2019
R&E GOERING FARMS
KANSAS WATER OFFICE
WATER TECHNOLOGY FARM
WATER TECHNOLOGY FARM OBJECTIVE

• Study reduced water application approaches through low pressure/low drift nozzling packages
• Analyze low pressure/volume application methods to reduce/eliminate electric “Demand Charges” from BPU.
VENDORS AND TECHNOLOGIES DEPLOYED

• Soil Moisture Probes – Servi-Tech (one in control and each treatment)
• Autonomous Pivot – GPRS Soil Moisture (product in development in 2019)
• Arial Imagery:
  • Ceres – Fixed Wing Imagery
  • Terravion – Fixed Wing Imagery
  • American Robotics – Daily Drone Imagery
• Weather Station:
  • Farmers Edge
  • Servi–Tech Electronic Rain gauge
RESEARCH PLAN

• 1st-4th spans, Senninger Xi-Wobs 15psi at 1.0” per application

• 5th Span, Komet Twisters - 6psi at 90% application rate

• 6th Span, Netafim Mobile Drip Irrigation at 80% application rate

• 7th Span, Senninger LDN bubblers - 6psi at 80% application rate
Netafim Precision Mobile Drip Irrigation

Senninger Xi-Wob

Komet Twister
Senninger LDN Bubbler with shroud

Senninger LDN Bubbler
MEASURED APPLICATION RESULTS

- 1st-4th spans, Senning Xi-Wobs as control at 0.75” per application
- 5th Komet Twisters with 6lb regulators at 87% rate
- 6th Netafim Precision Mobile Drip Irrigation at 86% rate
- 7th Senninger LDN Bubblers with shrouds at 80% rate
JULY 18 CERES - WATER STRESS (THERMAL)
2019 RAIN AND IRRIGATION

• 29.62 inches of rainfall from April 6th to September 12th
• 8 full rate irrigation passes
  • (initial .5 inch application for testing)

• Control spans – 6.8” (0.75” /application)
• Mobile Drip & Twister – 5.8” (0.64” /application)
• Bubbler’s – 5.4” (0.60” /application)
2019 CORN HARVEST YIELD

Yield:
233 bu/acre avg.

Measured from last tower to pivot point

Variety:
Pioneer 1366AM
YIELD RESULTS SAMPLES AREAS

- 4\textsuperscript{th} span, control - 241 bu/acre
- 5\textsuperscript{th} Span, 87% rate - 241 bu/acre (100%)
- 6\textsuperscript{th} Span, 86% rate - 238 bu/acre (98.8%)
- 7\textsuperscript{th} Span, 80% rate - 231 bu/acre (95.9%)

Yield:
237 bu/acre avg.