



Continuous Living Cover & Clean Water

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How working farmland can be productive while protecting a precious resource.

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When more living plants are growing on the land for longer periods of time, our water is cleaner. On farmland, these year-round living plant systems—also called “continuous living cover”—can take many forms, from perennial grasses rotationally-grazed by livestock to annual cover crops grown before and after the regular cash crop growing season. It has long been known that perennial grasses and forbs, with their deep roots and year-round presence, hold more water in the soil and help clean it before it moves to streams, lakes or groundwater. They also provide multiple benefits such as habitat and food for native pollinators and bees.

The Dominant Farming System: Too Little Living Cover

To find water quality solutions in farm country, we have to understand the corn and soybean system. In Minnesota, it makes up 75 percent of our cropland and covers the landscape for only about 110 days annually. For the rest of the year, Minnesota’s farmland goes through a long brown season during which there are no living plants protecting the land’s surface and no living roots feeding the soil’s biological life below. That leaves the land vulnerable to soil erosion and runoff for most of the year.

That is a big part of the reason why the Minnesota Pollution Control Agency has recently found no lakes and only a few streams in Minnesota’s southwestern corner safe to swim in. Minnesota Pollution Control Agency water sampling shows that 70 percent of nitrogen contamination of Minnesota streams is coming from crop fields. Rural wells are routinely so contaminated with nitrogen that the water they produce isn’t safe for drinking. Another troubling trend is the return of destructive soil erosion events that

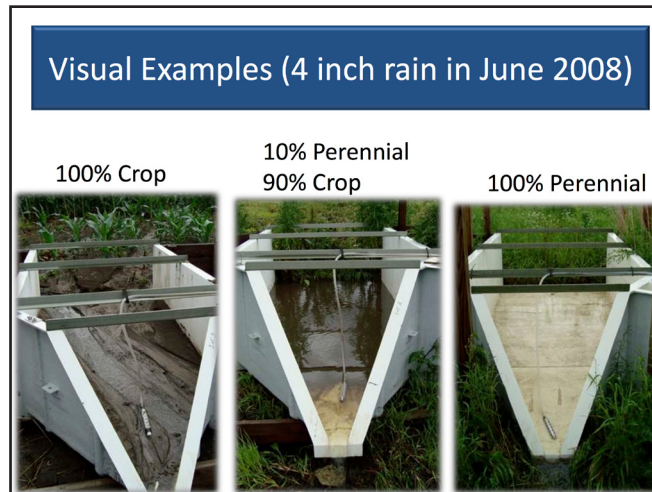
we thought were in the past.

Water pollution connected to agriculture isn’t about individual farmers making decisions in a vacuum. It’s driven by a few multinational corporations that base their profits on fertilizer and other inputs, as well as huge volumes of a handful of commodities such as corn and soybeans. It is also clear federal farm policy is biased against diverse farming systems that cover the landscape year-round, and the Land Stewardship Project (LSP) is working with its members on that front as discussions around the 2018 Farm Bill begin.

Continuous Living Cover: 20% by 2020

But there are some significant steps that can be taken right here in Minnesota’s watersheds to clean up our water and make good use of limited state dollars. State resources should be focused on achieving a goal of **20% Living Cover by 2020**. This is the kind of impact Minnesota citizens voted for with the Clean Water, Land and Legacy Amendment.

Studies show perennials on up to 20 percent of high-risk corn and soybean fields can reduce runoff and erosion by as much as 90 percent. Cover crops can reduce nitrogen runoff by 20 percent to 30 percent, according to some estimates. No wonder the 2015 Environmental Quality Board Water Policy Report highlighted establishment of year-round living cover on farmland as a key way to clean up our water.



Research in Iowa shows that planting just 10 percent of a row-cropped field to perennial grasses produces a 90 percent reduction in erosion. Photo: Matt Helmers, Dept. of Ag & Biosystems, Iowa State University

Community Conservation

The Chippewa 10% Project is a collaboration of the Land Stewardship Project, the Chippewa River Watershed Project and Clean Up the River Environment, along with various agencies, educational institutions and conservation groups. We are utilizing cutting-edge

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mapping technology, modeling and people engagement in western Minnesota's Chippewa River watershed, the single biggest watershed tributary to the Minnesota River, one of the most polluted waterways in the Upper Midwest. Individual conversations with farmers and landowners help them make decisions that match their values of stewardship and community with their need to make a living. In order to be effective, 10 percent of additional continuous living cover is targeted at the watershed's most vulnerable acres—those lands that are the most erosive and otherwise ecologically fragile. Those acres are often marginal for row crop production too.



Perennial grasses form a living buffer along the Chippewa River in western Minnesota. Buffers can filter out sediment and agrichemicals. Photo: Chippewa River Watershed Project

Through this work, farmers and landowners have chosen so far to shift around 12,000 acres in the Chippewa watershed into new or enhanced continuous living cover, from cover crops to perennial grasses to buffers and management intensive rotational grazing. What's happening in the Chippewa could have major implications for cleaning up water in the rest of the state.

Options for Minnesota

If Minnesota is serious about water quality, it needs to support conservation efforts that not only target our most vulnerable acres (establishing grasslands and other perennials, as well as riparian buffers and wetlands, for example). Improving the overall health of the rest of the landscape means integrating cover cropping into the corn-soybean rotation, and establishing more livestock on the land utilizing perennial forages.

But all of this means little unless farmers see that this can work for them, economically and practically, enabling them to reach their goals. LSP has developed a Cropping Systems Calculator that helps individual farmers evaluate the economic impact of shifting to more continuous living cover. In the case of cover cropping, farmers are finding this system can reduce the need for purchased fertilizer while boosting corn and soybean yields during times of drought.

Managed rotational grazing of pastures has long been a cost-effective way to get established in the livestock business, since it relies less on expensive inputs and facilities. An exciting development in recent years has been the increased consumer demand for grass-fed meat

products—in fact, it's one of the fastest growing sectors of the specialty food market in the U.S.

What Will it Take to Get 20% by 2020?

Getting 20 percent of Minnesota's farmland growing continuous living cover by 2020 will take research like the Forever Green plant breeding initiative at the University of Minnesota, investment in market development for continuous living cover systems, and focusing cost share funds to help farmers transition to more continuous living cover systems.

The bottom line: innovative farmers, supported by communities, government policy and profitable markets, can lead Minnesota toward making clean water a reality for future generations.

Sources & More Information

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