**RightScape**
Control Your Controller

Juan Garcia

Landscape Water Efficiency Specialist

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WEBINAR HOUSEKEEPING

Please keep microphones muted.

Submit questions via chat to host.

Questions will be answered at the end of the presentation.

This presentation will be emailed at the conclusion for future reference.

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IRWD BOARD DIRECTOR JOHN WITHERS

- Urban public policy expert
- Partner with California Strategies in Irvine, a strategic government-relations firm.
- 30-year IRWD board member
- Vice chair, O.C. Sanitation District

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INNOVATING FOR WATER EFFICIENCY

Director John Withers

- Since 1990, IRWD population has nearly quadrupled, but water use has increased only 35%.
- It's the result of innovation
  - Budget-based rate structure
  - Water-efficiency rebates
  - Educational programs like this
- Smart customers are the key — thank you!
- Today's presenter: IRWD Senior Water Efficiency Specialist Juan Garcia

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REDUCE YOUR LANDSCAPES WATER NEEDS

Consider reducing or eliminating unused areas of lawn

Convert to climate appropriate plants

- CA native & non-native climate appropriate plants

More decorative permeable hardscapes

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LANDSCAPING WITH GRASS

The highest water-use plant:

- Every 1,000 square feet requires 25,000 to 35,000 gallons per year
- 4,000 +/- gallons: monthly summer demand

6

CLIMATE APPROPRIATE LANDSCAPES SAVE WATER

- 30%-50% water savings

- 15,000-20,000 gallons per year for every 1,000 square feet

- 2,500 +/- gallons: monthly summer demand

1,000 gallons   1,000 gallons   500 gals

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LANDSCAPING WITH LOW WATER USE PLANTS

- 60%-80% water savings

- 4,000-12,000 gallons per year for every 1,000 square feet

- 1,500 +/- gallons: monthly summer demand

1,000 gallons   500 gals

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CALIFORNIA NATIVES: THE RIGHTSCAPE

- 80%+ water savings
- Build habitat for pollinators
- Fully or partially summer dormant
- Require little to NO supplemental water once established.

9

Seasonal Water Needs

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SEASONAL WATERING SCHEDULES

Three main questions when creating a watering schedule

- How long should I water for?
- How often should I water?
- What time do I start watering?

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BENEFITS OF PROPER WATERING

The landscape will look better with efficient water use

- Stay within budget
- Conserve water
- Healthier plants
- Healthier soil

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FACTORS THAT DETERMINE WATER-NEED:

Area of landscape.

Plant water use type:

- High
- Moderate
- Low
- Very low

Weather – seasons

Microclimates.

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WATERING FACTORS

WEATHER

The state of the atmosphere with respect to wind, temperature, cloudiness, moisture, pressure, etc.

PLANTS

Water Use Classification of Landscape Species: Plants evaluated as needing high, moderate, low, and very low amounts of water.

IRRIGATION

Irrigation is the application of controlled amounts of water to plants at needed intervals.

SOILS

Medium in which plants grow, a black or dark brown material typically consisting of a mixture of organic remains, clay, and rock particles.

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Weather, Plant & Water Relationships

MEDITERRANEAN CLIMATE

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THE RIGHT PLANTS FOR OUR CLIMATE

What are California Friendly® or drought tolerant plants?

What are California native plants?

Is there a difference?

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SO. CA MEDITERRANEAN CLIMATE

California is NOT a desert!

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CALIFORNIA FRIENDLY®
PLANTS

Climate appropriate plants from around the world

They are moderate water users

They need summer water

Easy to adapt

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CALIFORNIA NATIVE PLANTS

- Natives build habitat for pollinators
- Fully or partially summer dormant
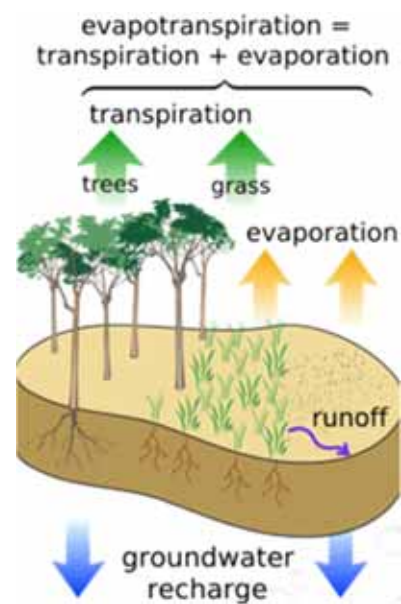- They require little or no supplemental water once established

