

No Till Notes: New No Till
By Mark Watson, Panhandle No Till Educator

Throughout the summer irrigation season I have been reporting updates on our farm with a Keith silt loam soil and a long history of no till farming to show the benefits of irrigation water use and the water efficiency of no till farming. We also started farming a new farm this year and I was interested to see how we would do with water use on this new farm.

I need to give a brief description of this new farm. The dominant soil type on this farm is Valent fine sand. This soil has a low water holding capacity of .96 inches per foot of soil. Some of the farm had a history of 1 year of no till, and the remainder of the farm had been conventionally farmed. A few of the wells on this farm pump 400-500 gallons of water per minute, which is a pretty low capacity. I thought it would be very interesting to see how this farm responded to no till farming practices and what type of yields we could achieve with sandy soils and limited water.

We have a full center pivot of irrigated corn which shares a well with another half circle of pinto beans. This is a limited capacity well pumping around 500 gallons per minute. The capacity of the well fell off during the irrigation season down to around 400 gallons per minute by late summer. We were able to apply about .65 of an inch of irrigation water per week on these acres. Obviously, we were limited in water and couldn't over water if we wanted. With the benefit of the previous crop's residue on the soil surface, and monitoring the soil moisture with our soil moisture sensors, we started irrigating around the 1st week of July. This growing season we pumped 7.75 inches of water on the corn and 6 inches on the pinto beans.

We also had a center pivot of pinto beans with a well of similar water capacity. During the growing season we applied 7 inches of water to this pivot.

We received approximately 2 inches of additional rainfall during the growing season on this farm than we did on our home farm. Even with the additional rainfall on this farm we were slightly below normal, about .75 of an inch, during the irrigation season from May through August.

We also had a circle of irrigated wheat on this farm. The wheat crop was planted into a conventionally tilled dry edible bean field with little residue on the soil surface. We pumped 11 inches of irrigation water on this field. We used 3.25 inches more to raise a crop of wheat than we did to raise a crop of corn. The single contributing factor to this water use difference is the lack of residue on the wheat field following conventional tilled edible beans.

Our average water use in this early no till irrigation fields was 7.9 inches per pivot. If we look at just the true no till fields and eliminate the winter wheat field which was planted into conventional tilled soil, the average water use per field to raise corn and edible beans was 6.8 inches per center pivot.

I was pleasantly surprised to find that we could use a relatively low amount of irrigation water on sandy soil types and produce good yielding crops. We don't have the crops harvested with the exception of the winter wheat, but the corn and edible bean crops look very good headed into fall. I think these results show that even in early stages of no till crop production practices, the benefits of no till and water efficiency will show as soon as the practice is introduced into your farming operations.

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