

# Optimize Your Landscape Irrigation

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# HELP!!



# Conduct an Irrigation Site Evaluation

Run a Manual test of each station on Timer

Mark down any issues you may see with each station

Flag major issues



# Look for Areas to Improve



# Site Evaluation Checklist



## Irrigation Site Evaluation

Date: \_\_\_\_\_

Existing Irrigation Controller

Make: \_\_\_\_\_

Model: \_\_\_\_\_

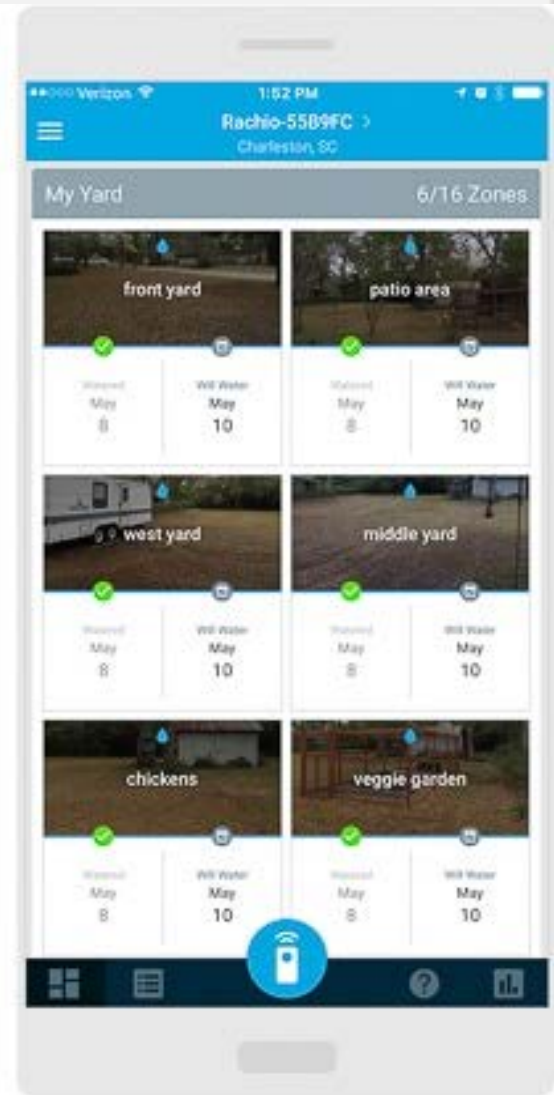
Number of Stations: \_\_\_\_\_

Landscape Findings	Station Number												
	1	2	3	4	5	6	7	8	9	10	11	12	
<b>Location of Landscape:</b> F=Front Yard, B=Back Yard, N/A=No station													
<b>Type of Landscape:</b> T=Turf, S=Shrubs, A=Annuals, X=Tree, M=Mixed													
<b>Irrigation Delivery:</b> S=Spray, R=Rotor, D=Drip, B=Bubbler, M=Mixed													
<b>Number of sprinklers in this station:</b>													
<b>Topography Problems:</b>	1	2	3	4	5	6	7	8	9	10	11	12	
1. Area Overwatered (excessive irrigation run times).													
2. Area is heavily shaded and saturates easily.													
3. Excessive runoff.													
4. Pooling of water near plants.													
5. Sloped area that would benefit from "cycle and soak" irrigation.													
6. Low head drainage.													
7. Spray pattern blocked by plants.													
<b>Irrigation Control Valve Problems:</b>	1	2	3	4	5	6	7	8	9	10	11	12	
1. Valves not separated by plant water requirements.													
2. Leaking irrigation control valve													
<b>Sprinkler Problems:</b>	1	2	3	4	5	6	7	8	9	10	11	12	
1. Broken or clogged sprinkler nozzles.													
2. Broken pipe.													
3. Broken sprinkler body.													
4. Sunken or low sprinkler heads which are buried in grass.													
5. Sprinkler heads or nozzles are different brands or delivery rates.													

