

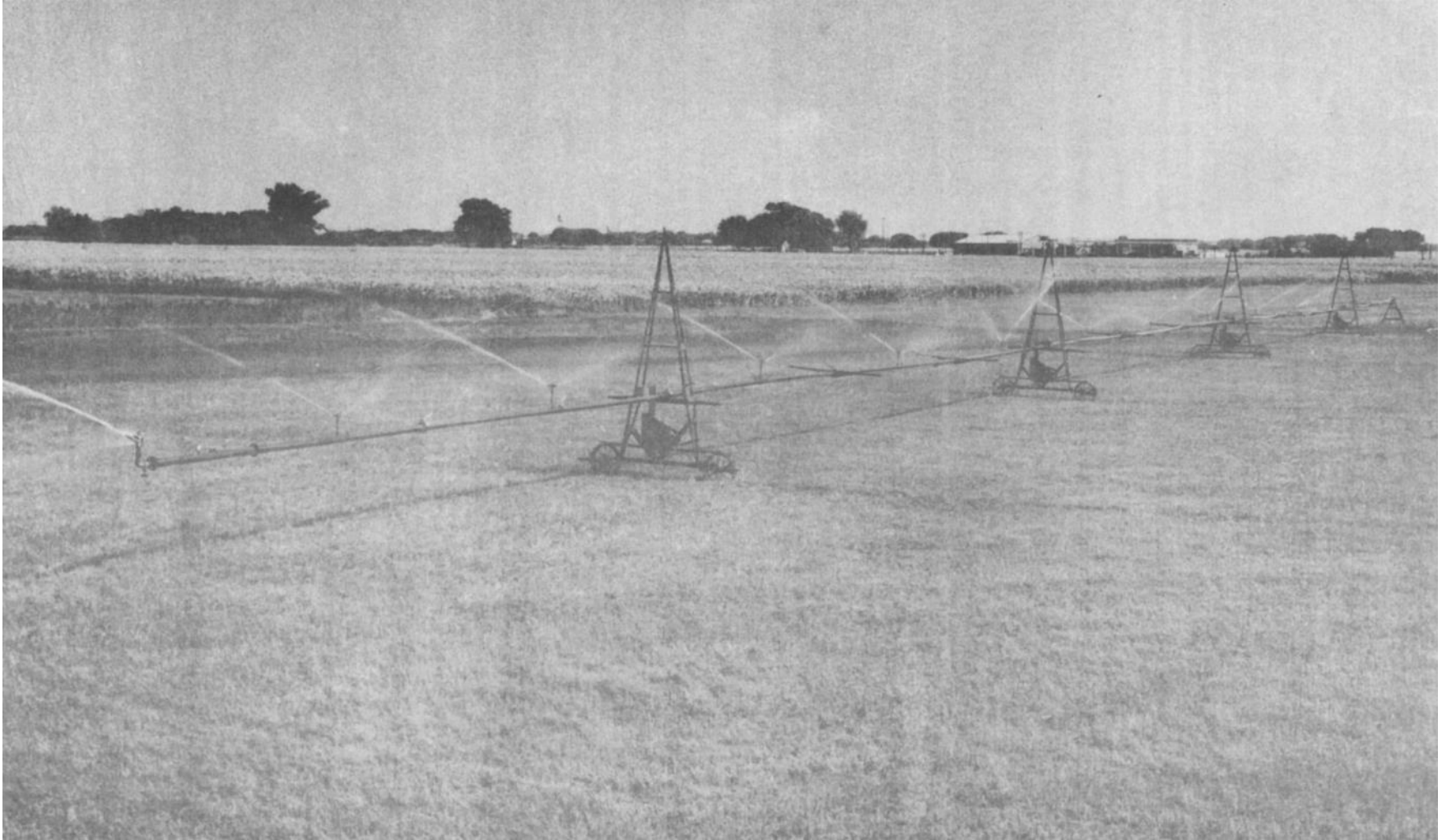
Variable Rate Center Pivot Irrigation, VRI

Kurt Romans

*Owner/Engineer– Romans' Precision
Irrigation*



Early Valley Pivot – 1950's



Modern Mechanized Irrigation

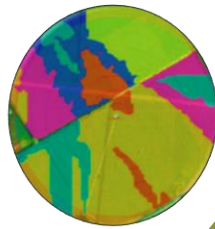
- High Uniformity
- Adaptable
- High Application Efficiency
- Labor Savings
- Energy Savings
- Dependable
- Cost Effective

Hierarchy of Mechanized Irrigation

Automation



Farm Data
Management



Variable Rate Irrigation



Control Technology



Water Application Technology

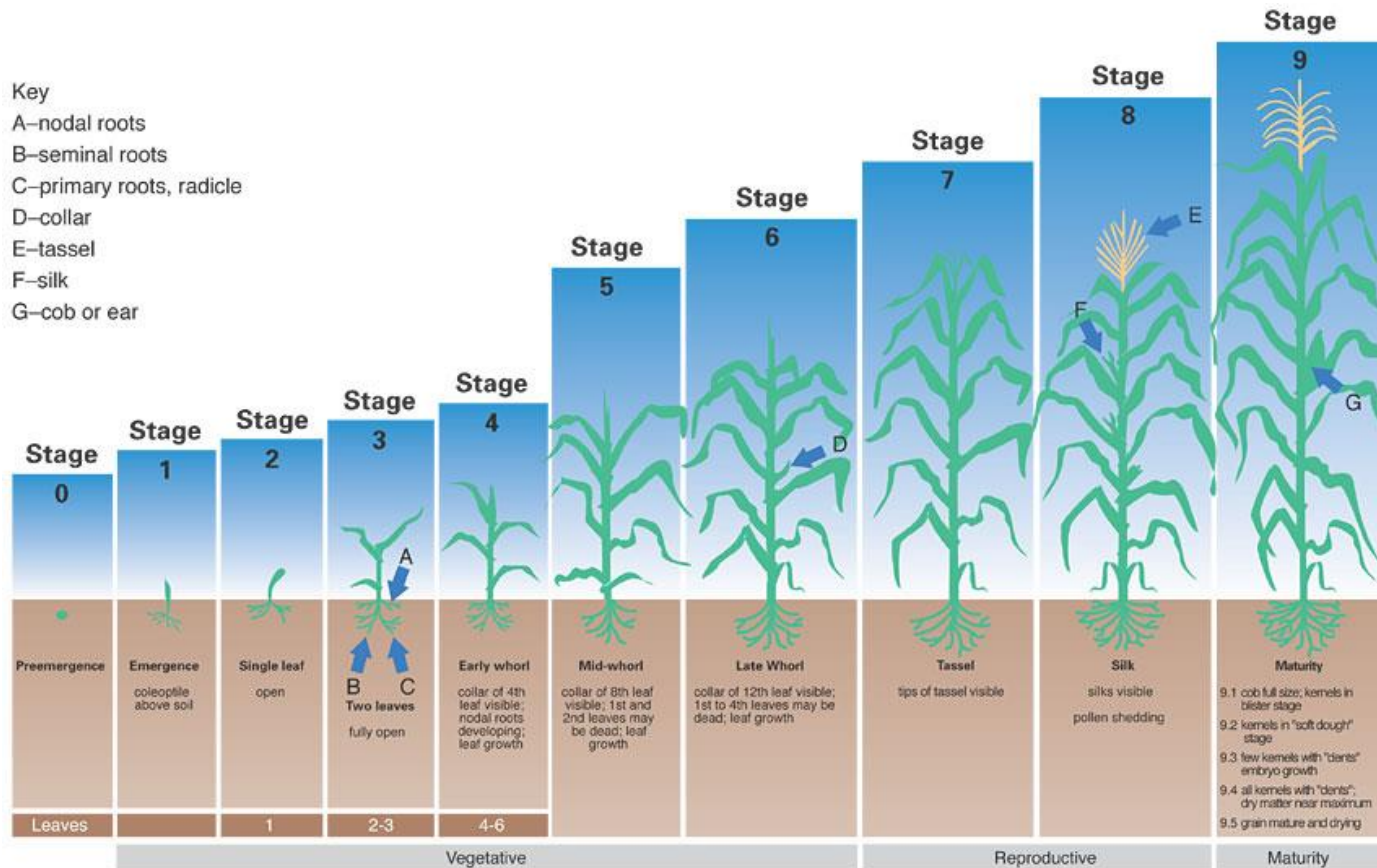


Develop Reliable Moving Lateral to Mount
Sprinklers



Adequate and Reliable Water Source

Corn Physiology



Source: U.S. Department of Agriculture Technical Bulletin 976 and Honway, J. J., 1966 Special Report 48, Iowa State University

