

Clean Water State Revolving Fund
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460



Innovative Funding for Agricultural Best Management Practices
Using the CWSRF

COVER CROP INTERSEEDING

FOR CLEAN WATER IN NORTHEAST KANSAS

A pilot project of the Environmental Protection Agency's Clean Water State Revolving Fund

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Introduction

The nexus between agricultural operations in the United States and water quality grows ever more critical as large swaths of the country face challenges from drought and flooding, while downstream neighbors grapple with algal blooms and hypoxic waters impacted by increased levels of nitrogen and phosphorus.

There is an inherent interconnect between the agricultural industry, local economies, and environmental and public health that require investments in innovative, alternative approaches to address these challenges. The Clean Water State Revolving Fund (CWSRF) and §319 Grants programs can be tapped for much needed funding to apply a vast array of project types, including agricultural best management practices (BMPs) such as cover crop interseeding. When widely adopted, this approach can protect water quality by improving the integrity of the soil profile over time, conserving water resources with less irrigation, and reducing the volume of fertilizer application to crops.



The use of cover crops is a time-tested strategy used by agricultural producers to perform multiple functions simultaneously: prevent soil erosion, reduce surface runoff, increase soil fertility and organic matter, promote nitrogen fixation, and provide carbon sequestration and habitat for pollinators. Using more advanced application techniques beyond drilling include high-clearance interseeding between rows of standing cash crops, which increases efficiency and reduces operational costs for farmers in the long run. All these outcomes are a boon to improving water quality and potentially to the economic prosperity of agricultural operations. This approach is encouraged as a practice to help states implement their nutrient management plans, and with the help of financial support from programs like the CWSRF and the §319 Grants Program, finding a receptive audience among farmers facing challenges with technical knowledge, time constraints and financial burdens.

In 2019, the Kansas Department of Health and Environment (KDHE) forged a partnership between its CWSRF, the Bureau of Watershed Management, Glacial Hills Resource Conservation and Development, and the City of Wetmore to establish a new CWSRF Interseeder Program in northeast Kansas. This effort was funded by the EPA's Nonpoint Source Management Program in the Office of Wetlands, Oceans and Watersheds, and this report follows the journey of the Kansas CWSRF Interseeder Program and its genesis. It also provides numerous examples from across the country of successful agricultural equipment leasing programs that have either received seed money to establish such programs through the State Clean Water State Revolving Fund (CWSRF), the Nonpoint Source §319 Grant Program, or financial assistance provided by a state agency. The collection of options curated in this report explore best practices for establishing a similar program to promote conservation farming practices using cover crops in Nemaha County, Kansas.

The states represented in this report are operating under legislative mandates to reduce nutrient loading of surface waters, such as the Kansas Surface Water Nutrient Reduction Plan. The strategic plans that each of these states have crafted bear a specific focus on agricultural practices and seek to incentivize local farmers and producers to adopt systems of conservation practices to improve the integrity of the soil, reduce erosion and runoff, and support strong partnerships within watersheds. These plans can be instrumental in carving out pathways for a new program to promote adaptive management practices through targeted education and outreach, as well as establishing methods for tracking progress and measuring benefits.



“ The use of cover crops is a time-tested strategy used by agricultural producers to perform multiple functions simultaneously.

The Kansas Nonpoint Source Pilot Project



How it all began . . .

The heartland faces many challenges to keep American farms productive and thriving: drought, floods, diminished soil quality, and the balance between protecting water quality and safeguarding crop yields. To do so, suites of agricultural conservation practices should be implemented to improve water quality and maintain yields. Many of these practices focus on improving soil health and nutrient management. The practices available to farmers are broad and typically specific to either livestock operations or crop production. For Kansas, many of the best options involve approaches like conservation tillage, cover crops, and direct-seed applications to help restore soil productivity, reduce runoff, and conserve valuable water resources. But the equipment needed for such approaches can be quite expensive, often precluding many small farming operations from adopting these practices.

As the saying goes, “necessity is the mother of invention,” which is how the Kansas CWSRF Interseeder Program was born. KDHE’s Bureau of Watershed Management wanted to promote agricultural BMPs to support the state’s Surface Water Nutrient Reduction Plan, among them being the use of cover crops using high-clearance interseeding equipment, otherwise known as “high boy” interseeders. Glacial Hills Resource Conservation and Development Region, Inc. (“Glacial Hills”), a non-profit organization located in Nemaha County in Northeast Kansas was interested





in establishing an equipment leasing program for cover crop interseeding to help promote the practice by allowing farmers to try it out before making large financial investments in purchases of such equipment. This mutual interest brought KDHE and Glacial Hills together where they collaborated on how to go about putting such a program together, what it would cost, what level of effort would be required, and what critical partnerships needed to be developed.

Finding the funding for such an enterprise could be challenging as Hagie high-clearance interseeder equipment doesn't come cheap and 319-grant funding likely would not be capable of covering all these costs alone. This brought the Kansas CWSRF into the picture with ample available funding that could be applied toward agricultural projects that provide water quality benefits. Furthermore, the project could be advantageous for the CWSRF's ability to meet its Green Project Reserve (GPR) requirement, a federal mandate for the program to commit at least 10 percent of its federal appropriation to projects that promote green infrastructure, water conservation, water efficiency, or environmentally innovative activities. The project scope of the CWSRF Interseeder Program satisfied the eligibility criteria by implementing agricultural practices that promote water efficiency and conservation, reduce nutrient and sediment runoff, and improve water quality. This project would allow the Kansas CWSRF to meet its GPR goal for not just one year, but for 2017, 2018 and a portion of the 2019 requirement.

Overview

Glacial Hills has long been a partner in sponsoring nonpoint source 319 watershed projects in Nemaha County (Figure 1). Through the CWSRF Interseeder Program, Glacial Hills will be able to work directly with local agricultural service providers (ASPs) to purchase, deploy, and operate five Hagie high-clearance cover crop seeding machines to benefit water quality in the Delaware River and Tuttle Creek Lake watersheds.

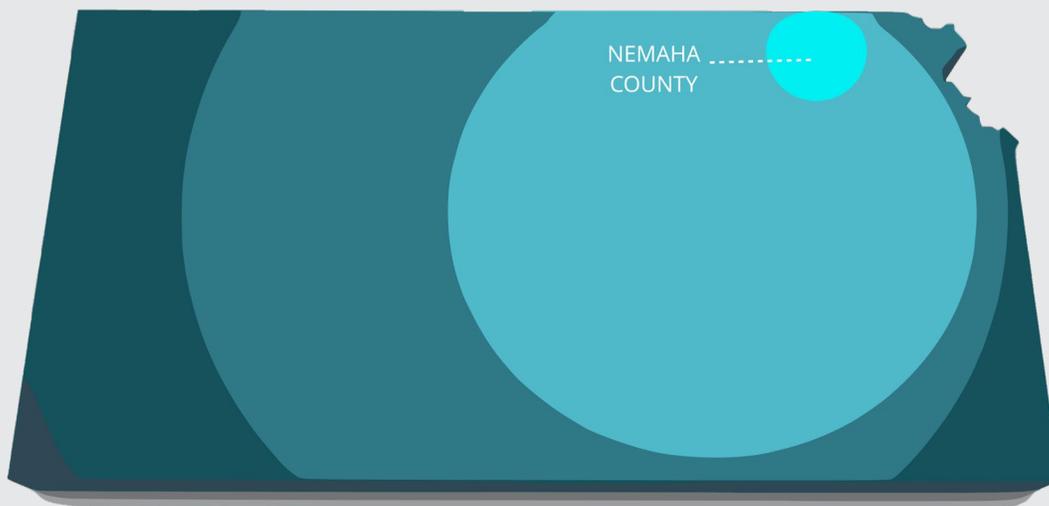


Figure 1. Map showing the general location of Nemaha County in the northeast corner of Kansas

