Soil Health Case Studies

February 2020 | Aidan Read, Research Assistant

The Sustainable Agriculture Case Studies project is a partnership among several organizations and numerous individuals. The project reflects the partners’ understanding that farmers learn best from each other and that strong connections across the landscape will result in wider adoption of effective soil health practices.

In 2016, the Southwest Regional Sustainable Development Partnership (SWRSDP) natural resources work group discussed the economic and soil health benefits that cover crops and other sustainability practices were providing to farmers. In an effort to encourage a greater number of farmers to adopt soil health practices and experience the economic and environmental benefits, the working group decided to develop case studies of farmers who had been successful in practicing sustainable agriculture and soil health, including the use of cover crops. The case studies were designed to feature farmers at the forefront of innovation who have been using a variety of soil health practices for three or more years and whose stories are meant to offer tangible examples, support, and encouragement to others.

The Center for Integrated Natural Resources and Agricultural Management (CINRAM) at the University of Minnesota participates in the SWRSDP natural resources working group. The Center enlisted a University student researcher in the summer of 2016 to begin gathering farmer case studies. In 2018, the case studies were updated and more farmers’ stories were added with the help of the Sustainable Farming Association of Minnesota (SFA) and Kathy Dooley, Graduate Research Assistant through the University of Minnesota’s Center for Urban and Regional Affairs (CURA).

Because of the popularity of the case studies, SWRSDP, CINRAM and SFA are again partnering to offer another set of case studies, featuring more stories. These new case studies, and the first series, are the basis of FarmMaps.com a farmer-to-farmer networking tool, adapted to a variety of outreach platforms allowing interested farmers to learn about, connect with, and receive advice from fellow farmers with experience successfully applying soil health practices. The ability to talk to a peer about benefits, successes, challenges and costs on issues related to soil health is a powerful motivator for adoption and provides a source of continued support.

Acknowledgements

Several people and organizations were involved in preparing this report. Theresa Keaveny, SFA’s Executive Director, Dean Current, CINRAM Director, and Anne Dybsetter, SWRSDP Executive Director were the primary supervisors for this project. Student researchers Lauren Budenski and Kathy Dooley conducted prior interviews in 2016 and 2018, respectively. We are grateful for the help of our advisory team, Carmen Fernholz, Kent Solberg, Dorian Gatchell, Jerry Ackerman and Don Reicosky, who offered feedback, advice and support. Finally, thank you to all the farmers who inspired this project and shared their time, knowledge and stories to help us produce this report.
Soil Health Principles

Keep the soil covered

Even after the growing season, it is important to keep vegetation, living or dead, on the soil. Leaving living cover crops or crop residue on the field reduces soil loss, and can improve the microbial soil community, as well as improve soil organic matter (SOM) when incorporated into the soil.

Integrate livestock

Getting animals back on the land is a priority for the majority of farmers in these studies. Integrating livestock into an operation offers benefits that compound with other soil health practices and result in accelerated improvements to the soil. Grazing cover crops provides extra forage, reduces the need for additional fertilizer, and helps incorporate residue and organic matter into the soil. Several farmers saw increased yields when integrating livestock, and all farmers saw reduced fertilizer needs.

Minimize soil disturbance

Leaving the soil in place and undisturbed reduces nutrient loss, prevents erosion and benefits the biotic community and soil structure. The farmers in these studies find ways to minimize disturbance by using no-till or conservation tillage methods. Using cover crops and livestock can reduce the need for more intense tillage methods, reducing fuel, labor, and equipment costs.

Keep a living root in the soil

Maintaining a living root in the soil provides a multitude of benefits. Each farmer in these studies used cover crops or perennial crops on all or part of their farms to keep plants rooted in the soil for as much of the year as possible. This was shown to decrease the need for nutrient and chemical applications, while increasing soil structure and soil organic matter, reducing wet spots and improving infiltration.

Use diverse crop rotation

Most farmers in these studies originally used a two-crop rotation. Adding a more complex rotation with more diverse crops can make it easier to implement other soil health practices, as well as having stand-alone benefits. Diversifying a crop rotation can increase nutrient availability, assist in minimizing soil disturbance, and can help diversify revenue streams.
Who are the farmers?

The farmers featured here were all selected with the help of SFA based on their adoption of soil health practices and their incorporation of soil health principles.

