

Date: For the week of July 19, 2009

### **No Till Notes: Soil Moisture**

By Mark Watson, Panhandle No Till Educator

With all the spring and early summer rain we have received in the Panhandle our subsoil moisture is in excellent condition. With summer coming on and the irrigated crops growing I wanted to talk to you about our soil moisture monitors and how we are using them to help us with our irrigation management.

It's always difficult to determine when the irrigated wheat has enough moisture to finish the crop. Since early June there has been little need to irrigate the winter wheat crop with all the June rain. On our farm we received 7.04 inches of rain in June. This was followed by 2.25 inches the first week of July. Since the first of October of last year we have had a total of 16.1 inches of moisture for this wheat crop. We also applied 2.25 inches of irrigation during May on the winter wheat, so our total is 18.35 inches of precipitation and irrigation for the growing season of the winter wheat. UN-L has determined winter wheat required 17-18 inches of moisture to produce a crop under irrigation, so we are slightly over UN-L's requirements.

Our soil moisture sensors indicated we have enough soil moisture for us to finish the crop without further irrigation. Our first foot sensor is currently reading 48 centibars on the 15<sup>th</sup> of July. With our silt loam soils this centibar reading indicates a depletion of about .4 of an inch of moisture at the one-foot level. Our soil holds 1.8 inches of moisture per foot, so there is 1.4 inches of moisture available. The second foot sensor has a similar reading. The third and fourth foot sensors are in the mid 30's. These lower soil readings are in a white calcareous soil, which has a moisture holding capacity similar to sand. I figure the third and fourth foot have a half inch of moisture in them. This leaves us with roughly three to three and a half inches of available moisture in the four foot profile. We feel this is enough moisture to take the wheat crop to maturity and we won't irrigate the winter wheat crop. I also hand probed the soil profile to see if the sensors were accurate and I felt they were.

Our sensors in the corn are reading 72 centibars at the first foot, 28 centibars at the second, 22 centibars at the third, and 10 centibars at the four foot level. The lower the centibar reading, the more moisture there is in the soil. For our silt loam soils 33 centibars is field capacity. At this level the soil has 1.8 inches of plant available water. At the 72 centibar reading, the first foot is depleted about .7 of an inch. Our plan is to wait until the first foot reaches around 105 centibars, which will be an inch depleted. We would also like to see the second foot centibar begin to show some depletion before we begin to irrigate the corn. Ideally we would like to have enough room in the soil profile for an inch and a half or so of moisture, so if we irrigated and then receive some rainfall, we will have enough room in the soil profile to hold the additional rainfall moisture.

Our corn is at the 10 leaf stage, or about waist high on average, so we feel the plant should have roots beyond the two foot soil sensors. We will wait to irrigate until the crop begins utilizing some of the moisture in the lower soil profile. I would

guess somewhere around the 20<sup>th</sup> to 25<sup>th</sup> of July is when we will begin irrigating the corn crop. This seems rather late to start irrigating corn but we typically don't receive so much rain in June and early July like we did this year.

We feel we are better managers of our soil moisture and our irrigation water by utilizing the soil moisture monitors. These monitors help us determine when to irrigate and also when to finish irrigating the crops we grow. We also feel the soil moisture monitors have saved us money by allowing us to manage our irrigation resource more consistently than we have done in the past.