

June 25, 2019

Testimony of Mr. Ian Cunningham

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House Agriculture Subcommittee on Conservation and Forestry
“Managing for Soil Health: Securing the Conservation and
Economic Benefits of Healthy Soils”

Good morning, Chairwoman Spanberger, Ranking Member LaMalfa and members of the subcommittee. Thank you for the opportunity to testify on the important topic of soil health. I am Ian Cunningham of Pipestone, Minnesota, and along with my son, we operate Cunningham Family Farm in Southwestern Minnesota. We produce corn, soybeans and beef cattle. Soil health is a top priority across our 800-acre operation.

I also currently serve as the Secretary-Treasurer of the National Association of Conservation Districts. NACD is the nonprofit organization that represents America’s 3,000 conservation districts, their state and territory associations and the more than 17,000 men and women who serve on their governing boards. Conservation districts are local units of government established under state law to carry out natural resource management programs at the local level. Districts work with millions of cooperating landowners and operators to help them manage and protect land and water resources on all private lands and many public lands in the United States.

Conservation districts were founded with the philosophy that all conservation decisions should be made as close to the local level as possible. Created in response to the Dust Bowl, healthy soil is the very reason why districts came into being. Degraded soil health led to the great loss of topsoil to wind erosion in the 1930s. Conservation districts have helped farmers and ranchers across the country improve conservation on their operation and form the local component of the federal, state and local partnership of conservation delivery.

Over the last 80 years, we have come to realize that healthy soil is the key to addressing many natural resource concerns. When soil is healthy and protected by cover crops, there is far less wind and rain erosion. Healthy soils can hold and slow rainwater during devastating floods. Healthy soils hold nutrients better, improving water quality and the efficiency of added nutrients. It is clear that healthy soil is the bedrock and should be the priority of our conservation efforts.

NACD believes there are five main principles to soil health: 1) maintaining soil cover, 2) minimizing soil disturbance, 3) increasing plant diversity, 4) maintaining living plants and roots, and 5) the integration of livestock.

The Economics of Soil Health

While the natural resource benefits of soil health are plentiful, we have seen that adoption of soil health practices will be improved if you can show an economic benefit for these practices to a producer. Often, a farmer’s first question on these practices will be, “How much is this going to

cost me?” If we make the argument that the benefits outweigh any costs, and can back that argument up with data, we will see uptake increase substantially.

In 2017, NACD and Datu Research, LLC released a set of case studies on four corn and soybean farms in the Upper Mississippi River Basin, which detailed year-by-year budget data on their adoption of cover crops or no-till.¹ These farmers shared decisions they made and why; how adoption affected income and yields; and what they learned. Each case study uses budget analysis to measure yearly changes in income that the farmer attributes to adoption, compared to the pre-adoption baseline.

The major takeaways were that although planting costs increased by up to \$38 per acre:

- Fertilizer costs decreased by up to \$50 per acre;
- Erosion repair costs decreased by up to \$16 per acre;
- Yields increased by up to \$76 per acre; and altogether
- Yearly net income increased by up to \$110 per acre.

Additional comments from the case study illustrate good advice for those wanting to get into soil health practices:

- The initial investment in learning what is right for your own individual farm can reap serious benefits. Enrollment in a conservation program can be key to make the initial investment cost beneficial.
- Devote time to learning about cover crops before trying them on the farm. The variety of cover crop seed used can dramatically alter both the budget and benefits.
- During bad weather years, the effects of increases in organic matter and the reservoir of water in soils from no-till returned significant benefits.
- Start small enough so it doesn't freak you out, but large enough to matter.

NACD is currently working to expand this research across the country, encompassing different cropping systems, soil types, climates and geographic regions to demonstrate the specific economic benefits of soil health practices.

Education and Outreach

Despite the clear benefits of healthy soil, NACD believes that for a more successful uptake of soil health practices, producers need to be informed of the latest data and research, and this must come from a trusted local source. In some instances, the conservation practices needed to produce healthy soil may seem counterproductive and hearing real world examples from their neighbors is critical.

For example, some may assume planting a cover crop may limit moisture for their cash crop or compete for needed nutrients. In reality, a cover crop creates greater root networks, allowing rainfall or irrigation to be absorbed by and kept within the soil in greater amounts and can actually replenish some of the nutrients needed by the main crop. Tillage used to be the only way to farm because it was the only way farmers knew to control weeds. Farmers believed that tillage

¹ <https://www.nacdnet.org/soil-health-research/>

was actually improving the health of the soil by mixing it and breaking up compacted soil. We know now that soil needs to be left intact, and tilling the soil actually increases compaction, reduces water infiltration, kills beneficial soil microorganisms, and reduces soil organic matter. We have learned that combatting these myths and spreading information on soil health is best done face-to-face and farmer-to-farmer.