Local ASPs that Glacial Hills is Engaging



Ag Partners Co-Op

<https://www.agpartnerscoop.com>



Farmers Cooperative

<https://www.farmersco-operative.com>



Jackson Farmers Inc

<https://jacksonfarmers.com>



Central Valley Ag

<https://www.cvacoop.com>

The ASPs will work directly with agricultural producers to provide the custom cover crop interseeding service. Because the CWSRF loan will pay for the purchase of the Hagie high-clearance interseeder equipment, ASPs will be able to charge much less per acre to provide these services, thus mitigating risk for farmers interested in trying cover crops for the first time while allowing them to realize the benefits of this practice firsthand. This practice also increases local economies of scale, making use of this equipment affordable and accessible to more Kansas farmers.

The long-term benefit to farmers will be demonstrated as use of cover crops begins to reduce crop input costs such as fertilizer and pesticides. Therefore, even when the project ends, agricultural producers are likely to continue to use cover crops as a practice as a result of these economic benefits. The ASPs will benefit by developing a new line of business that extends much beyond the useful life of the seeding equipment. Once the customer base has been established, ASPs will be able to purchase their own interseeding equipment in the future and charge a higher rate. Farmers will still be able to participate using the economic returns they receive as a result of reduced crop input costs.

The project also leverages itself as the equipment continues to retain value after the initial project period. Used interseeding equipment can be sold to the ASPs who were involved in the project, or it can be sold on the open market where used farming equipment is a highly sought-after commodity. The sales proceeds from this equipment will be used to support another round of new seeding equipment purchases and opportunities to engage new partners. In this way, the project will continue to support two additional rounds of equipment purchases and partnership development with each round becoming progressively smaller. The end goal of the project is to reach a stasis of county-wide adoption of cover crop interseeding practices and equipment ownership.



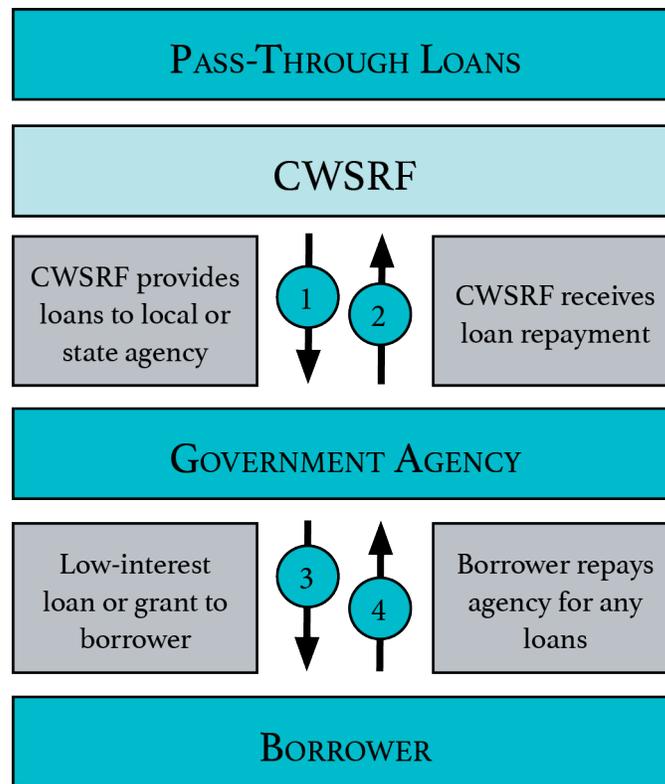
Photo of Hagie interseeder field demonstration

Loan Structuring

The Kansas CWSRF cannot make a loan directly to Glacial Hills due to a regulatory restriction that requires all loans to nonpoint source projects be made to an entity with taxing authority. This CWSRF eligibility challenge would require the use of an alternative financing mechanism to overcome this obstacle. KDHE elected to use a pass-through lending model, one of the most efficient and effective alternative lending mechanisms available to SRF programs. This resulted in the development of a functioning public-private partnership between KDHE, Glacial Hills, and the City of Wetmore.

For pass-through loans, a CWSRF program makes a loan to another public entity, such as the City of Wetmore, that then provides funding to private borrowers for projects. The City acts as an intermediary by providing loans or grants to eligible projects (e.g., nonpoint source projects, including agricultural BMPs). The City repays the CWSRF loan to the State. Figure 2 illustrates the basic mechanics of how pass-through loans work.

Figure 2



For the Kansas CWSRF Interseeder Program, the loan will be made between the City of Wetmore and KDHE for \$3.5 million with 100% loan forgiveness and a one-year term. The City agreed to participate as a conduit lender knowing that the project will have a positive impact on their municipal water supply, which is fed by a targeted stream corridor in the Delaware River watershed. Since the entire principal amount of the loan will be forgiven, Glacial Hills will reimburse the City for 30 days of interest charges accrued. The City will submit all requests for CWSRF funding disbursements to KDHE for all eligible expenses incurred by Glacial Hills, maintain accounting records, and submit a final report to KDHE upon completion of the project. **Glacial Hills will do the following:**

Glacial Hills Responsibilities

Serve as a subcontractor to the City for administration and performance of the project

Complete and submit all forms and documents required for the CWSRF application to KDHE

Oversee the bidding process for the purchase of equipment and complete all bid documents for use by the City

Glacial Hills will work with ASPs in the area to purchase, deploy, and operate the cover crop seeding equipment.



Photo of a demonstration meeting

Oversee and complete the scope of work and reporting requirements set forth in the loan agreement between KDHE and the City

Reimburse the City for any legal costs incurred during the project

Reimburse the City for all interest costs incurred under the CWSRF loan agreement with KDHE

Marketing and Outreach Campaign

Over the last five years, KDHE has focused on practices that improve soil health for agricultural BMP implementation. The state has seen watershed groups provide more than \$100,000 in cost-share to agricultural producers in targeted sub-watersheds for seed and planting of cover crops. State programs like the Kansas Reservoir Protection Initiative and federal programs such as NRCS-EQIP have provided millions of dollars in funding for producers to implement cover crops in these watersheds. Numerous workshops and field days are conducted throughout the state each year to promote the utilization of cover crops and KDHE prepares flyers, notices, and marketing materials to spread the word about upcoming events (Appendix A). Participation by agricultural producers has been good with 120 in attendance at the winter 2019 workshop event at the Nemaha County Community Building in Seneca, Kansas, and 40 in attendance at a subsequent summer field day event held in June in Axtell, Kansas.



Interseeded cover crops three weeks after planting. Picture taken September 6, 2019.

