

Cultivating Conservation

Vol. 2, No. 2



A publication of the
Cannon River Watershed Partnership

Importance of Filter Strips

By Danielle Waldschmidt, Rice County SWCD

Filter strips have been a hot topic lately and for good reason considering the benefits to water quality, wildlife habitat and farmers. A filter strip, also known as a buffer, is an area of permanent herbaceous vegetation along a stream, drainage ditch, or river, used to reduce sediment and filter runoff.

A filter strip improves water quality by using vegetation to slow water flow and allow contaminants like sediment, pesticides and fertilizer to collect in the



An example of a well kept buffer that is beneficial both to the farmer and the surrounding environment.

vegetation. They also reduce herbicide and pesticide drift into our water bodies. According to the National Agroforestry Center, at the University of Nebraska, a well established filter strip will reduce sediment by 87%, total phosphorus by 56%, total nitrogen by 42% and nitrate by 39%.

Filter strips benefit farmers by holding soil in place and keeping nutrients on the land where they can benefit crops. In some cases, filter strips can eliminate end rows and square off field boundaries. Vegetation stabilizes banks and shores, minimizing soil erosion and avoiding costs of bank stabilization and loss of land. Filter strips also offer a setback distance from water sources for agricultural chemical use. Grass filter strips extend the life of drainage ditches.

A filter strip also provides cover, a source of food, nesting cover and shelter for many wildlife species. The wider the filter strip, the larger and more diverse animal species it will attract.

Incentive programs are available to landowners interested in installing filter strips. Conservation Reserve Program (CRP) is a 10-15 year program that pays for establishment and maintenance of the filter strip along with an annual rental payment. Environmental Quality Incentives Program (EQIP) provides a onetime payment for establishment. Local incentive programs may be available from local SWCD offices.

Last year Rice Soil and Water Conservation District (SWCD) received a grant from the Clean Water Fund to provide incentives for landowners to install grass along streams, rivers and drainage ditches in the counties of Goodhue, Rice, Steele and Waseca. The program provides an incentive for landowners to take agricultural land out of production and install permanent vegetation.

Twenty-five landowners in Goodhue, Rice and Steele Counties have enrolled 157 acres for a total of 15 miles of filter strips. These landowners received a payment of \$600 per acre for non-harvestable land (coupled with CRP) or \$800 per acre for harvestable land.

For more information on filter strips and available incentive programs contact your local SWCD office.

Dakota: (651) 480-7777

Rice: (507) 332-5408

Goodhue: (651) 923-5286

Steele: (507) 451-6730

Le Sueur: (507) 357-4879

Waseca: (507) 835-4800

Conservation Corner: Benefits of CRP and Strip-Till

By Austin Bly, CRWP Intern, Spring 2011

When asked to describe his background and how he got into farming, Danny Morris said his farm was his Dad's before him and that he had followed in his footsteps. The Morris family are all very avid hunters and fishermen and as we sat in a large shed I couldn't help but notice all of the stuffed and mounted game. Throughout the interview, he mentioned turkey, pheasant, and deer, among other species he finds common on his property. For Danny, conservation has always been an important aspect of maintaining game in the area.

For many years, Danny has been using conservation methods in several ways. Since 1985, he has had about 500 acres enrolled in the Conservation Reserve Program (CRP). According to the Natural Resources Conservation Service, a branch of the US Department of Agriculture, CRP provides technical and financial assistance to address soil and water conservation concerns. Danny continues to renew the enrollments at varying time stages. Some are renewed for five years, others ten. The enrolled land includes a buffer along the stream that runs through his property that is 300 feet at its widest point. In addition to the CRP enrolled land, Danny has also restored three wetlands on his property. The land was tilled when it was in production, but before the land was cultivated these areas were wetlands.



Deer in a CRP planting.

Even though Danny admits that the process of filling out the paper work for CRP enrollments can be a hassle, he is quick to also point out that the extra time and paperwork is worth it for the wildlife. He feels that it is necessary to keep some of the ground enrolled in CRP and to keep the soil on his land and out of the water.



Strip tillage . Photo courtesy Les Everett, Univ of MN.

About five years ago, Danny decided to try out a strip-till machine that someone nearby had recently bought. In that year, he started with 500 acres strip-tilled. Now Danny has expanded his strip-tilling to 4000 acres. With the corn and soybean rotation, he had always tried to do minimum tillage, but now they are using even less fertilizers on the land. As opposed to conventional tillage, strip-till incorporates the fertilizer into the soil in strips where the seeds are planted. The strips are only a few inches thick and do not blanket the ground with fertilizer like conventional tillage does. That way, the fertilizer use is more cost effective. Strip-till also helps keep the fertilizer in the ground and out of the water.

After talking to Danny, I realized he's the type of farmer who's willing to try new things that might just make his production a bit better for both him and the land. Even if he is humble in saying that everyone else is doing it too, this innovative spirit is what keeps him ahead of the curve. And so even as the land has been in the family for at least three generations now, their devotion to conservation will most likely be a continuing success story for years to come.

