



Adapting Strip Till
Case Study—MillStar Farms
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Capital and Management Issues in Transitions

Changing management and field activities of an operation carries risk; and may cause some trepidation in owners and operators. While these changes are merely the next step in a progressive farming operation, all of the study, knowledge and preparation undertaken ahead of time may not displace the uneasiness one feels when change begins.

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.

Changing Directions

MillStar Farms began to look at reduced tillage for two reasons, to conserve the soil in place and to be able to reduce operational costs. After study and consideration, they began to change their operation over to a no-till system. This would allow them to obtain their soil conservation goals, and eliminate the need for some of the high horsepower tractors within their operation.

Continuing Evolutions

After moving to a no-till system, they discovered some downfalls of the no-till system that needed to be overcome. One particularly difficult problem was the soil remaining cooler and wetter than neighboring fields. This delayed corn planting which carried unacceptable costs and risk to the operation. They began to experiment with strip till. In the early days of the research, this was accomplished using an anhydrous ammonia bar that had been outfitted with special coulters and closing discs. Even though this was not optimal, (especially by current standards) this is all that was available at the time. Another difficulty was the ability to build strips evenly, and be able to plant into them the following spring as there was no GPS or guidance systems yet available.

Timing is critical in the fall for the building of the ridge and strip. Steve said “that the window can be open for an incredibly short time in some years”. MillStar Farms also provided custom ammonia application services for a local fertilizer dealer. This relationship was developed to insure having access to critical pieces of equipment at critical times as the operation shifted to strip till. Through continued experimentation and research they were able to determine the optimal coulters, discs, and firming attachments that left an acceptable strip in the spring that was slightly bermed and not a shallow depression.



Improving Conservation

With a conservation mindset, MillStar Farms continued to study the environment around them. Potential nutrient loss is a significant concern for them. The next step in their adaptation of strip till was to equip a strip till bar with the ability to deep place phosphorus. This allowed the fertilizer to be placed within the soil profile where it would be protected against loss from running water carrying the nutrient off site.

There are a number of advantages of strip till identified by MillStar Farms, but they are quick to point out that strip till is not a system without some disadvantages and potential difficulties.

Advantages

- Even in a wet fall, they are able to get out quicker for harvest with better flotation
- Able to bury the phosphorus in the soil profile
 - Proactive approach to potential regulation
 - More phosphorus available when concentrated
- Strips work well for both corn and soybeans in rotation

Disadvantages

- High horsepower requirement! Minimum of 25-30 horsepower per row
 - Need to have tire sizing and spacing to operate between the ridges trying to be built
- Need to be done in the fall
 - Spring ridges are problematic, and do not work well

They also point out that in a strip till system, there are no shortcuts. You have to do all the steps to be successful. This system also allows for efficient multi-pass nitrogen application. Typically 40-50 percent is applied in the fall when the ridge is built, and the remainder in the spring through a side dress or high clearance nitrogen application. This provides critical early season nitrogen availability while minimizing potential over winter and early spring nitrogen losses. The following pictures are taken in late July. You can see the strip still remains that was built the previous fall in both corn and soybeans.



Through their constant efforts to conserve soil and nutrients through careful stewardship, MillStar farms have shown that Conservation Pays!