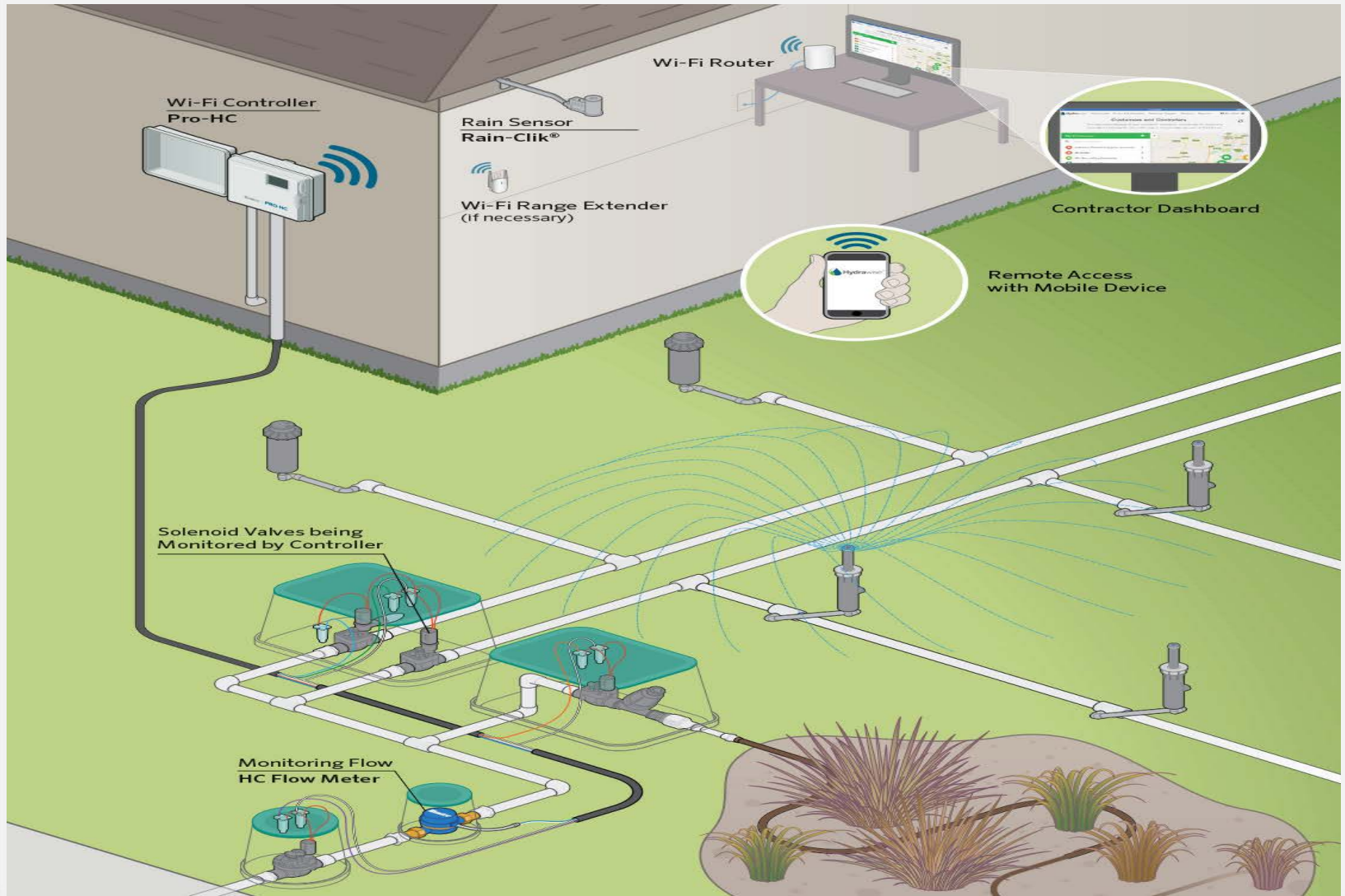
# Weather-Based Irrigation Controllers



# Weather-Based Irrigation Controllers



# Smart Home Capability





# “Smart” Timers

"Smart" irrigation controllers reduce outdoor water use by monitoring and using information about site conditions (such as the site's sun exposure, soil moisture, rain, wind, slope, soil, plant type, and more).

They apply the right amount of water based on those factors, not too much and not too little, to maintain healthy growing conditions

Uses weather and / or on-site data to schedule irrigation only when the landscape needs it

Weather data is supplied by an on site weather sensor or by a subscription service.

# Smart Watering Settings - Orbit

The image displays three screenshots of the Orbit mobile application interface, showing the process of configuring smart watering settings for a specific zone.

