

Ten Considerations For No-Till Planting

No-Till planting became a conversation piece, a subject for argument and an object of curiosity when it was introduced in 1968.

Today, No-Till planting has emerged into a popular farming technique. More than seven million acres in the United States alone are planted with this labor-saving, ecology-helping technique. Rather than discuss its oddity — as farmers did in the late 1960s — today's farmer discusses how to best use No-Till planting to maximum advantage. This is recognition that a revolutionary technique has come of age.

The decision to utilize No-Till planting is usually based on strong personal preferences, with little or no advanced planning. A farmer sometimes can give three, four or five reasons why he chose No-Till. He often admits that he used No-Till without a prior plan or knowledge of advantages.

However, the difference between a good or modest profit depends on prior planning. Firm consideration should be given to at least the following ten guidelines. Each guideline should be adapted to a particular soil, climate, and farmers objectives. The advantages should be considered thoroughly before the decision to go No-Till is made.

1. Soil Adaptability

No-Till cropping or any other form of minimum tillage does not

respond equally on all soils. Nor does conventional tillage, for that matter. Some studies have indicated that No-Till is better adapted to fine textured soils than on coarser sands and silt loams. Others do not recommend using No-Till with crusting soils that do not fracture upon drying.

There does appear to be a greater yield response from No-Till on finer texture soils. However, much of this difference can also be attributed to previous crop, percent surface cover and plant population.

So, No-Till is adaptable to most soil and slope conditions. The decision to go No-Till is usually based on management circumstances such as a desire to reduce hours in the field, reduce capital outlay and reduce soil runoff.

2. Time Saving Value

In planning a No-Till operation, consider specific cost reduction goals to create a worthwhile and basic yardstick against which to measure your success.

Time is a recognizable value measured in dollars. Consider the significance of time reduction for land preparation and planting. Can more acres be planted during an optimum time interval?

What effect can this have on yield?

First, consider the time saved by spending less time on the tractor in a particular field. No-Till reduces labor cost by as much as 70 to 80 percent. What is this worth to you? If you haven't

studied your hours in the saddle lately, try it. The cost may be startling.

Second, No-Till reduces the time machinery is in use in a particular field. A word of caution, though, in your planning. It is true that labor and machinery costs are reduced through No-Till. But the farmer who thinks he can eliminate most of his inputs may be disappointed since savings in labor and machinery are often offset by increases in other inputs such as chemical, seed and fertilizer.

Third, consider the effect of holding off on planting until precisely the right moment in terms of temperature and moisture. Studies show up to \$14 per acre gains in corn and soybean yield when planting is done at the optimum time for ideal germination. Similar opportunities in beans and grain crops show that response to timeliness in planting is profitable.

The decision to make is: Can you postpone your planting date to the precise moment for ideal conditions? Agronomists say that with favorable spring weather, the presence or absence of specific tillage operations may not affect the planting date for all farmers. However, with increased farm size, adverse spring conditions and in specific situations such as double cropping or cultural pest controls, planting dates become more critical.

Fourth, No-Till gives you the

ability to plant more acreage, during the optimum time span.

3. Controls Water Erosion. Because erosion prevention and water retention is of major concern on millions of cropland acres, discussion on the subject reduces itself to how much avoidance, on what kind of land and with what effects.

No-Till controls water erosion. Surface residues left by using No-Till soften the impact of rainfall reducing surface sealing and the amount of soil run-off.

Water erosion is costly. Top soil contains such plant nutrients as nitrogen, phosphorous and organic matter. When significant water erosion occurs, the most valuable ingredients of the soil profile is lost.

4. Avoids Wind Erosion. This kind of erosion control can be applied in degrees tailored to maintenance of the ecology in an area beyond the immediate cropland. But whatever the purpose, soil preparation through No-Till planting leaves crop residue on the ground to retard wind erosion.

5. Conserves Soil Moisture. No-Till leaves crop residues on the top of the soil to conserve moisture and aid soil infiltration. This is especially important during dry seasons. With conventional tillage, excess evaporation may take place, limiting crop yields and the amount of water available to the crop.

