

**June 3, 2016**

## **INSTALLING IRRIGATION SENSORS**

Now is the best time to install irrigation sensors in corn. This minimizes root damage and allows the sensor time to acclimate with the soil. As planting progress continues, it is recommended that irrigators start installing water sensors in fields as time allows. With the watermark sensors, we have right at 200 farmers that have ordered soil moisture sensors from the Lower Big Blue NRD since 2008. We peaked in 2011 when 46 producers ordered the irrigation sensors that year.

As plants mature, sensor installation may result in damaged plants and roots close to the sensor, resulting in altered readings compared to healthy plants. Depending on the sensor installed, initial readings may reflect water within the sensor or from the surrounding slurry, so time needs to be given to let soil water conditions even out.

We have been so wet, irrigation season seems far off, but early installation of sensors is still highly recommended. When installing only a single sensor station within a field, it is critical to install sensors in the most representative spot, making sure to avoid low areas, poor stands, or steep slopes. For instance, basic watermark sensors that will be read using a handheld meter will need to be placed somewhere easily accessible to ensure that they are used during the season. For watermark sensors, we continue to recommend using a dry fit installation as research shows this gives the best soil contact to ensure an accurate soil reading. Dry installations require a properly sized soil probe and is the most challenging in high clay soils. For more information on installing watermark sensors, refer to EC783 Principles and Operational Characteristics of Watermark Granular Matrix Sensor to Measure Soil Water Status and Its Practical Applications for Irrigation Management in Various Soil Textures or view the installation video at [https://www.youtube.com/watch?v=M\\_dBCOzFSAE](https://www.youtube.com/watch?v=M_dBCOzFSAE).

With capacitance sensors, close contact with the soil adjacent to capacitors is needed. To address this, during installation some companies use a slurry installation (i.e., mixture of soil and water). The downside of this installation method is the soil structure of the slurry does not represent the surrounding soil. This downside will need to be weighed against the possibility of air gaps with a dry installation. In some cases this still may be the best option.

Watermark sensors need to be checked before installation to ensure that they are reading properly. When dry, sensors should read 199 kPa. After soaking in water for 10-15 minutes, sensors should read between 0-10 kPa. Values higher than this likely indicate that the sensor needs to be replaced. Watermark sensors should typically last for at least three to four growing seasons.

Before you go to the field to install watermark sensors, be sure to put the sensors in water and install them wet to eliminate air in the sensor. More information about how to assemble and prepare watermark sensors is available in this video:

<https://www.youtube.com/watch?v=jpEsjVO497A>



We have found that farmers that install this equipment are using less irrigation water on the front end of the irrigation season and especially on the back end. In August it is really helpful to get a digital reading of soil moisture status 2 and 3 feet deep in the soil versus guessing. Growers can then leave room for off season rainfall at crop maturity.

We have step probes you can borrow for installation at the Extension Office. If you don't have one it makes the installation even easier. Now with a full profile of soil moisture, installation is easier. In an era of concern about irrigation groundwater levels, utilizing irrigation sensor technologies and your irrigation management can make a big difference collectively.

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