Mobile Irrigation Labs

Helping Landowners Build a Brighter Future for Agriculture

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Current Irrigation Challenges

- Diminishing supplies of irrigation water
- Diminished water quality
- Increasing costs for labor and energy
- Drought conditions
- Salinization of irrigated lands
- Removal of irrigation water from arable lands (Buy & Dry) for municipal and other uses

Irrigation Challenges

Some Ways Mobile Labs Can Help

- Help Producers Better Meet Crop ET Needs to Maximize Returns
- Determine System Application Efficiency and System Losses
- Evaluate Current Crop Condition
- Assist With Determining Proper Leaching Fractions for Crops
- Obtain Quantitative Data on Soil and Water Quality Transfer of Technology to Producers

The Mobile Irrigation Lab

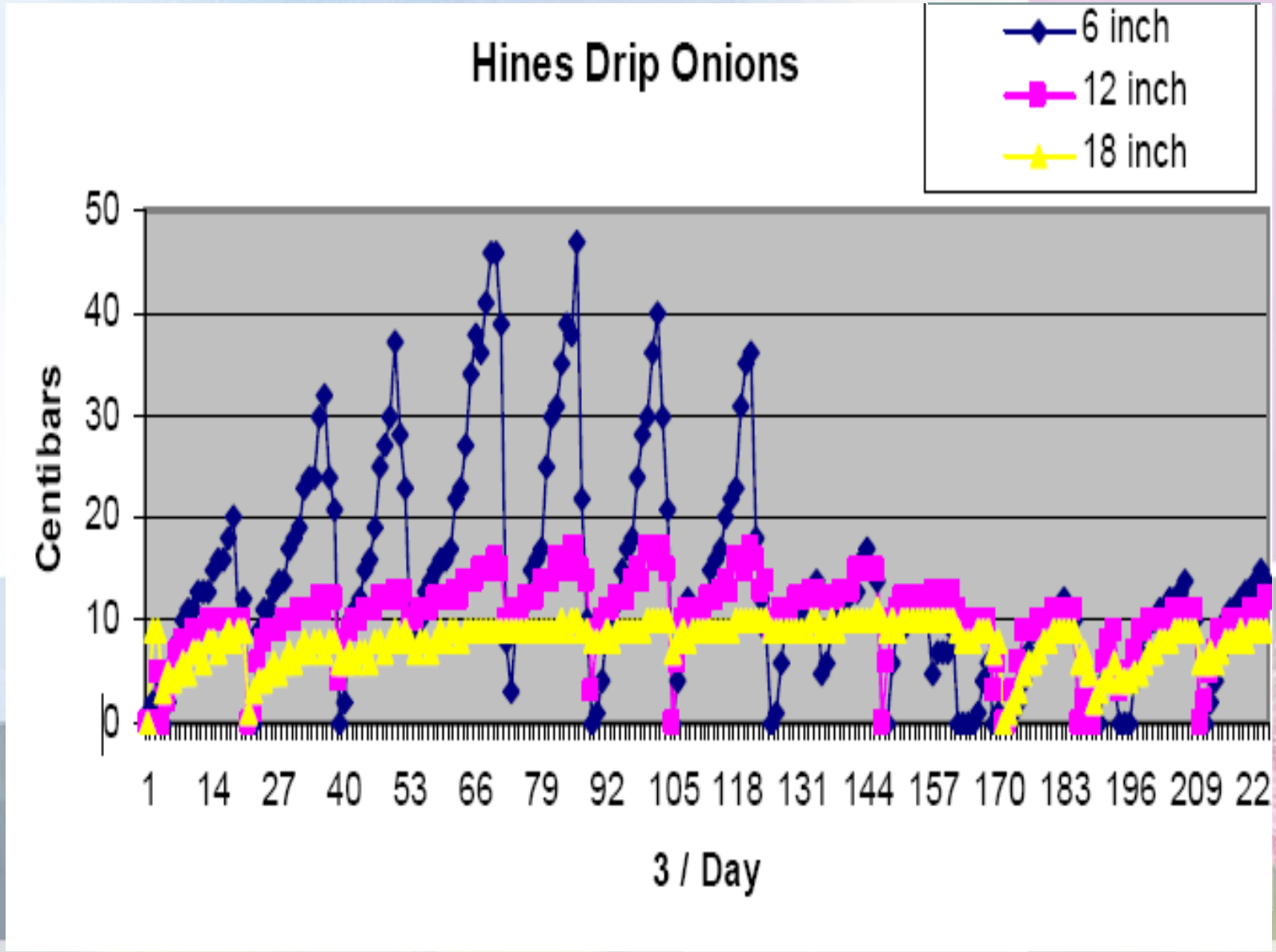
Direct Technical Assistance

Soil Moisture Equipment

- **The Mobile Irrigation Labs (MIL's) will be equipped with modern Watermark moisture sensors.**
- **Data is displayed graphically for the producer on a logging unit capable of supporting up to six sensors, removing potential operator calibration error.**
- **Sensors and logger can be temporary or permanent installation**

Datalogger Installation

Hansen Datalogger Data



Infiltration Equipment

- Each MIL will be equipped with a Cornell Infiltrometer.
- Operation of the Cornell will allow rapid assessment of current intake rates in the field, allowing appropriate settings for sprinklers and minimizing runoff.
- Can be used throughout the growing season to account for changes in the soil at different crop growth stages.

Cornell Infiltrometer on Pasture

Cornell Infiltrometer in Corn

Water Measurement Equipment

- **MIL's will be equipped with ramp flumes and furrow flumes to allow rapid assessment water applied to the field, runoff, and uniformity between furrows.**
- **MIL's will also be equipped with catch cans to allow for sprinkler uniformity assessments.**

