Soil Moisture Management for Landscape Irrigation

IRROMETER

Optimizing Irrigation…Maximizing Conservation…Worldwide Since 1951

THE HISTORY OF
SOIL MOISTURE MEASUREMENT

Early Man Method

Squish Method

“Bubba” Method

Nature Method

“SMART” Irrigation Management

- Saves water
- Saves fertilizer
- Protects groundwater
- Minimizes pest & disease problems
- Protects landscape investment
- Maintains healthy plant material.

IA Defines "SMART" Controllers as:

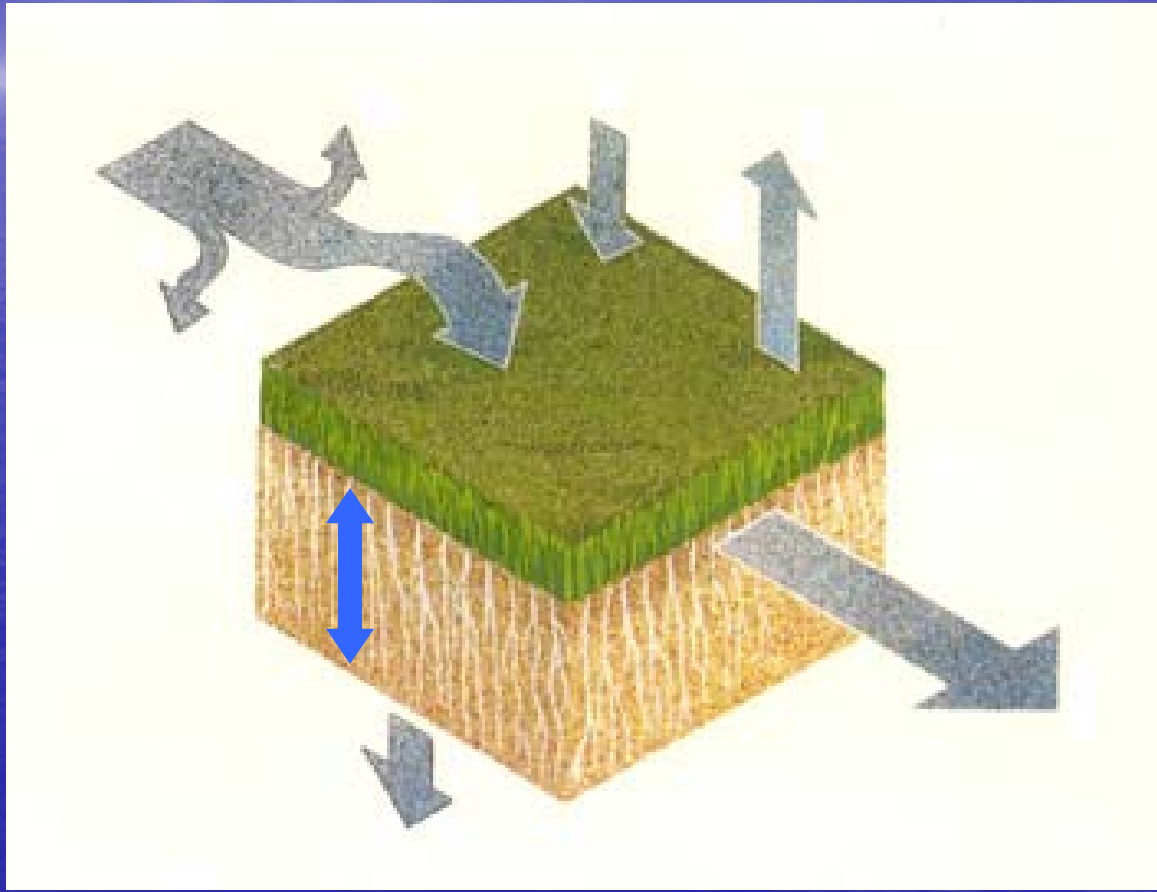
" SMART controllers estimate or measure depletion of available soil moisture in order to operate an irrigation system, replenishing water as needed while minimizing excess water use"

Do we estimate or measure?

