



The Chippewa 10% Project

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An initiative in west-central Minnesota is working with farmers to prove that water-friendly agriculture and profitability can go together.

www.landstewardshipproject.org

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In west-central Minnesota, the Chippewa 10% Project is working with farmers and other landowners to find profitable ways to keep land covered with vegetation beyond the typical 110-day growing season for corn and soybeans. Such “continuous living cover” is a proven way to reduce runoff into our waters while keeping our soil healthy. The Chippewa 10% Project is based on the idea that significant improvements in water quality can be attained by targeting specific areas in a watershed that are prone to erosion and runoff.

For example, the 1.3 million-acre Chippewa River watershed covers most of Pope, Swift and Chippewa counties, and splashes into five others in west-central Minnesota. Agricultural lands make up three-quarters of the watershed and it is the single biggest watershed tributary to the Minnesota River, one of the most polluted waterways in the Upper Midwest. Replacing the majority of annual row crops planted in the watershed with perennial plant systems such as tall-grass prairie would significantly improve water quality, but would have major negative impacts on the economic health of local communities. However, extensive modeling has shown that adding just 10 percent more continuous living cover to the watershed's landscape in a targeted fashion would create water quality good enough to meet state standards for clarity and chemical contamination. In addition, research and on-the-farm experience from other regions in the Midwest show that such continuous living cover provided in the form of cover crops and well-managed pastures can be financially beneficial for farmers.

The Power of Information & Networks

The Chippewa 10% Project, which is coordinated by the Land Stewardship Project and the Chippewa

River Watershed Project (working with various other local and regional partners), is taking a two-pronged approach to getting more continuous living cover established in the watershed.

First, using sophisticated geographical information systems (GIS) technology, the Project is developing 3-D maps that show everything from drainage patterns in fields where excessive water runoff is most likely to occur, to where certain conservation practices and structures would produce the most benefit.

The Chippewa 10% Project has also developed networks of farmers and other landowners focused on cover cropping, grazing and soil-health monitoring. One network engages women non-operating landowners, a growing rural demographic with strong conservation values.

Working with these networks, Chippewa 10% staffers are helping farmers and other landowners determine what conservation measures make the most economic and practical sense for their operations, and how these measures can be located in a way that they provide the most bang for the buck. Through this work, farmers and landowners have chosen so far to shift approximately 12,000 acres in the Chippewa watershed into new or enhanced continuous living cover, from cover crops and perennial grasses to buffers and managed intensive rotational grazing paddocks.

Another major component of the Chippewa 10% Project is research that combines cutting-edge science and on-farm monitoring of the impacts of various production practices. Preliminary research results have unearthed some exciting insights into how continuous living cover on farmland can provide economic and environmental benefits, while improving the overall health of rural communities.



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The Environmental Benefits

Using GIS mapping and local knowledge, four scenarios were developed to understand the potential environmental benefits of adding more continuous living cover to the Chippewa River watershed. Specifically, strategies such as adding perennial grasses, introducing longer crop rotations, reducing fertilizer applications in corn plantings, inter-planting cover crops with row crops and utilizing managed intensive rotational grazing were considered.

Working with the Louisiana State University Agricultural Center, the Chippewa 10% Project developed a model predicting reductions in erosion, runoff and nitrogen leaching as a result of the implementation of these various conservation farming practices. The modeling focused on 114,000 acres in the watershed that had been identified as particularly vulnerable to runoff.

Preliminary results show water adjacent to the land undergoing the conservation practices had, on average, 20 percent less suspended solids, nitrogen and phosphorus loads. Besides producing significant soil health benefits and sequestering 857,000 metric tons of carbon, these practices would provide important habitat for many birds and pollinators, according to the modeling.

The Economic Benefits

The LSU AgCenter and the Chippewa 10% research team have also analyzed the economics of converting fields from only growing annual row crops to a regime that involves continuous living cover.

Such calculations fluctuate based on market prices, knowledge and willingness, as well as access to equipment. But it was found that over a 10-year period, establishing continuous living cover generated higher profits for farmers when compared to maintaining a strict corn/soybean rotation that leaves the soil bare for the majority of the year. It was estimated that if these practices were applied on 65,000 environmentally sensitive acres in the watershed, revenues over expenses would increase by an average of 9 percent, generating \$5 million in extra income over a 10-year period.

Continuing such research is key in light of the fact that by far the largest barrier to getting more continuous living cover established on farmland is economic. Many of the recommended practices utilize equipment and structures not common on many of today's corn/soybean farms, such as cover cropping equipment and fencing for grazing cattle. And cover crops, for example, tend to have a lower market value, something farmers must consider when calculating the cost of seed and establishment.

Federal farm policy is also a major barrier to getting more continuous living cover established, since it incentivizes planting annual row crops to the exclusion of all else.

Ongoing & Future Research

Building on the economic work by the LSU AgCenter, the Chippewa 10% Project is developing the "Cropping Systems Calculator," which will allow farmers to compare the profitability of various crop rotations. This interactive tool will allow a farmer in the Chippewa River watershed to develop specific financials related to integrating various small grains, cover crops, perennial grasses or pasture into a conventional corn-soybean rotation.

The Chippewa 10% Project is also developing a way for farmers to utilize powerful land/hydrological mapping software on home computers, giving them a key tool for determining what conservation farming practices would work the best in what locations. Such tools will provide opportunities for farmers, natural resource professionals, organizers and extension agents to begin to look at the environmental and economic impacts of adding more diversity to farms.

More Information

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