Water Use - Corn

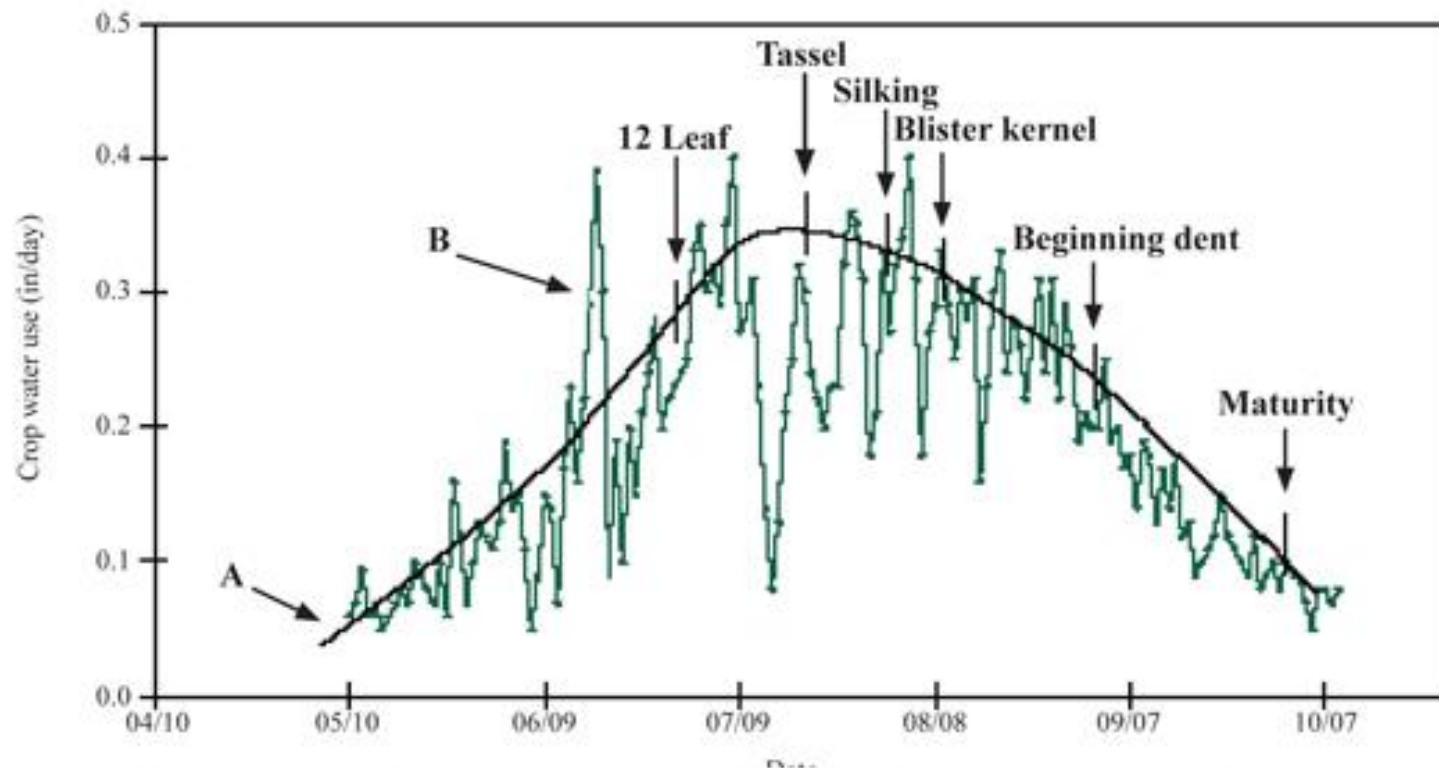
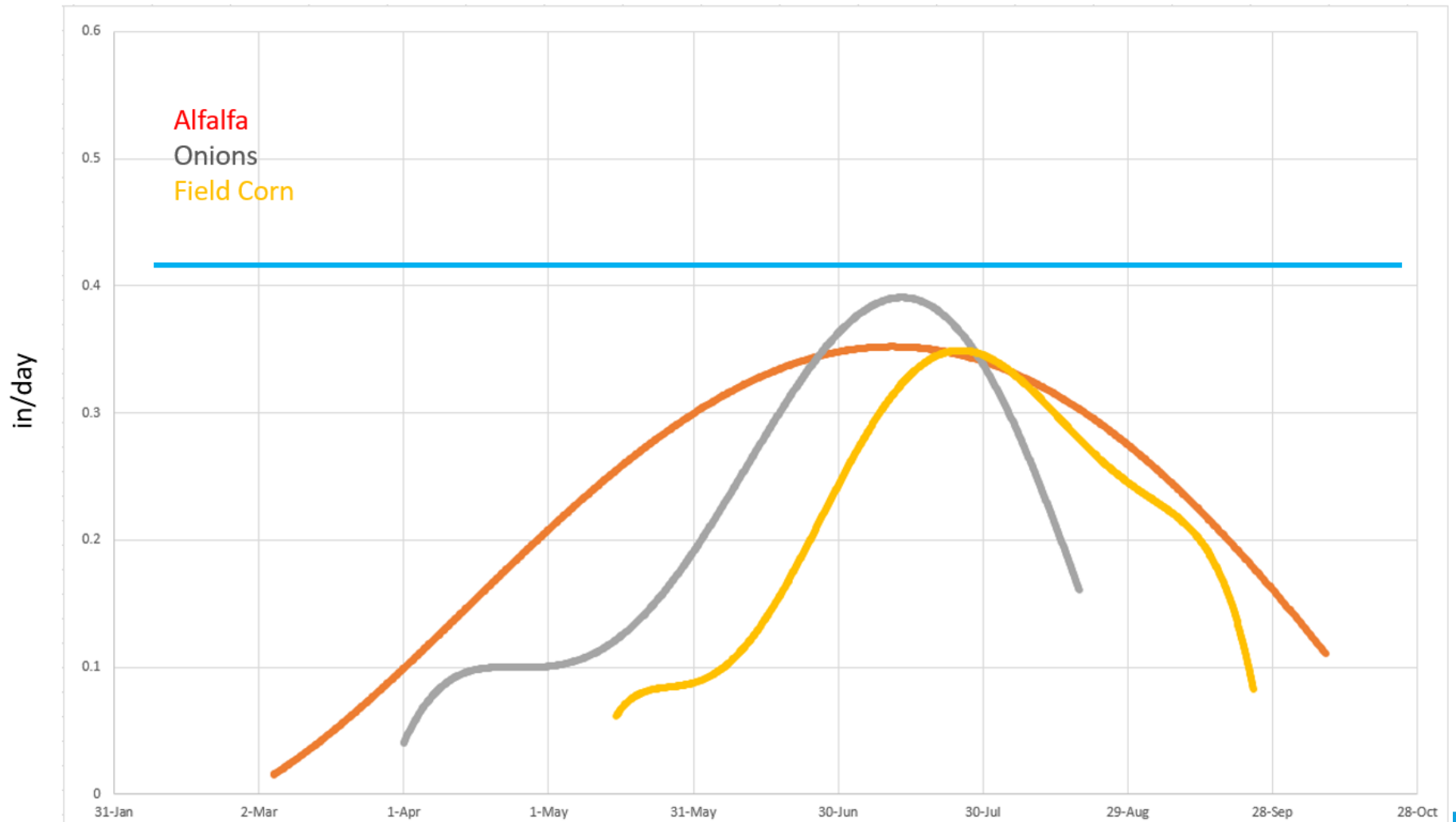


Figure 1. Long-term daily average and individual year corn water use with select growth stages.

