

## Evaluating Residential Irrigation Incentives



Designing programs to improve the efficiency of residential irrigation systems



## What is the Saving Water Partnership?

- A collaboration between 24 Seattle area water providers working regionally to help our customers use water efficiently.
- Service Area:
  - Roughly 200 square miles in central Western Washington.
  - 1.3 million people.
  - 520,000 accounts.
  - 90% of the accounts are single family residential.



## Our Goal

- To reduce the cost of water supply expansion by developing cost-effective programs and services.
- Long Term Conservation Plan to hold system demand more or less constant, while absorbing increased growth: **1% Conservation, reduce water use on average by 10% by 2010 (from the year 2000 base levels).**

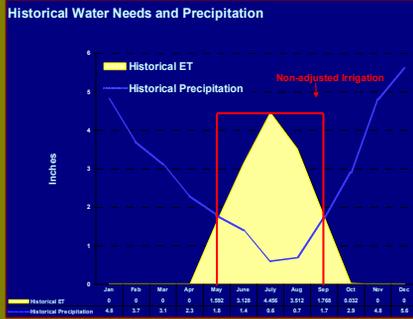
## What do we do?

- We create cost-effective programs and services for our customers.

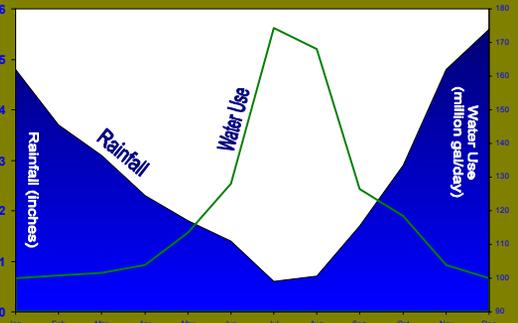
## How do we do it?

- Research
- Market and behavior analysis
- Pilot programs
- Compare costs to water savings

## Western Washington Weather Patterns



## Summer Crunch



## Opportunity

- During Peak Season total consumption increases by about 30%. Of that increase, 70% is single family residential and 30% commercial, industrial and multifamily residential.
- 95% of the single family residential increase is from irrigation.

## Automatic Irrigation Users

- 15% to 20% of our single family customers have automatic irrigation systems (roughly 47,000-60,000).
- About 8000 customers with automatic irrigation systems use over 375 GPD outdoors during peak season.

## What's a high water user?

- At least 375 gallons per day outdoor use.

	1997	1998	1999	2000	2001
>200gpd	15319	20711	15986	35964	23372
>375gpd	16955	7616	5887	13762	8891
>500gpd	2924	4363	3397	8152	5348

This includes customers without automatic irrigation systems.

## Automatic Irrigation Systems

- At best only 30% effective at getting water to the plant's root zone because of poor distribution uniformity (DU) and management.



## Review of our Research

- Findings that relate to designing residential irrigation incentives.



## 1994 - Seattle Water Outdoor Use Study

First Evaluation:

- 70% irrigated turf grass.
- 71% irrigated other plantings.
- 21% had permanent in-ground irrigation.
- No cost-effective water savings from installing timers.

## 1994 - Seattle Water Outdoor Use Study

Second Evaluation:

- A target group of high water users had cost-effective water savings from the timers - 55 years of age or more with irrigated lawns of at least 1,000 sqft.
- 95% of increase during peak season due to outdoor water use.

## 1995 - High Peak Use Study

- More people are getting in-ground irrigation systems.
- Those with in-ground irrigation water more often than those without.
- 38% had automatic in-ground irrigation.
- 73% learn about gardening issues by reading local newspaper articles.
- 28% said that their children regularly use the lawn for a play area.

## 1996 - High Peak-Season Water User Study

- Indoor/outdoor audits save 125 gallons per day (17 cubic feet per day).
- Audits would be cost-effective at \$200 (including program costs).

## 1996 - High Peak-Season Water User Study

- Automatic irrigation users on average consume more water per square foot of irrigated area than non-automatic users.
- Customers with automatic systems used 40% to 60% more water per square foot than those with non-automatic systems.
- In addition to using more water per square foot, automatic system users also had 40% to 70% larger irrigated areas.

### 1999 - Smart & Healthy Landscape Pilot Program

- No measurable savings.
- Auto irrigation used 486 gallons per day more than those without.
- Lot size only increased use by about 19 gallons a day.



### Evaluating Water Savings from Audits

- Evaluation happens after a full season is completed.



### 2000 - Smart & Healthy Landscape Pilot Program

- 2001 drought - evaluation was impacted.
- Problems with selecting customers.



### 2001 - High Water Using Gardeners Focus Groups

- Men are more interested in lawn care.
- Most customers had no idea their water use more than tripled in the summer.
- Several compared their consumption from year to year, and since it stayed the same, they assumed they were doing all right.
- Most participants could not suggest concrete ways to reduce water use.

### Issues with Customers

- We don't know which of our customers are over-watering without visiting their properties.
- But, we know targeting produces more savings.

### 2001 - Audit Program Research

- Reviewed other utility audit programs to design an audit program that would be more successful.
- Indoor/outdoor audit seemed more successful.

### **2001 - Irrigation Product Review**

- Testing Rain Sensor and stand alone ET based controllers highly recommended.

### **2002 - Personal Water Savings Program**

- No cost-effective savings from audits found.
- Key findings from the survey: adjusting schedules, rain sensors and controllers.

### **2002 - Personal Water Savings Program**

- Participants saved about 120 gallons per day. Decrease in consumption of about 10% - 28%.
- Still not cost-effective - costs were too high.
- The automatic irrigation system owners had significantly higher consumption in the years 1998- 2001.

### **2002 - Water Efficient Irrigation Study**

- Cost-effective savings from installing the ET controller with rain sensor.
- Up to 27.7 CCF per account.
- No savings from the sensor - no rain.
- Irrigation Scheduling service not cost-effective but did have savings.
- In our area alone the controller with a sensor could save over 1.2 million gallons per day.

### **2002 - Report on Implementation of the Third Tier Water Rate**

- Estimated that about half of the reduction in the 3rd tier consumption from 2000 to 2001 was due to weather with the other half split between price and drought response.

### **2002 - Residential Landscape Barriers Analysis**

- Rain shut-off devices, seasonally adjust their irrigation scheduling
- Landscape water needs
- Control
- Proof
- Guidance

## Themes From the Research

- Targeting customers produces better savings.
- More people are getting in-ground automatic systems.
- Those people with automatic in-ground systems use more water per square foot.
- People don't know how much they are using or why they are using a lot.

## Initial Direction

- Market Transformation Strategy:
  - Bringing New Controller Technologies to the Market – ET controller.

## 2003 - Talking to the Industry

- Formed Irrigation Advisory Group:
  - NW Irrigation Association
  - Washington Association of Landscape Professionals
  - Certified Irrigation Professionals
- Met with Distributors.
- Spent the day with consultant to get feedback about our program ideas.

## A Change of Direction

- Understanding the Market:
  - No ET controllers in our service area.
  - Supporting the business relationship that works – the contractor and customer.

## A Practical Market Transformation Strategy

- Rebates
- Certifications
- Partnering events



Thank you!

Any questions?