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New Jersey Agricultural Experiment Station

‘WATER’ YOU DOING TO YOUR YARD?:

WATER WISELY

Steven E. Yergeau, Ph.D.

County Agent II/Associate Professor, Ocean & Atlantic Counties

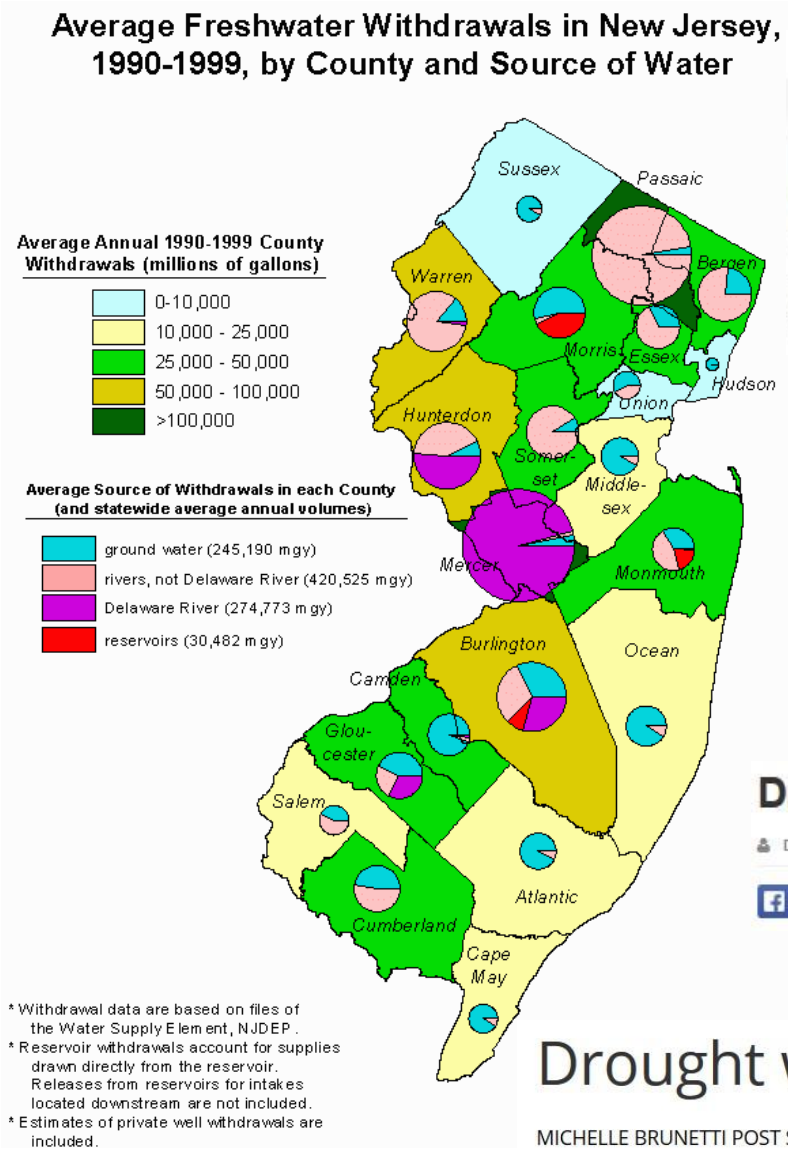
Rutgers Cooperative Extension of Ocean County

Rutgers Cooperative Extension

- Rutgers Cooperative Extension helps local communities adapt to a rapidly changing society through science-based education
- Cooperative Extension includes:
  - 4-H Youth Development
  - Natural Resources Protection and Environmental Stewardship
  - Marine Fisheries and Aquaculture
  - Agriculture and Horticulture, Rutgers Master Gardeners
  - Nutrition and Wellness Education

https://njaes.rutgers.edu/

Why Conserve Water?