2017 Ontario Water Use



Application Efficiency

- Percentage of water pumped available to the crop

Saving water with your sprinkler package

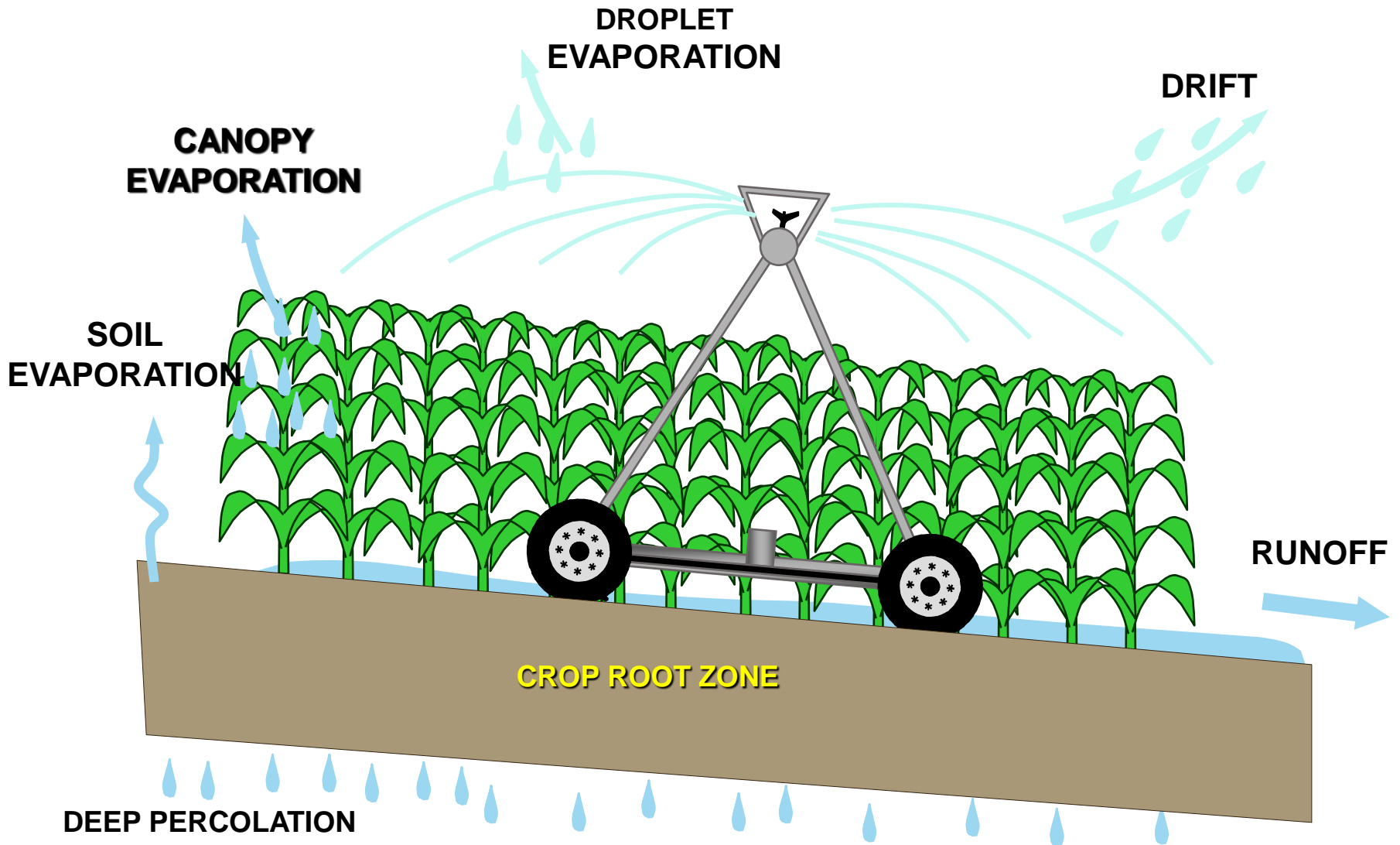
Maximize

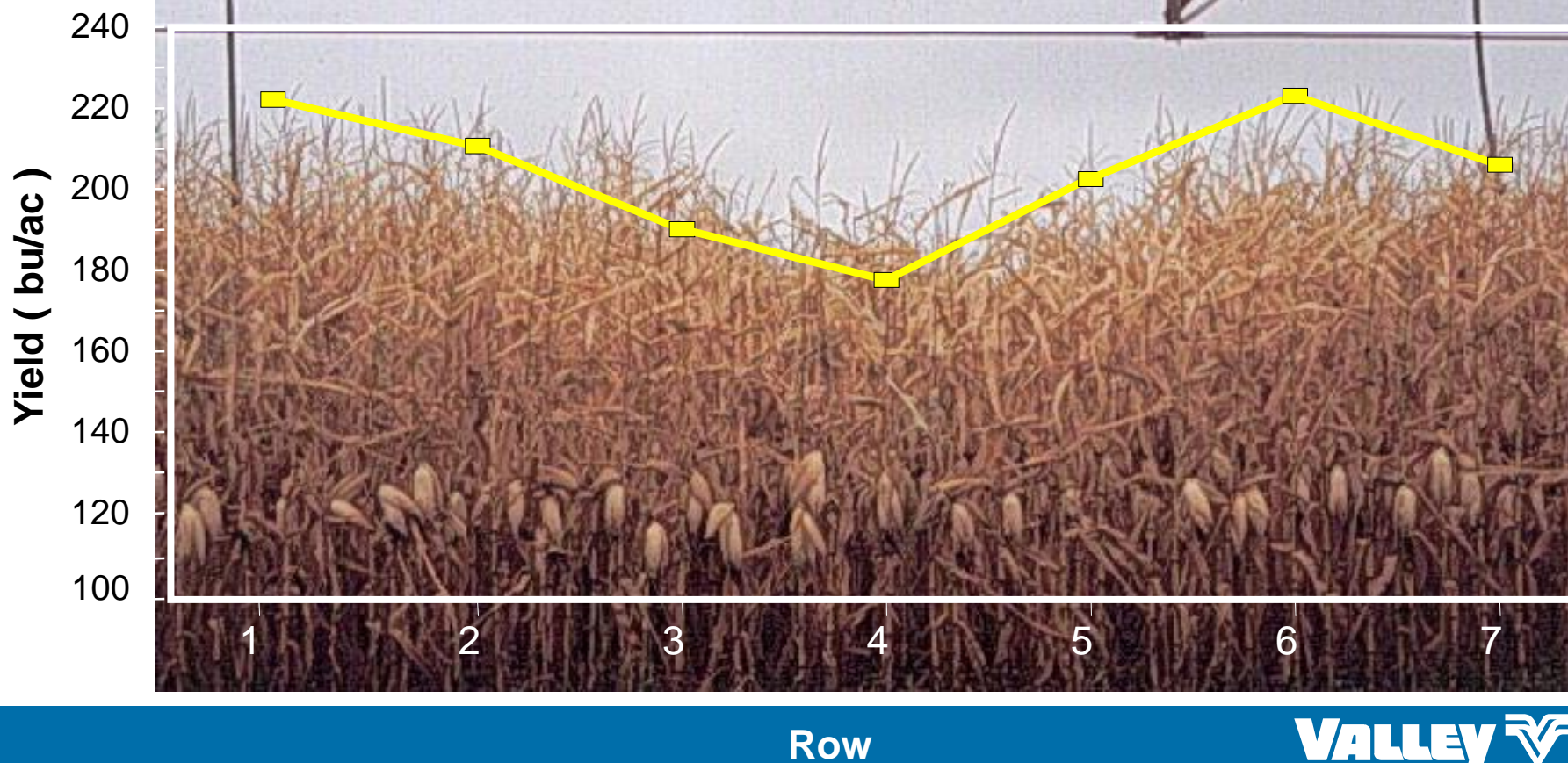
- Application Efficiency**
- Water Uniformity

How much water do we really need?



Water “Losses”





