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No-Till Notes:
"No Till and Water"
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I wanted to expand on my previous article concerning water and how no till farming allows us to do a better job of managing this valuable resource. In my previous article I talked about soil water evaporation and the benefits of residue. Leaving residue on the surface is a management decision which results in valuable water savings through less evaporation loss. The study done by the University of Nebraska showed 6 inches less evaporation on soil with residue compared to bare soil, and 3 inches of less evaporation even when the crop has canopied. The other management practice that costs us valuable water is tillage. UNL has shown substantial loss of water when tillage is done to the soil. Depending upon the tillage practice, the loss of water can range from .5" to 1" of water per operation.

If we take a look at conventionally farmed corn a typical seedbed preparation may require one or two disking operations, a pass with a field cultivator, maybe a packer harrow to firm the seed bed, then planting. After emergence, a couple of cultivations to control weeds and loosen the soil. That is a total of 6 operations leaving virtually no residue on the surface. Using a water loss of .5"/operation, this still equates to 3 inches of soil water lost through tillage. The lack of residue on the soil surface will promote increased soil water evaporation loss in the neighborhood of 3-6 inches.

When you combine the two management decisions, lack of residue and tillage, there is a water loss equivalent to 6-9 inches. This water loss must be replaced either by mother nature, who hasn't been cooperating with us very well, or irrigation. On our farm the cost of pumping an inch of water per acre has been around $4.65. If I had to replace this water with irrigation, the cost would be between $27.90-$41.85 per acre! This is a substantial loss of soil water and a hefty increase in production costs due to residue loss and tillage.

Another important management consideration is the availability of water even if we were willing to pay the pumping cost associated with tillage. We are faced with a lack of water and increased watering restrictions across our state. As producers in agriculture, we are all faced with the dilemma of managing our water resource and remaining profitable in doing so. This is a challenge that agriculture in our state is going to face head on and I think no till farming methods will play an important role in meeting this challenge.