Marketing and Outreach, continued

The Tuttle Creek Cover Crop Field Demonstration was held in August at the Buessing Farm near Axtell, Kansas, to showcase the effectiveness of the Hagie Interseeder equipment. Maurice Buessing, an experienced and dedicated cover crop farmer, led a presentation and interactive Q&A session for 40 producers to share his personal experience in using cover crops, best practices for termination, and methods for planting fall crops. In addition, a live interseeding demonstration (in which over 800 acres were planted) took place near Axtell on August 13-15, 2019. The field demonstration also included information on the best seed mix to use, the appropriate ratios required for the mixture, and recommended application rates per acre, as shown in Figure 3.

Figure 3. Custom Seed Mix and Application Rates

Kansas CWSRF Interseeder Program Field Demonstration Custom Cover Crop Seed Mix and Application Rates (54 pounds per acre)							
Species	lb/acre	% by wt	Origin	Germ	Purity	Seeds/lb	Seeds/ac
Balansa Clover: Fixation	2	2.00%	OR	85%	53.03%	500,000	1,000,000
Crimson Clover: Dixie	1	1.80%	OR	89%	99.85%	107,200	107,200
Cereal Rye: Elbon	38	70.00%	KS	90%	99.46%	23,000	874,000
Annual Rye Grass: Winterhawk	9	16.30%	OR	90%	98.00%	190,000	1,710,000
Daikon Radish: Nitro	3	5.50%	OR	95%	99.20%	25,000	75,000
Rapeseed: Trophy	1	1.80%	ID	96%	99.60%	175,000	175,000

KDHE continues to follow up with the producers involved in the demonstration to document their thoughts, but the initial feedback has been overwhelmingly positive. Many additional producers in the watersheds have inquired about the availability of these machines in the future. A local agricultural retailer who provided logistical support during the demonstration event also expressed interest in providing interseeding services to their growers.

Using a market-based approach to effectively increase the adoption of soil health principles using cover crops requires the right partnerships. KDHE has developed relationships with agricultural retailers who will undertake much of the marketing and outreach efforts, including development of brochures and fliers, and coordination and facilitation of informational meetings to sell interseeding services. KDHE expects to launch a parallel educational component for producers using the service as well as retail staff providing the service. This is being funded by a separate grant provided by an educational consortium that teaches soil health principles. Due to the strong history of cover crop adoption, the availability of incentive programs, continued outreach and education efforts, and a successful demonstration project, Kansas has every reason to believe that continuing this CWSRF program over the long term will be successful.

Anticipated Project Benefits

The CWSRF Interseeder Program for Clean Water in Northeast Kansas offers important environmental benefits that allow this project to fulfill the Kansas CWSRF program's GPR requirement and helps to implement the Kansas Nonpoint Source Management Plan by using cover crop interseeding to prevent or remediate nonpoint sources of pollution within the Tuttle Creek and Delaware River priority watersheds.



These activities included in the project will support the Kansas/EPA-approved 9-Element Watershed Plans which contain precise water quality monitoring components including monitoring locations, duration, frequency, and milestones for reaching long-term water quality goals and TMDL de-listings over time. These plans will be used to estimate and later quantify the water quality benefits realized by adopting the cover crop interseeding practices offered through the new program.

The \$3.5 million CWSRF loan will allow the program to purchase seven Hagie Interseeders, with each machine contractually required to plant at least 10,000 acres of cover crop each year in the Tuttle Creek and Delaware River watersheds. Acreage to be planted is expected to be split evenly between the two watersheds, thus resulting in significant reductions of nitrogen, phosphorus, and sediment loadings to surface waters in each respective watershed as shown in Figure 4. The program will be incubated in the northeast region of the state with plans for further statewide expansion in the future as demand for this assistance grows.

Figure 4. Anticipated Water Quality Benefits

The seven interseeders are contractually required to plant at least 10,000 acres of cover crop each year.

Annual load reductions for 70,000 acres of cover crop are:

136,639 pounds of Nitrogen

Planted acres will be evenly split between Tuttle Creek Watershed and Delaware River Watershed. Each watershed will reduce:

68,319 pounds of Nitrogen

34,201 pounds of Phosphorus

23,383 tons of Sediment



Improved Soil Health and Water Quality

Healthy soil profiles are integral to surface water quality. Unfortunately, over the course of many years of conventional farming practices, the quality of the nation's agricultural soils has become severely degraded. Healthy soils are measured by the percentage of organic matter they contain. Over time, heavily tilled soils in Kansas have lost 75% or more of their organic matter by volume; 7-8% in intact soils has been reduced to only 1-2% after being tilled for many years. This loss of organic matter greatly diminishes a soil's ability to properly cycle nitrogen, promote growth of beneficial bacteria, and immobilize ammonia and nitrates.¹ Damaged soil structure cannot adequately infiltrate and store precious water, and proper plant growth must be supplemented by fertilizers and irrigation. This, in turn, creates challenges for managing increased nutrient runoff and protecting water quality.

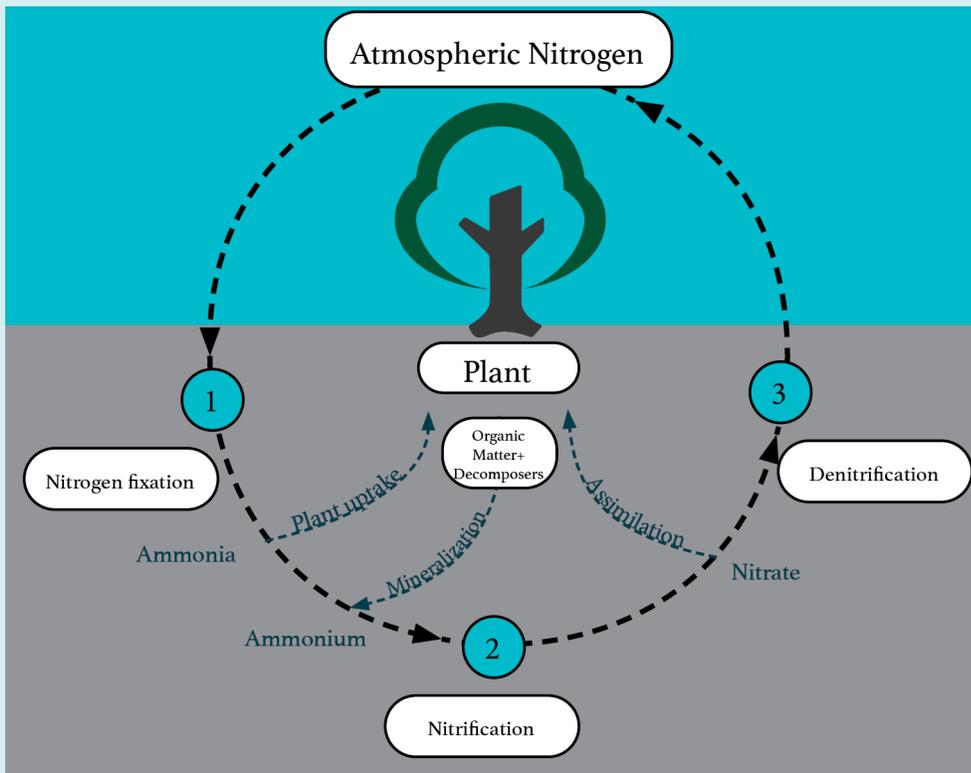
The CWSRF Interseeder Program provides the necessary equipment and education for implementing healthy soil practices through a market-based approach that has the potential to restore degraded agricultural soils. Runoff from storm events will be slowed, thus reducing erosion while maintaining a healthy aquatic habitat (Figure 5).



