Efficient Irrigation Techniques

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Efficient Irrigation

- Why do we irrigate?
- When do we irrigate? How often? M.A.D.
- What do we irrigate?
- How do we irrigate now?
- How can we irrigate more efficiently?
- What type of water should we be using?
- What type of landscape should we install?
The “Aesthetic” Value of Landscaping

- Increased real estate market value
- Beauty and relaxation for family, employees and visitors
- Safe, high-quality play and exercise areas
The “Functional” Value of Landscaping

- Soil erosion control
- Rainwater entrapment and ground water recharge
- Provides shelter for wildlife
- Solar heat dissipation
- Reduces air and noise pollution
- CO2 entrapment
The World’s Water Crisis

There is no new water.
Household water usage (Summer)

Where's the Water Going?

- Outdoor - Sprinklers: 67.00%
- Toilet: 8.90%
- Clothes Washer: 7.23%
- Shower: 5.27%
- Faucet: 5.23%
- Leak: 4.57%
- Bath: 0.60%
- Dishwasher: 0.47%
- Other: 0.73%
## Residential Water Saving Upgrades

<table>
<thead>
<tr>
<th>Popular Water Savings Upgrades</th>
<th>Cost of Product*</th>
<th>Annual Gallon Savings</th>
<th>Annual Cost Savings</th>
<th>Return on Investment (ROI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMARTLINE®</td>
<td>$400</td>
<td>80,000</td>
<td>$400</td>
<td>1 year</td>
</tr>
<tr>
<td>Rain-Off Sensor</td>
<td>$120</td>
<td>24,000</td>
<td>$120</td>
<td>1 year</td>
</tr>
<tr>
<td>Ultra-Low Flow Toilet</td>
<td>$350</td>
<td>14,162</td>
<td>$70</td>
<td>5 years</td>
</tr>
<tr>
<td>High-Efficiency Clothes Washer</td>
<td>$1,500</td>
<td>8,176</td>
<td>$40</td>
<td>37 years</td>
</tr>
<tr>
<td>High-Efficiency Showerhead &amp; Faucet® Aerator</td>
<td>$50</td>
<td>2,993</td>
<td>$15</td>
<td>3 years</td>
</tr>
<tr>
<td>Faucet® Aerator</td>
<td>$9</td>
<td>1,752</td>
<td>$9</td>
<td>1 year</td>
</tr>
<tr>
<td>High-Efficiency Dishwasher</td>
<td>$500</td>
<td>1,250</td>
<td>$6</td>
<td>80 years</td>
</tr>
</tbody>
</table>

*Cost is for residential application and does not include installation cost.
How to Approach
Efficient Irrigation
Sources of water

- Rain, Natural
- Lake water
- Non-potable-water
  - Rain water, roof collected
  - Gray water
  - Reclaimed water
- Retention Pond
- Potable City Water
- Well water

Tap into underutilized supplies such as underground well water, gray water, condensate and rainwater.
Efficient Landscape/ Irrigation

- **SOIL** – Native uncompacted, deep 6”, silty clay, not sandy.
- **Plants** – Native Adapted, Drought Tolerant
- **Layout** - Plant groupings, limited turf area. Irrigation design to match plant materials and local microclimate

Create landscapes as sustainable as they are beautiful.
Efficient Irrigation Scheduling

Possible Solutions
- Smart Controller, central control and sensor-based solutions to maximize water application efficiency
- ET (Evapotranspiration) Management
- Soil Moisture-based Management
- Seasonal adjust/water budgeting
- Cycle+Soak™
- Flow monitoring, leak detection & response
- Rainfall monitoring & response

Optimize the timing, quantity and frequency of water applied to the landscape with leading edge water management controls.
On-site Weather Station
(with Tipping bucket and Temperature sensor)
Soil Moisture Sensors

*Wireless Soil Sensor*

*Wireless Receiver*
Solar sensor- Hunter Solar Sync
Efficient Water Application

- Pressure regulation:
  - @ the head - Pressure Regulating Stem (PRS)
  - @ the valve – integrated modulating solinoid
  - @ the source – PRV (separate irrigation)
  - check valves
- Landscape Drip: Direct-to-plant-root watering devices
  - Point Drip
  - On surface integrated drip line
  - Subsurface integrated drip line
- Root Watering (trees) – bubblers or drip
- High-efficiency nozzles:
  - Rotary Multi stream Nozzles (Rainbird, Toro, Hunter MP rotator, K-rain)
  - Fixed Nozzles HE Van, Toro Precision Nozzles
  - Matched Precipitation Rate (MPR) Nozzles
  - Eliminate VANs and Mismatched Brands

Distribute water to the landscape as efficiently as possible.
Checking pressure at Head
Pressure Regulation @ Head

Patented pressure regulator in stem compensates for high or fluctuating water pressure to ensure maximum performance.
Distribution Uniformity – Why does it matter?

100% coverage does not mean 100% “uniform” coverage.
Drip Irrigation (Very Flexible)
Multiple Stream Rotary Nozzles

- 25-55 psi, 4/10\textsuperscript{th} in/hr
- 20-55 psi, 6/10\textsuperscript{th} in/hr
- 30-50 psi, 5/10\textsuperscript{th} in/hr
- 25-75 psi, 5.5/10\textsuperscript{th} in/hr
High Efficiency Fixed Spray Nozzles

Toro Precision – high operating pressure range (20-50 psi, 1”/hr precipitation rate)

Rainbird HE-Van nozzles – matched precipitation any arc, any radius 1.5-1.7”/hr @ 30 psi
Efficient Maintenance/ Water Management

- Annual Maintenance
- Monthly Maintenance
- Bi Weekly Testing
- Weekly Adjustment (10%)
- Upgrade as technology becomes available

Use water efficiently and affordably for the long haul
Maintenance is Required
What Can You Do?  
(Start the Conversation with your customers)

- Promote water-efficient products and practices with your customers
- Support innovative initiatives in your market
- Support/participate in local government programs
  - water audits, rebates/incentives, education/training
- [https://austintexas.granicusideas.com/surveys/proposed-one-day-per-week-watering-schedule-1](https://austintexas.granicusideas.com/surveys/proposed-one-day-per-week-watering-schedule-1)
Any questions, feedback for me on content.
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Thank You for your time, have a great day!

“Cougar Matt” Stamm