

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).**

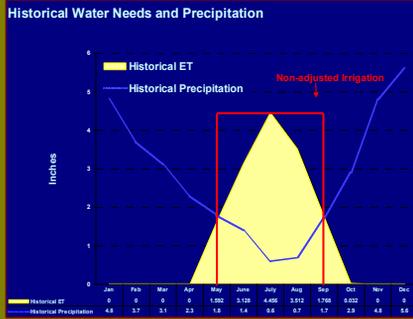
What do we do?

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

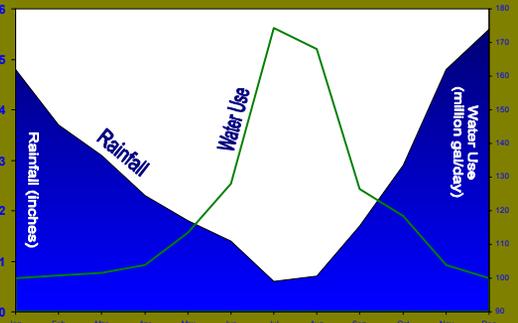
How do we do it?

- 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?