Strip-till practice catches on as buffer alternative

Left: *A Mower County farmer uses the strip-till method in a field of winter rye in Austin Township. The practice allows for fewer passes in the field, which can cut down on fuel costs and working hours.* **Photo Credit:** Mower SWCD

Below: *Strip-till is a conservation tillage practice that only disturbs the row where seed will be planted, leaving the rest of the field untouched.* **Photo Courtesy The Strip-Till Farmer**

CLEAN WATER LAND & LEGACY AMENDMENT

Landowners who bring their properties into compliance with Minnesota's riparian buffer law have a variety of options available—and not all of them involve putting in a 50-foot buffer.

Buffers provide multiple benefits for water quality: They stabilize banks, promote nutrient absorption, mitigate erosion and filter pollutants. In some situations, alternative practices can provide comparable water-quality benefits and may be more appropriate to fit site conditions and land management objectives.

Strip-till farming is one option within a "toolbox" of common alternative practices developed by the Minnesota Board of Water and Soil Resources (BWSR) with the help of soil and water conservation district staff to achieve water quality benefits comparable to the benefits buffers offer.

A Mower County landowner used the strip-till method to plant soybeans on his Waltham Township farm. Compared with conventional tillage, strip-tilling requires less fertilizer because it's only applied in the rows.
Photo Credit: Mower SWCD

Most farmers use conventional tillage to prepare fields for planting. This practice turns over the soil in the fall and spring across the entire field, leaving it black, uncovered and vulnerable to erosion. Strip-till is a conservation tillage practice that only disturbs the row where seed will be planted in the spring. The rest of the field is left untouched, making it less vulnerable to erosion while allowing for improved warming and drying of the field in the springtime.

A Purdue University study indicates yield increases when producers switch from conventional tillage to strip-till. This increase is likely due to improvements in soil health and the ability to target depths at which fertilizer is placed, making it more available for crops to use throughout the growing season. Less fertilizer is needed when strip-tilling compared with conventional tilling since fertilizer is only applied in the rows rather than across the entire field. A producer can also apply fertilizer during fall strip-tillage. The practice requires fewer passes in the field, which leads to less soil compaction, and saves on fuel costs and working hours.

"Environmental benefits and reduced production costs associated with strip-till farming make it a win-win for farmers and conservationists alike," said Kevin Roth, Minnesota Board of Water and Soil Resources (BWSR) buffer and soil loss specialist.

In southwestern Minnesota, Rock County landowners have been using alternative practices — especially strip-till farming — raising initial buffer compliance rates from an estimated 58 percent to an estimated 90 percent as of January 2019. More parcels are expected to come into compliance this spring as more buffers and alternative practices are installed.

The Rock County landscape is a mixture of rolling hills prone to erosion, poorly drained low spots that cause marginal drainage, a river system that can produce severe flooding, and productive cropland. It's one of the more diverse landscapes in Minnesota's agricultural region. This landscape also presents challenges to farmers striving to produce high-yielding crops while effectively conserving soil and water resources.

Rock County's steep slopes and heavy rains pushed landowners to begin adopting strip-till practices to combat field erosion.

"Strip-tilling is a great alternative practice for our landowners, allowing them to farm more acres while exceeding the sediment reduction requirements of a 50-foot grass buffer," said Arlyn Gehrke, Rock SWCD engineering technician. "Some producers that were maybe thinking of trying strip-tilling have made the switch as a result of the buffer law."

With a minimum 16.5-foot buffer and strip-tillage across an entire field, no further buffer is needed due to the reduction in sediment delivery saved by strip-tilling. Runoff reductions are often greater when compared with the reduction gained from a 50-foot buffer placed next to a field where conventional tillage is used.

Gehrke said a number of Rock County producers were shifting to strip-till to increase yields and reduce soil erosion prior to the buffer law, but now they're also benefitting by reducing the acreage requirement for buffers on their land.