Soil Sampling Equipment

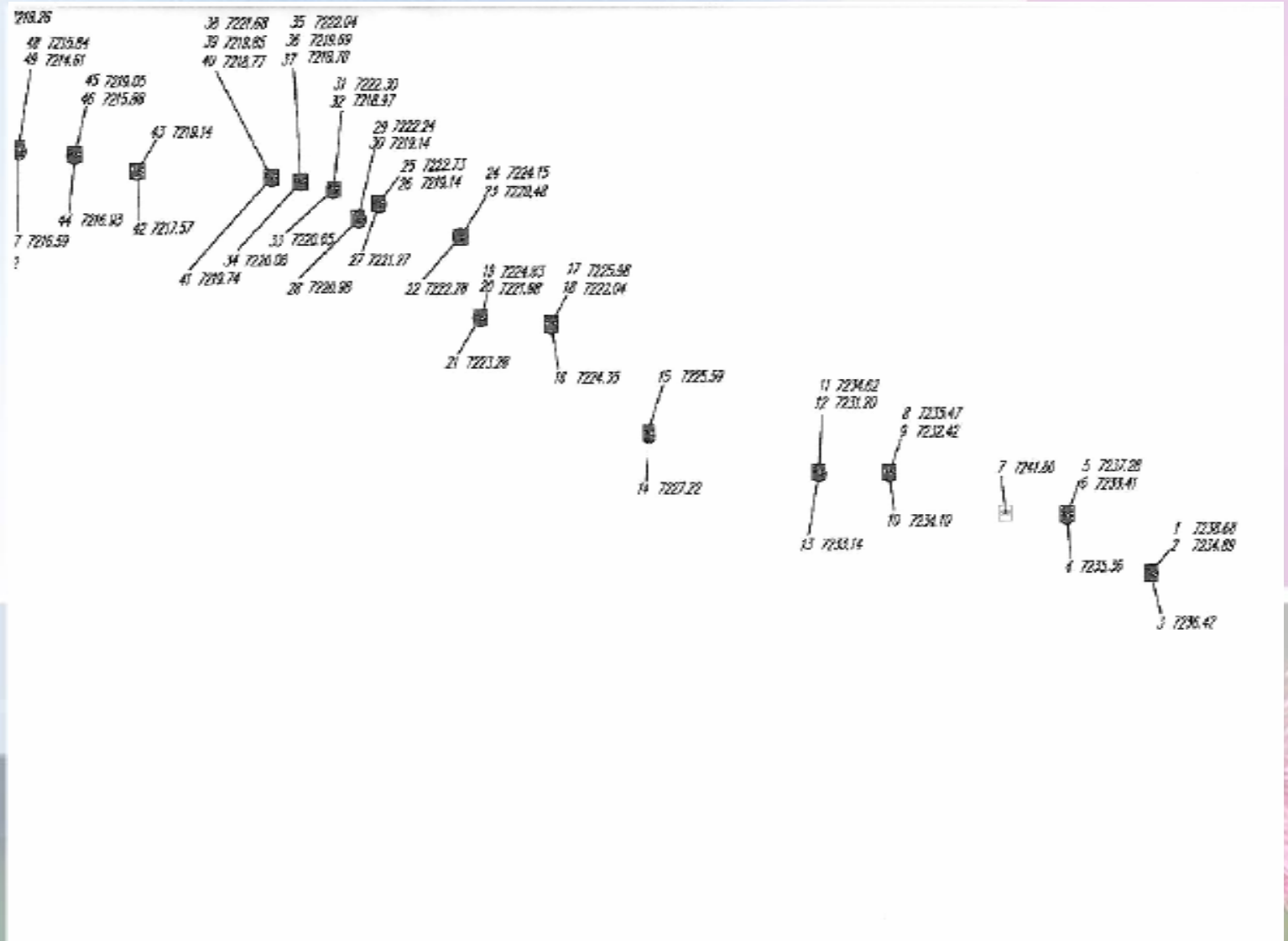
- **Soil auguring equipment will be fitted to allow for detection of “plow pans” or textural changes in the soil to facilitate better uniformity.**
- **Ball probes will be handed out to producers so they can continue to monitor depth of irrigation and uniformity across the field.**

Soil Sampling Equipment

Surveying Equipment

- **MIL's will be equipped with surveying equipment to allow for land leveling, grading of ditches, alterations to head slope due to sedimentation, and other operations to improve DU.**
- **Noninvasive flowmeters will allow for measurement of flow rates without damage or alteration to the existing pipe.**