Side Dress Beats Dribbling for Yields and Nitrate Reductions

By Rebecca Spurr, St. Olaf College, Class of 2012

Nitrogen fertilizer is essential for corn farmers because it increases yield significantly. Fertilizer however, is also a big source of concern for environmentalists when it gets washed into waterways. There it allows lots of algae to grow, but once all the algae die they decompose (a process that uses oxygen) and the water becomes hypoxic and nothing else can live there. The "dead zone" in the Gulf of Mexico is a huge area of hypoxic water at the mouth of the Mississippi, and many people blame agricultural nitrogen as a major cause. Therefore, fertilizer application provides farmers with a dilemma: apply too little and sacrifice yield, or over apply and waste money on fertilizer and contribute to environmental degradation?

To explore this problem, I teamed up with Northfield farmer David Legvold to analyze how his use of nitrogen was impacting the soil properties and nutrients on his farmland—as well as his economic returns. Our study field was a piece of land owned by St. Olaf College in its second year of corn production and was strip-tilled (meaning the majority of last year's crop residue was left intact). Dave applied liquid ammonium nitrate fertilizer at experimental rates of 0, 30, 54, and 79.8 lbs of nitrogen per acre. He also experimented with two different application methods at the 54 lbs/acre rate: dribbling the fertilizer on the soil surface versus side-dressing, or injecting it into the ground at the base of the plant.

In addition to looking at yields and returns, I compared a range of properties and nutrient concentrations in the soils of these different treatments. I also looked at the concentrations of nitrate in the actual cornstalks, to determine if they had too little, enough, or too much nitrogen available while growing.

The primary objective of this study was simply to help Dave fine-tune his nitrogen management plan. However, it was interesting to note that areas of side-dressed corn resulted in significantly higher returns and more optimal cornstalk nitrate than areas that received equal amounts of nitrogen, but applied via dribbling.

Variation in soil nutrients and soil characteristics were generally insignificant between fertilizer treatments. There was a general positive correlation between the amount of nitrogen applied and both yield and economic returns in the side-dressed treatments. The cornstalk nitrate concentration of the side-dressed 30 and 54 lbs/acre sections both fell in the optimum range, while the 0 and 54 dribbled were deficient and the 79.8 excessive.



Spurr and Legvold discuss nitrate needs. Photo courtesy of St. Olaf College.

Nitrogen Best Management Practices for Southeastern Minnesota*

- Select an appropriate N fertilizer rate using U of M guidelines (“*Fertilizing Corn in Minnesota*” FO-3790, 2006 or newer) which are based on current fertilizer and corn prices, soil productivity and economic risks.
- Total N rate should include any N applied in a starter, weed and feed program, and contributions from phosphorus fertilizers such as MAP and DAP.
- Spring preplant applications of ammonia and urea or split applications of ammonia, urea, and UAN are highly recommended.
- Incorporate broadcast urea or preplant UAN within three days.
- Under rain fed (non-irrigated) conditions, apply sidedress N before corn is 12 inches tall. (V7 stage).
- Take appropriate credit for previous legume crops and any manure used in the rotation.
- Inject or incorporate sidedress applications of urea or UAN into moist soil to a minimum depth of three inches.
- Minimize direct movement of surface-water to sinkholes.
- When soils have a high leaching potential (sandy texture), nitrogen application in a split-application or sidedress program is preferred. Use a nitrification inhibitor on labeled crops with early sidedressed N.

* Randall, et. al. *Best Management Practices for Nitrogen Use in Southeastern Minnesota*. University of Minnesota Extension. Publication Number 08557. 2008

Upcoming Events

Buzz About Buffers

Have you heard talk about the need for buffers or filter strips along rivers and streams? Want to find out more? The Cannon River Watershed Partnership and your local Soil and Water Conservation District are hosting a short workshop to talk about:

- How do shoreland buffers benefit water, wildlife and your farm?
- How do you establish and maintain a buffer?
- What incentive programs are available to you?

August 23, 10:00 AM – Noon – First English Lutheran Church, 511 Belle St. W, Cannon Falls

August 30, 10:00 AM – Noon – Rice County 4-H Building, 1900 Fairgrounds Dr., Faribault

RSVP requested by contacting Beth Kallestad at (507) 786-3913 or beth@crwp.net

August 22nd— Farm Bill Forum, at the Dakota Lodge in West St. Paul. 10 AM to 3 PM. Free but registration required <http://farmbill.eventbrite.com>. Questions contact Gwen Steel at (651) 649 -1446. Hosted by the Izaak Walton League.

September 15th — “Agriculture for the 21st Century: The Future is HERE and NOW!”
10th Annual Open House at the University of Minnesota, Southern Research and Outreach Center, Waseca MN

September 21st— Reinvest in Minnesota (RIM) 25th Anniversary Celebration at the Steele County Fairgrounds in Owatonna. Please check the BWSR website at www.bwsr.state.mn.us for more updates.

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