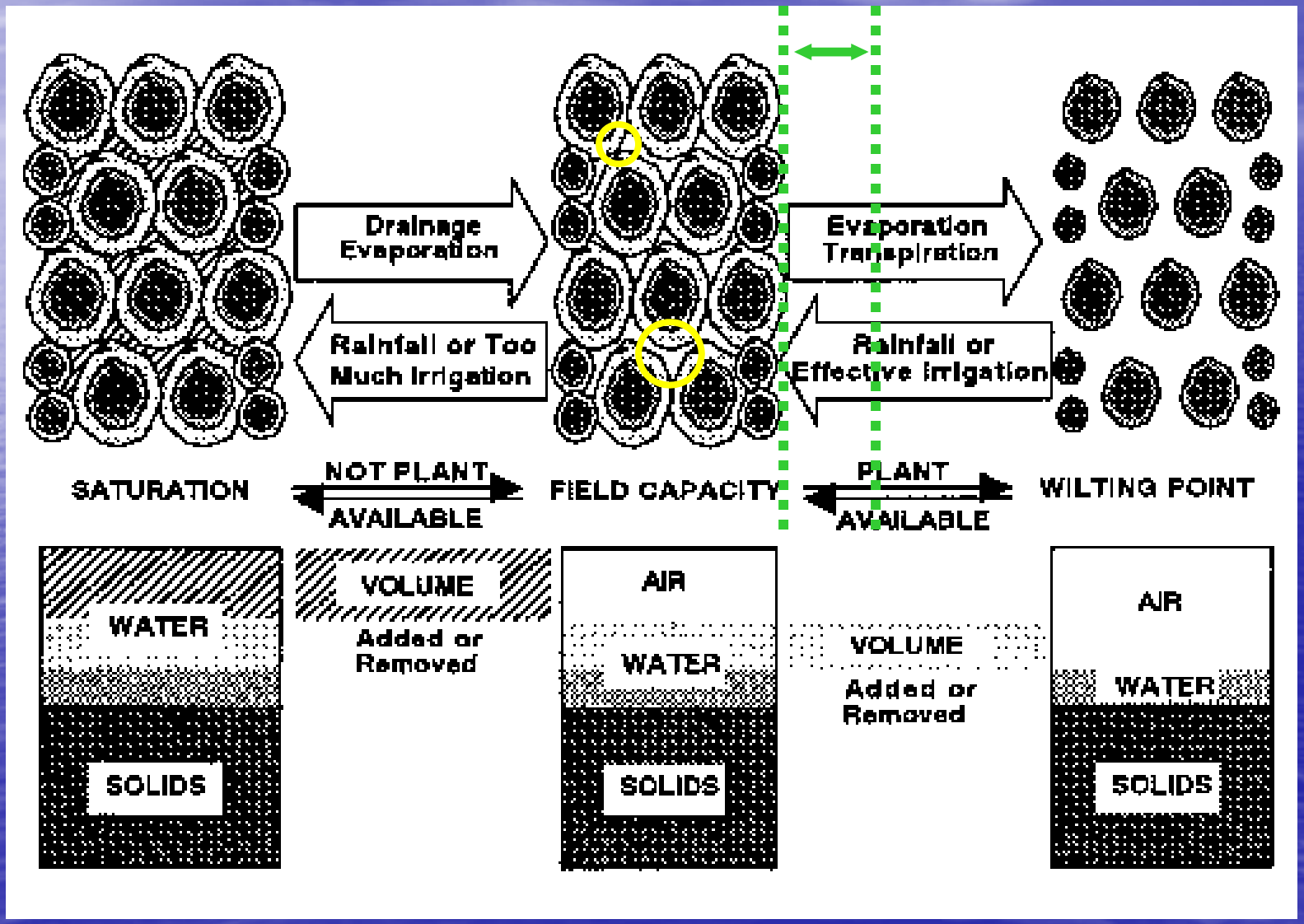
- Time
- Fuel gauge
- Credit card balance
- Home values
- Sales tax.

What are we estimating or measuring?

- Soil moisture depletion

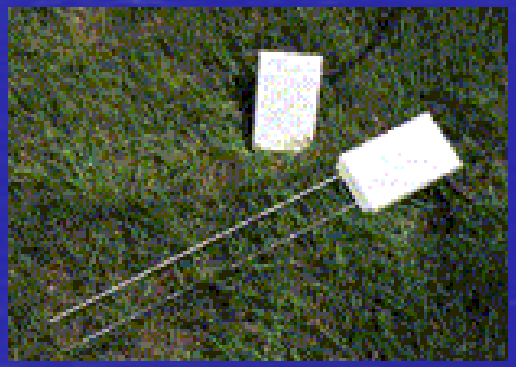


Water Holding Capacity



Soil Moisture Sensors

- GMS
- TDR
- Capacitance/FDR
- Electrical conductivity.



Installation

- Sensors placed in root zone
- Existing system may have "extra" wire pairs
- Contractor installation- 45 min. to ? hrs.

Soil Moisture Management Devices

- Most are “add on” devices
- Compatible with most existing controllers
- Most interrupt controller schedule
- Adjustable thresholds
- Some require site calibration
- Typically cost <$400.

WATERMARK Control Modules

- Makes any controller “SMART”
- Simple to install and use
- Prevents unnecessary irrigation cycles
- Adjustable moisture set point
- No seasonal adjustments.

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WaterSwitch

- Single Watermark sensor
- 4 Moisture levels
- Connects to sensor input on controller
- Soil Moisture switch overrides entire clock
- SRP $100.

