

### No-till best way to conserve moisture

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Thankfully we finally received a blanket of wet snow across our growing region. There is also more snow in the forecast which should help us to recover from the prolonged drought we've experienced since last growing season. This welcome moisture will begin to add to our soil moisture profile for the upcoming growing season.

The past couple of weeks I've shown that no-till crop production on our irrigated acres has many benefits. Economic analysis of no-till crop production has shown no-till to be the least costly production system. No-till crop production has also proven to be the best system for conserving moisture.

Water, or the lack of it, has always been the limiting factor on our dry land acres as far as crop production is concerned. This same lack of water is rapidly becoming the limiting factor on our irrigated acres as well. We need to become better managers of the limited water available for crop production on our irrigated acres. No-till crop production allows us to accomplish this water conservation goal by leaving the previous crop's residues on the soil surface and eliminating tillage operations from our crop production systems.

The general perception among producers is that no-till crop production will cause a reduction in yields for the crops produced.

Research conducted at two of our local research stations has shown some reduction in yield at the Panhandle Research and Extension Center in Scottsbluff, Neb., but at the North Platte Research Center a higher yield with the use of no-till crop production.

At the Panhandle Research and Extension Center (PREC), yields in corn and edible beans were slightly lower in no-till than in conventional or strip tillage. The reduction in yield ranged from 8-18 bushels per acre in corn in varying cropping rotations, and 200 lbs. per acre in edible beans.

The loss of yield when comparing the different tillage practices didn't make up for the additional costs in obtaining those yields by using tillage.

No-till crop production proved to be the most profitable cropping system.

The research conducted at the PREC also didn't take into consideration the water savings when using no-till crop production.

Research conducted at the UNL West Central Research Center in North Platte, Neb. showed no-till crop production saves on average 3.5 to 5 inches of irrigation water. Water conservation on our irrigated acres is becoming more and more important in keeping our irrigated acres profitable.

Research in North Platte showed a 17-25 bushel increase in yield for corn when the corn was grown in high residues compared to bare soil.

Soybean yields were 8-10 bushels higher when grown with high amounts of residues in the

field.

The research has shown that no-till crop production systems require less irrigation water pumping to produce good yields. Local research has also shown that even if there is a reduction in yield using no-till crop production practices, no-till is still the most profitable production system.

As our water allocations become more stringent we have to become better managers of our soil moisture and our groundwater and surface water resources. The widespread adoption of no-till on our irrigated acres allows us to remain profitable with less irrigation required to produce our crops.

On our own farm, we have seen the benefits of no-till crop production. We are also looking at additional benefits by increasing the health of the soil we work with. I think our yields are in line with other neighbors who produce their crops using conventional or strip tillage. The economic analysis of no-till production systems has shown no-till to be the most profitable. I think producers will look at the research, economics, and water conservation benefits of no-till crop production and begin adopting no-till on a widespread basis in our region.