

Plan for Events, not Averages

Frank Moore, Howard County, IA

A veteran no-tiller in *Howard County, Iowa*, Frank Moore farms 2,200 acres under the banner of Moore Farms, near Cresco. His nephew, Matt Miner, farms with him full time, and they share some acreage and equipment with other family members.

“If you’d told me 15 years ago it would grow this large, I wouldn’t have believed you,” Moore says.

Strictly a strip-till corn and no-till soy operation, the farm has been in reduced tillage since 1988. Moore transitioned from ridge-till to no-till in 2002. In 2010, he began to strip-till corn.

In 2012, he began planting cover crops. With three years of trial and error and some positive results under his belt, he plans to continue. They planted 800 acres in cover crops last year and 900 this year.

Moore also runs Three Rivers Consulting, which equips farmers with the tools to navigate conservation plans, water quality and manure management, nutrient plans and other agricultural and government programs. His strong conservation ethic and practical knowledge is rooted in years of caring for the soil and in hands-on experience working for the USDA-NRCS and the Iowa Department of Agriculture and Land Stewardship.

Q: What got you started with reduced tillage?

A: I wanted to control erosion. Also, no-till freed up time and fuel. Once I started, I couldn’t see myself going back and forth with a tillage tool. Two full-time people could not cover all these acres using tillage.

Less tillage does take more management. You need to make adjustments every year for soil and weather conditions, and we do soil testing every four years.

Q: How are cover crops used in your operation?

A: I used a prevent-plant year in 2012 as our first opportunity to plant cover crops. We sow cover crops starting in August and through September. Because of our short season, we have been aerially seeding. We primarily plant annual ryegrass because with nearly everything else, it is too late. This year, cereal rye was flown into standing corn for the first time.

The winter hardiness of annual ryegrass can vary depending on weather conditions. We have had good survival rates and have had up to 80% of it die off. The 30” to 36” root growth is still holding the soil in place, and that’s my goal.

Q: What benefits have you seen with reduced tillage and cover crops?

A: With tile drainage and cold wet soils, others said no-till wouldn’t work. There were concerns that compaction might build up. However, it’s been working for 30 years now. On my no-till fields, rainfall soaks in, while my neighbor’s water runs off. After three to five years, you start building an internal drainage system with no-till. My soil has macropores and better drainage; I’ve seen it on field after field.

Across my no-till fields, there is a quality to the soil that I can’t quite describe. In my strip-tilled soils, you can sink up to your ankle in the strips, while a conventionally tilled field is as hard as rock. I know our organic matter is up.

Howard County has glacial till soils that are littered with rocks. For the most part, though, we see a lot fewer rocks with reduced tillage, because we’re not tilling rocks up to the surface.

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My machinery costs are as low as you can get with no-till; this helps me compete better. Precision ag tools are not a must, but with the economic savings, they're a no-brainer.

Cover crops with strip-till is a good system. One criticism is that with slopes of 5% or more, erosion will sometimes wipe the strip out. However, even on the steepest slopes, I did get erosion control with cover crops. What I'm trying to do is get root mass down there to hold the soil in place.

As part of a nutrient reduction strategy, cover crops are going to take up nitrogen (N). And while we maintain our herbicide program, I know our weed pressure is lower with cover crops; I'm waiting to see how much lower it can go.

What you're looking for is more of the long-term, intangible benefits. As I like to say, you need to be planning for events, not averages. With conventional tillage, we are seeing 3" to 5" inch rain events and ephemeral gullies washing away soil. You can't "average" those events. We have to maintain what we have, or it will wash away.

Q: Have you experienced some challenges with reduced tillage or cover crops?

A: There is always some trial and error. On one farm with long-term no-till, some places washed out for the first time because the soil is getting so loose. On a few farms, we have had to plant grass strips or waterways.

Also, the annual ryegrass that was aerially seeded on Sept. 10 did not germinate nearly as well as the cereal rye this time, so we're working on figuring out why. I chalk it up to the learning curve.

Q: Can these methods improve water quality?

A: For nonpoint sources, Iowa's Nutrient Reduction Strategy is calling for a statewide reduction in N loads by 41% and phosphorus (P) loads by 29%. Cover crops are one of the main components in the program, but if we don't get wide adoption of these practices, the program's math will never work.

Sediment is the number-one river pollutant. You can help solve the water quality issue by controlling erosion and reducing sediment loss.

There is more to conservation and water quality than cutting inputs, though. These programs need to control input costs and maintain yields and profits.



Frank Moore examines the vigorous growth of a cereal rye cover crop in one of his cornfields, which he strip-tills on Bassett soils. All of his cover crops were flown in on Sept. 10.

Q: I've dabbled in reduced tillage and haven't seen immediate benefits. Is it worth it?

A: You really don't see the benefits until about five years into it, but about the three-year mark is when farmers want to tear it up and start over. Long term, though, continuous no-till is the way to go.

With anything, if you go into it to make it work, you'll make a way. My banker told me that even when we had \$8 corn, there were guys struggling to survive. Conversely, there are guys who make money every year no matter what. There are some management issues here.

Q: What about the bottom line?

A: Some of our landowners have this perception that our yields will be lower because of no-till. For us, that's not true. However, while yields are important, controlling costs is just as important; I mainly look for profit.