

A Minnesota Cover Crop Story

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I began my career with University of Minnesota Extension thanks, in part, to a USDA Sustainable Agriculture Research and Education grant that focused on cover crop demonstration and education. Cover crop use at that time was very low, but research and farmer experiences from around the Midwest were making a valid argument for why farmers should be using them. I had some personal experience with cover crops due to my location in south central Minnesota; numerous vegetable canning facilities are located there and some farmers choose to plant cover crops after these early harvested cash crops. Even more importantly, however, I had the expertise of the Midwest Cover Crop Council; local research from University of Minnesota, Minnesota Department of Agriculture, and USDA Agricultural Research Service; and a few experienced Soil and Water Conservation District personnel and farmers to guide me in my efforts. Some of these resources already had 15 or more years of cover crop experience. In the beginning there was some polite skepticism, some eye-rolling and, in some cases, actual sleeping in the back row. But, I can honestly say there was also genuine interest in the message I was sharing.

Minnesota's interest in cover crops is driven by two things: soil health and water quality. Those of us who work with cover crops have learned that each situation is unique and the first question we need to ask an individual farmer is, "why are you interested in using cover crops?" The phrase "soil health" is rarely what comes out of a farmer's mouth, but what he or she does say definitely points towards a desire for healthy, quality soil. Many of these farmers will mention being concerned about soil erosion from wind and rain, wanting to increase soil organic matter percentage, or a desire to increase their soil nutrient levels. Cover crops can help with these, and many more, issues. I distinctly remember a Carver County farmer telling me that his soil just wasn't what it used to be. It was no longer a dark, rich color; it was difficult to work up; and his yields were no longer what he felt they should be. He had very real concerns over the health of his soil and it's the reason he started looking into adding cover crops to his farm operation.

Minnesota is known as the "Land of 10,000 Lakes." We actually have 11,842. And, we're home to 6,594 rivers and streams. All told, we have just over 13 million acres of surface water. "Water, water, everywhere," and yet we also have had to deal with our fair share of drought conditions. Too often lately, there are places in Minnesota that deal with flooding in the spring and then drought in the summer and fall. Needless to say, Minnesota knows water, and we're well aware of how important it is to our 26 million acres of agricultural land as well as to our drinking needs and recreational activities. Research and common sense show that having growing plants on the land as long as possible helps to use excess water and nutrients and also helps keep the soil in place. During dry periods, the shading action of a green plant or the

mulching action of a dead plant can help decrease soil water evaporation. With their potential to assist in water quality and quantity, cover crops are definitely starting to draw attention.

One particular example comes to mind. During the spring of 2013, the snow and rain were so heavy and constant that much of southeastern Minnesota was unable to plant their cash crops. Some farmers made the decision to plant a cover crop for the first time ever so that their fields wouldn't be bare. One particular farmer had come to me that September, after having dealt with an incredibly wet spring and a summer drought that had hit quite hard, concerned over how to manage his cover crop of oil seed radish. The radishes were growing robustly and he was concerned about how they would affect soil moisture levels and spring planting. His neighbors were encouraging him to till them under. His local NRCS person was encouraging him to leave them. I shared my experiences with oil seed radish and encouraged him to leave the radishes and forego any fall tillage. In most years, the radish would easily winterkill with the advent of Minnesota's cold winter temperatures and the spring thaw would trigger a quick decomposition of the dead plants. I suggested that if he didn't feel comfortable with that decision, he could till some of the radishes under while leaving some alone. He could then compare the two management options in the spring. That was how we left our conversation and then this June I received an unexpected email from him. Against the opinions of a few of his neighbors, he decided to leave those radishes alone last fall. He said that the dead radishes "dissolved by planting time." He went on to share that he was surprised to find that he only needed one light pass with a field cultivator before planting his 2014 cash crop and that the field's soil tilth was "about as good as I've seen in 41 years of planting." My favorite quote of the message, however, was "we showed 'em."

Cover crop adoption in Minnesota is still low, but the last two years have seen a marked increase in interest. The original groundbreakers have continued their work with cover crops, but others have also joined the efforts. The number of groups working with cover crop research and education has drastically increased and efforts are being made to work together as much as possible to ensure a uniform message. More workshops and field days than ever before are being held and the number of interested farmers attending these events is also increasing. The USDA Natural Resources Conservation Service has increased cover crop funding via their Environmental Quality Incentives Program. The agriculture news media is inundating print and Internet news sources with cover crop stories. The efforts of a few have now become the efforts of many. Continued effort, however, depends on funding. To increase interest in cover crops, more education is needed. To better answer farmers' questions, more demonstration and research projects are needed.

Cover crops are only a piece of the puzzle, however. We also need to see an increase in conservation tillage practices like strip till or no till; additional crops in our rotation instead of only one or two; and an increased use of best management practices. Minnesota wants soils that are healthy and productive and water resources that are managed for high quality and appropriate quantity. Cover crops can help reach these goals.