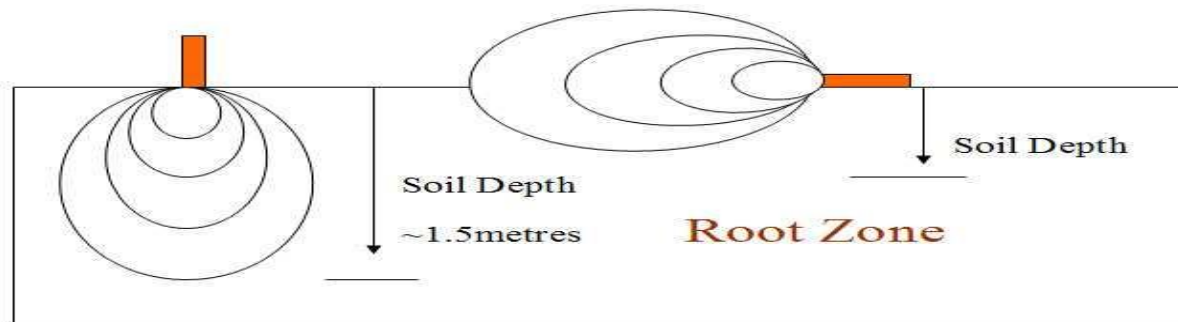
Soil Mapping

- NRCS
- EM survey
- Veris® mapping

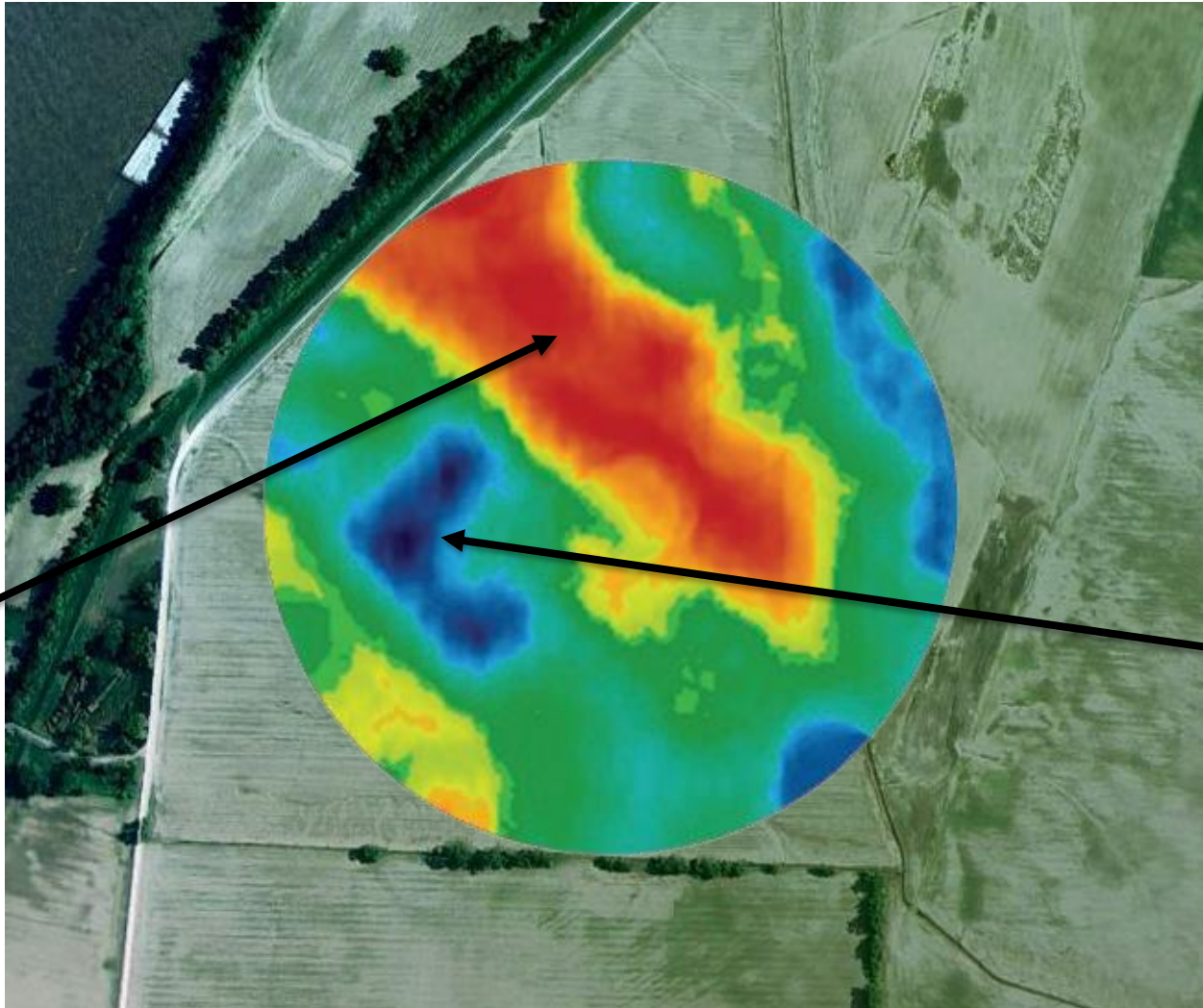


EM38 Vertical Mode

EM38 Horizontal Mode



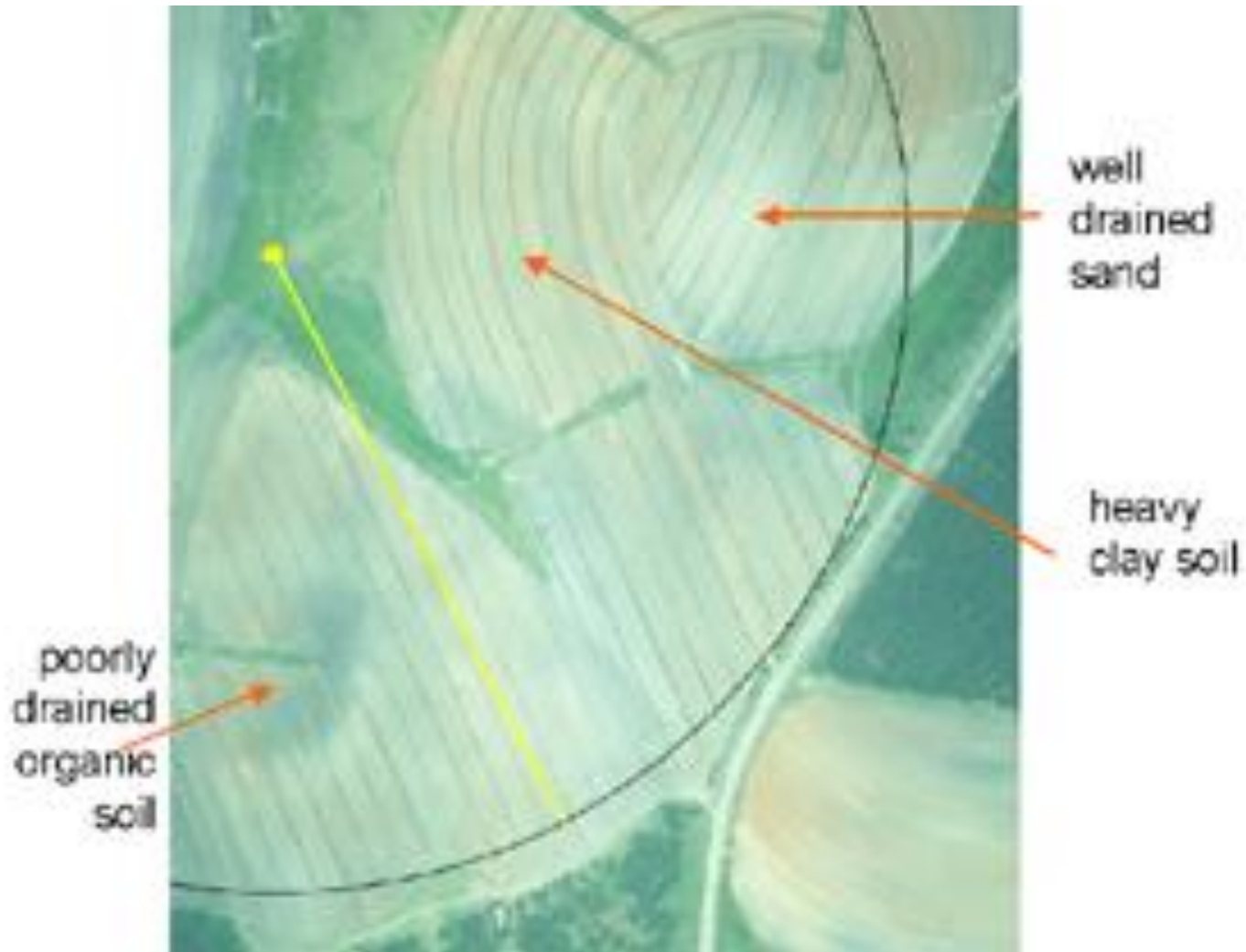
Soil Map – GIS Data Layers



Lighter Soils
(Red)

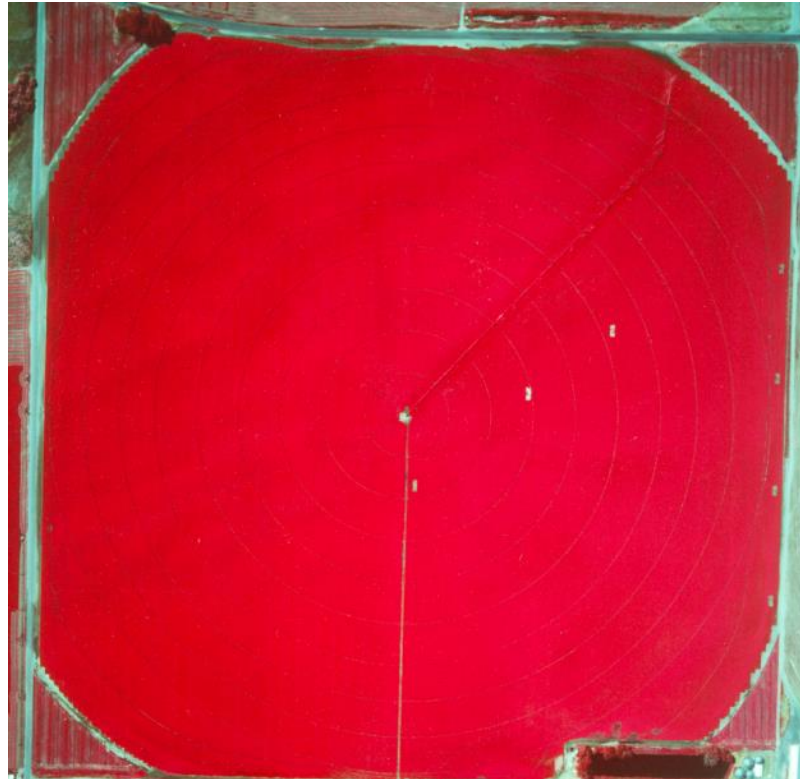
Heavier Soils
(Blue)