WATERMARK Electronic Module

- Two sensors
- 11 Moisture levels
- Manage a single valve, valve group, or entire controller
- Battery version available
- SRP $200.

WATERMARK

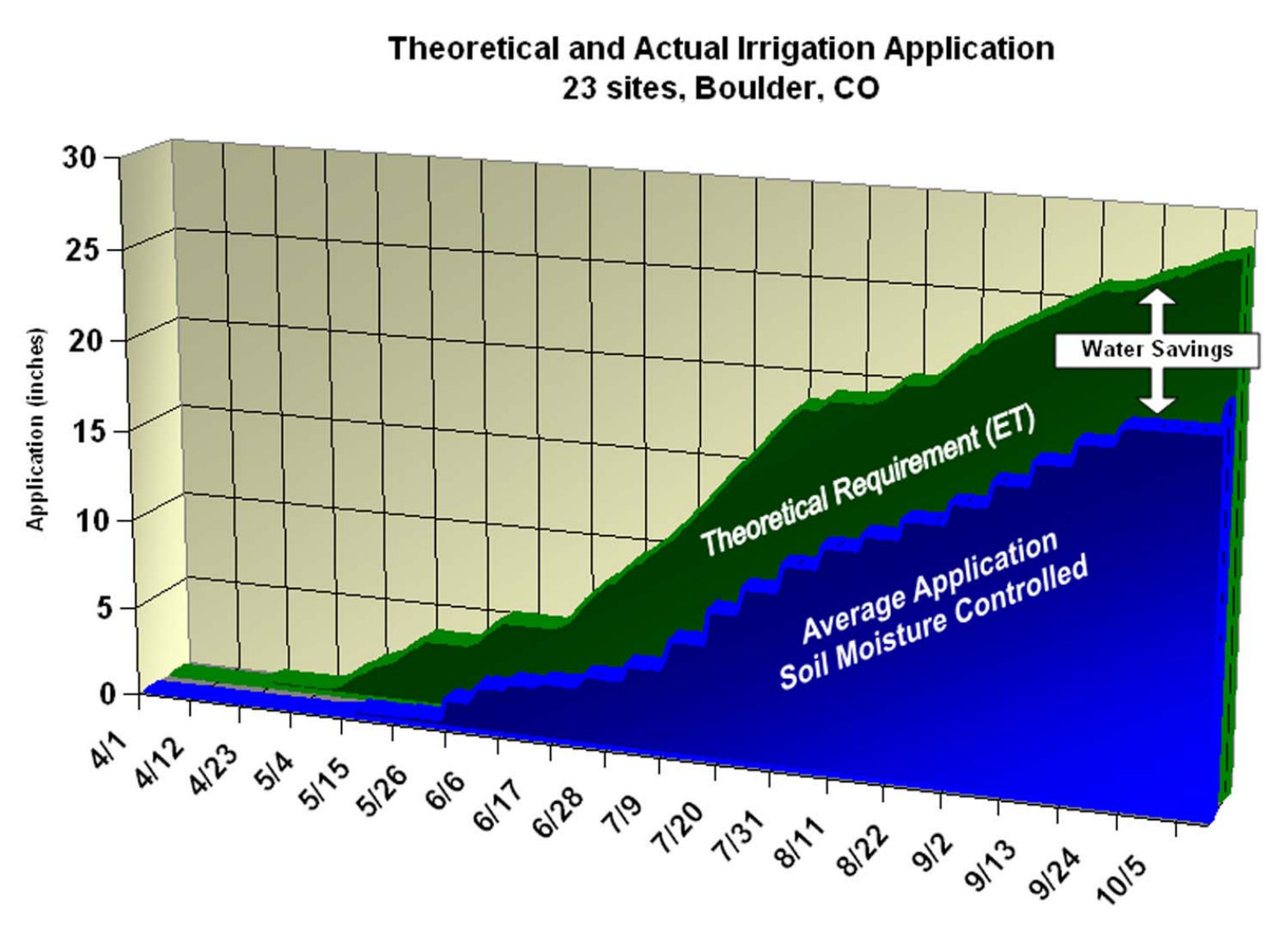
Soil Moisture Manager

- Commercial or sophistical residential applications
- Groups valves with similar water needs
- Up to 8 independent hydrozones

Does the technology work?

- USBR “Weather and soil moisture based landscape irrigation devices” report
- USBR ”Summary of Smart Controller studies” report
- UC Davis “Mitigating pesticide runoff” report
- Many others available.

Proven Performance



Standards and Labeling

- SWAT phase 1
- ASABE
- Smart Approved Watermark (Australia)
- Advisory panel of experts in irrigation (CIT, ITRC, UC's and Cal Poly).

Questions?

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