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PLANT WATER LOSS

ETo Evapotranspiration – Measurement of the amount of water that is lost
- Through the soil and plants
- On top of the soil and plants
- ET or water loss is measured in inches

Compare to water added
- Rain is measured in inches
- Irrigation is measured in inches

evapotranspiration = transpiration + evaporation

transpiration

trees   grass

evaporation

runoff

groundwater recharge

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IRWD WEATHER STATIONS DAILY ET$_O$

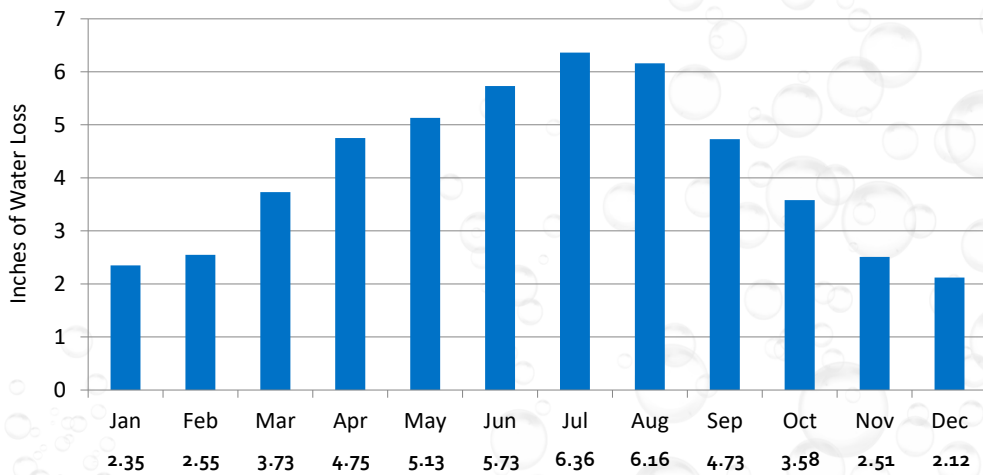Measures Daily ET based on the following factors:

- Measured in Inches
- Cool season grass
- Solar Radiation
- Temperature
- Wind
- Humidity

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WEATHER STATION & ET$_O$ – CENTRAL ZONE

ETo = Water Loss in Inches

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2.35	2.55	3.73	4.75	5.13	5.73	6.36	6.16	4.73	3.58	2.51	2.12

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PLANT WATER NEED

Plants water requirements differ

A plant's water need can be measured using its Kc value (plant factor)

WUCOLS plant factors
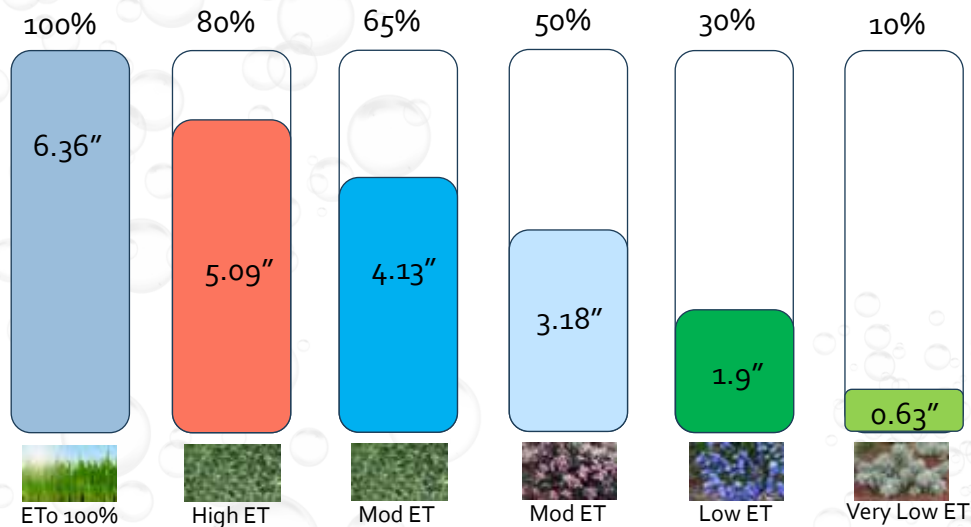
Category	Abbreviation	Percentage Of ETo	Plant Factor
High	H	70-90	Kc = 0.7 - 0.9
Moderate	M	40-60	Kc = 0.4 - 0.6
Low	L	10-30	Kc = 0.1 - 0.3
Very Low	VL	< 10	Kc = < 0.1

High ET

Mod ET

Low ET

Very Low ET

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PLANT WATER NEED BASED ON JULY ETo

