

Advancing the Concept of

Subsurface Drip Irrigation

on Grain Crops

Progression of Discussion

Video Introduction to SDI

SDI System Definition

Drivers for SDI Adoption in the Central Plains

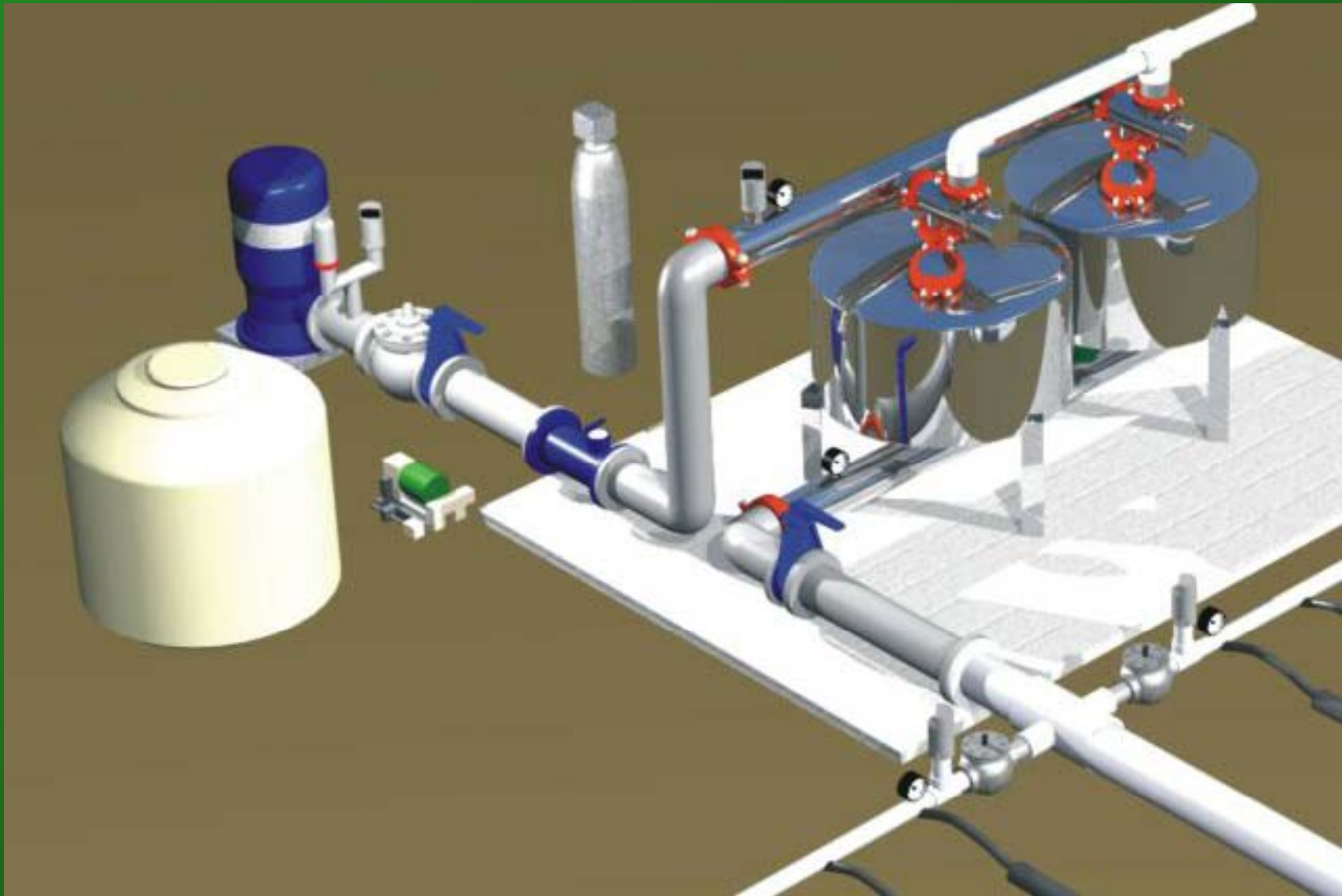
Shedding “Irrigation” label for “Agronomics” Approach