Soil Differences

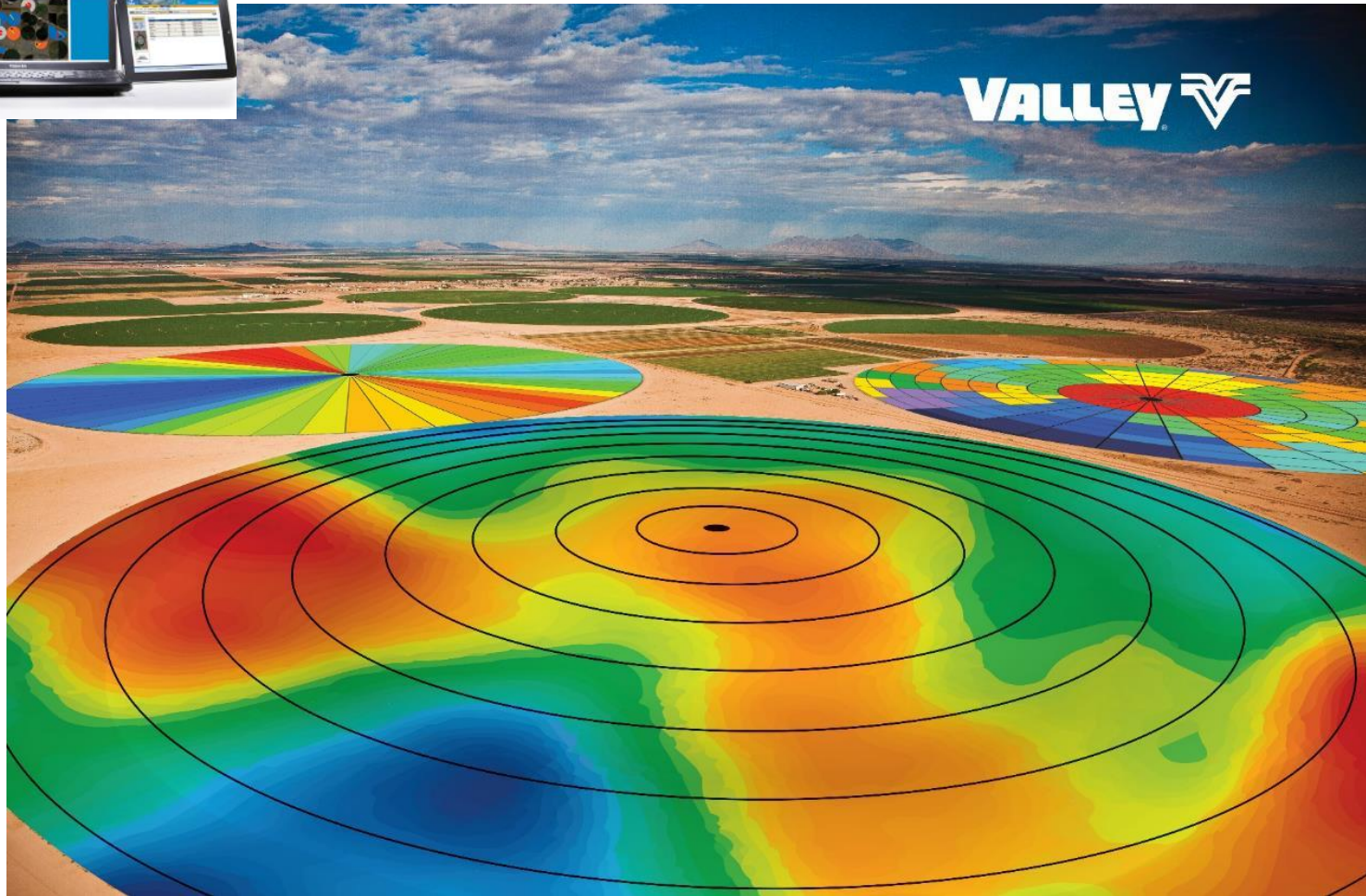


Traditional Center Pivot Irrigation

- Uniformly apply water in the direction of travel and along the center pivot
 - Apply same application depth throughout field



Variable Rate Irrigation (VRI)



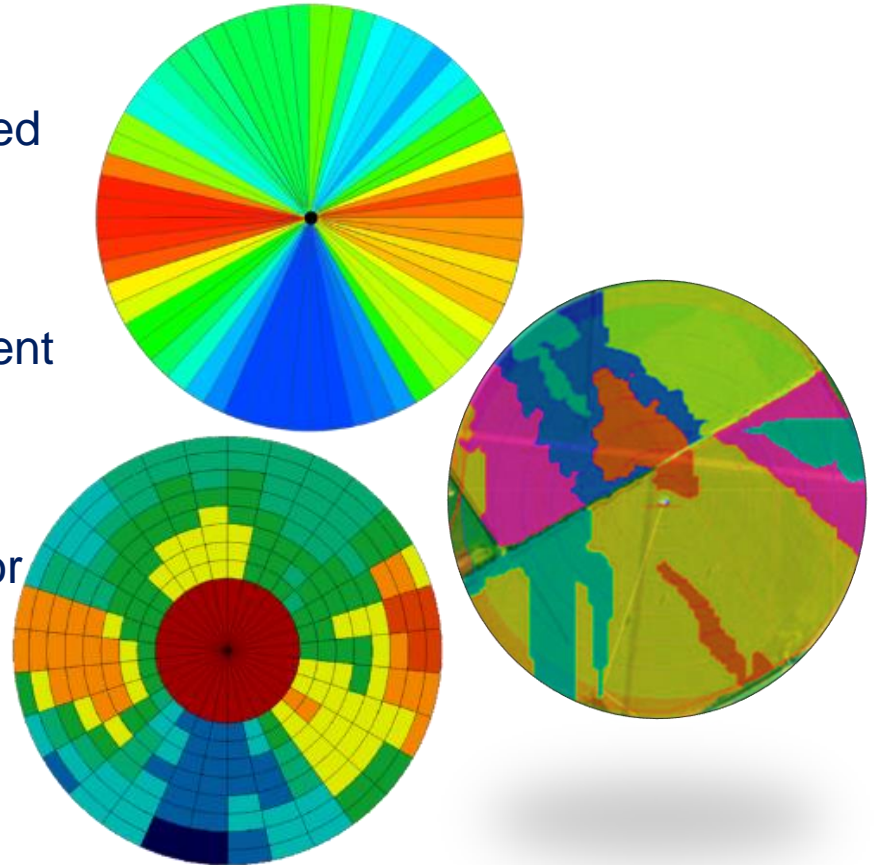
Solution – Variable Rate Irrigation

- Optimize irrigation
 - Automatically adjust application amounts site-specific
- Benefits
 - Increased water use efficiency
 - Improved yields
 - Maximize profitability



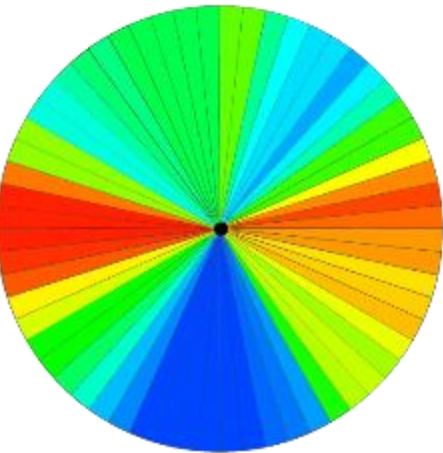
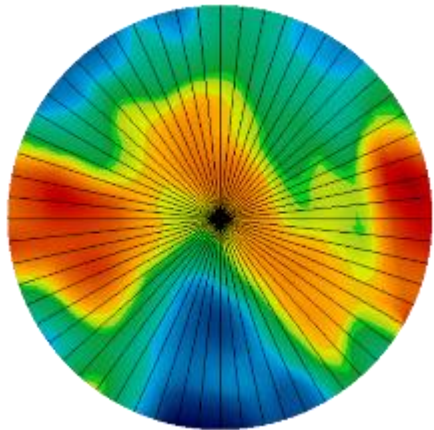
VRI Options

- VRI Speed Control
 - Control application depth based upon angle
- VRI Zone Control
 - Control up to 5400 management zones
- Irrigate-IQ™
 - Control individual sprinklers for maximum resolution