Interseeded cover crops seven weeks after planting. Picture taken October 2, 2019.

Figure 5. Healthy Soil from Cover Crops

Cover Crops Build Healthy Soils



Cover crops scavenge **nitrogen** from the soil and prevent leaching

Source: Based on a diagram by Soloneski, Sonia & Larramendy, Marcelo (2018). Emerging Pollutants - Some Strategies for the Quality Preservation of Our Environment.

A 1% increase in organic matter & healthy soil can infiltrate and store up to 25,000 gallons of water per acre²

Increased **Water Efficiency**

Over time, the use of cover crops increases organic matter in the soil, which improves the soil's ability to infiltrate and retain water, thereby decreasing the amount of irrigation required. Cover crops also reduce the soil temperature at the surface, which creates a micro-climate that is more conducive to plant growth. Restoration of a healthy soil profile via cover crops will allow much more of any irrigation water to be used for plant growth rather than becoming lost to runoff or evaporation. This provides an important nexus to mitigating the long-term effects of climate change because cover crops help to restore the water cycle which governs 95% of the greenhouse effect on earth. Furthermore, cover crops can provide effective carbon sequestration within the soil by increasing the amount of organic matter it contains.³

Under the Interseeder Program agreement, agricultural retailers are required to provide application area maps for each field that has been seeded with each of the five machines. They must also provide the following information to KDHE:

- — Number of acres planted
- — Producer name
- — Producer contact information
- — Total acres per producer implementing cover crops

This information will help KDHE build a database to identify spatial gaps in cover crop implementation, thus increasing the CWSRF Interseeder Program's ability to specifically target those areas, if needed, in the future.

Leading by Example: State Approaches to Funding Cover Crop Interseeding

The efforts undertaken by the Kansas pilot project are part of a growing number of similar programs for the adoption and implementation of cover crop BMPs across the nation. This chapter illustrates how other states are successfully implementing cover crop interseeding programs—funded both inside and outside of the CWSRF—that provide a cache of useful examples, practices, and lessons learned to help any state successfully establish similar agricultural BMP funding programs. The examples presented here may be used to help stand up new cover crop interseeding programs elsewhere.



Photo of Tuttle Creek field demo

Delaware

Sussex County Conservation District, Delaware

The Sussex Conservation District (SCD) has an air seeder cost-share program which allows growers to rent the air seeder and purchase custom cover crop seed blends. Growers who participate in the program must agree to plant cover crops into a standing cash crop prior to harvest using the District's custom cover crop blend applied at the recommended rates. Participants may self-certify to the District in writing that the program provisions have been met. The District provides the operator and coordinates all fuel and equipment maintenance.⁴



Key Features of the Sussex Conservation District Program



Equipment

- Miller Nitro Air Seeder 90-foot boom with specialized seed box to allow planting of cover crops while cash crop remains in the field



Rental Rate

- \$11 per acre plus cost of fuel
- \$12 per acre if 10 or more miles outside of Sussex County
- **Incentives:** In the first two years of the program, SCD offered \$60 per acre for new air seeder customers and \$50 per acre for returning customers to encourage participation



Custom Seed Mix

Cover Crop Blend	Seeding Rates	Cost Per Pound
Radish and Crimson Clover	16 lbs/acre	\$1.60/lb
Rye and Radish	55 lbs/acre	\$0.86/lb
Rye and Crimson Clover	65 lbs/acre	\$0.80/lb



Miscellaneous

- Calibration Fee: \$50 if participant purchases seed from another supplier
- Participants are limited to \$75,000 in cover crop assistance.
- If program demand or enrollment exceeds available funding, the District may reduce the maximum payment amount per participant.



Minnesota

Rice Soil & Water Conservation District (Rice County, Minnesota)

The Rice Soil and Water Conservation District (SWCD) has long been a staunch advocate for incorporating conservation best practices into everyday agricultural operations in Minnesota. Practices such as no-till drilling, direct seeding, and planting cover crops are all part of the approach that Rice SWCD has successfully encouraged local farmers to undertake as part of their normal course of business. In Spring 2019 the District launched a new Interseed Rental Program that uses a custom-built interseeder and includes operator services, as well as custom cover crop seed mix if desired. The program serves as a one-stop-shop for Rice County farmers, which helps minimize machinery downtime and maximize planting regimes and schedules.

Before launching the new interseeding rental program, Rice SWCD undertook a comprehensive marketing and outreach campaign to gauge the level of interest in such a program among local farmers. The District had been intensively promoting soil health practices for several years leading up to the launch of the rental program and that outreach effort continues. The outreach activities include an annual winter workshop and field day to provide information and education on the economic and environmental benefits of cover crops. They also use polling, surveys, and social media, and sponsor local community events to meet one-on-one with farmers. Rice SWCD knows the power of firsthand testimonials and they make sure to include a farmer panel to share their success stories when presenting at community and workshop events. A collection of marketing and outreach materials used by Rice SCWD is included in Appendix B.





Photo of an interseeder

The outreach efforts gave the district confidence that the interest in the Interseed Rental Program was sufficient to warrant implementation. Within a few months of the program's launch, participants had already seeded 500 acres with cover crops and were expected to complete 7,000 acres by the end of 2019. This represents 4% of the total 500 square mile cropland area in Rice County using cover crops.

Rice SWCD believes that demand is increasing and ensures that its new interseeding rental program gets plenty of media coverage by marketing it aggressively. Since the Rice SWCD did not take on any new staff to launch this program, they rely heavily on their partnership with the Friends of Blue River (a local watershed group) to help with general marketing and promotional workshops. They also work closely with the Cannon River Watershed Partnership (CRWP) and received a grant through the partnership to plant field demonstration cover crops on 4,000 acres within the watershed. The District uses this demonstration project as a marketing opportunity to raise awareness about cover crops and promote interest in their equipment rental program by co-hosting an annual Farm Field Day with CRWP. The goal, set in 2019, was to get 25% of that watershed's cropland acreage into cover crops, which has already been achieved. Rice SWCD will sample outlet water from these cover crop acres for nitrates and measure the reduction values to quantify the environmental benefits of this practice.

District Manager Steven Pahs indicates that the biggest barrier to setting up a program like this is finding the money to do it. After that, he says it's been an easy sell among the farming community. He emphasizes the importance of pushing a good marketing campaign and doing a lot of workshops, outreach and education.

The Interseed Rental Program was initially capitalized using rental income from the District's no-till drill program. Going forward, rental revenues from both programs will be combined. Rice SWCD expects a financial loss in the first year but does expect revenues to become sustainable with increased demand, which they expect to occur after the initial ramp-up period. The District sought to find the sweet spot in setting competitive rental rates that would attract participants to the new program and also cover operating costs. Rice SWCD isn't looking to make a profit off of the program, but hopes to financially break even in the process of getting more local farmers to try cover crops. They are considering implementing financial modeling to help in the decision-making process and to manage program cash flows with greater accuracy and confidence.

