THE LEADING EDGE

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A PUBLICATION DEDICATED TO MAXIMIZING YIELD POTENTIAL

Farmers are Saying "Yes" to No-till

As new farming techniques emerge, farmers must make a decision: to keep doing the same thing year after year, or to improve farming practices to make next year better and easier than the last. Many farmers are implementing no-till practices and are happy to have more time, more money, and improved soil structure.

Conventional Tilling and No-Till Comparison

Cleared strips in the residue warms the soil in the row.

Farming is often a livelihood for generation after generation of a family. Practices are passed down and refined over the years, and the appeal of sticking with methods that are familiar and that bring attractive yields is obvious.

But agriculture is also an evolving science—new techniques and theories are tested and evaluated, and ways to improve upon what were once commonly accepted practices are being introduced.

No-till farming, or conservation tillage, is the practice where farmers do not touch the soil with tillage tools after harvest. It is becoming more popular today because of the rise in fuel prices and the changes farmers must make to better the environment.

Research shows that no-till systems, when managed properly, offer better economic returns than conventional tillage. While yield lagged in some cases, reduced investment of time, equipment, and fuel compensated for this difference. Whether in the first year of no-till planting or the fifteenth, returns remain consistent—an area that once raised concerns.

Equipment Needed for No-till Success

No-till practices can be difficult but having the right equipment

makes the process successful. Equipment designed to ease the task of no-till practices is readily available. Costs associated with the tillage systems' equipment are reasonable.

A successful no-till operation is the result of a planter suited to the task. Even no-till planters require careful adjustment to ensure success in varying field conditions—observing these differences and compensating for them is essential. In heavy or wet residue conditions, a two-coulter, offset coulter, or vshaped two-disc setup may be necessary.

In no-till, a strong, reliable coulter assembly is needed to optimize the seed-to-soil contact that translates into vigorous root growth and uniform emergence.

In some cases, a coulter engineered for no-till is needed to optimize the seed-to-soil contact that translates into vigorous root growth and uniform emergence. No-till coulters should be appropriate for residue management. In many cases, residue management attachments can also be added, which, in heavy residue conditions, will contend with row unit bounce, ensure seed-to-soil contact, and expatiate soil warm up of after planting.

Time, Fuel, and Chemical Savings

Conventional tillage requires five passes through the same field. No-till requires only two passes, typically an application of nitrogen, planting, and possibly a follow-up trip to side-dress fertilizer. In no-till, planting more acres in less time is a given, and producers get a quicker return on your investment.

The right residue management attachments permit planting in heavy residue conditions.

Farmers also save on chemical usage when implementing no-till. Fertilizers and herbicides can be directly applied at planting in bands instead of mixed throughout the soil.

Soil and Environmental Benefits

Proper residue management improves emergence.

Economics alone are enough to make farmers feel good about using no-till, but the environmental benefits are also significant. Farmers who practice no-till are improving their soil quality and reducing the amount of carbon being released into the atmosphere, or what is known as carbon sequestration.

It was mentioned earlier that conventional tillage leads to soil compaction and erosion. Jerry Hatfield, a researcher at the U.S. department of Agriculture's Soil and Tilth Lab commented, "Soil compaction hampers root development, thus limiting water and nutrient uptake and decreasing yields by 10 to 50 bushels per acre."

No-till is better for the soil because crop residue from the undisturbed crops protects the soil surface from the affects of heavy rain. Surface crusting does not occur because of the residue, allowing water to infiltrate at a faster rate. Crop residue slows evaporation, creating more water for plant growth. No-till fields generally have richer soil, a higher microbial content, and more organic material in the soil.

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Residue on the surface also serves another purpose—carbon sequestering. According to a study by the University of Illinois, converting to no-till is one of the most cost-effective ways to reduce the build-up of carbon dioxide in the atmosphere because residue holds carbon in the soil. According to the USDA Agricultural Research Service, practices that sequester carbon in the soil help reduce soil erosion and improve water quality and are consistent with more sustainable and less chemically-dependent agriculture. Carbon sequestering can increase infiltration, increase fertility and nutrient cycling, decrease wind and water erosion, minimize compaction, enhance water quality, and decrease carbon emissions.

Even though there are many improvements to the soil and environment when switching to no-till, the final decision might come down to the savings on fuel, labor, and time. With the right equipment, skill, and dedication, no-till has the potential to make next year's crop more profitable than the last.

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