Speed Control

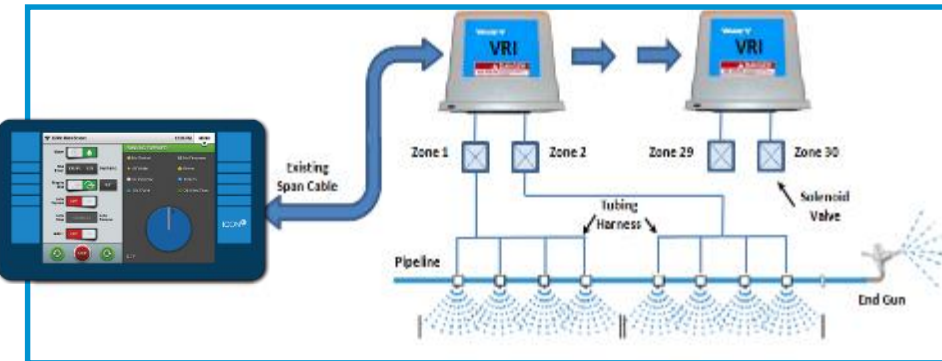
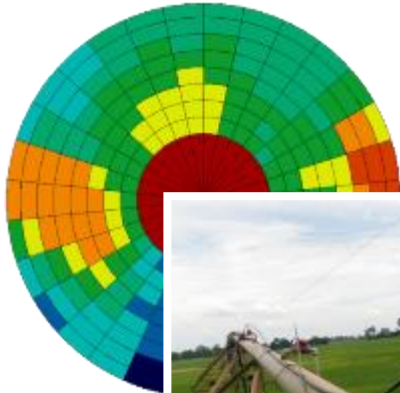
- Cost-effective solution to reduce variability



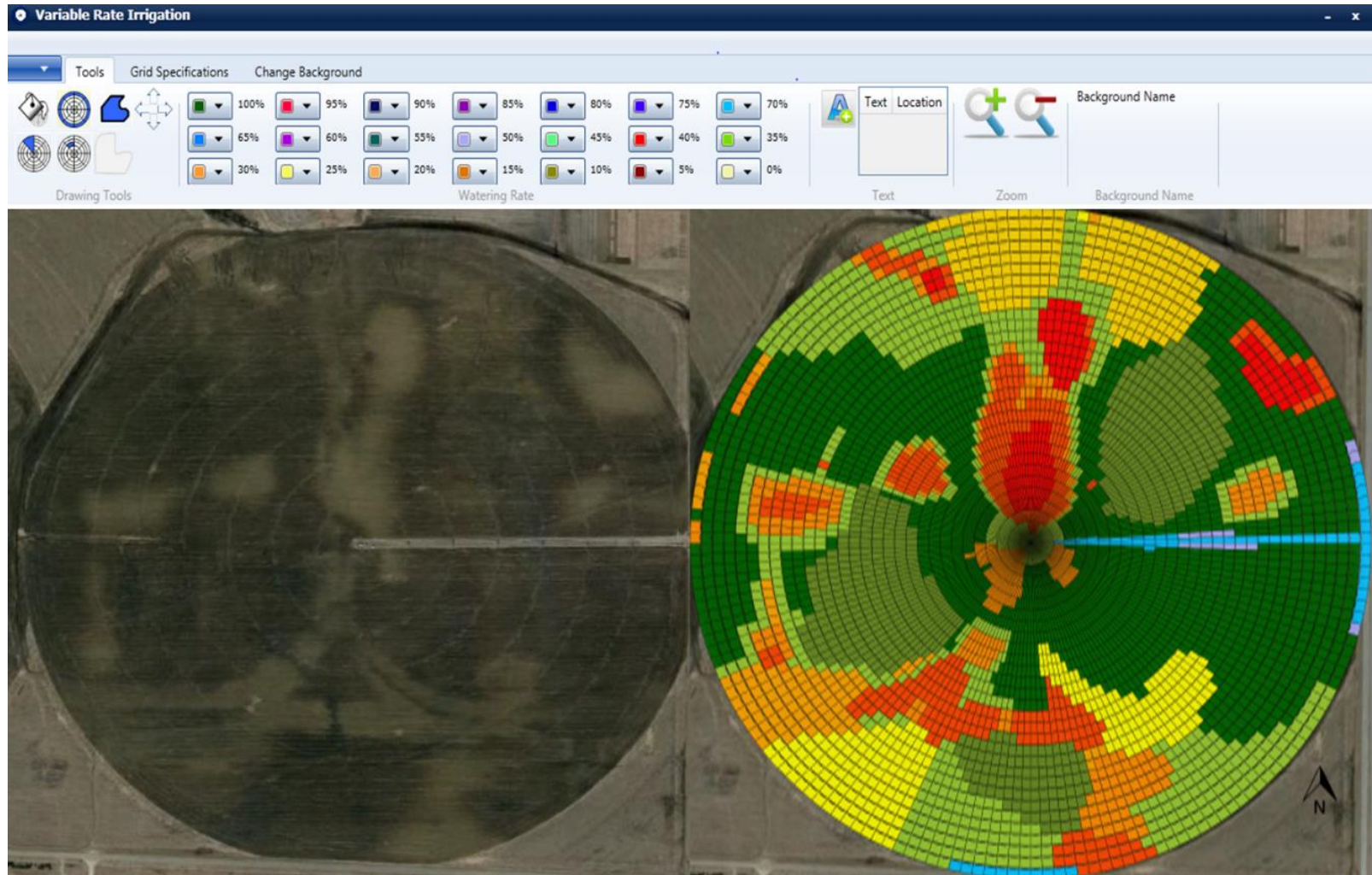
VRI Zone Control

What is zone control?

- Maximum 5,400 individual zones
- Prescribed non-uniform depth along the length of the pivot
- Prescribed non-uniform depth in the direction of travel