“ Understanding your audience and tailoring your message is key. Typically, farmers really aren't interested in and don't want to hear about the environmental benefits of the practice, but are more focused on what economic or production value the practice has to offer. Focus on that.

–Steven Pahs, Rice SWCD Manager



Key Features of the Rice SWCD Interseeder Program



Equipment

- One custom-built interseeder machine valued at \$16,000
- Specialized to convert between 40' width with 16-row spacing and 30' width with 12-row spacing



Rental Rate

- \$10 per acre for interseeder plus fuel
- Rate is calculated by taking the District's costs for equipment spread out over the number of acres anticipated to be planted over 7 years
- Rice SWCD offers discounted pricing in the first year to encourage more growers to try cover crops. Local competitors charge \$12-\$20 per acre.



Custom Seed Mix

- \$24 per acre
- 18 pounds rye, 2 pounds kale, 1 pound purple top turnip
- Custom-developed for Rice SWCD by a cover crop specialist



Lease Agreement / Legal Protections

- No liability for crop failure
- Waiver of liability, hold harmless and indemnification clauses



Miscellaneous

- Cleaning fee: None
- Security deposit: None
- Acreage Metering: Yes

Scott County Soil & Water Conservation District Agricultural Equipment Rental Program (Scott County, Minnesota)

Scott County SWCD's agricultural equipment rental program has been operating since 1997, when it was launched using grant funding from the Minnesota Department of Agriculture and a used no-till drill that the District purchased for a dollar. Since then, the program has expanded its fleet of equipment to include several no-till drills and a custom-built cover crop interseeder. Farmers typically operate the equipment once it has been transported and delivered to the site. Occasionally, the SWCD will perform custom cover crop work using the interseeder equipment. The County expressed some concerns regarding liability with farmers operating this equipment themselves, noting the importance of including the appropriate indemnification and waiver of liability language in the rental contract or agreement.

Scott County SWCD's mission is to increase the widespread adoption of cover crop farming practices by allowing farmers to test these techniques before investing money in the purchase of expensive equipment. Farmers wishing to purchase this equipment may apply for a low interest (3%) loan from the state's Agricultural Best Management Practices Loan Program (see page 32), effectively transitioning from a trial basis offered by the SWCD to regular and consistent implementation of the practice with funding made available by the CWSRF program.



Key Features of the Scott County SWCD Program



Equipment

- Brillion Sure Stand Seeder with 10-foot planting width and broadcast row width
- John Deer 1590 No-Till Drill with 15-foot planting width and 7.5-inch row width



Rental Rate

- \$8 per acre (15-acre minimum) plus a \$120 drop fee



Lease Agreement / Legal Protections

- Denial of service based on sole discretion and ability of lessee to properly operate equipment
- Hold harmless and indemnification clauses
- Waiver of liability



Miscellaneous

- Cleaning fee: None
- Security Deposit: \$50
- Acreage Metering: Yes

Scott County Soil & Water Conservation District, continued

This program does not incorporate the resale of older agricultural equipment to farmers, but that option had been previously explored by the District. They found that even using appraised trade-in values for the used equipment were not enough to entice local farmers to buy. Farmers have found cheaper deals on equipment being sold in the resale marketplace so the District has elected to trade in older equipment with the dealer in order to maximize the amount of funding that can be used to purchase new equipment.

Because the District enjoys robust support from local watershed management organizations (WMOs), it is consistently able to secure grant funding that pays for staffing and labor. As a result, the District does not need to account for those costs in its rental rates, which are therefore more competitive than neighboring districts can offer. The District watched as others increased their rates to \$10 or \$12 per acre but decided to continue to keep their rental rates low at \$8 per acre, which has resulted in steady demand. In order to realize the greatest impact on soil and water quality possible, the WMOs have agreed to use tax dollars to fund conservation farming projects across watersheds—not just in Scott County. This partnership with the WMOs has been integral to the program's success.

Scott County SWCD manages most of its marketing and outreach through branding and face-to-face interactions with local farmers. Seeing the logo on the equipment and hearing positive experiences by those who have used the program through word of mouth have proven effective for the District. Many farmers may not be familiar with what soil and water conservation districts do, so these conversations provide opportunities to discuss the merits of conservation farming practices.

Scott County SWCD shared some important lessons learned and best practices for others seeking to establish similar programs, stressing three critical elements: transparency, communication, and education. Before standing up a new program, it is important to have a good idea of the level of interest and demand that exists and whether it's enough to support the up-front capital expense of



procuring the equipment and staff to perform operations. Another important question is whether the expected costs are going to be agreeable to the users: if the rental rate is higher than expected, it can potentially sink a fledgling program. Furthermore, do farmers have the time? Are they willing to host equipment belonging to a third party on their land, factoring in any potential damage it could cause? There may be impacts to time, operations, and management associated with putting in cover crops such as seeding, spraying, and termination. Finally, there may also be some collateral damage to cash crops crushed during the seeding process when using a high-boy interseeder, which equates to lost revenue which farmers are, understandably, sensitive to. Providing education to landowners is a critical part of the program. According to the SWCD, knowing what the farmers want and are willing to pay for, along with transparency and open communication with those who are interested is necessary to lay strong foundations for a new program.

Three Key Selling Points for Local Farmers



1. Decrease in erosive conditions: Farmers' biggest concern is the quality of their topsoil and its nutrient and organic content. Speaking to how practices like no-till drilling and use of cover crops protect the integrity of topsoil has a significant impact.

2. Reduction in operational time: For farmers, time is money and when they learn how these conservation practices can slash the amount of time required to perform these operations, gaining interest is easy.

3. Reduction in fuel costs: Interseeders reduce the number of passes over the farm field, saving time, fuel and money.



Minnesota Agricultural Best Management Practices Program

Minnesota's AgBMP program is an example of a pass-through program that can provide a roadmap for KDHE as it considers how it may establish and grow the AgBMP program. The state's CWSRF covers the cost of its AgBMP program through a partnership with the Minnesota Department of Agriculture (MDA). The CWSRF allocates funding to each county through county-specific AgBMP accounts held at MDA; this ensures that funds are distributed equitably across the state. Counties provide overall oversight and management of their accounts, and are responsible for priority-setting, outreach, and project approval. Typical administrators are county environmental offices, zoning and planning departments, and Conservation Districts.

As projects are approved, MDA transfers county funds to the local lender as costs are incurred. The local lender may be a municipal/county government or a private financial institution. However, in practice, only private financial institutions have offered financing thusfar for farm practices such as interseeding and conservation tillage equipment. When loans are repaid, the funds are returned to the county via the county-specific account held at MDA. This creates a revolving fund program for individual counties (Figure 6). Counties with high demand can request additional funding, and counties with low demand may see funds rescinded. Minnesota provides the funds interest-free to lenders, although the lender may charge up to 3% interest. Maintaining the county-specific accounts at MDA helps ensure that all funds are used for eligible purposes, and virtually eliminates the administrative and accounting burden for local governments.

