Advancements in Irrigation Efficiency

Saving Water in the Landscape

Presented by:

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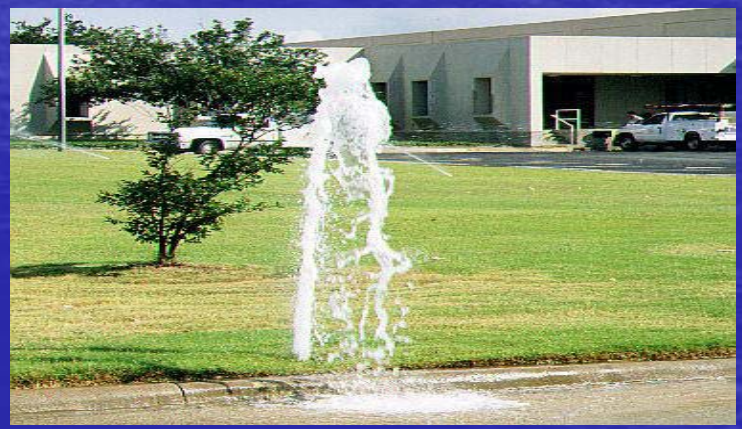
Internalizing the IA Best Management Practices

1. ***ASSURE Overall QUALITY of the irrigation system***
2. ***DESIGN the irrigation system for the efficient and uniform distribution of water***
3. ***INSTALL the irrigation system to meet the design criteria***
4. ***MAINTAIN the irrigation system for optimum performance***
5. ***MANAGE the irrigation system to respond to the changing requirement for water in the landscape***

Visibility Creates Accountability

- Overspray onto hard surface
- Runoff
- Irrigation in the rain
- Leaks and breaks



Right Plant, Right Place = Right Application, Right Plant

Selection Factors:

- Physical site features
- Plant needs
- Growth habit
- Soil type
- Slope
- Root depth
- Cultural practice
- Wind
- Local Climate
- Microclimate
- Future use
- Available water supply
- Water window / Water restrictions

Drip Irrigation

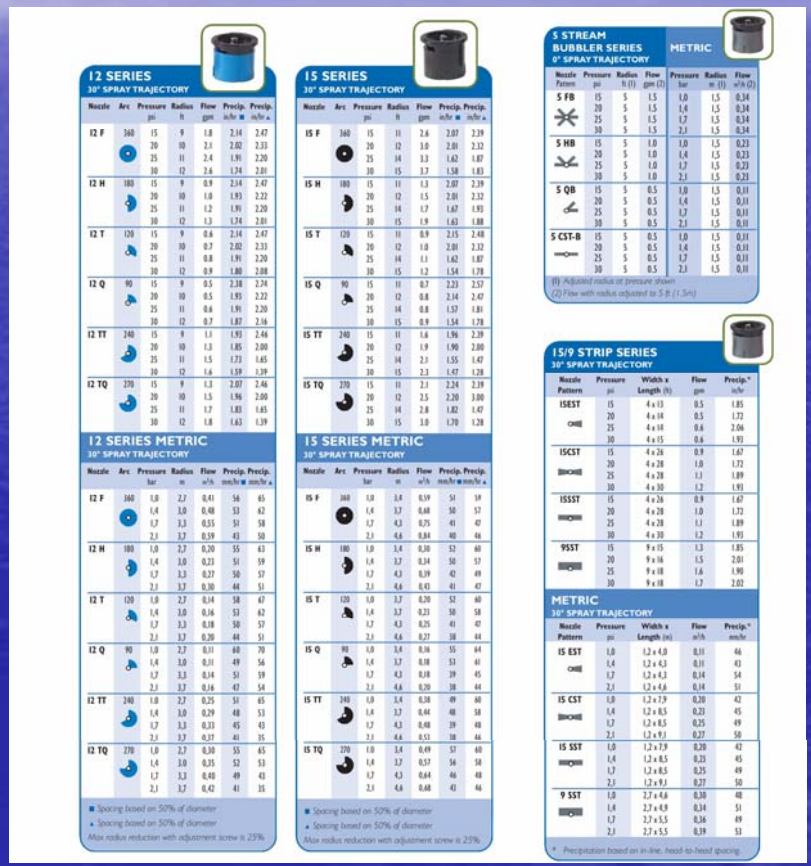
- Flexible output
- Pressure compensating
- Direct applied
- Efficient application
- Low volume
- Broader water window
- Limited contact with water

Sprinkler Advancements

- Check valves
  - Prevent lateral pipes from draining between cycles through the sprinklers
  - Prevent erosion of sloped or newly seeded areas by “low head drainage”

Sprinkler Advancements

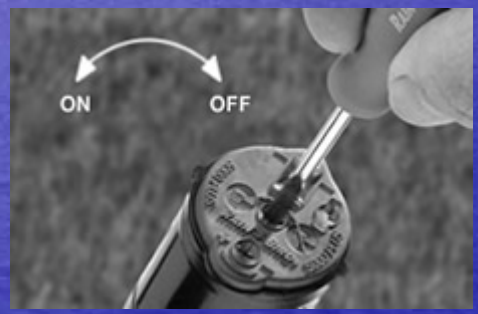
- Nozzle performance
  - Enhancing matched precipitation
  - Improved distribution uniformity
  - Patterns for irregular shaped areas

