Why is an Irrigation Audit Important?

- Water conservation in the landscape depends on intelligent use of water resources
- We rely on irrigation systems to supplement water that plants receive from rainfall
- Keeping the systems properly functioning is key to conserving water

Water is Florida’s Most Valued Resource

- 54,836 miles of rivers & streams (1,700 rivers & streams)
- 49,128 miles of canals & ditches
- 1.8 million acres of lakes, reservoirs & ponds
- 1,000 springs
- 11 million acres of wetlands
- 1,350 miles coastal shoreline, largest in 48 contiguous states
- Underlying aquifers supply freshwater needs
- Renewable but finite

For at least the past 20 years, surface waters in Florida have become very sensitive to small additions of pollutants. This causes widespread ecosystem changes in estuaries, lakes, rivers & the Everglades.

Population growth increases water needs
1990 - 12,917,926  
2011 - 19,057,542
Tampa/St Pete/Clearwater - 2,834,724
Population Rank - 4th in U.S. behind California, Texas & New York
Why Conserve Water

Florida population estimated to increase at least 25% by 2020 to 21.8 million
• Worldwide increase 1 billion by 2030, 2 billion by 2050
• How to feed increasing population
• How climate change affects resources & production
Florida will need 26.4% more water – 9.1 billion gallons of fresh water every day
Water supply needs already exceed capacity in some areas
• Water accessibility
• Competition between urban, agricultural & recreational uses
• Purposeful landscapes

What is an Irrigation Audit?
• A procedure used to collect & provide information about overall condition of the irrigation system, the uniformity of application & rate of precipitation
• Usually performed on over-head irrigation systems; methods are available to test drip irrigation
• Formal audits are conducted by independent certified landscape irrigation auditor
• This method is adequate for most typical residential properties

Steps
1. Pre-audit Inspection
2. Calibration Procedure
3. Perform Calculations

Pre-Audit Inspection
• Verify that the irrigation system is in optimal working condition
• Identify operations defects
• Assure that corrections have been made

Calibration Procedure
• Maximum wind – 5 mph
• All catch devices must be uniform size & shape
• Use a minimum of 24 catch devices
What does Calibration Tell Us?

**Uniformity** – how evenly the irrigation system distributes water over the landscape

**Precipitation Rate** – how long to run the system to deliver 0.75” of water per irrigation event

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**Calibration Procedure**

- Catch device spacing:
  - Fixed sprays – near a head & ½ way between each head
  - Rotor heads less than 40 on center – near a head & every 1/3 distance between heads
  - Rotor heads greater than 40 on center – near a head & every ¼ distance between heads
  - Unusual or irregular spacing – uniform grid of catch devices
  - Place catch devices at edges of zones 12”-24” in from the edge

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**Perform Calculations**

Determine the average amount of water collected

Multiply the average amount of water collected by 4 to determine the amount of water that would be delivered in 60 minutes

If the average amount of water collected was 0.5” then:

\[ 0.5" \times 4 = 2.0 \text{ amount of water if irrigation ran 60 minutes} \]

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**Perform Calculations**

Use this formula to determine how long to run an irrigation zone to deliver 0.75” of water

\[ 0.75" \times \frac{60 \text{ minutes}}{\text{amount of water in 60 minutes}} = \text{minutes to run zone} \]

If I deliver 2.0” in 60 minutes, how long to deliver 0.75” water

\[ \frac{0.75"}{2.0} \times 60 = \text{run zone 23 minutes} \]
What About Uniformity

If there are large differences in the amount of water collected in the catch devices then water application is NOT uniform

• Adjust head spacing
• Add additional heads
• Remove heads
• Always re-check pressure when adding or removing heads

Start Over

If you make uniformity adjustments that will affect the precipitation rate

So

You will need to repeat the procedure to determine how long to run the system

Any Questions
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