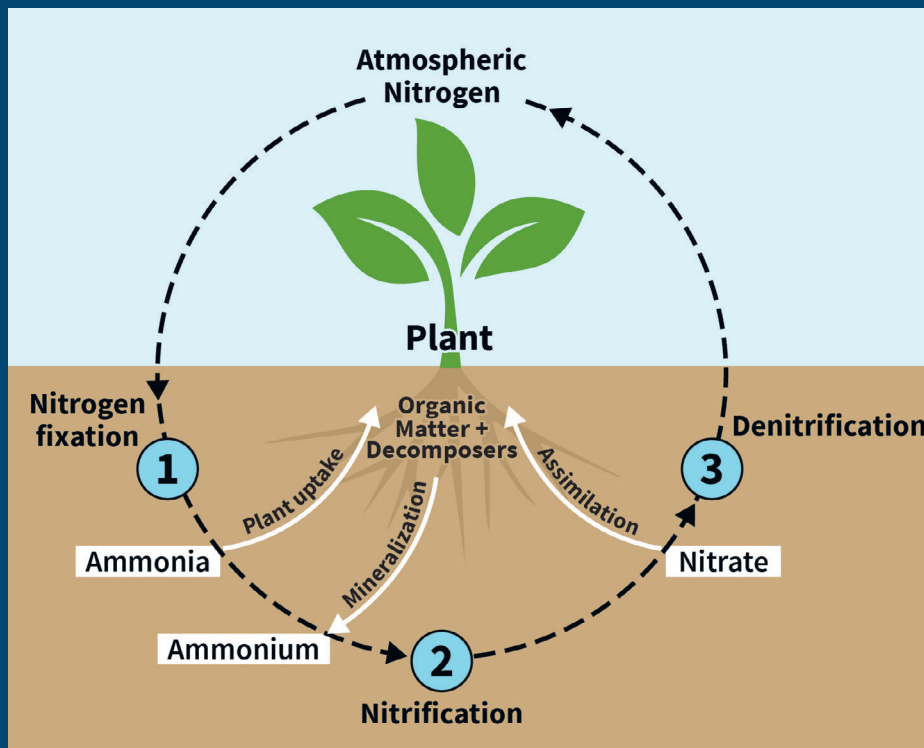
What is CWSRF?

The CWSRF is a federal-state partnership offering low-cost water quality project financing. The program was established by the 1987 federal *Clean Water Act* amendments. Each year since then, the federal government has appropriated funds to the EPA for the CWSRF program, and the agency distributes these funds to every state and Puerto Rico according to a formula. Each state CWSRF program provides low-interest loans that spread project costs over repayment periods of up to 30 years. Repayments are cycled back into the fund and used to pay for additional clean water projects. States have flexibility in operating the CWSRF program concerning the priorities for funding and loan terms, including the interest rate and repayment period, and the mechanisms for loan administration. CWSRF may be used to implement diverse nonpoint projects, including agricultural best management practices.

Cover Crops Build Healthy Soils

Healthy soils are measured by the percentage of organic matter they contain. Over time, heavily tilled soils lose their organic matter. The damaged soil structure cannot adequately infiltrate and store water, so crops are typically fertilized and irrigated to promote plant growth, which in turn creates challenges for water quality protection due to the increased nutrient concentrations in runoff.

Using cover crops can increase organic matter in the soil over time, which improves the soil's ability to infiltrate and retain water and reduces the amount of irrigation required. Cover crops also typically lower the soil temperature at the surface, creating a microclimate that is more conducive to plant growth. Restoring a healthy soil profile by using cover crops reduces the runoff of fertilizer and pesticides, helps the soil retain water and sequesters carbon.



Cover crops
scavenge
nitrogen
from the soil
and prevent
leaching

Based on a diagram by
Soloneski, S. and M.
Larramendy (2018). [*Emerging
Pollutants - Some Strategies
for the Quality Preservation of
Our Environment.*](#)



Recognizing a Need

The Glacial Hills Resource Conservation and Development Region, Inc., also known as the Glacial Hills RC&D, a nonprofit organization in Nemaha County, Kansas, sought to establish a cover crop interseeder leasing program. The program would promote farmers' use of high-clearance interseeding equipment, also known as "high boy" interseeders, by allowing them to try the expensive equipment prior to purchasing one. Although Glacial Hills RC&D frequently partners on *Clean Water Act* Section 319 nonpoint source watershed projects, the high cost of purchasing the interseeder machines would have exceeded the available Section 319 grant funds — prompting Glacial Hills RC&D to look elsewhere.

In 2019, Glacial Hills RC&D approached the Kansas Department of Health and Environment, or KDHE, which implements the state CWSRF, for additional financial support to establish the cover crop interseeder leasing program in support of the Kansas Surface Water Nutrient Reduction Plan. The mutual interest in promoting agricultural best management practices in the region brought KDHE and Glacial Hills RC&D together to collaborate on this shared goal. The Kansas CWSRF was a well-situated partner with ample funding to apply to agricultural projects with water quality benefits.