**Screenshot 1: Zones**  
This screen shows a grid of five watering zones, each with a circular image and a number:

- 1 Front Grass 1
- 2 Front Grass 2
- 3 Center Grass
- 4 Front Drip
- 5 (unlabeled zone)

At the bottom, there are navigation icons for Calendar, Programs, Home (selected), Zones, and My B-hive. A status bar at the top shows the time as 3:05 AT&T and 42% battery.

**Screenshot 2: Zone Detail**  
This screen shows the details for "Front Grass 1". It features a "Smart Watering: On" toggle switch (currently turned on) and a "Smart Details" button. Below this, it displays "Front Grass 1" in a large font, followed by "Watering Events" (Last Watering: Tue, Sep 15 at 3:32 AM; Next Watering: Sat, Sep 19 at 3:00 AM) and "Scheduled Run Times" (Smart Watering). A large circular gauge shows "71%" for "Soil Moisture".

**Screenshot 3: Smart Attributes**  
This screen shows the "Smart Attributes" for "Front Grass 1". It includes a circular image with a lightbulb icon and a text block: "Smart watering helps you save water. The more information you provide about your zone, the more water you can save!". Below this is the "Zone Smart Watering Details" section, which lists several attributes with checkmarks:

- Soil Type: Clay Loam
- Plant Type: Cool Turf
- Sprinkler Type: Spray
- Sun/Shade: Full Sun
- Slope: 4-6%
- Head Count: 0 Spray heads

# RainMachine AZS

The screenshot displays the RainMachine mobile application interface. At the top, the status bar shows the time as 3:07 AT&T and a battery level of 41%. The app header includes navigation options like 'Devices', 'RainMachine Demo', and 'RainMachine', along with 'DISCARD' and 'SAVE' actions.

The main content area is divided into several sections:

- Water saved:** A circular gauge shows 10% water saved, with text indicating 'Water saved past 7 days: 14.5 gallons' and 'Next watering cycle starts: Thu Nov 17, 2016 at 04:00 PM'.
- Weather and Forecast:** A table showing weather for the next week (Tue to Mon) with max/min temperatures and rain probability.
- Temperature and Rain Amount:** Line graphs showing temperature and rain amount over a period from Sep 15 to Sep 21.
- Zone List:** A list of four zones with play icons:
  - 01. Lawn Front (Next watering: Never)
  - 02. Flowers on the back of the...
  - 03. Bushes and trees on the sh...
  - 04. Trees and bushes test
- Zone Settings (Right Panel):** A detailed settings panel for the selected zone, including:
  - Soil type: Loamy sand
  - Slope: Flat
  - Vegetation type: Lawn
  - Sprinkler heads: Popup spray
  - Exposure: Full sun
  - Zone is Active:
  - Show Zone Image:
  - Area: 999.98 ft² (optional)
  - Total flow: 0

The bottom of the screen features a standard Android navigation bar with back, home, and recent apps icons.

# Smart Home Capability

Amazon Alexa

Google Assistant

Nest



# Activity!

# Irrigation Schedule

## Irrigation Watering Schedule

Check your systems regularly



### Winter

	DECEMBER				JANUARY				FEBRUARY			
	Minutes per week	Days per week	# of cycles per day	Minutes per cycle	Minutes per week	Days per week	# of cycles per day	Minutes per cycle	Minutes per week	Days per week	# of cycles per day	Minutes per cycle
Turf/Fixed Spray	8	1	4	2	8	1	4	2	12	1	4	3
Shrub Spray Fixed	3	1	3	1	4	1	4	1	8	1	4	2
Drip System	8	1	4	2	12	1	4	3	20	1	4	5
Turf/Rotary Nozzle	32	1	4	8	32	1	4	8	56	1	4	14

### Spring

	MARCH				APRIL				MAY			
	Minutes per week	Days per week	# of cycles per day	Minutes per cycle	Minutes per week	Days per week	# of cycles per day	Minutes per cycle	Minutes per week	Days per week	# of cycles per day	Minutes per cycle
Turf/Fixed Spray	24	2	4	3	32	2	4	4	36	3	4	3
Shrub Spray Fixed	12	1	4	3	20	1	4	5	24	2	4	3
Drip System	28	1	4	7	44	1	4	7	56	2	4	7
Turf/Rotary Nozzle	96	2	4	12	144	2	4	18	180	3	4	15