The participants all use some or all of these principles and have integrated them into their operations in different ways. The operations of each farmer are unique and influenced by their specific circumstances. The farmers featured in these case studies reflect a wide variety of operations as a demonstration of the many ways soil health practices can be brought into an operation. The farmers have all volunteered their time and expertise to serve as resources for fellow farmers in this farmer-to-farmer networking tool. It is our hope that these case studies serve as an important resource and facilitate discussions between farmers on the successes and challenges of adopting soil health practices.

Interviews

The interviews were conducted on each farm in summer and fall of 2019 and consisted of free-flowing conversations that focused on the following topics:

- What factors led farmers to pursue careers in agriculture.
- An overview of the overall farm operation.
- Changes the participants had made since they began farming.
- What their motivations were for changing practices.
- What practices were implemented for the purpose of improving soil health.
- What resources and information sources were helpful in implementing soil health practices.
- Any additional advice they had for other farmers.

The findings of these interviews have been summarized into a table and individual studies. These studies include contact information, background, soil health practices, results of those practices, and challenges encountered.

Additional information will be made available in an online database found at farmmaps.umn.edu. The 2018 Soil Health Case Studies can be found at z.umn.edu/soilhealthcasestudies.
Tom Cotter

Austin, MN

Contact Info:
507.438.2147 | cotterfarm@hotmail.com

Products: Corn, soybeans, oats, canning peas, sweet corn, cattle, forage crops

Acres: 1,100

Practices: No-till, reduced tillage system, cover crops, rotational grazing, diverse crop rotation.

Background:
Tom grew up on the Cotter family farm which was purchased in 1874. The Cotter Farm produces corn and soybeans, canning peas, sweet corn, and beef cattle. The Cotter farm also has acreage in organic transition.

Tom uses a combination of soil health practices including conservation tillage, no-till, cover crops, and livestock.

The highlights of Tom’s operation are the flexibility that he is afforded by diversifying his practices.

Complexity and flexibility

For Tom Cotter and his family, soil health practices have impacted their operation in a number of ways. Tom has found that the soil health practices he has adopted have increased profitability, improved the health of his soils, and decreased stress by adding flexibility to his management system.

Financial success

While financial gains were not necessarily Tom’s primary motivator for adopting new practices, they are an important consideration. Tom has found that cover crops and reduced tillage have led to reduced input costs, specifically from nutrient inputs, reduced pesticide use, and fuel savings. On the income side of the balance sheet, by grazing the cover crops, Tom is able to get an additional 30 to 90 days of grazing for his cow-calf operation. The feed savings provided by the cover crop are a significant financial benefit, and additionally provide “green manure” to the fields, reducing nutrient inputs. The labor savings provided by reduced tillage and nutrient inputs, even when considering the cover crops, have also provided financial benefit to Tom. The labor saved on his own operation has allowed Tom to take on more custom work, adding additional revenue streams to his operation.

Healthy soil, healthy farm

The soil benefits that Tom has seen have been increasing over the years. Tom has observed fewer wet spots in his fields, and saturated field conditions do not last as long. Tom has also observed improved soil structure, higher earthworm count, and changes to the soil texture.
Allen Deutz

2600 County Road 35
Marshall, MN 56258

Contact Info:
507.530.0725 | apdeutz@gmail.com

Products: Pork and beef, small grains
Acres: 360

Practices: No-till, reduced tillage, cover crops, managed rotational grazing

Background:
The Deutz family farms 360 acres, half of which is in organic transition. They also raise approximately 600 chickens, 50 cow/calf pairs, and 45 farrow-to-finish heritage hogs. The crops are primarily used to feed the livestock, which are sold to local retailers and direct to consumer. They have found success using soil health practices that include cover crops, increased livestock integration, reduced tillage (Soil Saver chisel plow), and no-till where appropriate.

Resiliency and sustainability
The Deutz family has been farming in their area since the 1920s, and Allen has been involved his entire life. When Allen took over full-time operation in 2008, the farm was in a period of transition. Allen began integrating a number of soil health practices including reduced tillage, no-till, increased livestock integration, and cover crops. The focus of Allen’s work has been on building a sustainable enterprise that is resilient enough to withstand a changing climate and volatile markets.

