



Strip Till in Adverse Settings
Case Study—MillStar Farms
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Management Issues

Sometimes Mother Nature does not cooperate, or perhaps she cooperates too much. Maybe adopting a new management plan is not as easy as it looks on paper. So what will happen if things do not go according to plan?

Resource Setting

Steve and Judi Stierwalt are the owners of MillStar Farms; a family owned row crop grain operation in East Central Illinois. MillStar Farms were established in 1977. When they began operations, corn and soybeans were raised in a conventional tillage scenario, with the soil being worked in both the fall following harvest, and the spring prior to planting. Steve and Judi are active in off farm activities, holding leadership positions within agricultural leadership groups and conservation districts.

Adaptive Management

MillStar farms have been adapting strip till since the mid 1990's after evolving from conventional till to no till then to strip till. Steve will tell you "I was not a religious no-tiller" as he was willing to work soil as he believed it necessary to correct a resource concern. MillStar farms are constantly looking to refine and improve their farm and tillage management. It is in this vein that they became involved in some formal research to try and overcome some difficulties they encountered in their adaptations of strip till.

Continuing Evolutions

There are a number of factors that need to be planned for in a strip till setting, and a few that can cause significant difficulty. One of these is planning of fertilizer applications. These must be done before the strips are built, or the strips are damaged. The exception to this is if the nutrients are applied at the same time the strips are built.

One of the reasons MillStar farms became involved in more formalized study were the difficulties encountered in continuous corn in strip till. There are significant concerns which include:

- Higher levels of residue
- More specialized equipment needed to size and distribute residue
- Higher precision guidance equipment necessary
- Disease issues from the residue
- Fall weather

Conservation Discussions

Some of these concerns can be overcome with the investment in additional equipment...for example MillStar farms uses RTK guidance to address the precision driving concerns. They normally utilize a 7.5 inch offset in the corn on corn environment so they are not planting directly over the old row. They will move the opposite direction in alternate years.

Other concerns require an open mind and willingness to use tools that may be more common in conventional tillage situations. To overcome the problem with excessive residue and the sharp stalks that will damage tires, a Turbo-Till (disk frame with fluted coulters mounted in a straight line) is used to chop and size residue, and minimize remaining stalks. The strip till unit (a Krause Gladiator) is then pulled through this environment. The result is excellent strips that will be ready for planting in the spring. Note the sized residue in the corn strips, and the amount of residue around the soybean strips.



As a basis of comparison, MillStar Farms maintains three 40 acre experiment sites for their continuous corn research. In these sites maintain plots for strip till alone, strip till with treatments and an area where a conventional chisel plow is used.

One of the results of this research was that in the spring of 2013, with all the rain and excessive moisture, the strip till was able to be planted in good conditions 3 days before the chiseled ground. And in July, the corn on the strips was taller and appeared thriftier than the conventional (chiseled) corn.

The last major adverse factor that must be dealt with is the weather. Sometimes Mother Nature does not play nice, and the window in the fall closes too fast. In these situations, the ridges will not get built. Results will be less than satisfactory if trying to build ridges when the soil is too wet. Producers will need to be prepared to be able to switch to either a modified no till or a more conventional till planting plan when this occurs. In that scenario, strips would be built the following fall as planned in a normal cycle.

Even with these challenges, MillStar Farms are committed to maintaining strip till as the chosen and preferred tillage system for their farm. Steve said "it's not just one thing in strip till, it is the whole system that works". When asked "what is the greatest single advantage of moving to strip till?", he said there is not just one, but ranking very high are the environmental gains.

By working within a system that provides gains to the farming operation and the land around it, MillStar Farms have shown that Conservation Pays, even in adverse conditions.