100%	80%	65%	50%	30%	10%
6.36"	5.09"	4.13"	3.18"	1.9"	0.63"
ETo 100%	High ET	Mod ET	Mod ET	Low ET	Very Low ET

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Water To The
Bell Curve

MEDITERRANEAN CLIMATE

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THE WATER DIAMOND

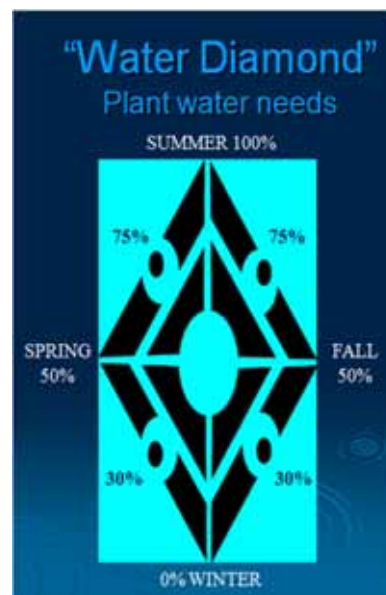As we approach springtime, we typically increase watering

By summer, water need is at maximum

In the fall and winter, it begins to cool

- The rains commence
- Daylight gets shorter

This is time to reduce our watering

Water to the WEATHER & SEASON!!!

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SEASONAL NEEDS:
CLIMATE APPROPRIATE PLANTS

Start reducing your watering in the Fall by 30%

Turn off your sprinklers in winter

When do I start watering?

- Wait until summer to star watering?
- Spring showers…

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CA NATIVE PLANTS
SEASONAL NEEDS

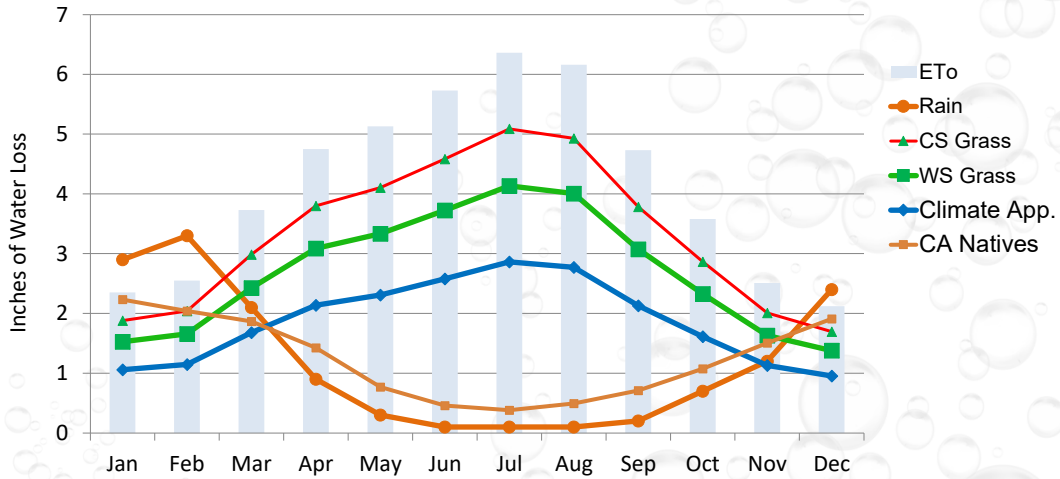For many of our CA native plants, water need is opposite

- They awaken from their summer slumber
- Water needs begin in late Fall through Spring
- Deep infrequent watering

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PLANTS SEASONAL WATER REQUIREMENTS

CA Native Plants vs. Exotic Climate Appropriate Plants

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HYDROZONING

Hydrozoning Principles
  Grouping plants together that have similar cultural needs
  • Plant types
  • Water requirement
  • Sun exposure
  • Soil requirements
  • Growth Rate

SAMPLE HYDROZONE PLAN

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EFFICIENT IRRIGATION

SPRAY HEADS

Applies water at fast rate so make sure to divide runtimes into multiple start times for better efficiency

ROTORS

Delivers water in a single stream that oscillates. Applies water at a slower rate allowing soil to absorb and permeate deeper into the root zone

ROTATING NOZZLES

Deliver a pattern of wind-resistant, multi-trajectory streams that result in uniform distribution and reduced water loss

DRIP IRRIGATION

Delivers water only where you need it, allowing water to drip slowly to the roots for optimum efficiency

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SOILS - CYCLE & SOAK

Cycle And Soak - More cycles, short run times

Make sure to water your plants deeply but infrequently to promote a deep root system

