SMARTSCAPE
A Training Program for Landscape Professionals™

Smartscape for Homeowners Associations

Class #2 Plant Science, Irrigation & Pruning

TUCSON WATER
A proud part of the City of Tucson

THE UNIVERSITY OF ARIZONA Cooperative Extension

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Learning Objectives

After participating in the HOA Program Class #2, participants will be able to:

1. Summarize basic plant science as it relates to plants, soil, and water
2. Discuss the importance of organic matter and how to use it properly
3. Explain what drip irrigation is, and its benefits and shortcomings
4. Review the basics of hydrozoning and seasonal watering schedules
5. Recognize common drip irrigation mistakes and troubleshoot
6. Describe best pruning practices for desert-adapted plants
7. Recognize common pruning mistakes

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Irrigation

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Irrigation - Definitions

Irrigation: The distribution of water.

Drip irrigation: The efficient distribution of water directly to the plant root zone using low-volume irrigation products.

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Why Use Drip Irrigation?

- **SAVES WATER**
  - less evaporation and runoff
- Improved plant health over sprinklers
  - spray can leave salt burn or black spot
- Fewer weeds than flood
- Easier to assemble

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Drip irrigation: Considerations

- Requires regular maintenance
- Requires adjustments as the landscape matures

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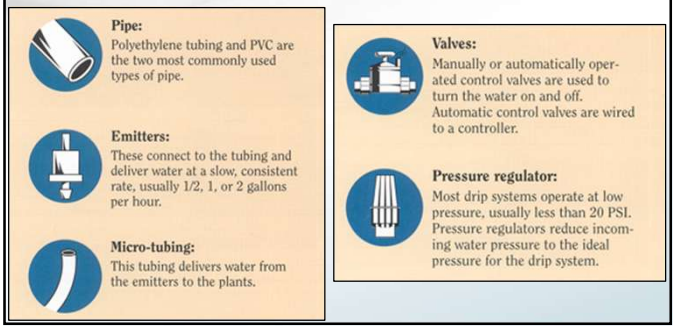
What are the components of an irrigation system?



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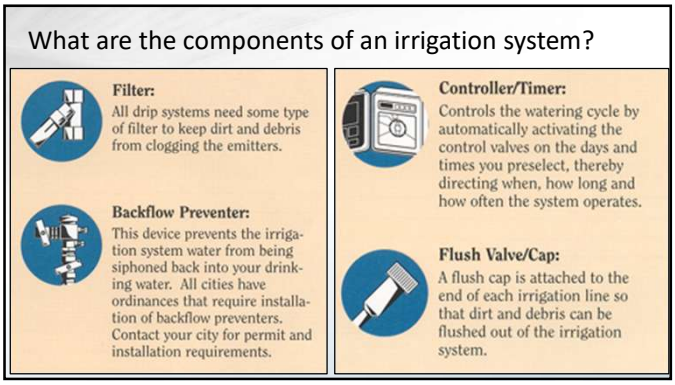

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Using a multiport emitter with PVC

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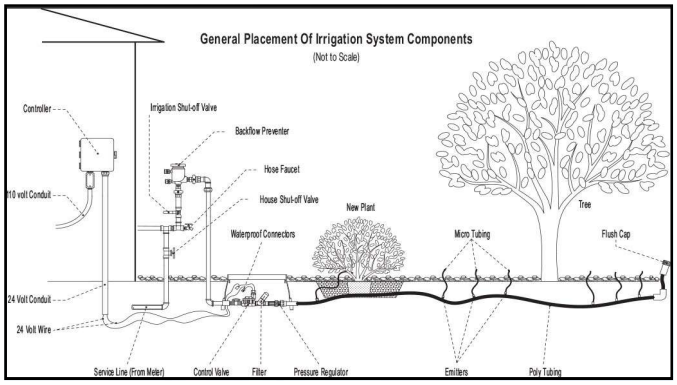

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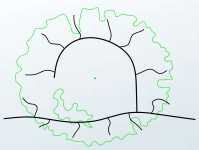
Doing it right…the first time!

