

NO-TILL FARMING TECHNIQUES ARE BECOMING MORE POPULAR AND SOON COULD PROVIDE ADDED FUNDING FOR MIDWESTERN FARMERS.

Prior to planting their crops, many farmers engage in a process called tillage to prepare the land. By using a plow, soil is loosened to aerate the land and clear fields of the debris of prior crops. Gaining momentum, however, is the use of a different approach to how crops are cultivated – using no-till and conservation tillage methods. “No-till” farming does not use tillage to cultivate crops or land, while “conservation tillage” methods reduce tillage compared to conventional crop-growing practices.

No-till and conservation tillage helps reduce CO₂ emissions. When land is not repeatedly tilled, more carbon is stored in the soil, decreasing the amount released into the atmosphere. There are other significant environmental benefits of reduced tillage as well, such as using less energy and cutting pollution from equipment used for tillage.



Storing carbon in the soil also provides farmers with a valuable supplement to their incomes by selling carbon credits for their actions. Last year, the Kansas Farm Bureau partnered with AgraGate Climate Credits Corporation, a for-profit company established by the Iowa Farm Bureau, to originate and buy carbon credits from farmers and trade the credits on the Chicago Climate Exchange (CCX). This partnership allows farmers to bypass the prohibitive cost – around \$50,000 – of becoming a member of the CCX individually. So far, more than 270,000 acres in 71 Kansas counties have been enrolled in the program.

According to Professor Chuck Rice, University Distinguished Professor of soil microbiology at Kansas State University, some 10 to 15 percent of agricultural acreage in Kansas continuously uses no-till farming. Nearly 35 percent of acreage in Kansas is dedicated to conservation tillage. Rice says that in some counties in Kansas, adoption of conservation tillage is as high as 70 percent. His research suggests that the amount of carbon sequestered in Kansas because of no-till farming is as much as 0.8 metric tons per hectare per year in some parts of the state. Nationwide, he says, no-till farming may have the potential to reduce annual CO₂ emissions by 15 to 20 percent.

At current market prices – between \$1 and \$4 per acre in Kansas – the carbon credits paid to farmers are a supplement to their income, rather than an overriding motivation to switch to no-till. However, under a federal cap-and-trade system, the value of the carbon credits could be a lot higher – up to \$15 an acre, according to Rice.

Rice believes that more Kansas farmers would move to no-till and conservation tillage practices if a federal cap-and-trade system were introduced, because the farm would be more profitable. “We’ve produced several case studies on research farms in Kansas, and in many cases, the no-till farms are already more profitable,” he says. “If you add on the anticipated extra value of the carbon credit under a cap-and-trade system, you would hope that there would be even higher adoption.”

Even without the income from carbon credits, there are sound economic reasons for farmers to move from conventional tillage to no-till farming. It brings down fuel, labor and equipment costs. Long term, it can enhance crop yields by increasing the soil’s water retention and reducing soil erosion. The main drawbacks are that it takes several years for the soil to be revitalized after moving to no-till from conventional tillage and a significant amount of trial and error to get the process right. This can cause yields to fall during the first few years, which discourages some farmers from initiating the practice.

This is one reason that Steve Baccus, president of the Kansas Farm Bureau, a nonprofit advocacy group for the state’s farmers, helps to share information about no-till farming with other farmers in the state. While the organization does not advocate any particular farming method, it holds an annual conference where members considering no-till can get advice from farmers already employing the practice. “Members can visit a no-till farm for the day and ask a lot of questions,” he says.

Baccus has first-hand experience with the economic benefits. When he introduced no-till farming on his family farm in 1990, one reason was to lower his machinery costs. However, by combining crop rotation with no-till farming, he could also diversify what he was able to produce. Crop rotation is often combined with no-till practices to reduce disease and weed pressure, allowing the soil to retain more moisture and increasing its content of organic matter.

“Kansas is a wheat state. It is the only crop that you can grow consistently, but through no-till farming and crop rotation, we can grow wheat, corn, sunflowers and soybeans,” he says.

If farmers have the chance to diversify their businesses and increase their earnings – while, as predicted, carbon credits increase in value – no-till farming could become even more popular in the future.

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