Example of cycle & soak

- Need to water shrubs for 12 minutes
- 3 start times per day (cycles)
- 4 minute run times (each station)
- 30 minutes between each watering cycle
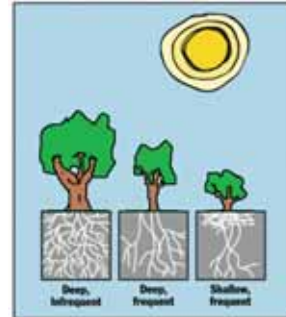
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The Irrigation Controller

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STANDARD IRRIGATION CONTROLLERS

A controller, or timer, is used to set an irrigation system to turn on automatically
- Date & Time
- Start Times
- Run Times
- Watering Days
- Seasonal Adjust %
- Programs: A, B, C, D

Who programs the timer?

Adjustments are recommended at least 2 times per month or weekly

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IRRIGATION CONTROLLERS (TIMERS)

An irrigation controller is a computerized operating system

The controller uses information you input into the device

It turns on an irrigation valve/station at a specific time, for a specific length of time

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WHAT CAN CONTROLLERS DO?

They **eliminate** the need to water by hand

They **operate** your irrigation system

They conduct complex watering schedules set by **you**, the manager

They **can potentially save** you money

They **can potentially save** you water

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WHAT CAN'T MOST CONTROLLERS DO?

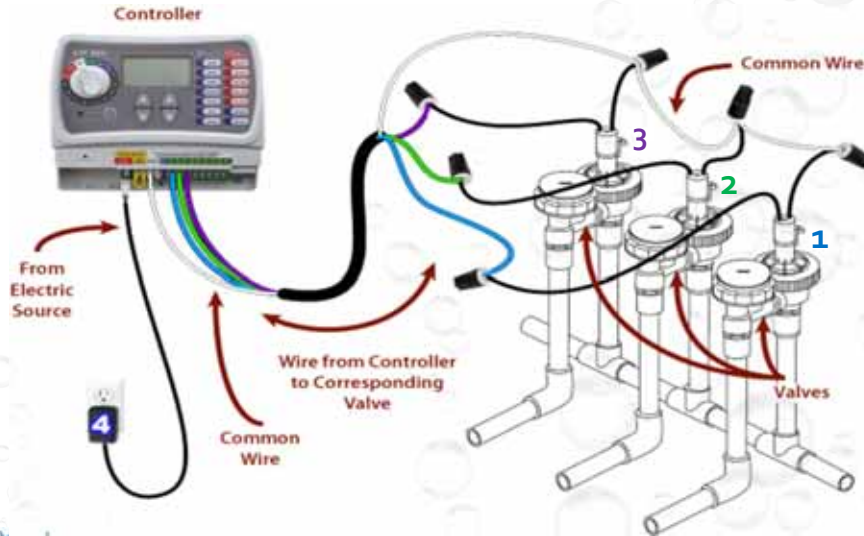They **can't** adjust your irrigation timer to account for daily or weekly weather patterns

They **can't** turn off themselves when it rains

They **can't** tell what you're watering, or adjust themselves to new plants or changes in your landscape

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CONTROLLER VALVE WIRING

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GOALS

The purpose of using an irrigation controller is to control the water use in your home garden

A controller may help attain the following goals:

- Efficient water use
- Less time and effort
- Reduced water waste

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COMMON CONTROLLER INSTRUCTIONS

Date & Time

Programs: A, B, C, D

Frequency
- How many days per week
- Interval
- Every other day, every third day, etc.

Cycles
- Start time for watering landscape

Duration
- Watering time or runtime per valve or station

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DATE & TIME

Date & Time
- Set Year
- Set Month
- Set Day

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USE OF PROGRAMS

Use available programs for different:
- Plant types/hydrozones
- Plantings; slopes, flat areas, microclimates
- Irrigation types

Examples:
- Program A = Use for Grass or other high water use areas
- Program B = Planters or shrub beds
- Program C = Drip or low flow areas