### Summer

	JUNE				JULY				AUGUST			
	Minutes per week	Days per week	# of cycles per day	Minutes per cycle	Minutes per week	Days per week	# of cycles per day	Minutes per cycle	Minutes per week	Days per week	# of cycles per day	Minutes per cycle
Turf/Fixed Spray	48	4	4	3	64	4	4	4	48	3	4	4
Shrub Spray Fixed	32	2	4	4	32	2	4	4	32	2	4	4
Drip System	72	2	4	9	80	2	4	10	72	2	4	9
Turf/Rotary Nozzle	240	4	4	15	256	4	4	16	216	3	4	18

### Fall

	SEPTEMBER				OCTOBER				NOVEMBER			
	Minutes per week	Days per week	# of cycles per day	Minutes per cycle	Minutes per week	Days per week	# of cycles per day	Minutes per cycle	Minutes per week	Days per week	# of cycles per day	Minutes per cycle
Turf/Fixed Spray	36	3	4	3	24	2	4	3	12	1	4	3
Shrub Spray Fixed	25	2	4	3	16	1	4	4	8	1	4	2
Drip System	56	2	4	7	36	1	4	9	16	1	4	4
Turf/Rotary Nozzle	168	3	4	14	112	2	4	14	52	1	4	13

#### Quick sprinkler tips

- Check system regularly for leaks or missing drip emitters
- Adjust and straighten sprinklers for overspray on hardscape like sidewalks and drive ways
- Install check valves for low head drainage

Call us at (916) 774-5761  
to schedule a Water Wise House  
Call if you have questions.

Seasonal Schedule

Minutes Per Week

All Sprinkler Types

Set up Individual programs for plant types and irrigation system type.

- Program A-Turf
- Program B-Shrubs
- Program C-Drip

# Home Flow Sensors

- Protect your home from water damage  
Can Shut off the water system if a Leak is detected
- Check you water use on you phone



# Pressure Regulation Heads



**Pressure  
Regulated  
Spray Head**

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# Improve Spray Head Performance



Use High Efficiency Nozzles

# Rotary Nozzles

- Wind resistant multi stream.
- Adjustable for precise settings.
- Low precipitation rate reduces runoff.
- Matched Precipitation Rate to eliminate wet or dry spots.
- Immediate improvement in the distribution uniformity.



# Nozzle Replacement Only



# Existing System Conversion Spray



Fixed Spray Nozzle



Rotary Nozzle

## Maintain Matched Precipitation – Any Model, Any Arc, Any Radius

Adjustable Radius		Adjustable Arc		
<p>All models of the MP Rotator allow for easy radius adjustment of up to 25% while maintaining automatic matched precipitation.</p>		<p>90° to 210°</p>	<p>210° to 270°</p>	<p>360°</p>
<p><b>MP1000</b></p> <p>Stream Height at 40 PSI = 16"</p> <p>8' ← Radius Reduction 15'</p>	<p>MP1000-90-210</p> <p>Maroon</p>	<p>Not Available</p>	<p>MP1000-360</p> <p>Olive</p>	
<p><b>MP2000</b></p> <p>Stream Height at 40 PSI = 40"</p> <p>13' ← Radius Reduction 21'</p>	<p>MP2000-90-210</p> <p>Black</p>	<p>MP2000-210-270</p> <p>Green</p>	<p>MP2000-360</p> <p>Red</p>	
<p><b>MP3000</b></p> <p>Stream Height at 40 PSI = 79"</p> <p>22' ← Radius Reduction 30'</p>	<p>MP3000-90-210</p> <p>Blue</p>	<p>MP3000-210-270</p> <p>Yellow</p>	<p>MP3000-360</p> <p>Gray</p>	
<p><b>MP Corner</b></p> <p>Stream Height at 40 PSI = 10"</p> <p>8' ← Radius Reduction 15'</p> <p>The MP Corner is designed for tight corners that are difficult to irrigate properly with conventional sprinklers. It has an adjustable arc from 45° to 105°, maintains MPR at any arc, any radius and can be placed on the same zone with any other MP Rotator model.</p>	<p>MPCorner</p> <p>Turquoise</p>	<p>45° to 105°</p> <p>MP1000 radius reduced to 9 feet</p> <p>MP Corner at full radius</p> <p>MP1000 radius reduced to 9 feet</p>		
<p><b>MP Strip</b></p> <p>Example with triangular spacing.</p>	<p>MPLCS (Left Strip)</p> <p>Ivory</p>	<p>MPCSS (Side Strip)</p> <p>Brown</p>	<p>MPCRS (Right Strip)</p> <p>Copper</p>	
<p>The three MP Strip models of the MP Rotator family offer an exciting alternative to irrigate strip areas. Strip models offer improved uniformity and excellent wind-fighting ability. The reduced flow rate compared to conventional sprays makes longer runs and/or fewer zones possible.</p>				

# Check Valves for Heads

## Low-Head Drainage Part I

**WATER WISE**  
USE / LESS NOW

When sprinklers run,  
the underground  
pipes fill up with water.