Building for the future
A strong motivator for Allen was reducing inputs to his operation and building a farm that would still be viable in a hundred years. Integrating livestock, cover crops, and tillage practices have led to input reductions, but a change in management philosophy has also contributed. With rising costs and dropping prices, Allen has focused on ways to maximize value by using direct sales and value-added livestock products while minimizing costs such as chemical inputs and off-farm fertilizers.

There is no normal
With changing weather patterns that have brought heavy rains and high waters the last few years, Allen has had to learn to deal with frustrating conditions. Not having a normal year to establish a baseline presented challenges in assessing different soil health practices. Allen’s recommendations include breaking fields into smaller plots, which allows greater flexibility and adaptability. Allen also emphasizes that the financial benefits for his soil health practices are a result of lowering his break-even point.
Tom Fick

1157 110th Ave
Luverne, MN 56156

Contact Info:
507.920.9474 |
tomshaygrain@gmail.com

Products: Corn, soybeans, small grains, hay, straw

Acres: 500

Practices: No-till, reduced tillage, cover crops, diverse crop rotation

Background:
Tom’s family has been farming in the Luverne area since the 1950s. Tom currently produces soybeans, corn, small grains, and hay. Some corn is sold to the local ethanol mill, rye is sold as cover crop seed, and hay and straw are sold direct, including some small bales that sell at a premium. Tom has been using a number of soil health practices. Cover crops are used to return nutrients to the soil as well as minimize soil loss and build soil organic matter. A reduced tillage system is used, which involves no-till planting and minimizing soil disturbances for years at a time.

Traditions of stewardship
Respecting the land, practicing stewardship and leaving the land better than you found it are principles that Tom grew up with. Tom’s father farmed in a way that was considered old-fashioned in his day, using a complex rotation of grains and forage crops, often leaving fields untilled for years. When Tom took over the farm, it was natural for him to continue the legacy of stewardship and innovation started by his father.

New ideas on old methods
The focus of Tom’s soil health practice is to keep a living root in the soil and minimize soil disturbances. Tom accomplishes this by using no-till planting, cover crops, and growing hay. A typical rotation for Tom can lead to a field going seven years between tillage.