KDHE requested assistance through the EPA's CWSRF Nonpoint Source Pilot Program in 2019 to determine how it could finance the proposed program under its current regulations and create a financing structure that could be replicated throughout Kansas. The program's purpose was twofold: incentivize the adoption of agricultural best management practices that improve water quality and help the state comply with the Kansas Surface Water Nutrient Reduction Plan, a legislative mandate to reduce nutrient loading to surface waters.

Identifying Program Processes

Glacial Hills RC&D purchased high boy cover crop interseeders and leased them to local agricultural service providers to deploy and operate throughout the Delaware River and Tuttle Creek Lake watersheds. The providers work directly with farmers to provide the custom cover crop interseeding service, charging them on a per-acre basis. Through economies of scale, this program makes cover crop interseeding equipment affordable and accessible to more farmers. Over time, farmers are expected to see economic benefits from reduced fertilizer and pesticide costs as well as reduced need for irrigation, as healthy organic-rich soils retain more water. At the same time, the agricultural service providers benefit by developing a new line of business and may choose to purchase their own interseeding equipment. Engaging partners that benefit from a project is key to ensuring buy-in.

Due to the low cost of financing the interseeders through CWSRF when compared to traditional financing, the agricultural service providers can charge much less per acre to give farmers access to this equipment. Thus, this approach mitigates the risk for farmers interested in trying cover crops for the first time and allows them to realize the benefits of this practice firsthand without large capital outlays.

Glacial Hills RC&D plans to sell used interseeders to agricultural service providers or on the open market and use the proceeds to purchase additional new interseeders. The purchase of additional interseeders will increase opportunities to engage new partners. The project will continue to support two additional, but progressively smaller, rounds of equipment purchases and partnerships, with an end goal of reaching countywide adoption of cover crop interseeding practices and equipment ownership.

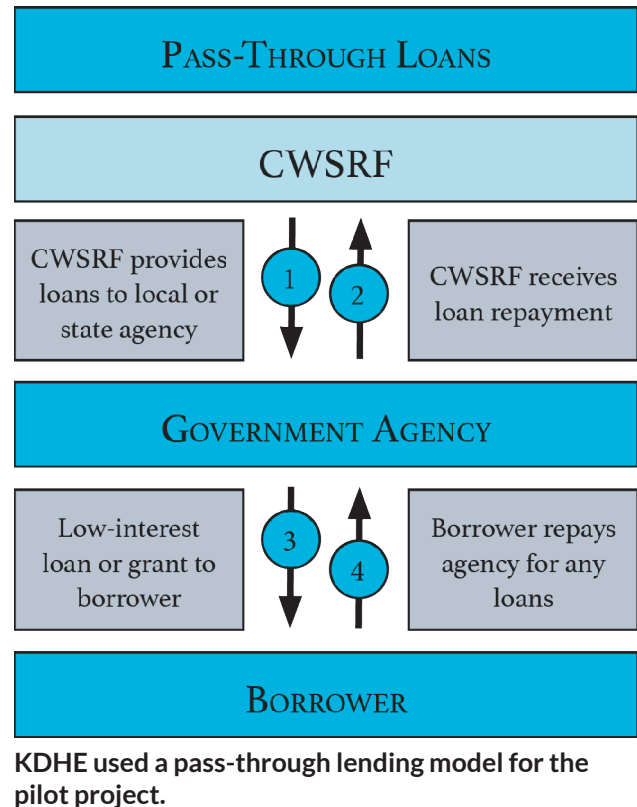
Glacial Hills RC&D requested \$3.5 million in CWSRF financing to purchase eight interseeders, with contractual agreements requiring that each machine be used to plant at least 10,000 acres of cover crops each year in the Tuttle Creek and Delaware River watersheds. The goal of the effort is to realize significant reductions of nitrogen, phosphorus and sediment loadings to surface waters by increasing the adoption of cover crops.



Example of a high boy interseeder purchased through the pilot program.

Structuring the CWSRF Financing

A key hurdle the project had to overcome was structuring the CWSRF financing. Due to a regulatory restriction in the Kansas CWSRF program that requires all loans for nonpoint source projects be made to an entity with taxing authority, a loan could not be made directly to Glacial Hills RC&D. Using an analysis from the Environmental Protection Agency's contractors assisting the pilot project, KDHE elected to use a pass-through lending model, one of the most efficient and effective alternative lending mechanisms available to state CWSRF programs. KDHE and Glacial Hills RC&D approached the city of Wetmore to act as an intermediary. This arrangement established a functioning public-private partnership between KDHE, Glacial Hills RC&D and the city.



