# Water Conservation

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https://extension.uga.edu/

The following presentation is part of the University of Georgia Extension service Georgia Green Landscapes program funded by the Center for Urban Agriculture. These guidance series will help Georgia residents create certified sustainable Georgia Landscapes, protecting our natural resources for future generations.





# Water Conservation in the Landscape





Water is a valuable natural resource that should be used sustainably.

Its availability is not guaranteed, and at times we must change our practices to ensure we have water to use in the short and long term.

When we use water in our garden landscapes, we have a choice to use it wisely so that it will be available as often as needed, now, and in the future.

# Georgia's Rainfall

Georgia has plenty of natural rainwater irrigation, on average, however....





Depending on the type of year we have (droughts, el Nino, hurricanes, etc.).

Also depending onwhat time of year the rain comes.

We may not have the rain when we need it most.

> Precipitation changes (%) in yearly averages from 1986–2015 compared to 1901–1960.





Winter Precipitation



**Summer Precipitation** 



**Spring Precipitation** 



**Fall Precipitation** 



- Soil moisture from rain and irrigation is lost during evaporation and plant transpiration. (Evapotranspiration, ET)
- ET estimates the water demand of lawns and other turf areas.
- Follow your ET losses daily or weekly at weather.UGA.edu

Station Number	Station Name	Jun-15	Jun-16	Jun-17	'Jun-18	Jun-19	Jun-20	Jun-21	Total
1	Alapaha	0.21	0.16	0.20	0.23	0.25	0.20	0.21	1.46
2	Albany	0.20	0.21	0.23	0.20	0.24	0.23	0.25	1.56
3	Alma	0.18	0.09	0.20	0.21	0.21	0.20	0.21	1.3
4	Alpharetta	0.11	0.11	0.10	0.15	0.18	0.22	0.15	1.02

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Potential Evapotranspiration (in)





#### http://weather.uga.edu/



- Irrigation is necessary to keep our lawns, ornamental plants, and vegetable gardens watered appropriately during the growing season.
- There are many principles and guidelines you can follow that will help conserve water as a resource while maintaining a healthy and beautiful landscape.



#### **Planting Designs for Water Conservation**

This section summarizes and explains many planting ideas that will help you conserve water.

 Put the right plants in the right place by following planting suggestions for shade, sun, water needs, and soil drainage.





 Place plants with low water needs at higher elevations and plants with high water needs in flat areas or lower elevations to reduce water use and runoff.



https://www.rainbird.com



• Group plants with similar watering requirements.



www.gardenia.net



• Placement and species selection should also consider topography and soil type (sand, clay, silt or loam).





- Plant some trees and shrubs in your landscape. They require less irrigation and are more drought and flood resistant.
- They also reduce soil moisture evaporation by shading the ground.





https://ginghamgardens.com



www.ufseeds.com



- Incorporate drought tolerant, biome appropriate, or native plants.
- Search UGA Extension publications for "native plants" https://extension.uga.edu/pub lications.html
- Some gardens may require wetland tolerant plants.
- Not all native plants are drought tolerant. Such as native wetland plants.

 Practice <u>Xeriscaping</u> - from the Greek word "xeros" - dry. Landscaping that uses water-conserving techniques: drought resilient plants, mulch, less supplemental watering, and efficient irrigation.



Photo credit: Lindsey Nubern nuventuretravels.com





# **Management Practices**

 Aerate lawns at least once a year. Improves percolation, decreases run-off, and encourages turfgrass roots to grow deeply and become more drought tolerant.





• Use mulch to conserve soil moisture and keep competing weeds at bay.





- Add organic matter to sandy or clay soils to increase the infiltration and effectiveness of water.
- Good mulch, compost, and loam topsoil are better at storing water.



www.gardeners.com



• Avoid soil compaction, it prevents rainwater infiltration and harms roots.



https://miamioh.edu



- Raise mower height in summer months. Longer grass protects soil moisture, reducing the need for more irrigation.
- Use a mulching mower, so that clippings fall between grass and protect soil moisture.





https://extension.umn.edu

• Install rain sensors that override irrigation systems. Do not install it upside down or under your eaves.





 Maintain sprinkler irrigation system pressure appropriately to avoid water misting that evaporates and drifts off course.







- Retrofit pop-up sprinkler heads in small coverage areas with high efficiency rotator sprinkler heads.
- Deliver water in a rotating stream at a steady and slow rate.
- Allows your landscape to get irrigated uniformly at rates your soil can absorb, reducing runoff.



• Use a rain gauge to monitor amount of water plants receive naturally and alter your supplemental irrigation accordingly.





• Or, without irrigation systems



• Use an integrated soil moisture sensor for irrigation controllers.