"J" loop at installation



Same "J" loop at maturity

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Water Management GOALS

- Reduce water waste through efficient irrigation.
- Ensure plants' water needs are being met.

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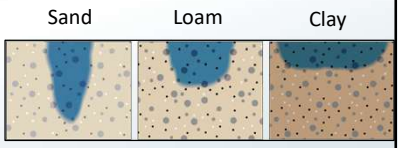
Irrigation Scheduling depends on…

- Type of soil
- Type of plant
- Season
- Weather



Landscape Watering by the Numbers,
A guide for the Arizona Desert, Page 13

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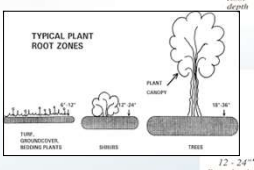
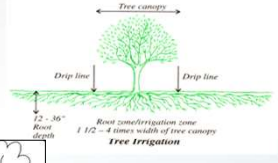
Irrigation Scheduling

We want to know:

- ***Where?***
- ***How deep?***
- How long?
- How much?
- How often?
- What method?





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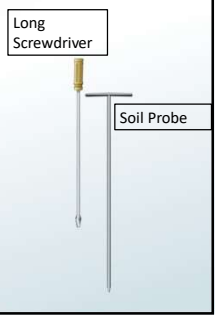
Irrigation Scheduling

If you want to know **how long** it takes to wet the soil for bedding plants, shrubs and trees (separately)

1. Turn your irrigation system on
2. Check the soil every half hour with the probe
3. When the water reaches the appropriate depth, that is your watering time!



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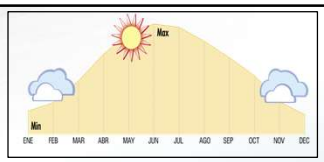
Irrigation Scheduling



IRRIGATION ***DURATION***

- Once you find the correct watering duration (run time) – how long it takes to wet the plant's entire root zone to the appropriate depth – that **NEVER** changes (drip)
- What you change, based on weather, is irrigation **FREQUENCY** (how often you water)!!!
- Double irrigation time 2-3x a year to flush accumulated salts

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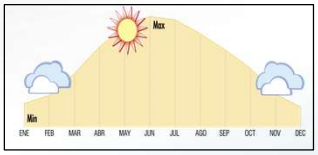
Irrigation Scheduling



IRRIGATION ***FREQUENCY***

- Plants can use 3 to 5 times more water during summer than in the winter – so water **more frequently**, during the hot season, *NOT* for longer run times.
- Adjust your controller by season – adjust the **frequency** *NOT* the watering duration!!!

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LANDSCAPE WATERING GUIDELINES

WATER USE IT WISELY

How Much & How Often Water to the outer edge of the plant's canopy and to the depth indicated. Watering frequency will vary depending on season, plant type, weather and soil.		Seasonal Frequency — Days Between Waterings				Water This Deeply (Typical Root Depth)
		Spring Mar - May	Summer May - Oct	Fall Oct - Dec	Winter Dec - Mar	
Trees	Desert adapted	14-30 days	7-21 days	14-30 days	30-60 days	24-36 inches
	High water use	7-12 days	7-10 days	7-12 days	14-30 days	24-36 inches
Shrubs	Desert adapted	14-30 days	7-21 days	14-30 days	30-45 days	18-24 inches
	High water use	7-10 days	5-7 days	7-10 days	10-14 days	18-24 inches
Groundcovers & Vines	Desert adapted	14-30 days	7-21 days	14-30 days	21-45 days	8-12 inches
	High water use	7-10 days	2-5 days	7-10 days	10-14 days	8-12 inches
Cacti and Succulents		21-45 days	14-30 days	21-45 days	if needed	8-12 inches
Annuals		3-7 days	2-5 days	3-7 days	5-10 days	8-12 inches
Warm Season Grass		4-14 days	3-6 days	6-21 days	15-30 days	6-10 inches
Cool Season Grass		3-7 days	none	3-10 days	7-14 days	6-10 inches