Since the inception of the AgBMP program in 1995, Minnesota has funded 3,972 conservation tillage projects—37% of funds awarded. The counties establish their own priorities for project and practices that they would like to fund (within the SRF eligibilities), and lenders establish the underwriting criteria.



MDA conducts annual oversight of the AgBMP program. Each year, the local lenders must reconcile their account balances with MDA. Counties provide annual reports to verify the county-specific account balance, confirm lender reported loan activity, propose next year’s work plan, and estimate anticipated unmet needs. The program’s participating lenders guarantee full repayment of the loans that they issue back to the AgBMP Loan Program. MDA staff has a goal of interacting with each county and lender at least once a year, whether in person or via webinar, to provide training and updates. They also have a regular newsletter (issued every 4 to 6 weeks) to convey timely information, which is sent to approximately 500 people across the state. MDA’s goal is to conduct as much of the administration of the program as possible at the state level and encourage local governments to devote their time and effort to identifying and helping landowners solve their pollution problems.

To improve participation, Minnesota has simplified its reporting as much as possible. The loan agreement asks for the number of acres that the equipment will be used on and the primary crops. MDA uses NRCS formulas to determine the environmental benefits. For reporting to the CWSRF Benefits Reporting system, only aggregate totals for the counties are entered, not individual projects.

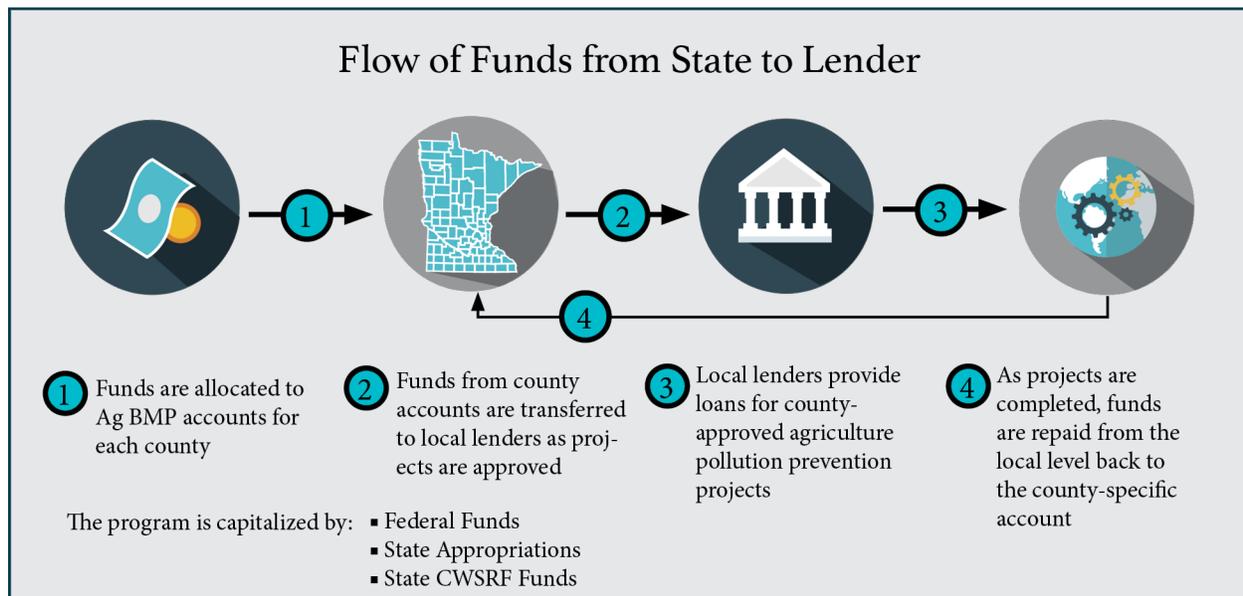


Figure 6. Flow of Funds in Minnesota’s Ag BMP Program

Washington

Spokane Conservation District's No-Till Custom Seeding Program (Spokane, Washington)

Lesser known than its more famous big brother, the Direct Seed Loan Program, the Spokane Conservation District (SCD) in Washington also has a program for no-till equipment leasing. This program was launched in 2013 to help growers consider no-till as a conservation practice without the significant up-front capital costs of purchasing this expensive equipment. An economic study from 2009 identified that the costs of accessing this machinery are often prohibitive for small farming operations and are the largest barrier to wider adoption of conservation farming practices.⁵ Custom seed and drill rental are sometimes the only feasible option for small farmers. This conclusion paved the way for the District's formation of the equipment leasing program. Under the lease, SCD provides an operator for the equipment, but is also staffed to provide training to farmers on how to operate, run, and maintain the drill themselves.



Key Features of the Spokane Conservation District Program



Equipment

- 30-foot Cross Slot No-Till Drill with one-pass take-out



Rental Rate

- \$25/acre plus the cost of fuel



Lease Agreement / Legal Protections

- Liability insurance required
- Hold harmless clause
- Rights of Lessor to enter Lessee's property for inspection of equipment



Miscellaneous

- Cleaning fee: \$50
- Security Deposit: \$150
- Acreage Metering: No

Spokane Conservation District, continued

The Spokane Conservation District received CWSRF financing through the Department of Ecology to help capitalize its Direct Seed Loan (DSL) Program using a pass-through lending mechanism. The loan agreement is between the Washington Department of Ecology and SCD. SCD then uses these funds to make separate, individual loans to farmers in the district for the purchase of direct-seeding equipment. The process is outlined in detail in Appendix C. From the perspective of the farmer, the Direct Seed Loan program documents include the following:

- — DSL Loan Application
- — DSL Loan Agreement
- — Agricultural Security Agreement between SCD and the farmer
- — Promissory Note

The Washington Department of Ecology also requires that recipients of the Direct Seed Equipment Purchase program sign a 10-year maintenance agreement, even if all the funding is provided as a grant. Ecology also stipulates that grant recipients may charge a fee for the use of the drill and to cover maintenance and storage, but not earn a profit. This can provide insight to other CWSRF programs on how they may ensure proper maintenance for equipment receiving principal forgiveness loans.

“ Access to machinery was the largest barrier to wider adoption of conservation farming practices with costs often not practical for small farming operations.

Leveraging State Mandates for Nutrient Reduction to Help Increase Program Interest and Demand

Many states have passed legislation that specifically targets the reduction of nutrients in surface waters, and agricultural practices feature prominently in the resulting strategic plans. All of the states represented in this report are either operating under legislative mandates or other state-sponsored initiatives to reduce nutrient loading of surface waters, from the Kansas Surface Water Nutrient Reduction Plan to the Minnesota Nutrient Reduction Strategy. When nutrient reduction is part of a regulatory mandate, it can play an essential role as a driver in the success of agricultural BMP programs. These are broad efforts that encompass many state agency and local watershed partners that can reach a multitude of stakeholders to promote conservation farming practices like cover crop interseeding.