Always improving, always innovating
Compared to many fields in the area, Tom’s soil is already healthy. The impact of almost 70 years of a complex rotation with minimal tillage are evident in the health of his soil. The benefits that Tom was hoping for from incorporating cover crops have manifested slowly, something he cautions other farmers to be prepared for. In areas not already degraded, soil health improvements, such as higher organic matter and better soil structure, will take longer to be noticeable. Tom’s advice is to have a plan and stick with it. The payoff for Tom comes not just from better soil health and reduced inputs, but from being able to provide quality products while improving the land for the next generation of farmers.
<table>
<thead>
<tr>
<th>Location</th>
<th>Tom Cotter</th>
<th>Allen Deutz</th>
<th>Tom Fick</th>
<th>Jerry Ford</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil Health Practices</td>
<td>No-till, cover crops, managed rotational grazing, diverse crop rotation</td>
<td>No-till, cover crops, managed rotational grazing</td>
<td>No-till, cover crops, diverse crop rotation</td>
<td>Conservation tillage, managed rotational grazing, terracing</td>
</tr>
<tr>
<td>Acreage</td>
<td>1,100</td>
<td>360</td>
<td>500</td>
<td>113</td>
</tr>
<tr>
<td>Main Sources of Income</td>
<td>Corn, soybeans, peas, sweet corn, beef cattle</td>
<td>Hogs and beef cattle</td>
<td>Corn, soybeans, small grains, hay</td>
<td>Garlic, beef, small grains, custom grazing</td>
</tr>
<tr>
<td>Economic Impact</td>
<td>Reduced nutrient input costs</td>
<td>Reduced chemical inputs, reduced fertilizer applications—no pesticides or off-farm nutrients applied in 2018</td>
<td>Reduced nutrient applications</td>
<td>Increased forage for grazing</td>
</tr>
<tr>
<td>Environmental Impact</td>
<td>Reduced wet spots in fields</td>
<td>Increasing SOM</td>
<td>Improved soil structure</td>
<td>Reduced soil loss, Improved soil moisture and infiltration</td>
</tr>
<tr>
<td>Motive</td>
<td>Increasing efficiency of the operation, improving the relationship between the soil, animals and the food we grow</td>
<td>Building an environmentally and financially resilient operation</td>
<td>Leaving healthy productive land for future generations of farmers</td>
<td>Improving the health of the land and water</td>
</tr>
<tr>
<td>Challenges</td>
<td>Keeping an open mind and committing to seeing things through</td>
<td>Developing markets for value-added products</td>
<td>Social pressure to use conventional methods</td>
<td>Finding community partners and developing relationships to improve the health of the land</td>
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<tr>
<td>Jim Wulf</td>
<td>Brian Pfarr</td>
<td>Chris Schmidt</td>
<td>Josh Reinitz</td>
<td>Doug Voss</td>
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<tr>
<td>Starbuck</td>
<td>Redwood Falls</td>
<td>Garvin</td>
<td>Henderson</td>
<td>Paynesville</td>
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<tr>
<td>Cover crops, no-till, managed rotational grazing</td>
<td>Cover crops, no-till, managed rotational grazing</td>
<td>Cover crops, no-till, managed rotational grazing, diverse crop rotation</td>
<td>Cover crops, reduced tillage, diverse crop rotation, organic</td>
<td>Perennial cover, adaptive grazing</td>
</tr>
<tr>
<td>500</td>
<td>500</td>
<td>200</td>
<td>40</td>
<td>500</td>
</tr>
<tr>
<td>Feeder cattle, corn, soybeans, hay</td>
<td>Corn, soybeans, wheat, beef cattle</td>
<td>Beef cattle, sheep, hogs, turkeys, small grains, corn, soybeans</td>
<td>Produce</td>
<td>Beef cattle, dairy, custom grazing</td>
</tr>
<tr>
<td>Increased forage</td>
<td>Reduced herbicide use</td>
<td>Increased crop yield</td>
<td>High revenue crops</td>
<td>Increased forage availability</td>
</tr>
<tr>
<td>Earlier start of season</td>
<td>Decreased nutrient application</td>
<td>Reduced chemical inputs</td>
<td>Increased yield</td>
<td>Decreased input costs</td>
</tr>
<tr>
<td>Reduced wet spots</td>
<td>Fuel, equipment, and labor cost savings</td>
<td>Increased forage</td>
<td>Reduced equipment and fuel costs</td>
<td></td>
</tr>
<tr>
<td>Less need for erosion repairs</td>
<td>30-40 additional grazing days</td>
<td>Earlier start of season</td>
<td>Lower nutrient input costs</td>
<td></td>
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<tr>
<td>Improved infiltration and soil moisture</td>
<td>Improved infiltration and soil moisture</td>
<td>Improved soil structure and soil moisture</td>
<td>Reduced erosion</td>
<td>Increasing SOM</td>
</tr>
<tr>
<td>Improved soil structure</td>
<td>Improved soil structure</td>
<td>Increased nutrient availability</td>
<td>Improved soil structure and infiltration</td>
<td>Improved soil structure</td>
</tr>
<tr>
<td>Increased earthworm count</td>
<td>Increasing SOM</td>
<td>Higher nutrient availability and SOM</td>
<td>Improved nutrient availability</td>
<td>Improved nutrient availability</td>
</tr>
<tr>
<td>Increasing SOM</td>
<td>Finding a way to improve the health of the land, and demonstrating that it can be financially beneficial</td>
<td>Creating additional forage for livestock and reducing chemical inputs</td>
<td>Faming in a way that regenerates the land, improves water quality, and provides quality products to the community</td>
<td>Regenerating depleted land and creating high value, nutrient dense products</td>
</tr>
<tr>
<td>Increasing forage production</td>
<td>Improving water management</td>
<td>Adjusting your system until you find a process that works for your enterprise</td>
<td>Getting started</td>
<td>Learning to work with nature, rather than against it</td>
</tr>
<tr>
<td>Improving water management</td>
<td>Finding markets for less common crops</td>
<td>Rethinking what should be considered weeds</td>
<td>Finding a way for all the land to be productive</td>
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</tr>
</tbody>
</table>
Jerry Ford & Mariénne Kreitlow

7616 25th St SW
Howard Lake, MN 55349

Contact Info:
763.244.6659 | jerry@sfa-mn.org

Products: Organic garlic, beef cattle, forage, grains

Acres: 113

Practices: Rotational grazing, conservation tillage, terracing

Background:
Living Song Farm has been part of Mariénne’s family since the late 1800s. They produce organic garlic, beef cattle, poultry, and a variety of other products. They have used partnerships in their community with local and federal agencies to develop their conservation practices. These practices include rotational grazing, conservation tillage, grassed waterways, and contour planting.