These guidelines are for established plants (1 year for shrubs, 3 years for trees). Additional water is needed for new plantings or unusually hot or dry weather. Less water is needed during cool or rainy weather. Drip run times are typically 2 hours or more for each watering.

https://wateruseitwisely.com/wateringguideflipbook/#p=1

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Watering schedule for new plants - Size Matters

Weeks 1 & 2 **#15** (container size) **-** Water **every day** in summer, every 2 days late fall through spring – **#25+ double time**

Weeks 3 & 4 Water every 2 days in summer, every 3 days fall through spring

Weeks 5 & 6 Water every 3 days in summer, every 4 days fall through spring

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Watering schedule for new plants

Weeks 7 & 8 Water every 3-4 days in summer, every 4-6 days fall through spring

After week 8 Gradually extend the time between irrigations until plants are established

Watch for drought/dry wilt symptoms

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Seasonal Factors

SPRING	SUMMER	FALL	WINTER
• New growth, budding, flowering	• Heat stresses all plants • Heat-induced dormancy • Water is used for survival	• Another growth spurt • Gradually decrease irrigation • Harden off plants for winter	• Most species are dormant • Evergreen plants do not grow much

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What a basic controller does for you	What a basic controller ***won't*** *do for you*
• Turns the irrigation on and off at the scheduled intervals • Can be set to water early in the morning to minimize losses to evaporation • Will water the landscape without you being there	• It won't adjust itself for the seasonal water needs • It won't shut itself off when it rains • It won't react to leaks or other problems in the system

A Smart Controller can do all of the above!

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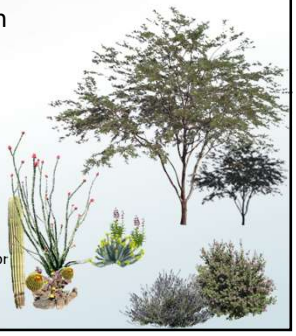
Tips for Minimum Irrigation

- Group plants with similar water requirements (hydrozone)
- Use low-water-use trees and shrubs
- Use highly efficient irrigation methods
- Allow plants to develop naturally. Low, wide, multi-trunk canopies
- Prune minimally
- Allow plant 'litter' to form a natural mulch
- Use water harvesting/gray water/reclaimed water for irrigation, if possible

HYDROZONES



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Mistakes and Troubleshooting

- Emitters too close at installation and never adjusted for tree growth.
- Salt ring on tree trunk from irrigation water ponding.

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- Check the poly for kinks, tangling with roots, exposed, etc.
- Tree has grown into the emitter lines; lines were never moved as it grew.

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Hot Mess Irrigation

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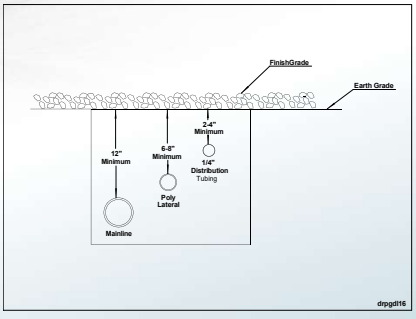
Required Installation Depths



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When the system is installed

- Get the **as-built map**, equipment **warranties**, and operating **instructions** from your installer
- Make sure you get watering **schedules** for establishment and for the mature landscape
- Find a reputable maintenance contractor
- If you want to do it yourself, learn **how to program** the controller

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THANK YOU!

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Pima Smartscape Website
https://www.pimasmartscape.arizona.edu
https://www.smartscape.org

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ACKNOWLEDGEMENTS

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