As several state agricultural leasing programs have expressed, building robust interest and demand at the outset of setting up a new leasing program is vital to its success. There may be opportunities to capitalize on the partnership structures that have already been put in place through nutrient reduction strategic plans and further build upon these strong foundations. For example, the Minnesota Metropolitan Council requires soil and water conservation districts within its 7-county region to increase cooperative efforts by forming a joint powers agreement structured around each 8-digit hydrologic unit code (HUC). This has allowed the districts to tackle nutrient-related water quality issues across watersheds and maximize the environmental benefits associated with agricultural BMPs. Scott County SWCD uses this mechanism to rent cover crop interseeder equipment across county lines to improve upstream water quality that directly impacts downstream farmers.⁶





Some programs explicitly stated that effective outreach to their farmers and producers rely on messaging related to the economic and cost benefits associated with conservation farming. When framing marketing materials, workshop content, or preparing for face-to-face dialogues, some state strategic plans provide useful material to help navigate these expectations more effectively. Cost-share programs have been highlighted by Minnesota as one of the most effective voluntary agricultural BMP options available, but they also explore additional options that can be folded into programs like crop yield insurance programs⁷. These programs are created to help increase adoption of conservation farming practices by reducing the risk associated with doing so.

Lastly, many of the leasing programs researched in this report did not incorporate any official mechanism for measuring environmental benefits of adopting cover-crop interseeding practices. This is mainly because farmers do not want to undertake any additional burden associated with reporting, but also because District staff may lack the necessary experience for measuring such benefits. State nutrient reduction strategic plans often include helpful tips on how to approach quantification of benefits. From a state level, this is typically measured by demand as well as criteria established by USDA's Natural Resources Conservation Service under its Environmental Quality Incentives Program. Working with watershed partners on demonstration projects for the purpose of measuring reduction values of nitrogen and phosphorus as well as tracking trendlines in farm production yields also serve as good indicators of program success.

Best Practices **for Program Implementation and Oversight**

State Ag BMP programs provide several models for conducting program oversight to ensure that the equipment purchase programs are being implemented for the intended purposes. What follows are a set of best practices for the management and oversight of a CWSRF-funded agricultural equipment rental program.



Fee Setting to Cover Maintenance and Replacement

The intention of the Kansas pilot project is that Glacial Hills RC&D will charge a fee for the use of the interseeder that will enable it to maintain and replace the equipment over time. Just as traditional CWSRF borrowers must show that they are charging sustainable user rates (regardless of whether their loans have principal forgiveness), the interseeder rental program should demonstrate that it will set a sustainable rate.

As the previous examples show, other rental programs use a range of fees. One overriding factor is that the implementing organizations are seeking to promote the use of cover crops, not earn a profit, and are therefore seeking to minimize the rental rate for the equipment. In addition, knowing what farmers are willing to pay was cited as a key element to consider. Washington Department of Ecology's program requirements specifically state that earning a profit is prohibited, and that rental rates be based on maintenance and storage costs.⁸ The Rice SWCD established its rate by calculating its costs and spreading it out over the number of acres they anticipated charging for, aiming to recover the costs over seven years.



Reversion of Assets

Stipulations in financing agreements can help protect the program in the event of insolvency or inability to implement the project long-term. The contract between the municipal loan recipient and Glacial Hills RC&D may stipulate that if Glacial Hills RC&D is unable to continue implementation of the project (e.g., due to insolvency), the equipment is reverted to the municipality so that it may choose whether to continue the program.



Factors to Include in Rate-Setting

Factors include depreciation, fuel, repairs, and other machinery costs. Labor may be included if it is not funded through another mechanism; for example, Scott SWCD uses grant funding to cover labor costs and therefore does not include it in rental fees. Capturing depreciation in the fee-setting process helps ensure that revenues can be used to purchase new equipment over time. Having a reasonable estimate for expected acreage will be an important component of fee setting. Rice SWCD indicated that it did not reach its acreage target in the first year, while the Scott SWCD noted that weather patterns significantly impacted demand. Another factor is the sale of the used equipment. The Scott SWCD found that farmers have been unwilling to purchase its old equipment at the fair market value, so they have always traded in their used equipment to the dealer.



Maintenance Agreement

The Washington Department of Ecology offers loans and grants for direct seed activities, including equipment purchases. Under the Direct Seed Equipment Purchase program, public entities may receive grants for direct seed drills and to provide education and outreach promoting the benefits of direct seeding programs. While the recipients of financing are receiving grant funding, they are required to sign 10-year maintenance agreements. A maintenance agreement may be included in the financing agreement with Glacial Hills RC&D to ensure that the interseeder is being properly maintained to maximize its effectiveness.



Use-Restricted Revenue Accounts

Use-restricted operating revenue accounts can be a best practice to ensure that CWSRF funds are only used for approved uses, and that revenues earned from the rental program are recycled for new equipment purchases. Such an account may be held at the municipal level. This requirement could be incorporated as part of the CWSRF loan terms and conditions along with proof of account establishment and a copy of the equipment sale agreement template that includes instruction for transfer of funds and equipment title.

Bring it All **Together**

A key objective of all the programs reviewed for this report is to utilize agricultural equipment rental to promote conservation practices with the goal of widespread adoption by the farming community. Potential cost savings and reduction in erosion were cited as primary drivers of interest. The examples in this report provide best practices that may be incorporated into a successful marketing and outreach strategy. It is important to emphasize that the entities interviewed for this report punctuated the need to have a clear gauge of interest and demand when standing up a new cover crop equipment rental program. This includes being transparent about potential costs and benefits, and knowledge of what farmers are willing to pay. This level of information is key to ensuring a sustainable rental program.



“ There is a need to have a clear gauge of interest and demand when standing up a new rental program.

Endnotes

- 1 Bryant, Lara. "Organic Matter Can Improve Your Soil's Water Holding Capacity." NRDC website, accessed October 14, 2019, <https://www.nrdc.org/experts/lara-bryant/organic-matter-can-improve-your-soils-water-holding-capacity>.
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- 3 Chou, Ben & Claire O'Connor & Lara Bryant. "Climate-Ready Soil: How Cover Crops Can Make Farms More Resilient to Extreme Weather Risks." NRDC website, accessed October 14, 2019, <https://www.nrdc.org/resources/climate-ready-soil-how-cover-crops-can-make-farms-more-resilient-extreme-weather-risks>.
- 4 Sussex Conservation District website, accessed July 22, 2019, <https://www.sussexconservation.org/services/agriculture/air-seeder.html>.
- 5 Painter, K. PhD (2010). Direct Seed Mentoring Project: An Economic Comparison of Direct Seed and Conventional Growers in the Washington/Idaho Palouse. University of Idaho, Moscow, ID.
- 6 Personal correspondence with Scott Schneider, Resource Conservationist at Scott County, Minnesota SWCD on August 7, 2019.
- 7 "The Minnesota Nutrient Reduction Strategy." Minnesota legislature webpage, accessed August 12, 2019, <https://www.leg.state.mn.us/docs/2014/other/140284.pdf>.
- 8 "Funding Guidelines State Fiscal Year 2020 Water Quality Financial Assistance." State of Washington Department of Ecology webpage, accessed July 18, 2019, <https://fortress.wa.gov/ecy/publications/documents/1810030.pdf>.



Appendix A: Kansas CWSRF Interseeder Program Marketing & Outreach Materials

Ag Producer
Workshop!