It is for this reason that NACD's Soil Health Champions Network began in 2015.² Established in partnership with NRCS through a Conservation Innovation Grant (CIG), the Network promotes soil health education and outreach among America's farmers, ranchers and forestland owners. Today, the Network is comprised of more than 240 landowners and operators who implement conservation practices on their land and champion the benefits of soil health within their communities.^{F1} Conservation districts were created so local communities would have a voice in conservation decisions, and NACD's Soil Health Champions Network helps amplify this voice, neighbor-to-neighbor, across the country. To further understand how soil health benefits a producer's bottom line, NACD also held a focus group earlier this year where Soil Health Champions discussed how soil health practices have benefited their operations in the face of extreme weather patterns.³

Soil Health on My Operation

I am personally proud to be a Soil Health Champion in my community and I am proud of the work I have done to encourage the adoption of practices that improve soil health by my neighbors. I can only do this by being a true believer in how soil health has improved my operation. My great-grandparents first farmed the land I currently farm in the 1880s. Since then, my family has always worked to be on the cutting edge of conservation adoption. Today, I use cover crops on 100 percent of my land; utilize no-till practices; and have been working with precision agriculture, grid sampling and variable application rates as a way to take my conservation to the next level. I have personally seen how my soil health conservation system has improved weed control, which limits my herbicide purchases and increases my yields, leading to more income with decreased fertilizer costs. With no-till or limited-till, I am able to use my tractor less, ultimately limiting wear-and-tear on my machinery and reducing fuel costs. Reduced fuel use combined with a healthy soil's ability to sequester carbon are significant factors in reducing greenhouse gases.

Although increasing yields and decreasing inputs are the most obvious ways my operation's soil health has benefited my bottom line, perhaps the greatest economic advantage, and sometimes least heralded one, can be seen when a disaster strikes. During the historic drought of 2012, a combination of all of the soil health practices we adopted created a soil health system that provided more pasture production for our cows and calves when forage was scarce and feed costs skyrocketed. When we harvested our cash crops, we were amazed by the yield that was provided compared to other farmers who weren't implementing soil health practices at the same level we were. This was due to the soil's better infiltration when it did rain, water-holding capacity to get us through the dry periods, and nutrient cycling and other benefits we can't see

² <https://www.nacdnet.org/get-involved/soil-health-champions-network/>

^{F1} Appendix A

³ <https://www.nacdnet.org/wp-content/uploads/2019/06/NACD-Report-Soil-Health-and-Weather-Extremes.pdf>

with our eyes. This was all created by utilizing no-till on our fields, planting cover crops, ensuring a diversity of plants, and implementing a managed grazing and livestock system.

In 2018, we had a different problem, similar to the one we are facing currently, where too much rain fell, except that in 2018, the excess rain fell during harvest. Farmers who didn't implement soil health practices had soil that wasn't able to absorb the rainfall and were getting their equipment stuck in the mud, ultimately damaging their equipment. Many chose to wait for the ground to freeze before their crops could be harvested, a significant gamble for any producer. We were able to harvest our crop on time due to the better soil structure our soil health conservation system provided.

Our crop insurance agent contacted me in early November of that year to let me know that due to a price decline, our revenue policy covered more bushels. He asked if we would have a claim, and I replied that we would not since our yield was quite a bit better than the new guarantee. We were the first customer he had heard from who would not be filing a crop insurance claim. Wet or dry, by following the principles of soil health, our farm is more resilient.

If we are to continue to grow the food, fuel and fiber our nation and the world will need in the future, agriculture must continue to innovate and grow more with less, while making sure our natural resources are protected for future generations. Ensuring soil health is at the center of every operation is crucial to accomplish this goal, and as an elected supervisor at my local conservation district for the past 21 years, I know that conservation districts are committed to provide the locally-led, voluntary efforts that will ultimately lead to greater conservation adoption.

Congress must also stand committed to doing its part. NACD appreciates the 2018 Farm Bill recently passed by this Committee for its commitment to funding programs at NRCS and FSA at the same levels as the 2014 Farm Bill. That is only the first step, however, and Congress must continue to promote voluntary, locally-led conservation by ensuring these programs continue to receive needed funding and ensuring that we reverse the trend of woefully understaffed NRCS service centers. The financial assistance programs provided by the farm bill are critical to further soil health adoption, but we must have the technical experts in local county offices across the country if we are to truly see uptake of soil health practices take place on every agricultural operation. If there is no one in an office to provide technical assistance, we are missing out on a clear opportunity to advance conservation and protect our nation's natural resources.

With the disaster currently effecting my part of the country, flexibility in the prevented planting rules at RMA is very important. I appreciate USDA's recent announcement that this year's date after which cover crops can be hayed and grazed will be moved to September 1.⁴ Allowing flexibility in cover crop usage will hopefully lead to greater adoption of cover crops on acres that won't ultimately be planted with the intended cash crop. Greater adoption of cover crops and other conservation practices will help farmers survive future disasters. I personally appreciate Committee members Angie Craig and Dusty Johnson for introducing legislation and their leadership on this issue.

⁴ <https://www.rma.usda.gov/en/News-Room/Press/Press-Releases/2019-News/RMA-Announces-Change-to-Haying-and-Grazing-Date>

I appreciate the invitation to speak before the Subcommittee this morning on a topic that is so close to my heart and look forward to answering any question you might have about the need for greater focus on soil health and the economic and natural resource benefits that can be realized.

APPENDIX A - Map of NACD Soil Health Champions Network