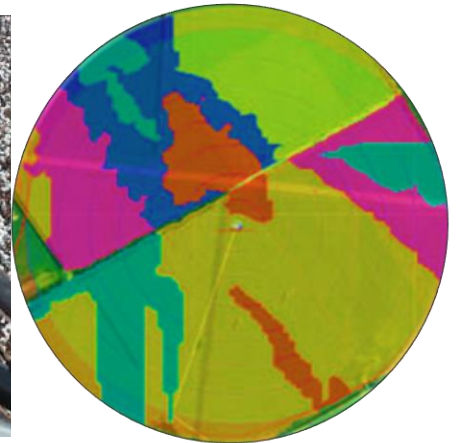


Prescription Software

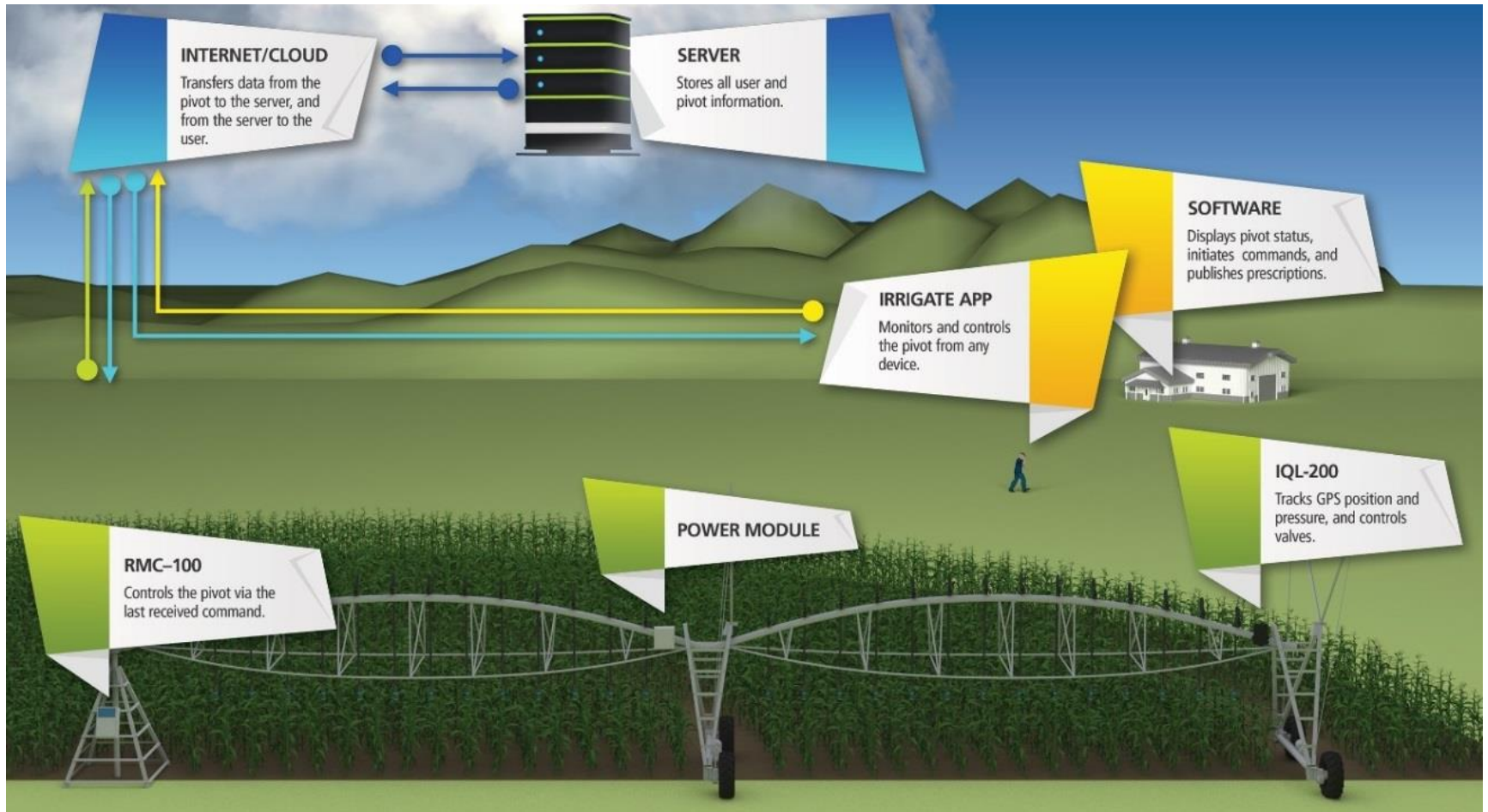


Irrigate-IQ

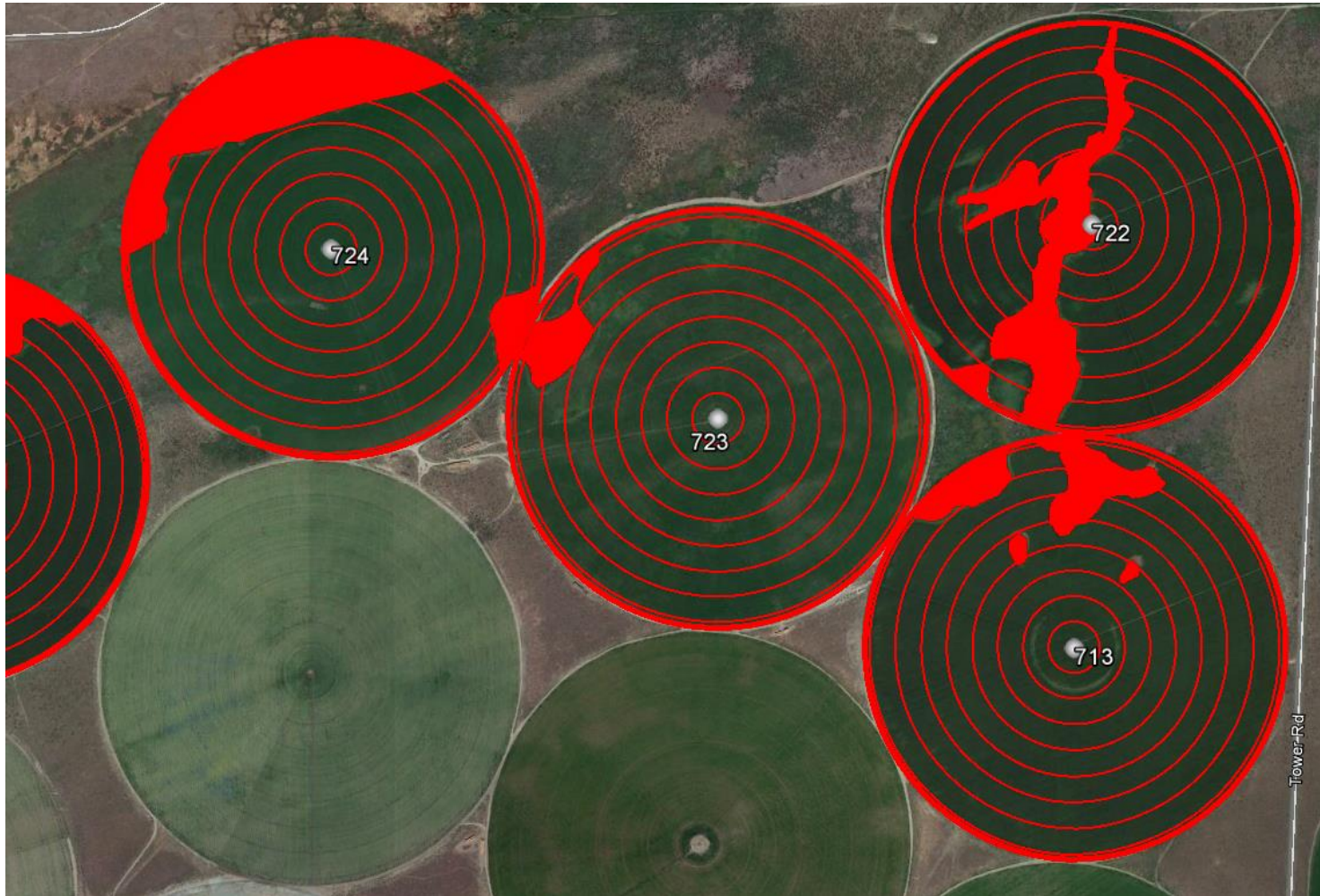
- Improve crop quality and yield
- Optimize water resources and increase water use efficiency
- Minimize input costs of water, fertigation, chemigation, or effluent
- Reduce trips to the field to manually control the pivot
- Reduce run-off and leaching
- Choose to apply water only to the best producing areas within a field
- Ensure you meet environmental regulations by controlling and reporting on where and how much you irrigate