Improve Soil Health & Reduce Streambank Erosion

Ensuring future agricultural productivity through land management practices that provide multiple benefits

Learn about practical cost-effective ways to:

- ✓ Improve soil health
- ✓ Reduce runoff
- ✓ Control erosion
- ✓ Increase future profitability
- ✓ Better manage streambank erosion problems
- ✓ Enhance wildlife habitats
- ✓ Manage forest and rangeland resources

Date:

January 15, 2019
(Inclement weather date
January 17)

Time:

8:15 am – 3:00 pm
(Lunch provided for
registrations received by
January 10th)

Location:

Nemaha County
Community Building
[1500 Community Drive,](#)
[Seneca, KS, 66538](#)

Registration:

<https://wraps.eventbrite.com>

Featured Speaker: Gail Fuller - Soil Health, Cover Crops, Livestock Management, Holistic Farming



Gail Fuller has been experimenting with no-till farming since the mid-1980's and has been 100% no-till since 1995 on his farm near Emporia, KS. Over the years, regenerating soil health has become his focus using nature's principles, such as biodiversity, to grow healthy soils and healthy food. He uses annual cover crops, perennial cover crops, and companion crops. His livestock operation is similarly diverse with cattle, sheep, pigs, and chickens grazing the covers in an intensive rotational or "mob" grazing fashion.



Photo by Olivia Taylor-Pockett for Kansas Farmers Union



Featured Speaker: Philip Balch - Reducing Streambank Erosion, Stabilization Techniques, Riparian Buffers



Philip Balch is a Stream Specialist and principal of Wildhorse Riverworks, Inc. in Topeka, KS. For over 30 years, Phil has been working on projects to reduce streambank erosion and restore degraded stream conditions through the application of hydrologic and ecologically based principles. During his career, he has worked on numerous projects involving small streams as well as major river systems in Kansas and around the country.



Appendix B: Rice County SWCD Marketing & Outreach Materials





FARM FIELD DAY



Cover Crop Interseeding Demonstration Event

Join us on July 2nd to see three different methods for interseeding cover crops into corn.

Location: Dave and Mark Legvold Farm
5103 315th Street W
Northfield, MN

Date: July 2, 2019

Time: 5 PM – 7 PM

Seeding demos at 6 PM will include:

- **Interseeder with N side-dress – Mark Legvold**
- **Gandy Air Seeder – Steve Pabs Rice SWCD**
- **Hagie High-boy Interseeder – Andy Linder**

You will also learn more about:

- Herbicide Management & Interseeding Cover Crops
- Cover Crops on Prevented Plant Acres – New Rules, Herbicide Plans & Mixes
- 4R Nutrient Stewardship
- Water Quality Certification

Talk to local farmers, SWCD staff and crop consultants about seed mixes, herbicides, costs and benefits of cover crops.

Please call Rice SWCD at 507-332-5408 or Cannon River Watershed Partnership at 507-786-3913 if you have any questions about this event.

A light snack and beverage will be provided.



Fishers & Farmers Partnership for the Upper Mississippi River Basin





Rice SWCD Cover Crop Incentive Program

Sign up now for the 2019 crop season!

- Rate is \$30 per acre for single species, and \$35 per acre for multi-species mixes (up to \$105 per acre over three years).
- Must agree to a three-year installation. Does not have to be on the same field.
- Eligibility: This program is intended for farmers who have previously not used cover crops.
- Funds are limited, so act now!



Cover crops improve soil health, protect your farm from erosion, store nutrients, and much more!



To apply for the incentive, stop in or call us at 507-332-5408.

1810 30th St. NW,
Faribault, MN 55021

www.riceswcd.org



The Rice SWCD is an equal opportunity provider and employer.

Rice County Soil Health Group Meeting



When: August 6, 2019, 5 pm to 7 pm

Where: Mike Peterson Farm, 8391 Hall Avenue, Northfield
(meet at the red garage at the driving range)

Join area cover crop farmers and staff from the Rice SWCD to talk about soil health and gear up for fall cover crops. All producers interested in planting covers yet this year are invited to attend. The Rice SWCD will have their new interseeder on-site and will be trying it out on soybeans at around leaf drop time. Mike Peterson has a corn field that was interseeded on June 10th, and we will take a stroll into it and see how the covers are doing. We will also discuss what people are planning for aerial seeding covers, and what the outlook for post-harvest seeding is looking like. But most importantly, this is an opportunity to share experiences and learn from each other.

A small meal will be provided, so an RSVP is appreciated for a headcount. Please RSVP to Rice SWCD at 507-332-5408. Feel free to also contact our office if you are interested or have questions about trying cover crops this fall. We hope to see you there!

Appendix C: Washington Department of Ecology & Spokane County Conservation District Loan Process

1. Loan application is sent or downloaded off website and completed by the ag producer.
 - a. Producer faxes or mails the application back to SCCD.
 - b. Application is reviewed by the direct seed loan (DSL) manager. Producer must meet requirements of direct seed program: must be direct seeding or be transitioning to direct seed systems.
2. The producer is contacted by the DSL program manager and additional information is requested.
 - a. An invoice from the dealership or a bill of sale from the private seller is required showing:
 3. Make, model, and serial number of the equipment being purchased.
 - a. Price of the equipment plus any trade-in allowances or down payments made by the producer.
 - b. A letter from the producer's primary financial lender.
 - c. Letter must indicate that the loan will not have a negative impact on the producer's operation or cash flow.
4. If there is no primary lender, a set of financial statements are sent to the borrower for completion. (Forms can include balance sheet, statement of profits and losses, and/or tax returns).
 - a. The DSL manager and/or other financial officers at SCCD will complete an internal review of the statements, looking for financial soundness and ability to repay the loan.

- b. If a letter is received from a primary lender and it shows no negative impact on the borrower, the loan is approved and SCCD begins the process of writing the loan.
 - c. If a negative letter is received from the lender, the loan is denied.
5. If an issue arises, the borrower is notified and given the chance to address it. If a positive solution is not arrived at, the loan is denied.
 - a. Once the approval process is complete, the borrower information is entered into the DSL loan system and loan documents are drafted and printed.
6. Documents are mailed or a meeting is set to do a review and to sign the documents.
 - a. Once the promissory note and the security agreement are signed, a request is generated in the loan system for a check to be cut.
7. All checks are cut to the borrower and to the seller of the equipment if possible. This requires endorsement of the check by the borrower and the check is sent on to the seller for final payment.
 - a. It is important to note that SCCD finances 75% of the value of the equipment over a term of 3 years, 5 years, or 7 years for larger loans, if desired by the borrower.
8. Current loan rates are 4.5% fixed interest for 3- and 5-year notes and 5.5% fixed interest for 7-year notes.
9. A 0.5% interest rate discount will be applied to any producer that is Farmed Smart Certified.
 - a. Payment is made to the borrower and a UCC lien filing is completed online with the State of Washington.
 - b. All loans written as part of the SCCD Direct Seed Loan program are entered in SCCD's accounting loan system module.
10. The loan system is used for loan tracking, payment history, and monthly payment notices. All loans in the system receive payment due notices approximately 4 weeks prior the payment being due.
11. All loans are monitored to ensure timely payments and to account for any late or delinquent accounts.
 - a. Any loan amount over the \$100,000 level requires the approval of the SCCD Board Chairman or representative.
12. Any cumulative SCCD loan portfolio over \$300,000 requires the approval of the SCCD Board Chairman or representative.