6. Soil Structure Improvement. Perhaps it is contradictory to say that No-Till improves soil structure because for centuries it has been advocated that tillage improves soil structure and creates a more desirable seedbed environment.

However, modern research shows that several forms of minimum-tillage for row-crop production also can improve soil tilth, reduce compaction, lower the bulk density and the resistance to penetration, increase water infiltration and improve aeration. These characteristics are preferred in an optimum seedbed environment.

Over-tillage of the soil breaks down the natural aggregation of soil particles. This results in a puddling effect which causes crusting or sealing of the surface and compaction of the entire plowing depth. Bulk density increases at the expense of porosity which is the necessary structural characteristic for water infiltration, aeration and internal drainage.

So, you may have an unexpected benefit awaiting you if you use No-Till planting technology.

7. Offers New Rotations. Availability of chemical fertilizers, herbicides and insecticides along with economic pressures, has caused a switch in crop rotation practices.

Talk of crop rotations in one growing season has replaced talk of multiple year rotations, resulting in a growing popularity of double cropping or multi-cropping in areas other than the deep South.

Influencing this trend is No-Till farming with its moisture retention capability, lessening the gamble of summer drought arresting the second crop.

Double cropping, with the ability to plant one crop behind the harvest of a previous crop without tillage, is being practiced as far north as Michigan and Minnesota.

Many different combinations of crops have been raised in double and multi-cropping programs with a great deal of success and profit to the grower. Soybeans following winter barley or rye is a relatively common practice where double cropping is moving north.

8. Increased Land Use. Land that cannot produce a good crop under conventional tillage methods cannot be ex-

pected to produce a good crop with No-Till.

But with No-Till, a farmer can utilize land further up the slopes without the threat of soil erosion. And the No-Till cropping practice enables him to produce crops on land formerly suitable only for pasture and hay.

Furthermore, some farmers are finding that they can eliminate the time consuming and expensive practices of terracing or strip farming by using minimum tillage practices.

With No-Till cropping, several Kentucky researchers recently agreed that, based on their data, Class III land can be moved to Class II land without increasing erosion hazards.

One researcher summarized his findings by stating, "After 30 years and about \$30 billion of soil conservation work in this country, we stumble onto a system that not only pays its own way, but eliminates the need for further spending and, actually yields an immediate return. There aren't many soil conservation efforts that can show such immediate and sizable returns. And the best part is that the new land that can be put into production with this system is primarily in the marginal, hilly areas where farm income needs the biggest boost. It will more than double the productive acreage of many small farms."

9. Increased Yields.

Many minimum or No-till advocates would settle for crop yields equal to those of conventional tillage, feeling the other advantages are incentive enough to make the practice worthwhile. Others, particularly those seeking the soil and water conservation rewards of no-tillage might gladly sacrifice some yield in exchange for the fringe benefits.

Actually, it isn't necessary to sacrifice, yield, or even to settle for equal yields, in order to enjoy the desirable side effects of No-Till farming.

In fact, higher yields have become one of the chief reasons many growers are turning to minimum-tillage systems in some areas. Test have shown that in the average year the minimum-tillage crop has a better-than-average chance of out-yielding the conventionally-tilled crop. Furthermore, in a dry year, the odds are increased in favor of the minimum-tillage crop.

10. Higher Profits.

Profit opportunities from No-Till systems have been documented by university research and on-the-farm experiences can only be ascertained if an individual tries it on his farm. A Kentucky economic analysis projects a probable per-acre-advantage range of minus \$3.25 to plus \$53.75, with \$16 per acre advantage estimated as typical. This analysis doesn't include any figures for reduced labor (1-1/2 to 2 hours per acre) or for long-range conservation benefits.

Conclusion

In conclusion, it is unlikely that you would realize all benefits with one crop in one year. But it is even more unlikely that you would not realize any of the advantages. Most researchers and farmers working with No-Till crops list four, five or six advantages with their particular crop, soil and climatic conditions. Most were attracted to No-Till farming by a single potential benefit and have realized their goal in the first or second year.

To be successful in No-Till planting, proper planning is essential. You must be willing to invest time in building up a system and plan for both short and long range benefits. Use the ten guidelines in this article as a starting point.

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