



No-till, Cost Savings & Soil Building for Beginners

www.landstewardshipproject.org/lpssoilbuilders

This fact sheet is written by Myron Sylling, a no-till farmer for 20+ years. He farms 1,300 acres near Spring Grove in southeastern Minnesota with his father and brother. When he began transitioning to no-till, Sylling originally saw no yield difference compared to his neighbors' conventional tillage programs, but now is seeing up to a 20-bushel yield advantage as a result of his no-till (and cover cropping) system. Statements made in this fact sheet are from Sylling's personal experience. You can read more about his experiences in blog posts on the Land Stewardship Project's Soil Builders' Network web page: www.landstewardshipproject.org/lpssoilbuilders.

◆ Some No-till History

Usually, disturbing the soil less equates to better soil structure and reduced costs for the farmer. Over the years, agriculture has been slowly progressing to no-till (or at least entertaining the idea). During the Dust Bowl era, farming was all about turning the soil to deal with weeds, assist in seed-to-soil contact, provide a smoother ride in the field, and hopefully provide higher yields. After back-to-back severe drought years, farmers saw their crops wither and soil blow away. In an attempt to help alleviate crop and soil losses, the government started introducing conservation methods. Many of those ideas came and went—some are coming back around in our present day.

Part of the reason no-till did not catch on in the early years was that equipment had not evolved to deal with the challenging conditions of planting into minimally tilled or no-till soils. It was much easier to plant into a worked soil that was mellow and smooth. This resulted in better seed spacing and depth consistency. During the 1970s, no-till was the “new” thing to try. It was still very challenging and went counter to mainstream thoughts and practices. People found that no-till could be done, but usually there was a yield penalty for planting in this manner. Sometimes the costs savings would offset the yield loss.

During the 1980s, more people were trying this

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No-till Economics

Let's look at some numbers (taken from the 2017 Iowa State University custom rate survey).

	Conventional	No-till
Fertilizer Spreading	\$7.00	\$ 7.00
Soil finishing	\$15.00	\$ 0.00
Planting	\$19.40	\$21.00
Spraying	\$ 7.65	\$15.30
Harvest	\$41.35	\$41.35
Chisel Plow	\$17.45	\$ 0.00
Totals	\$107.85	\$84.65

In this example, a farmer would save \$23.20 per acre by using no-till. This assumes that the farmer is able to only do one herbicide pass with their full tillage system. Herbicide-resistant weeds may change the spraying system used.

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cost-saving strategy. As an increasing number of people started seeing the possibilities and the challenges of no-till, innovation really started to take hold. That innovation continued into the 2000s and is still strong. In today's markets, mainstream equipment manufacturers have listened and have either partnered with smaller manufacturers to offer their no-till products factory-installed, or have designed some of their own.

◆ Fears Today About Switching to No-Till

Today, there is still fear of yield loss when transitioning to no-till. Chances are good that if you decide to just no-till and not research all of the information out there, you could experience a yield loss. As a farmer that switched cold turkey to no-till in the 1990s, let me assure you that with proper education and machine setups, you should not see any yield loss in switching over and will most likely see a yield gain after a couple years as your soil health improves.

Are you concerned about planting into a cool wet soil? Don't be. There are ways to overcome this, such as using row cleaners, "spading" closing wheels, and "pop up" fertilizer. There will be other fact sheets in this series dealing with planter modifications as well as fertility considerations. Check out those sheets BEFORE you make the switch—they will help you avoid those "learning opportunities" that might cost you money.

◆ No-till Advantages

No-till also offers the benefit of less soil erosion due to wind and runoff. These are hard to put an exact dollar figure on. Windblown soil is very high in nutrients and it is some of your best soil. You can find this as "snirt" in the winter at the field borders. The water erosion part is a little harder to test as that may end up in the ditch, over on your neighbors' land, or somewhere between you and the Gulf of Mexico.

As the figures from Iowa State (previous page) indicate, you will most definitely see cost savings. Other advantages to consider are less pieces of equipment to own and maintain and no need for a large tillage tractor (or at least fewer hours are put on that tractor). You also spend fewer hours in the field, so you may possibly operate more acres in the same amount of time, or have more family time. There are also the fuel savings to consider: depending on the year, we can do our cropping using 3 to 3.5 gallons of fuel per acre. The USDA Energy Estimator suggests a fuel savings of 48 percent when comparing no-till to full tillage.

If you are new to no-till, you may be eligible for USDA Environmental Quality Incentives Program (EQIP) funds to help in your transition. For 2018, you should be eligible for a minimum of \$10.27 per acre for 3 years on the acres you transition. The USDA Conser-

vation Stewardship Program (CSP) has offered a similar payment in the past and covers a 5-year contract term. When you start adding these benefits together, no-till's cost savings and soil benefits become pretty appealing.

In my 20+ years of no-till, I have seen my soil organic matter increase .5 to .7 percent. That is a nice improvement, but nothing to brag about. If you really want to see change, add cover crops to your no-till system. With 3 years of full cover cropping, our organic matter level increased .8 to 1.2 percent. I have talked to many others who experienced the same results, both with straight no-till and when they added cover cropping to their no-till systems. More on this in another fact sheet.

◆ Summing Up

I enjoyed turning soil black—it was my job at 14. The smell of freshly turned dark soil is wonderful and gives one a sense of satisfaction. Years of soil workshops and seeing the huge cost and time savings, as well as soil health improvements, have me very content in not performing this costly and destructive operation anymore. Here's another advantage: you no longer need to go out and pick rock on a yearly basis!

Planter Set-up Video

Check out this 12-minute no-till planter preparation video:
<http://bit.ly/2ETOUzv>.

LSP's Soil Builders' Network

The Land Stewardship Project invites crop and livestock farmers to join the southeastern Minnesota-based Soil Builders' Network to get regular updates on workshops, field days and on-farm demonstrations, as well as soil health and cover crop research. To sign-up and for more information, see www.landstewardshipproject.org/lspsoilbuilders.

On that page, you will also find links to fact sheets, blogs, podcasts and videos. More information is also available by contacting these LSP staffers:

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