Innovation and cooperation
At Living Song Farm, Jerry and Mariénne focus on preserving the land that has been in the family for more than a hundred years. The farm has a number of conservation practices including grassed waterways, contour planting, and livestock integration. Jerry has also focused on growing alternative high-revenue crops such as organic garlic. These practices minimize erosion and soil disturbance, while reducing inputs and improving soil health.

Stronger together
Jerry and Mariénne have formed a variety of partnerships to improve the soil health of their farm. They work together with a neighbor to manage a portion of their acreage by grazing dairy cattle and growing feed for the cattle. They have also worked with their local Soil and Water Conservation District (SWCD) to implement conservation practices including wildlife plantings and water management. They are also participants in the Minnesota Agricultural Water Quality Certification, and Environmental Quality Incentives Program (EQIP). Jerry also stresses the importance of finding an agronomist who is willing to work with your operation. Part of the operation includes 42 acres that are certified organic. The organic certification allows Jerry and Mariénne to sell some products at a premium while also reducing their input costs.

Diverse products
An important part of Jerry and Mariénne’s management philosophy involves growing diverse products that have minimal impact on the land, or can even improve the health of the soil.
Jim Wulf

30819 250th St
Starbuck, MN 56381

Contact Info:
320.491.6312

Products: Soybeans, wheat, corn, feeder cattle, hay, cover crop seed

Acres: 500

Practices: Managed rotational grazing, cover crops, no-till, reduced tillage.

Background:
Jim and his family own and operate Clear Springs Cattle Company where they raise registered Simmental and SimAngus cattle. They use a combination of practices to improve soil health, which increases the productivity of their farm, while being good stewards of the land.

Working with the land

When Jim and his family moved to their current farm location in 2012, they knew they would have to find new ways of working the land, with its glacial topography, natural springs, and unique soils. Clear Springs Cattle Company is run by Jim and his family and they raise registered Simmental and SimAngus cattle. They use a combination of practices to improve soil health, which increases the productivity of their farm, while being good stewards of the land.

Matching the practice to the need

At Clear Springs Cattle Company, they primarily use a no-till system with cover cropping. While they do not save on labor costs due to the cover crops, they have seen significant improvements in soil health and water management. Their soil retains moisture better during dry periods, infiltrates faster during heavy rain events, and has led to an earlier start of season compared to their neighbors. According to Jim, the water management benefits of their system outweigh all other benefits, and he anticipates seeing their soil improvements pay even greater dividends in periods of drought.

Creating opportunities

In addition to the soil health benefits they have observed, they benefit from cover crops by using them as forage for their feeder cattle. Jim considers integrating livestock a vital part of their soil health program. Jim sees his soil health program as creating opportunities for renting additional land for pasture by demonstrating the positive impact his system has on the land. Recently, they have been grazing cattle on both state and federal land near the farm. Jim hopes to use these opportunities to demonstrate that returning animals to the land has a positive impact on the health of the soil and on the plant communities.
Brian and Bill Pfarr

13587 Impala Ave
Lamberton, MN 56152

Contact Info:
507.220.0351 | brian.pfarr@mn.nacdnet.net

Products: Corn, soybeans, wheat, cattle

Acres: 500

Practices: No-till, reduced tillage, cover crops, managed rotational grazing

Background:
Brian and Bill began adopting soil health practices in the 1990’s starting with reduced tillage and expanding practices over time. They have noticed a number of benefits from their practices: reduced number of passes, reduced input costs, fewer weed and pest issues, and better water management. They are also using their cover crops to provide additional grazing for their cattle. Brian and Bill are continuing to add to their soil health system by increasing their use of cover crops and no-till methods.