For pass-through loans, a CWSRF program makes a loan to another public entity, such as the city of Wetmore, that can provide project funding to private borrowers. The city of Wetmore acts as an intermediary by providing loans or grants to eligible projects, such as nonpoint source projects that include agricultural best management practices, and the city repays the CWSRF loan to the state.

For the pilot project, the state CWSRF generously elected to award the \$3.5 million loan as 100% loan forgiveness to remove the repayment requirement. The city of Wetmore agreed to participate as a conduit lender, knowing that the project would positively impact their municipal water supply, which is fed by a stream corridor in the Delaware River watershed targeted for best management practice implementation. With assistance provided by the EPA, the city and Glacial Hills RC&D agreed to the following roles and expectations. The city agreed to:

- Take on the loan, including being responsible for submitting all requests for CWSRF funding disbursements to KDHE for all eligible expenses incurred by Glacial Hills RC&D.
- Maintain accounting records.
- Submit a final report to KDHE upon completion of the project.

Glacial Hills RC&D agreed to:

- Serve as a subcontractor to the city for administration and project performance.
- Complete and submit all forms and documents required for the CWSRF application.

- Oversee the bidding process to purchase equipment and complete all bid documents for the city's use.
- Oversee and complete the scope of work and reporting requirements outlined in the loan agreement between KDHE and the city.
- Reimburse the city for any legal costs incurred during the project.

The project also helped the Kansas CWSRF meet its Green Project Reserve, which is a federal mandate requiring that all CWSRF programs use at least 10% of each year's federal capitalization grant for projects addressing green infrastructure, water and energy efficiency or other environmentally innovative activities. Cover crops qualify under the Green Project Reserve because healthier soils retain more water and need less irrigation, thereby improving water efficiency. The project scope and timing enabled the Kansas CWSRF to meet its Green Project Reserve requirement for more than two years.

Identifying Best Practices for Equipment Leasing Programs

The pilot project drew on the success and lessons learned from other agricultural best management practice programs in Washington, Minnesota and elsewhere. Best practices for the management and oversight of a CWSRF-funded agricultural equipment rental program include:

- **Factors to Include in Fee Setting:** Rental programs can increase the rate of cover crop adoption by simply covering equipment costs without introducing a profit motive. Implementers in other states suggested talking to local farmers to determine what they are willing to pay. Factors to consider include depreciation, fuel, maintenance and repairs and other machinery costs. Labor costs for operation may also be included if not funded through another mechanism; for example, the Scott Soil and Water Conservation District in Minnesota covers labor costs with grant funds and does not include those costs in rental fees. Capturing depreciation in the fee-setting process helps ensure that revenues can be used to purchase new equipment over time.
- **Expected Results:** Having a reasonable estimate for shifting the anticipated acreage into cover crops is an essential component of fee setting. The Rice Soil and Water Conservation District in Minnesota indicated that it did not reach its acreage target in the first year, while the Scott Soil and Water Conservation District noted that weather patterns significantly impacted demand.
- **Reversion of Assets:** Stipulations in financing agreements can help protect the program if the implementer becomes insolvent. The agreement between the city of Wetmore and the Glacial Hills RC&D stipulates that if Glacial Hills RC&D cannot continue implementing the project due to insolvency, the equipment reverts to the municipality, which will determine whether to continue the program.

- **Maintenance Agreements:** In Washington State, the Department of Ecology offers loans and grants for direct-seed activities, including equipment purchases. Because maintenance is a key to long-term success, the Department of Ecology requires that recipients sign a 10-year maintenance agreement.
- **Use-Restricted Revenue Accounts:** Use-restricted operating revenue accounts can be a best practice to ensure that CWSRF funds are applied only for approved uses and that revenues earned from the rental program are recycled/used for new equipment purchases.

Sharing Lessons Learned

A key objective of the partnership between KDHE, Glacial Hills RC&D and the CWSRF is to promote the widespread adoption of conservation practices throughout the targeted farming community. The goal was to use agricultural equipment rentals to emphasize cost savings and demonstrate reduced erosion rates while building a sense of community cohesion at the subwatershed scale. Having a clear sense of interest and demand when setting up a new cover crop equipment rental/leasing program is necessary to ensure the program's success. Key elements to consider when developing a program include ensuring transparency about the potential costs and benefits, being aware of what producers are willing to pay and understanding the many challenges faced by the agricultural community.

When identifying a potential pass-through partner, as Glacial Hills RC&D was required to do, a priority was to seek out a municipality that could benefit from the project. The city of Wetmore could realize a direct benefit to its drinking water source from this project, potentially reducing its drinking water treatment costs over time. Securing a partner with mutually agreeable benefits is key to ensuring buy-in, particularly if the partner must assume an element of risk.



In February 2023, EPA Administrator Michael Regan visited the Guetterman Brothers Family Farm in Bucyrus, Kansas, for an up-close view of an interseeder purchased with CWSRF funding.