## Low-Head Drainage Part II

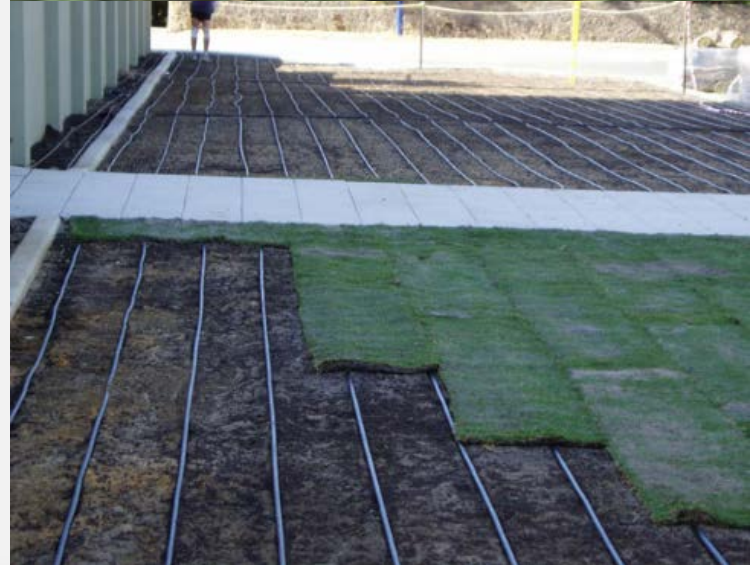
When sprinklers turn off...  
Gravity drains all of the water in the pipes  
out the lowest head (or heads)



# Drip Vs. Spray System

Slow and precise application of water directly to

- Root zone of turf
- Root Zone of shrubs, trees or gardens
- Can be surface or sub-surface
- Include Small drops, small streams, miniature sprays