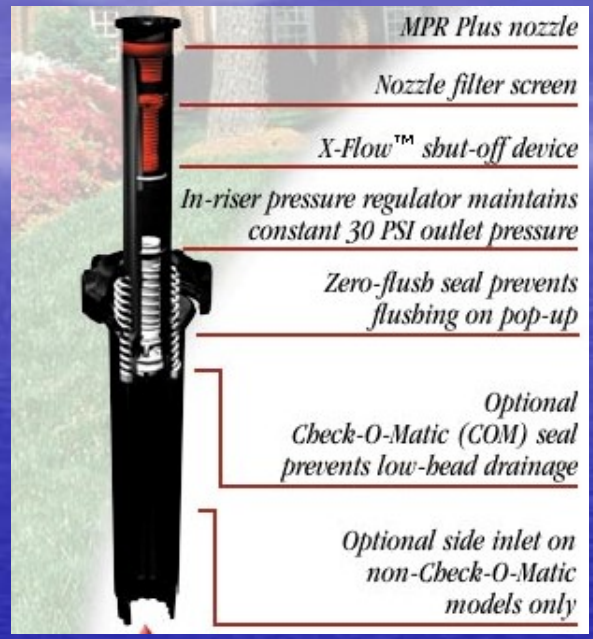


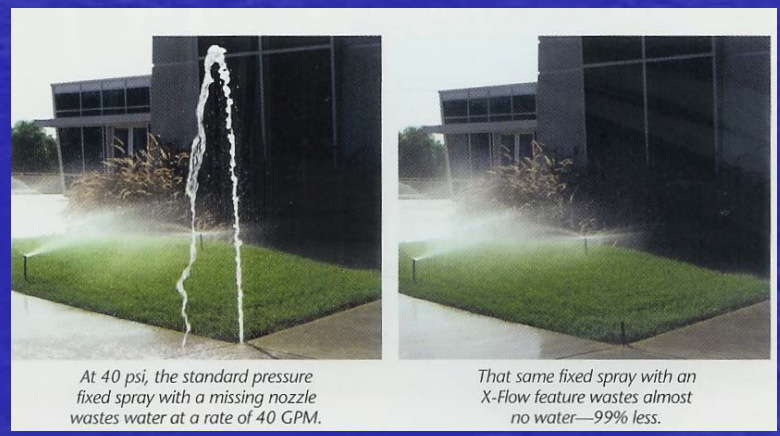
Sprinkler Advancements

- Additional sprinkler enhancements
  - Pressure regulation
  - Flow stop-auto and manual
  - Patterns for irregular shaped areas

Nozzle	Pressure (psi)	W x L (ft.)	Flow (GPM)
15SQ	15	18 x 18	2.68
	20	19 x 19	3.06
	25	21 x 21	3.42
	30	23 x 23	3.73
15EST	15	4 x 13	0.45
	20	4 x 14	0.50
	25	4 x 14	0.56
	30	4 x 15	0.61
15CST	15	4 x 26	0.89
	20	4 x28	1.00
	25	4x 28	1.11
	30	4 x 30	1.21
15RCS NEW	15	3 x 11	0.35
	20	3 x 12	0.40
	25	4 x 14	0.45
	30	4 x 15	0.49
15LCS NEW	15	3 x 11	0.35
	20	3 x 12	0.40
	25	4 x 14	0.45
	30	4 x 15	0.49







Valve Advancements

- Pressure regulation
- Battery actuation
- Wireless control
- Decoder Actuation

Pump Stations

- Pre-manufactured
- Skid mount
- Customized per application
- For main supply or booster
- VFD and Conventional
- Communication

Flow Measurement

- Water Meters
- Flow Meters
- Data Transfer/Monitoring

Sensors

- Rain
- Wind
- Moisture
- Temperature
- Flow
- Comprehensive weather

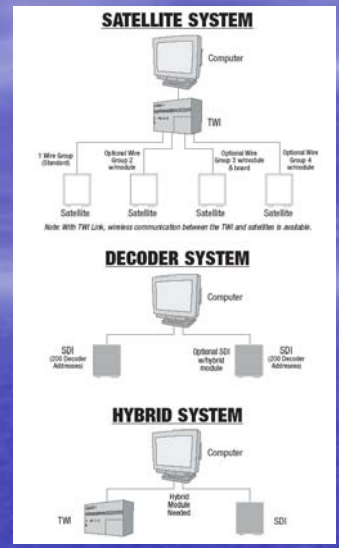
Control

- ET-Climatic Data
- Sensory feedback
- Cycle and soak
- Solar/Battery
- Central control
  - Communication
  - Monitoring
  - Changes

Weather matic SL Series

Toro Intelli-Sense

Weather Reach Receiver

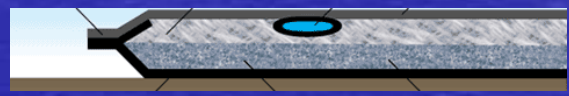


Irritrol Smart Dial

Aqua Conserve

The Cutting Edge

- Forecasting
- Membranes
- Expanded water re-use
- Installation methods
- Rainwater harvesting



Education is the Key

- Irrigation is rapidly advancing and requires continuous education
- We are being forced to produce the same results with less input
- The chemistry of water re-use requires special knowledge
- Efficiencies must increase as scrutiny increases
- Provisions must be made for ongoing management
- Installer qualifications are a huge factor in outcome

An Irrigation System Is Not An Appliance

- It is a systems integration process
- Knowledge of hydraulics, electricity, water resources, plants and soils are a must
- There is no substitute for experience
- Site visits are a must before, during and after construction
- *"When the water is cut off, the green industry closes it's doors."*-Ron Eberle, discussing 2002 Colorado drought.
- The people are more important than the products

U. S. EPA WaterSense

www.epa.gov/watersense

- Certification programs for irrigation professionals
  - Design
  - Installation
  - Auditing
- Labeling of irrigation products (coming soon)
  - Irrigation Controllers
  - Drip irrigation

Thanks!

green solutions FOR A blue planet

ASLA Annual Meeting and EXPO
43 rd IFLA World Congress
October 6-10, 2006
Minneapolis

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS

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IRRIGATION SHOW
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