Survey Data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48 7219.84
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45 7219.05
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27 7221.77
22 7222.78
15 7224.93
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18 7222.04
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16 7224.35
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11 7234.62
12 7231.20
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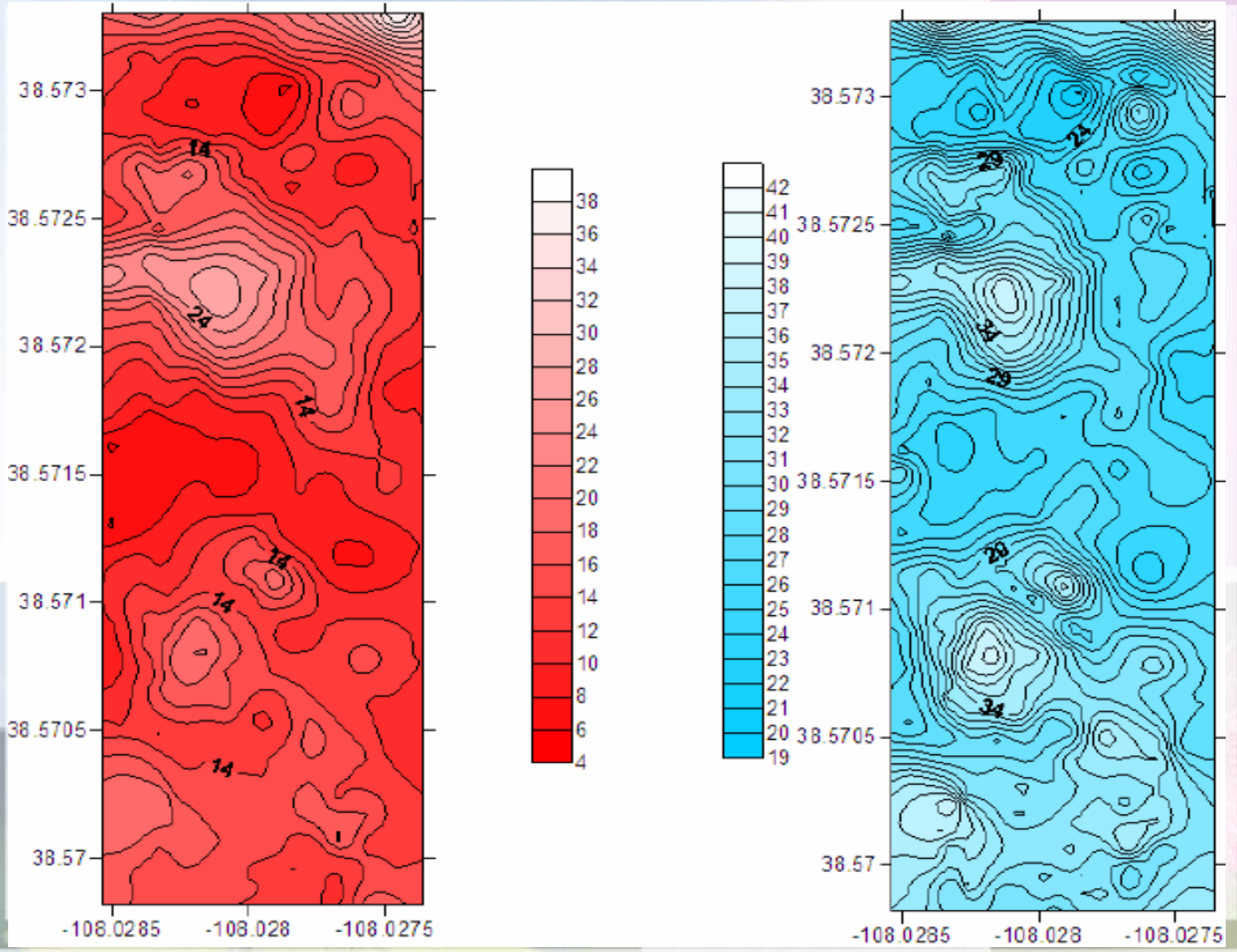
9 7232.42
13 7233.14
10 7234.19
7 1741.66
5 7237.28
6 7233.41
4 7235.36
1 7238.68
2 7234.89
3 7236.42

Salinity Equipment

- **MIL's will be equipped with state of the art DualEM-2 Conductivity Meters and data loggers coupled with Differential GPS.**
- **DualEM meters operate on a coupled dual-dipole principle allowing for measurements of apparent conductivity at one and two meter depths without contacting the soil.**

DualEM

Salinity Maps



Salinity Equipment

- **Sodium concentrations can be determined by analysis of saturated soil pastes using a Hach Kit and Ion-Specific electrode.**
- **Conductivity, pH (Hydrogen Ion Concentration), and other parameters of irrigation water can be determined by use of onboard meters.**
- **Appropriate leaching fractions can be determined.**

Other Equipment

- Infrared thermometers and chlorophyll meters will be used to determine crop condition and assist producers in making the decision to irrigate.
- Imhoff cones will be used to help assess and manage sedimetation problems.
- Onboard computer support will allow producers to receive real results in the field, supplying information when it's needed.
- Other equipment will be added to the MIL's as current technology evolves.

Mobile Office

Mobile Irrigation Labs

The Future of Water Management…

Available Today