Crunching the numbers

Sitting down with Brian Pfarr and his father Bill, they are able to provide a long list of numbers to back up their soil health practices. Reduced fuel costs, reduced herbicide use, increased soil organic matter, 20% less nitrogen use—the list goes on. Brian knows the importance of providing the numbers to back up his claims. He is currently a staff member at Redwood County SWCD and is chair of the Minnesota Soil Health Coalition. With his professional background and knowledge of his own enterprise, Brian is an expert in sharing his experiences.

Do what works for you

Brian and Bill’s adoption of soil health practices has been incremental, adding elements as they go. With their flood-prone topography and hydric soils, it was a priority for them to establish practices that would help manage water. Brian has observed a two to three day earlier start of season compared to surrounding farms. He also observed a 4.7 inch rain event that did not cause runoff. Cover crops have provided an additional 30 to 40 days of grazing for their cow-calf operation, while reducing the need for nutrient inputs.

Perseverance and adaptive management

It took Brian four years to see the soil health improvements he was hoping for. Some improvements, such as livestock grazing, weed management and aphid reduction, came about relatively quickly. Brian’s advice is for farmers to identify their priorities and start there. For some of their fields, the break-even point continues to drop, especially from reduced nutrient inputs. It is important to track your progress, and make adjustments as necessary, while continuing to work towards your soil health goals.
Chris Schmidt

2089 135th Ave
Garvin, MN 56132

Contact Info:
507.828.7372 | cschmidt1@frontier.com

Products: Cattle, sheep, hogs, chickens, turkeys, corn, soybeans, wheat, small grains

Acres: 200

Practices: No-till, cover crops, managed rotational grazing, diverse crop rotation.

Background:
Heartland Heritage Farms is run by Chris and his family where they produce a number of livestock products while also growing crops on their 200 acres. They adopted no-till and cover crop methods in 2012 as a way to increase available forage. When they began seeing benefits, such as reduced input costs and higher yields, they expanded their soil health practices and now apply no-till and cover crops on all their cropland.

Ahead of the flock

Driving through the fields and pastures that Chris Schmidt manages, it is clear that he takes pride in the work he has done with his family farm. Chris started incorporating cover crops into the operation at the suggestion of his son, and has never looked back. Originally the thought was cover crops would at least provide extra forage for the sheep they raised, but it quickly transformed into a larger project.

When first starting off with no-till, Chris agreed to pay his father for every bushel of corn below 175 bushels per acre, only to see their yield that year shoot above 200 bushels. For soybeans, integrating livestock increased yields by 25% to 40% in some cases. Chris also uses a grazing rotation that puts several livestock species on the fields.

New practices, new markets

One result of adopting new soil health practices was increased forage capacity for more livestock. This has led to Chris adding natural pork, pastured chickens, and pastured turkeys to the operation. Chris has also built relationships within his community to find direct sale opportunities for his products, allowing him to sell at a premium.

New perspectives, new challenges

Pasture management and maintaining a minimum three-crop rotation can be challenging, and the market for his small grains is not as reliable as for other products. While Chris was able to observe significant benefits from his practices almost immediately, he cautions that those results may not apply to everybody. The greatest gains that Chris observed, he attributes specifically to integrating livestock. Despite challenges, Chris continues to be motivated by farming in a way that is adding to the soil rather than extracting.
Josh Reinitz

30083 290th St
Henderson, MN 56044

Contact Info:
612.756.3971 | josh@easthendersonfarm.com

Products: Organic produce, poultry, maple syrup

Acres: 40

Practices: Cover crop, minimal tillage, certified organic, diverse rotation

Background:
Josh Reinitz and his family run East Henderson Farm where they grow a diverse selection of products including organic produce, maple syrup, and chickens. Their operation is focused on growing the right crop on the right soil. They have a diverse rotation of produce, use minimal tillage and incorporate cover crops. The goal of their farm is to always have something growing or decomposing on their fields.

Regeneration

Like many people who grew up in farming communities, Josh has vivid memories of trees and windbreaks being bulldozed and plowed under. Those memories have had a strong influence on his farming philosophy. Josh and his family practice organic, diversified agriculture. Currently they have a community supported agriculture (CSA) operation, providing produce to members in the community as well as selling wholesale to a local grocery store. In the future, they plan to transition away from CSA and focus on wholesale production. Soil health practices that Josh has implemented include a highly diverse rotation, small plots where the crop is highly dependent on soil conditions, minimal tillage, and cover crops. As Josh puts it: they always want something growing or decomposing — they never want bare soil.