# Types of Micro-Irrigation

Point Source



Micro Sprays



In Line Drip



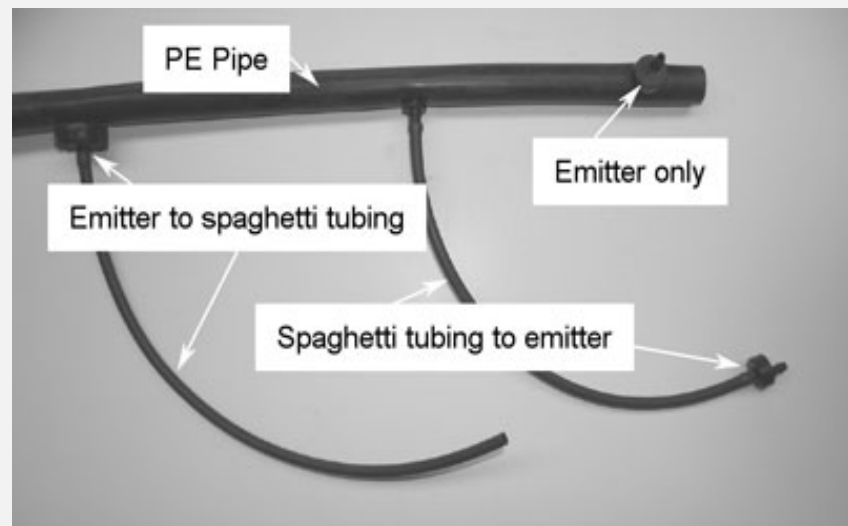
Micro Bubblers



# System Type-Point Source

## Micro/Distribution Tubing

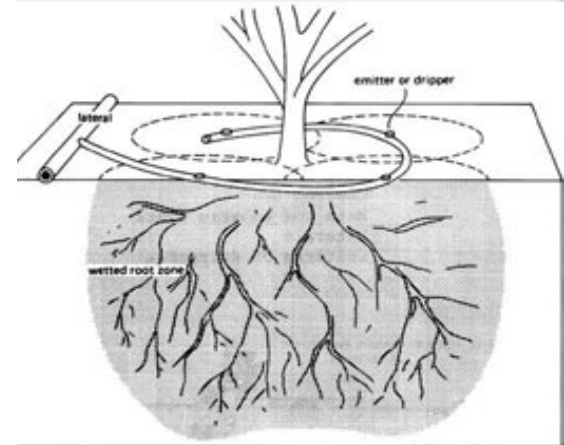
- Irrigation water is moved from the main supply tubing to plant locations and emission devices through smaller distribution tubing, typically 1/8" (OLD) or 1/4" and manufactured from polyethylene or vinyl.
- Distribution tubing is attached via connectors punched directly into the supply tubing by utilizing a punch tool. From the main supply tubing connection, micro/distribution Tubing is easily run to various plant and emitter locations through a series of tees, couplings and elbows.
- With its small diameter, micro/distribution tubing is very flexible and can be run in difficult locations and interspersed among plants, hardscapes or other obstacles.





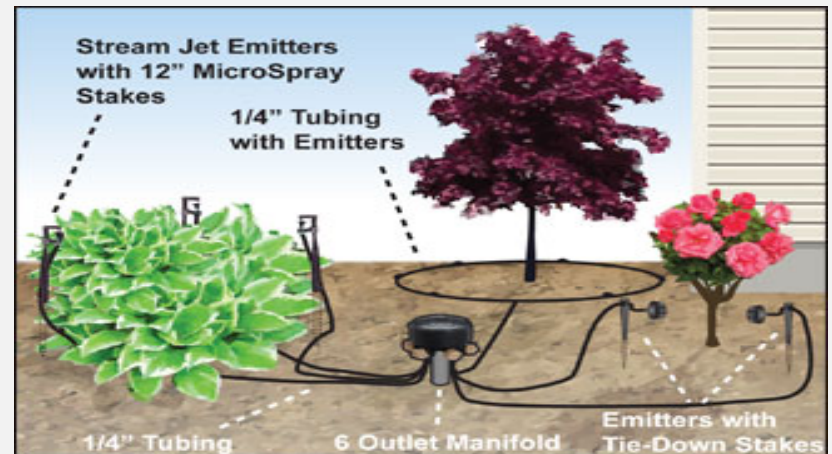
# Quantity of Emitters

	No. of Emitters	Output	Placement
<b>Vegetables</b> (closely spaced)	1	1/2–1 gph	every foot
<b>Vegetables</b> (widely spaced)	1	1–2 gph	base of each plant
<b>Flowerbeds</b>	1	1 gph	base of each plant
<b>Groundcovers</b>	1	1 gph	base of each plant
<b>Shrubs</b> (2–3 feet)	1–2	1 gph	base of plant
<b>Trees &amp; Shrubs</b> (3–5 feet)	2	1 gph	1/2–1 foot away from trunk
<b>Trees &amp; Shrubs</b> (5–10 feet)	2–3	2 gph	2 feet away from trunk
<b>Trees &amp; Shrubs</b> (10–20 feet)	3–4	2 gph	3 feet away, at dripline
<b>Trees</b> (over 20 feet)	6	2 gph	4 feet away, at dripline



# Emitter Placement

- Placing your drip emitters too close together or too far apart is a bad move
- Placing them evenly will ensure that your plants get the proper amount of water without having areas oversaturated.
- A good rule of thumb is to place drip emitters evenly spaced along the plant line and a minimum of six inches from the base of the plant.



# Inline Drip



# Inline Drip



Used for plants that have

- Similar water requirements
- Similar Microclimate exposure

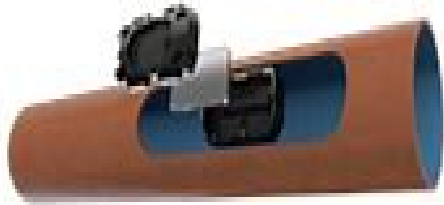
Placed on surface or subsurface (turf)

Even water distribution through capillary action

Design dictated by soil type and flow rate of emitter



# Inline Drip Built-in Emitter



# Inline Drip System Sample Layouts



# Flow Rates



Flow rates of emitters must match plant water requirements. Use WUCOLS to identify Plant Water Requirements.