 Estimate soil moisture content by feel and appearance before watering. The USDA has a manual that provides water content values, if you want to get specific.



#### 25-50 percent available 1.8-0.8 in/ft. depleted

Slightly moist, forms a weak ball, very few soil aggregations break away, no water stains, clods flatten with applied pressure.



#### 75-100 percent available 0.6-0.0 in./ft. depleted

Wet, forms a ball, uneven medium to heavy soil/ water coating on fingers, ribbons easily between thumb and forefinger.

https://www.nrcs.usda.gov/wps/portal/nrcs/ detail/wy/soils/?cid=nrcs142p2\_026833





- Conduct routine soil test and test composition of silt/sand/clay to understand your water storage and infiltration capability
- UGA AESL Test S1 and S5 (texture).



# **Watering Methods**

Follow the recommended water requirements for each type of plant.

- Lawn
- Flower Beds
- Fruits and Vegetables
- Groundcovers
- Shrubs
- Trees







Don't overwater plants.

It can:

- Hinder growth
- Reduce oxygen available to their roots
- Leach nutrients past roots
- Increase disease potential
- Waste water supplies
- Create excess runoff pollution

If water runs off your yard, split your watering times into two or more sessions.



#### Water the roots, not the foliage.



- Wet foliage and splashing water spreads fungal spores and bacterial disease.
- Water is needed at the roots, not the leaves.
- Use hand watering or drip irrigation on trees, shrubs, and beds.
- Occasional foliage washing may be needed during dusty dry periods.



#### Water Deeply and Infrequently

- Deep watering penetrates the soil to 6 inches and encourages deep root development.
- Deep root systems are more drought tolerant.
- Evaporation is reduced with deep watering, as moisture persists longer.
- Deep, infrequent watering reduces watering days and conserves water.
- Seedling establishment may require more frequent watering.





- Water lawns and outdoor plants between 4pm and 10am to reduce evaporation loss.
  - Georgia Water Stewardship Act governs water supplies permitted by GA EPD (municipal). Does not apply to private wells or pond water.
  - Does not apply to drip irrigation, soaker hose, handheld watering, commercial agriculture, personal food garden, or harvested stormwater. Does apply to established turf and landscape plants.



Photo credit: https://www.expressnews.com



• Follow water use and drought regulations.

#### Georgia Water Stewardship Act of 2010 established:

- Organized system for managing water resources.
- Outdoor Watering Guidelines
- Drought Management Rules

## Georgia Water Stewardship Act of 2010

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Norma	al Conditions	Outdoor Watering allowed between 4pm and 10am any day of the week
Droug	ht Level I	Calls for heightened awareness and conservation campaign
Droug	ht Level II	Odd/Even outdoor watering restrictions
Droug	ht Level III	Emergency bans on outdoor watering
Refer to	o the Georgia V	Vater Stewardship Act for specific information on

outdoor watering and exemptions.



Drought Level 2 Watering Schedule:

- Odd Addresses = Thu/Sun 4pm-10am
- Even Addresses = Wed/Sat4pm-10am
- No outdoor watering on Mon, Tu, Fri

Consider basing watering schedules on this format regardless of drought level to conserve water.





- Direct sprinklers to the right location.
- Monitor for leaks or broken nozzles.



Photo credit: http://www.burbankhomeinspections.com





- Set automatic sprinklers correctly and adjust as seasons/drought conditions change.
- Turn off your system if rainfall is sufficient to water landscape or use a soil moisture sensor.



www.themasterslawncare.com



#### **Use Drip Irrigation**

- For just about any plants that are not turf/lawn. Great for vegetable gardens.
- Reduces water loss due to evaporation or runoff.
- Gets water straight to the roots.
- Set drip for the proper irrigation rate for your soil type, slope, and plant material.









- Drip irrigation allows watering individual plants at different rates.
- Can supply one to four gallons of water per hour directly to the soil.
- Soaks the soil without washing away the mulch.



#### **Certification Checklist Items:**

- Design your landscape to use water efficiently. Follow plant requirement guides. Group plants with similar water needs. Include trees and shrubs, and shade gardens.
- Practice Xeriscaping. Use drought resilient plants, mulch, and efficient irrigation.
- Get a routine soil test and texture soil test.
- Aerate or amend your soil to store water more efficiently. Avoid soil compaction.
- Adjust mower height higher in the summer by 1 setting and use a mulching mower.
- Adjust irrigation systems to account for soil moisture or rainwater. Use a rain sensor shut-off.
- Repair irrigation system pressure issues and leaks. Prevent sprayers from watering paved surfaces.
- Don't overwater plants.
- Water plants deeply and infrequently. Water the roots.
- Use a drip irrigation system.
- Water between 4pm and 10am only.



# **Questions?**

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