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USE OF PROGRAMS

Month	Program A	Program B	
	Turfgrass	Drought tolerant trees, shrubs & groundcover	% Option**
January	2 days, 2 cycles of 2 minutes	1 day, 2 cycles of 3 minutes	30%
Febuary	2 days, 2 cycles of 2 minutes	1 day, 2 cycles of 3 minutes	30%
March	3 days, 2 cycles of 3 minutes	2 days, 2 cycles of 3 minutes	50%
April	3 days, 2 cycles of 4 minutes	2 days, 2 cycles of 4 minutes	70%
May	3 days, 3 cycles of 3 minutes	2 days, 3 cycles of 3 minutes	80%
June	3 days, 2 cycles of 5 minutes	2 days, 3 cycles of 3 minutes	90%
July	4 days, 3 cycles of 3 minutes	2 days, 2 cycles of 4 minutes	100%
August	4 days, 3 cycles of 3 minutes	2 days, 3 cycles of 4 minutes	100%
September*	4 days, 2 cycles of 3 minutes	2 days, 2 cycles of 4 minutes	70%
October*	3 days, 2 cycles of 3 minutes	2 days, 2 cycles of 3 minutes	50%
November*	2 days, 2 cycles of 3 minutes	1 day, 2 cycles of 4 minutes	40%
December	2 days, 2 cycles of 2 minutes	1 day, 2 cycles of 3 minutes	30%

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![Irvine Ranch Water District logo]

FREQUENCY - WATER DAYS

The number of days to water
- Use appropriate programs for each planting type
- As the days become cooler, less frequency of irrigation will be required.

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CYCLES - START TIMES

Best time to Irrigate/Water?

Number of Cycles per Program

More cycles, short run times
  Example - need to water for 6 minutes
- 3 start times per day (cycles)
- 2 minute run times (each station)
- 30 minutes between each watering cycle

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DURATION - RUN TIME

How many minutes per station?

Hydrozones

Program station by station in appropriate program

Valve = Station

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SEASONAL ADJUST OR WATER BUDGET FEATURE

Month	Turfgrass	Drought tolerant trees, shrubs & groundcover	% Option***
July	4 days, 3 cycles of 3 minutes	2 days, 2 cycles of 4 minutes	100%
August	4 days, 3 cycles of 3 minutes	2 days, 3 cycles of 4 minutes	100%

Quick way to increase/decrease the programmed runtime by a percentage.

- 100% is your base – current runtime
- 50%   - waters half the programmed time
- 200% - doubles the watering time
- Set up schedule for July
  - Maximum irrigation.
- Use water budget mode to make run time changes.
- Still need to change the days per week

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WEATHER-BASED IRRIGATION CONTROLLERS (WBIC)

WBIC's use sensors and weather information to manage watering times and frequency

- They automatically adjust runtime and days using this data
- Automatically shut off during rain or low temperatures
- Can reduce water use by an average of 15 to 30 %
- Rebates available

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WEATHER-BASED IRRIGATION CONTROLLERS (WBIC)

Add-on & Plug-in Devices

Connect to standard clock timer controllers and modify their irrigation schedule.

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WEATHER-BASED IRRIGATION CONTROLLERS (WBIC)

Onsite Sensor-Based Controllers

Use real-time readings from sensor(s) to adjust irrigation watering
- Temperature, humidity, solar radiation, etc.
- Historical data

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WEATHER-BASED IRRIGATION CONTROLLERS (WBIC)

Signal-Based Controllers

Receive a regular signal of prevailing weather conditions via radio, telephone, cable, cellular, Web, or pager technology

- The signal typically uses data from local weather station(s) to update the current schedule for the controller

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ONLINE RESOURCES

IRWD.COM / RIGHTSCAPENOW.COM

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RightScapeNow.com/rebates/residential-rebates

Financial incentives to help save water

Outdoor rebates
- Turf removal rebate program
- Weather-based irrigation controllers
- Rotating spray nozzles
- Rain barrels and cisterns
- Soil moisture sensors
- Drip conversion

Indoor rebates
- High-efficiency clothes washers
- High-efficiency toilets

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SAVE WATER & MONEY: RightScapeNow.com

- Do-it-yourself home check-up
- Upcoming workshops
- Water-saving tips
- Online training
- How-to videos
- Rebates

Upcoming workshops & events

Wednesday, Sept. 16 2020
12 p.m. to 1:00 p.m.
Fall into Gardening

Wednesday, Oct. 14 2020
12 p.m. to 1:00 p.m.
My Garden, My Watershed

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LANDSCAPING IDEAS: RightScapeResources.com

- View gardens
- Watering calculator
- Search for plants
- Design ideas
- Printable plant lists

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QUESTIONS ABOUT YOUR LANDSCAPE?

Ask Juan!

Juan Garcia is IRWD's landscape water efficiency specialist with more than 10 years of experience in efficient irrigation practices and drought-tolerant plant selection

- Monthly "Ask Juan" column featured in IRWD's Pipelines newsletter
- Email him at: AskJuan@IRWD.com

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THANK YOU
FOR ATTENDING TODAY!

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