- Higher water use plants need 2-4 gph emitter.
- Medium water use plants need 1.0 gph emitter.
- Low water use or potted plants need 0.5 gph emitter.
- Many emitters are color coded for the gph depending on the manufacturer.

# Emitter Water Output



\*Gallons Per Hour (GPH)



# Drip System Summary



Different types of drip systems.

- Point Source Drip
- Inline Drip

Matching the emitter size to the plant water requirement!

- .5 gph low
- 1.0 gph med
- 2.0- 4.0 gph high

WUCOLS IV- for Plant Water Use Requirements

Water Use Classification of Landscape species

# Retrofit Drip System



Retrofit existing pop up spray type sprinklers to a drip system

Add a section to an existing drip system.

Use a hose spigot for small areas or potted plants use, add the line and a battery operated timer.

Upsize emitter sizes and additional pipe if necessary for larger trees or more mature plants.

# Drip Irrigation – Retrofit System



1/2" Tubing

\*Can be used to retrofit to point source or inline drip systems

# RainBird Retro Kit



# Drip Irrigation – Retrofit System



Octabubbler



Spray to Drip Retrofit Kit ¼" Tubing

# Inline Drip System Retrofit Kits



<https://www.rainbird.com/products/spray-drip-retrofit-kit>



<https://landscapeproductsinc.com/product/retro-drip-adapter/>

\* Convert a spray system to an inline drip system (you will need to cap other existing spray heads)

# Turf Removal



Sheet mulching



Sod cutting

# Sheet Mulching vs Tilling



## SHEET MULCHING

- Relatively **easy way** to transform lawn to garden
- Kills weeds **without poison** and prevents them from growing
- Creates **nutrition** for the soil
- Uses materials available on-site or available for free or low-cost; **saves materials from landfills**
- Helps **earthworms** proliferate to aerate the soil
- Protects garden soil from **winter rain and snow**
- Mulched soil retains **30 percent more water**



## TILLING

- Overturning sod can be **labor- and time-intensive**
- Weeds must be **removed manually or chemically**
- Soil is more likely to **need fertilizer and amendments** to improve aeration, moisture retention, drainage, and pH of the soil.
- Disrupts the **soil structure and microbiome**
- Bare soil is subject to **erosion**
- Garden requires **more water**





# Activity!

# Finished Product



# Internet Resources

California Landscape Contractors Association- [www.CLCA.com](http://www.CLCA.com)

City of Roseville- [www.roseville.ca.us/savewater](http://www.roseville.ca.us/savewater)

Regional Water Authority- [www.bewatersmart.info](http://www.bewatersmart.info)

DIY Network-<https://www.diynetwork.com/.../landscaping/how-to-install-a-drip-irrigation-system>

Drip Depot-<https://www.dripdepot.com/Drip/Systems>

The Irrigation Association- [www.irrigation.org](http://www.irrigation.org)

Hunter Industries-<https://www.hunterindustries.com/product-line/Micro%20Irrigation>

Irrigation tutorial- [www.irrigationtutorials.com](http://www.irrigationtutorials.com)

Jain- <https://jainsusa.com/training/point-source-inline-irrigation/>

Netafim-<https://www.netafimusa.com/landscape/>

Peaceful Valley (Drip Tape)-<https://pdfs.groworganic.com/media/pdfs/catalog/Tools-Irrigation-2020-WEB.pdf>

Landscape Products-<https://landscapeproductsinc.com/>

Rain Bird-<https://www.rainbird.com/professionals/products/drip-irrigation>

Sprinkler Warehouse-<https://www.sprinklerwarehouse.com/products/drip-irrigation>

Toro-<https://www.toro.com/en/homeowner/irrigation-landscape-drip>

WUCOLS-Water Use Classification of Landscape Species- <https://ucanr.edu/sites/WUCOLS/>

YouTube<https://www.bing.com/videos/search?q=youtube+drip+irrigation+channel&qpvt=youtube+drip+irrigation+channel&FORM=VDRE>

# Water Wise House Calls

## Why struggle with your irrigation call us!

- Call us to schedule an appointment our water-use specialists can come to your home and analyze your indoor and outdoor water use including checking your sprinklers.
- House Calls are free and available weekdays to suit your schedule. Call **774-5761** to schedule your appointment today.

# H2OGUY

CITY OF  
**ROSEVILLE**  
CALIFORNIA  
Be in the know.



# Questions?

Thank you for your participation  
and doing your part!