Agronomists as the Technology Leaders / Drivers

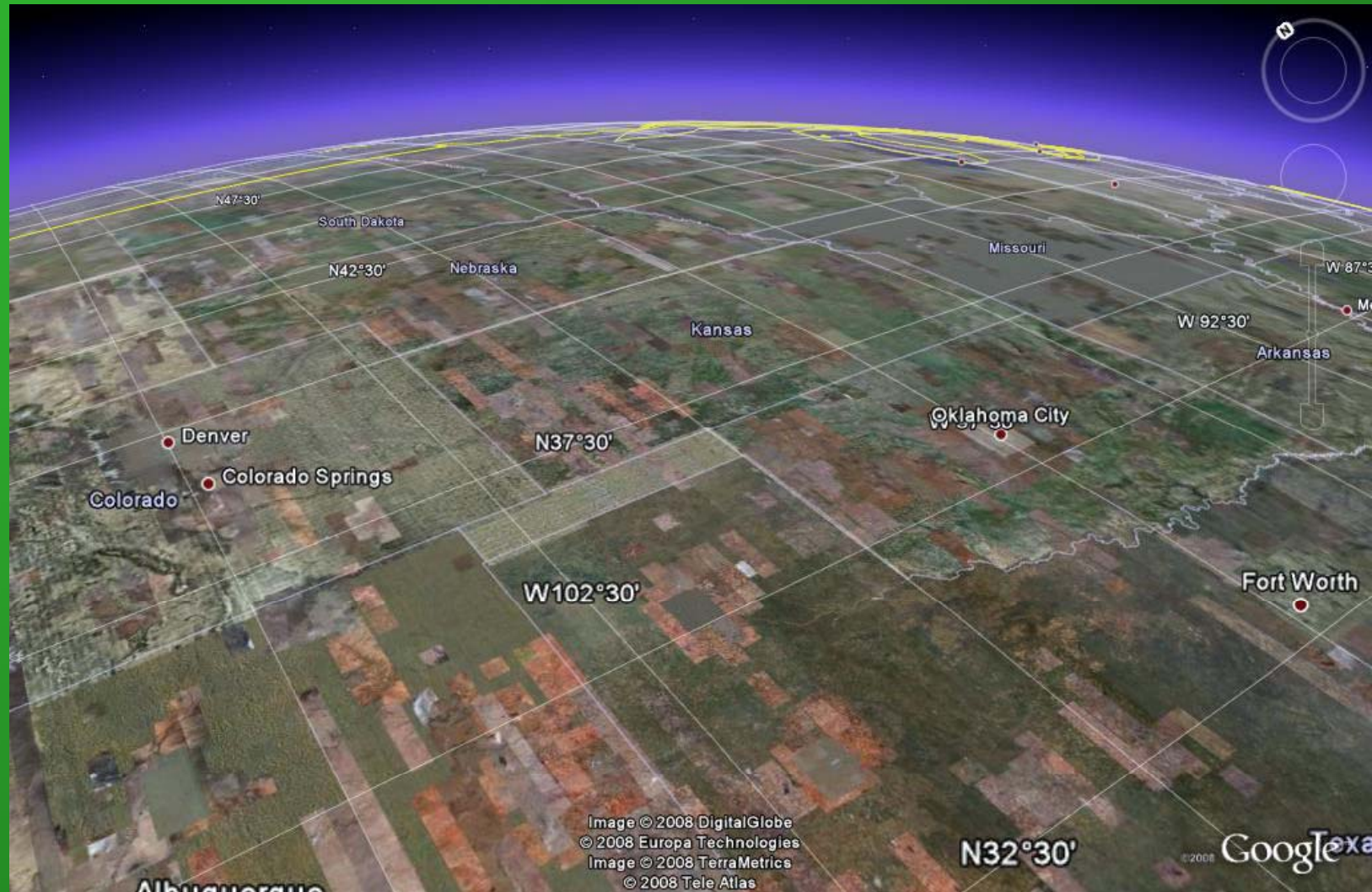
Discussion

Video Presentation

System Definition



Drivers for Adoption in the Central Plains



Drivers for Adoption in the Central Plains

Production Improvement Typically > 10%

Corn ET Rates are 2x Higher than Water Allotments

Center Pivots 6 GPM/Acre vs. SDI at 2 GPM / Acre*

Water is a Limited and Diminishing Resource

Center Pivots Exclude 18% of Acreage in Square Field

Economizing Use of Nutrients

*Production of a Commercial Corn Crop in Western High Plains that is Economically Viable