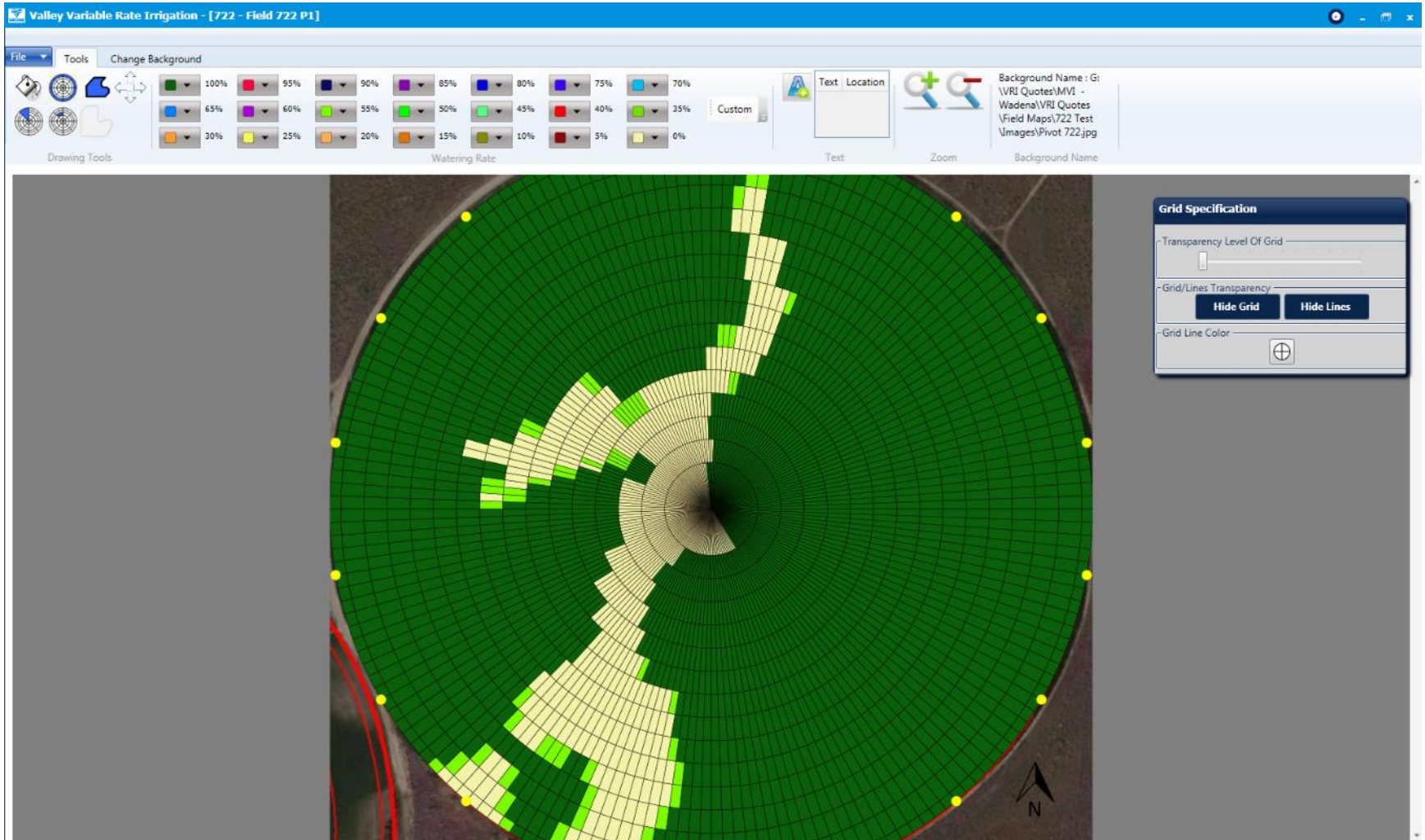
Trimble System layout



Applications - Wetlands



Applications - Wetlands

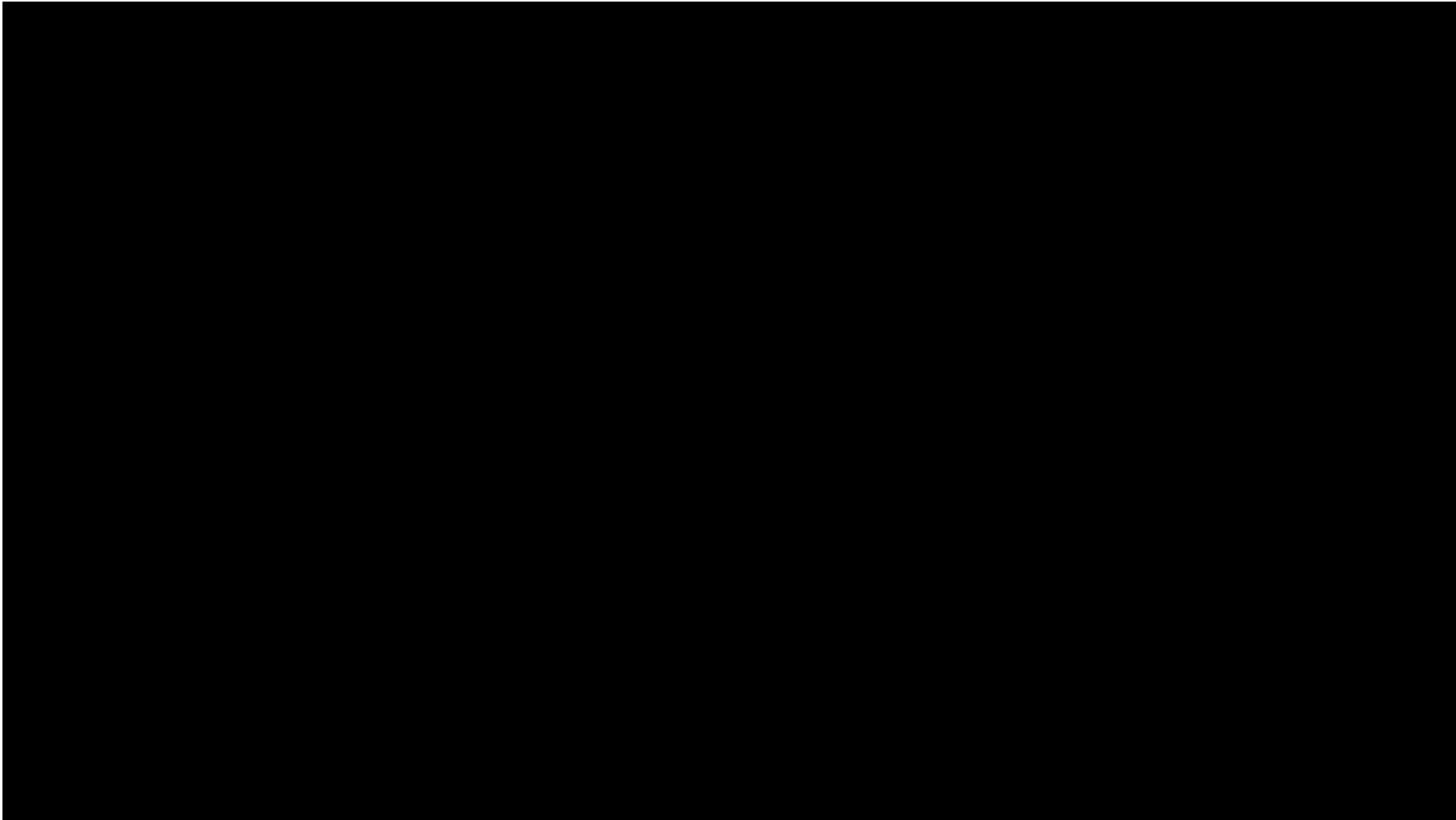


Non – Irrigated Areas



Non – Irrigated Areas





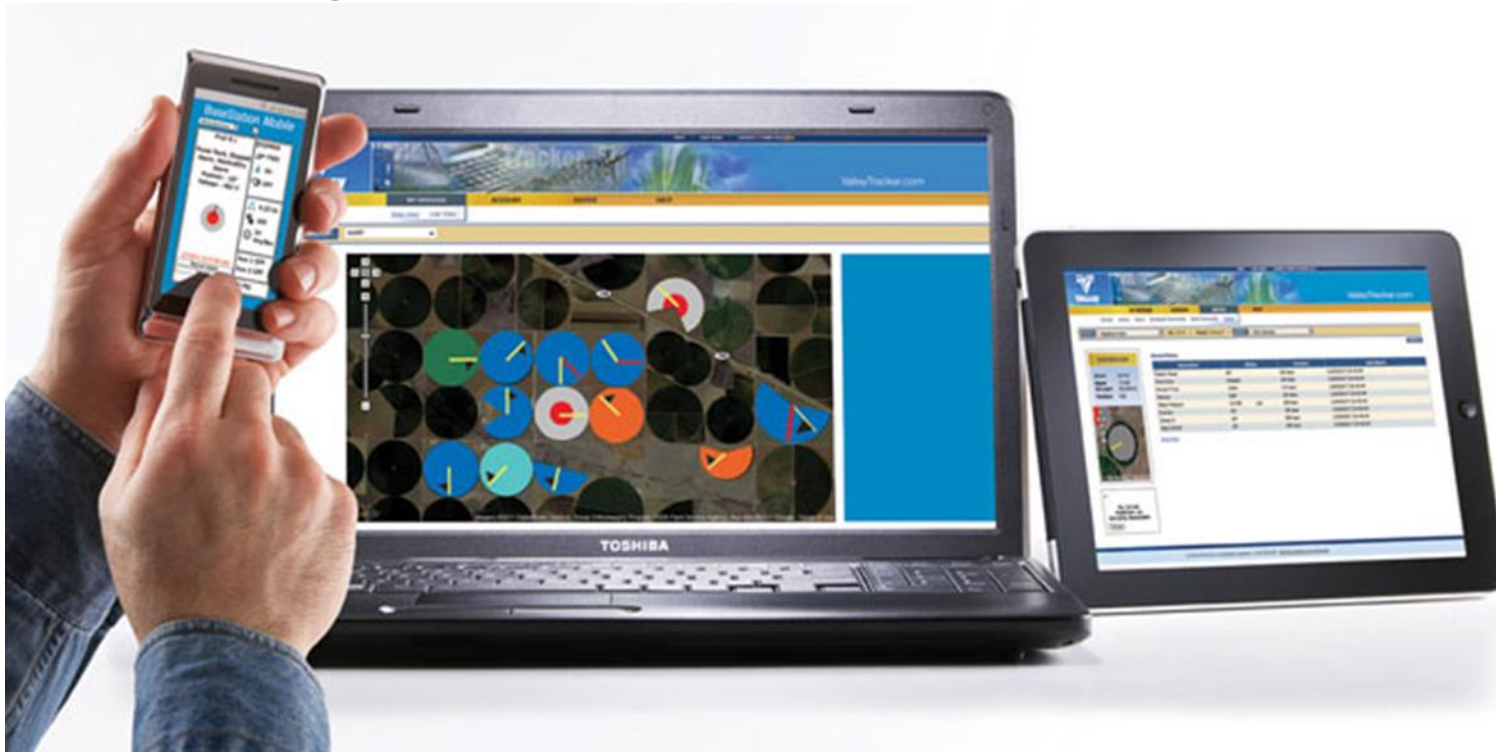


There's an app for that...



Wireless Upload

- Wirelessly upload prescriptions using remote technology



Thank You!

Any Questions?

