

Can We Afford Not to Ridge Till?

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A typical farmer response to ridge till is that it is just another method of tillage. My contention is that it is much, much more than that. In my career in this industry I have had three objectives. One is to attempt to create as much balance between farming and the environment as possible. The second is to make farming profitable. The third is to make farming easier and fun. I believe with the proper approaches in regards to fertility, chemicals and water management along with the ridge till technique the objections are highly attainable and have been reached by a multitude of producers. My purpose today is to show you a success story and demonstrate how we arrived at it.

Before I attack ridge till, I would like to show you some work I have done that has been integrated into ridge till, is a key in its success.

Four years ago an associate and myself built a double row planter out of an International Cyclo planter. It was a take off from the work done by Doctor Roy Flannery. Dr. Flannery was able to produce high yields with both double rows and with narrow rows with the latter being the highest yielding. However, the narrow rows are currently not practical for most producers. We set out to build a planter that would be practical and that could use existing cultivators and harvesting equipment. The difference in the work done between Dr. Flannery and myself is the application of fertilizer. Dr. Flannery used rates varying from 500-300-300 down to 300-150-150. In the majority of my tests plots the rates were actually less than a typical farmer's application. Rates averaged 150-45-20-10-2, approximately \$40-45 per acre expense. I was interested in seeing if my rates applied directly under the row, split in two levels along with split nitrogen applications could possibly produce high yield versus high rate broadcast as in Dr. Flannery's work. The results are interesting! We were capable of producing 260 bushels in our 15 acre test plot. Maybe not overwhelming, however, in 2000 acres that I have planted in two states, we had only three plots that did not do better in its best year. As shown in the visual the row deep injected double rows handle different types of stress substantially better than conventional.

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By incorporating the fertility concept into ridge till it actually changes ridge till from just another farming method into a environmentally sound, profitable, high producing farm system. The effects of compaction, being the most common limiting factor in crop production, can be minimized with a ridge till system. The soil in the ridge is the mellowist therefore all fertility, year after year should be applied in the ridge at two depths. One must feed the entire ridge "cone". By only feeding the upper part of the ridge (which equates to only 5-10% soil mass) the yield could be affected by dry weather conditions or poor irrigation scheduling. When looking at the ridge in two dimensions and feeding both, the plant has an 85% chance of nutrient uptake due to the moisture in the lower level. I have found that when this technique is utilized the irrigation needed is reduced as high as 50%. This in itself has two environmental pluses - less aquifer depletion and less nitrate washout. This is one reason I believe we can use less nitrogen for higher yields is positional availability and has leaching.

In the case that you've seen today, after four years with this approach here is the scenario. The yields have steadily increased from 145 bushels in 1982 to over 200 average on 1000 acres in 1986. Fertility expense is now a constant of \$36.00/average. Irrigation expense once averaged \$47.00 acre is now \$29.00. With nitrates exceeding the EPA levels in the Platte Valley, the area around this farm has no contamination.

Enclosed are actual cash crop breakevens comparing conventional ridge till and ridge till with management. Only one had a profit before government subsidies, however small, it is a profit.

SUMMARY

In summary, ridge till, when done properly, can utilize less herbicides, have a greater return on fertilizer, use less water, has fuel and less labor.

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