Merging Technology to Develop Opportunity



Irrigation

Agronomics

Shedding “Irrigation” for “Agronomics”

Conserving Resources is Always Intelligent

Fuel, Water, Fertilizer... MONEY

Focus on **Effective**, Not necessarily **Efficient**

Effective Automatically includes **Efficient**
Efficient alone does not inspire investment

Efficient Irrigation has 1 Dimension and Limited Return

Effective Crop and Environmental Management is Dynamic

Shedding “Irrigation” for “Agronomics”

What do I mean by “Environmental Management?”

SDI Changes Everything

Surface Soil Conditions

Canopy Relative Humidity

Activation and Availability of Nutrients

Manipulation of Plant Development

Root Mass pH

Trait Selection

Shedding “Irrigation” for “Agronomics”

Irrigation Only Involves Agronomists in a **Red** Light
Green Light Way

Agronomics and Agronomists are the Future of SDI Development

**Mission: Provide a Unique Profit Opportunity for Growers Through Effective
Crop and Resource Management**

Agronomists as the Technology Leaders / Drivers

How Does an Agronomist Fit Into SDI Development?

You are THE Operations, Plant Physiology, Plant Pathology, Soil Media, Climate, Nutritional, and Grower Intelligence / Advancement Specialist

Superman wears *YOUR* Pajamas!

Crop Management is the Key to SDI Success

AND SDI is the Key to True Precision Crop Management

Agronomists as the Technology Leaders / Drivers

Steps to Success

- 1. Selecting a Grower / Investor with Foresight and Adaptability**
- 2. Analyzing Soil Type and Strata in Each Field**
- 3. Deciphering Climate / Weather Expectations**
- 4. Analyze Water Quality and Availability Outlook**
- 5. Identify Ecological and Environmental Concerns (if applicable)**
- 6. Conduct Crop Selection Investigation / Forecast**

Agronomists as the Technology Leaders / Drivers

Steps to Success

- 7. Analyze and Select Proper Soil Preparation and Maintenance**
- 8. Identify and Develop a Control Plan for Pest Management**
- 9. Identify Grower Management and Operational Style**
- 10. Download Information to System Engineer / Irrigation Professional**
- 11. Complete System Operation Training**
- 12. Identify and Select Crop Analytical Tools and Services**

Agronomists as the Technology Leaders / Drivers

Steps to Success

13. Conduct Soil Nutrient Analysis

14. Select Proper Nutrients for Augmentation

15. Select Most Appropriate Traits for SDI

16. Ensure Proper Moisture Profile for Germination Prior to Planting

17. Utilize the Precision Delivery of SDI as a Crop Manipulation Tool

18. Monitor Scientific Crop Data (Plant Nut., Soil Nut., Moisture...)

Agronomists as the Technology Leaders / Drivers

Plant Manipulation

Possible ONLY with Precise Delivery and Soil Moisture Control

Dynamic Management based on Growth Stage / Environment

Driven Primarily by Nutrition Analysis of Plants and Soil

Possibilities defined by Agronomist's Ability / Knowledge

Success is Defined by Breaking Free of Recipe Farming

Forget Limitations

Agronomists as the Technology Leaders / Drivers

Business Opportunity for Agronomists

Gain the Crop Control Necessary to Drive up Production

Capitalize on your Knowledge Base and Abilities

Gain Value through Management of Crop Complexity

Deliver Operational Efficiency

Results are Linked to Efficacy of Management

Agronomists will Define the Crop's Optimum Production with Dynamic Management

Drivers for SDI in the Delmarva



Drivers for SDI in the Delmarva

Full Productive Use of Valuable Land

Precise Timing and Delivery of Nutrients and Water

Economizing Use of Nutrients, Limiting / Eliminating Run-off

Delivery Mechanism Customized to Soil, Limiting Leaching

Urban Demand for Water Resources

Political Environmental Pressure

Your Turn...

Let's Explore Your Thoughts