All land is productive

When talking about his farm, Josh describes how all the acreage is productive, not just tillable acres. The wooded ravines and land that is often considered less productive is all put to use. The woodland is used as a sugar bush, producing maple syrup in the spring, and other forest products such as mushrooms are occasionally harvested. Josh also has new hazelnut plantings that will soon provide another diverse revenue source from less productive land.

Benefits extend off the farm

For Josh, the benefits they see in improved soil health, such as increased infiltration and higher soil moisture, lead directly to his ability to grow higher quality and higher quantities of organic produce. Their practices are also reducing the amount of soil and nutrient runoff from the farm. Josh’s goal is to create a closed loop on his farm where minimal off-farm inputs are used, and he farms in a way that regenerates the soil while growing healthy food for his community.
Doug Voss

27725 Business 23 E.
Paynesville, MN 56262

Contact Info:
763.213.9978,
dougvoss27725@gmail.com

Products: Beef, organic dairy
Acres: 500
Practices: Livestock integration, permanent living cover, managed grazing

Background:
Voss Farms has been in Doug’s family for three generations, and he has been involved his entire life. The farm has gone through a period of change, transitioning to an organic micro-dairy, expanding the grass-fed beef operation, and taking on custom grazing of replacement heifers.

Doug has been motivated by a desire to improve the soil of his land and regenerate the environment, while also providing high quality products. Livestock integration and maintaining perennial cover are the soil health practices that have had the largest impact on Doug’s operation.

Adapting and Improving

The fields and pastures of Voss Farms are tucked against the North Fork of the Crow River. With grass-fed beef and organic dairy, the health of the livestock is dependent on the quality of food and forage available to them. By growing perennial forage that maintains a living cover on the land and by integrating livestock, Doug combines these practices to improve soil health while increasing productivity. The increased pasture production has enabled the expansion of their custom grazing operation providing additional revenue.

Innovating grazing practices

Rather than a traditional rotational grazing method, Doug uses an adaptive grazing strategy. This method does not keep a regular rotation, but instead is based on the quality and condition of each paddock. Some areas will be grazed several times a season at a normal intensity while others will be intensively grazed for only a few hours before being left to recover for the rest of the season. This has resulted in faster recovery as well as increased forage production. Doug also uses bale-grazing in the winter, which returns additional residue to the soil.

Peace of mind

Transitioning to practices that improve soil health was motivated by the desire to limit chemical inputs, and by the satisfaction of creating quality products while regenerating the land. Using soil health practices also brings peace of mind. For farmers looking to begin adopting soil health practices, Doug suggests that they focus on what they hope to accomplish and have an understanding of their baseline operation. With a good understanding of your objectives and your starting point, it is easier to track progress.
Project Partners

Southwest Regional Sustainable Development Partnership (SWRSDP) works toward region-wide sustainability in southwest Minnesota. University of Minnesota Extension’s Regional Sustainable Development Partnerships bring together community and University resources to support local projects. Community members and University faculty and staff work hand-in-hand to identify and nurture locally-grown projects. SWRSDP is committed to bringing together people with diverse backgrounds and perspectives to jointly work on sustainability issues.

extension.umn.edu/regional-partnerships/southwest

The Sustainable Farming Association of Minnesota (SFA) advances the sustainable agriculture principles of environmental stewardship, economic resilience and strong communities through farmer-to-farmer networking, education, innovation, research and outreach. For nearly a decade, SFA has led soil health education efforts through workshops, field days, webinars and farmer networking.

www.sfa-mn.org/

The Center for Integrated Natural Resources and Agricultural Management (CINRAM) at the University of Minnesota is a partner-based organization that catalyzes the development and adoption of sustainable, integrated land use systems. CINRAM links the expertise of the University with the experience and insights of people and organizations who work with and have understanding of opportunities and issues across the landscape.

www.cinram.umn.edu/

Cover photo was provided by the Sustainable Farming Association of Minnesota. Page two was written by Theresa Keaveny, Dean Current, and Anne Dybsetter. Photos on pages 11 and 12 were provided by Jim Wulf and Brian Pfarr respectively. All uncited photos were taken by Aidan Read. Additional photos and video are available from the Conservation Media Library: www.swcs.org/resources/conservation-media-library.