2015 SARE – Improving Water & Nitrogen Use Efficiency Utilizing Soil Moisture Monitoring to Improve Irrigation Management.

Verbal, Pre-project Survey of Cooperators

1. **How many acres of irrigated corn do you produce per year?**
   1. Total Irrigated corn acres by growers: 3,680 acres
   2. Irrigated corn acres range grown by individual farm: 50 to 750 acres
2. **What are your typical corn planting populations?**
   1. Avg population: 32,500 sd/A
   2. Population range: 30,000 to 36,000 sd/A
3. **How do you apply nitrogen? (poultry, pre-plant, starter, sidedress, fertigate)**
   1. Poultry and/or Preplant: 13
   2. Starter: 11
   3. Sidedress: 12
   4. Fertigate: 10
4. **How do you determine when to irrigate, and how much?**
   1. \*Some used 1 or a combination of below methods
   2. Soil feel: 2
   3. Watermarks: 1
   4. Experience: 3
   5. Consultant: 1
   6. When you think the crop needs it: 6
   7. Crop Appearance: 3
   8. Crop Water Use Curve: 1
5. **Have you had your irrigation system calibrated to determine actual irrigation applied?**
   1. No: 6
   2. Yes: 10
6. **During a week of 90+ degree weather during corn pollination, how would you irrigate? How much irrigation you would apply and when for the entire 7 day period.**
   1. 1” : 3
   2. 1.75”: 1
   3. 2.0: 2
   4. 2.5”: 1
   5. 3.0”: 1
   6. 3.5”: 1
7. **Over the course of the growing season how much water (on average) would you apply to corn?**
   1. 20”: 1
   2. 7” – 12”: 2
   3. 10”: 2
   4. 8”: 1
   5. 6” - 7”: 2
   6. 5”: 1
   7. Not sure: 4
8. *Do you use poultry manure? If so how much and when do you apply?*
9. *How do you sidedress? What equipment?*
10. *What rates/analysis of fertilizer do you apply at pre-plant, as starter, as sidedress and as fertigation?*
11. **How many lbs. of nitrogen do you apply per bu. of corn produced or ratio?**
    1. 0.8 lb/bu – 1
    2. 1 lb/bu – 12
    3. 1.1 lb/bu - 2
12. **What are your typical irrigated corn yields? Including corners or not?**
    1. 190:1
    2. 225:3
    3. 230: 1
    4. 250: 3
13. **In the test field, what is your yield goal?**
    1. 230: 1
    2. 240: 1
    3. 250: 4
    4. 260: 1
    5. 280: 2
    6. 300: 1

Verbal, Post-project Survey of Cooperators

\*One system was used in full season soybean due to the cooperator switching from corn to soybeans because could not get the corn planted timely due to weather. Soybeans were irrigated once very late in the growing season based on sensor readings. That was the only time all season soybeans dried out. Rainfall was adequate.

1. **What problems did you encounter in using the data provided by the soil moisture sensors**
   1. None: 7
   2. Didn’t understand what the graphs meant: 1
   3. Modem down: 1
   4. Erratic sensor readings 1
   5. Didn’t attempt to use: 3
2. **How often did you look at the sensor data? Did you use the sensors to make irrigation decisions?** 
   1. Everyday: 2
   2. 2 x per week: 4
   3. 3 x per week: 2
   4. Every other week: 1
   5. Once every 3 weeks: 1
   6. Not at all: 3
3. **Did you apply more or less irrigation with the sensors than you would have prior to this project? (If you used the sensors). How much more/less?**
   1. More: 3
   2. Same: 3
      1. But different timing
   3. Less: 2
      1. 10%
   4. N/a: 6
4. **What were your corn (soybean) yields for the field(s) that used soil moisture monitoring? How did the yields of the monitored fields compare to your historical irrigated yields.**
   1. More: 3
   2. Less: 2
      1. Variety. COC. disease
   3. Same: 6
   4. Unknown: 1
5. **If you saw a yield increase or decrease this year what do you attribute this to?**
   1. Decrease:2
      1. Variety. COC. Disease
      2. Variety
   2. Increase or Same:1
      1. Variety
6. **How many lbs. of nitrogen did you apply per bu. of corn produced? Increase or decrease this year?**
   1. Same: 10
   2. More: 1
   3. Less:
7. **Do you plan on making changes to your irrigation scheduling program after this year?**
   1. No: 7
   2. Yes: 6
      1. Follow ET Schedule closer
      2. Learn to interpret data better and keep better records
      3. More frequent applications
8. **Do you plan to invest in soil moisture monitoring equipment in the future? If so, when and on how many acres?**
   1. No: 8
   2. Possibly: 3
      1. Depends on cost
      2. Need more experience
      3. Hoping UD will repeat project
   3. Yes: 2
      1. 180 acres
9. **Is there anything we can change or do better in this project for next year?**
   1. No: 11
   2. Yes: 1
      1. Better explanation of how to interpret graphs