ARTICLE COMMENTS (10)

INTERACTIVE MAP: NEW JERSEY'S THIRSTY -- WATER USE ON RISE IN GARDEN STATE

COLLEEN O'DEA | AUGUST 14, 2015

Between 2000 and 2010 the total amount of water used by homes, businesses, and the state's two nuclear plants surged by 40 billion gallons a year

Ocean County Under Drought Watch

Published on Sep 27, 2015 — in Brick/Community/Headline News/Jackson/Joint Base MDL/Lakehurst/Lakewood/Manchester/Toms River —

by Shore News Network

Drought Watch Issued for Northern Ocean County

Daniel Nee | September 23, 2015 | Featured, Ocean County | 3 Comments

Like 68 Tweet G+1 0

Drought watch issued for part of South Jersey

MICHELLE BRUNETTI POST Staff Writer Oct 5, 2016 (0)

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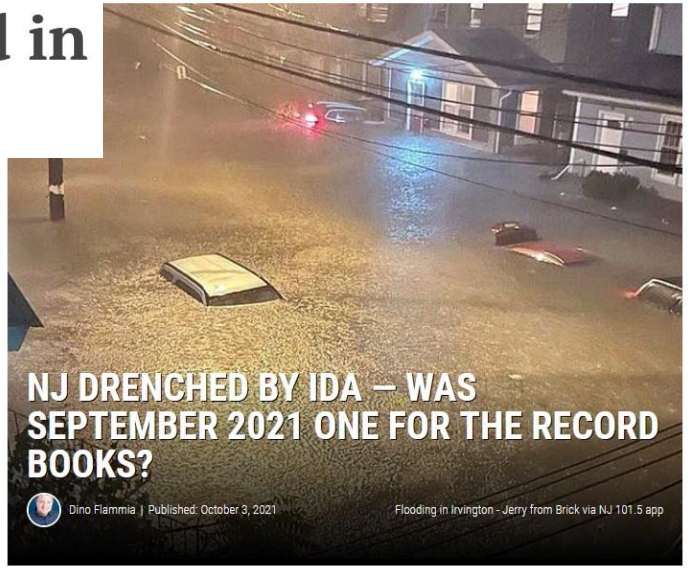
Why Conserve Water?

MENU THE PRESS OF ATLANTIC CITY News Obituaries Sports E-Edition Buy & Sell 83°

2018 was the wettest year on record in southeastern New Jersey



NJ.COM

The wettest year in N.J. history: County-by-county breakdown; 15 wettest towns of 2018

By Len Melisurgo | NJ Advance Media for NJ.com | Posted January 04, 2019 at 08:30 AM

Top Story

Unprecedented: September 2021 Recap

Monday, October 11, 2021 - 4:38pm

ENVIRONMENT

NJ's new normal: More storms, more rainfall, more often. Thank climate change

Scott Fallon NorthJersey.com

Published 4:00 a.m. ET Aug. 30, 2021 | **Updated 5:55 a.m. ET Aug. 30, 2021**

A flooded TD Bank Ballpark in Bridgewater (Somerset County) on September 2nd following the staggering rainfall caused by the remnants of Ida. Photo by Thomas P. Costello and Tariq Zehawi/USA Today Network.

Post-tropical storm Ida. The title of this month's report speaks to this momentous weather extreme that will forever be the defining event of this month and likely the entire year. The storm delivered the most powerful tornado to strike the Garden State since

Pollutants Found in Runoff

Sediment
Soil particles transported from their source

Biochemical Oxygen Demand (BOD)
- Oxygen depleting material
  - Leaves
  - Organic material

Toxics
- Pesticides
  - Herbicides
  - Fungicides
  - Insecticides
- Metals (naturally occurring in soil, automotive emissions/ tires)
  - Lead
  - Zinc
  - Mercury
- Petroleum Hydrocarbons (automotive exhaust and fuel/oil)

Nutrients
- Various types of materials that become dissolved and suspended in water (commonly found in fertilizer and plant material):
  - Nitrogen (N)
  - Phosphorus (P)

Bacteria/ Pathogens
Originating from:
- Pets
- Waterfowl
- Failing septic systems

Thermal Stress
Heated runoff, removal of streamside vegetation

Debris
Litter and illegal dumping
Microplastics

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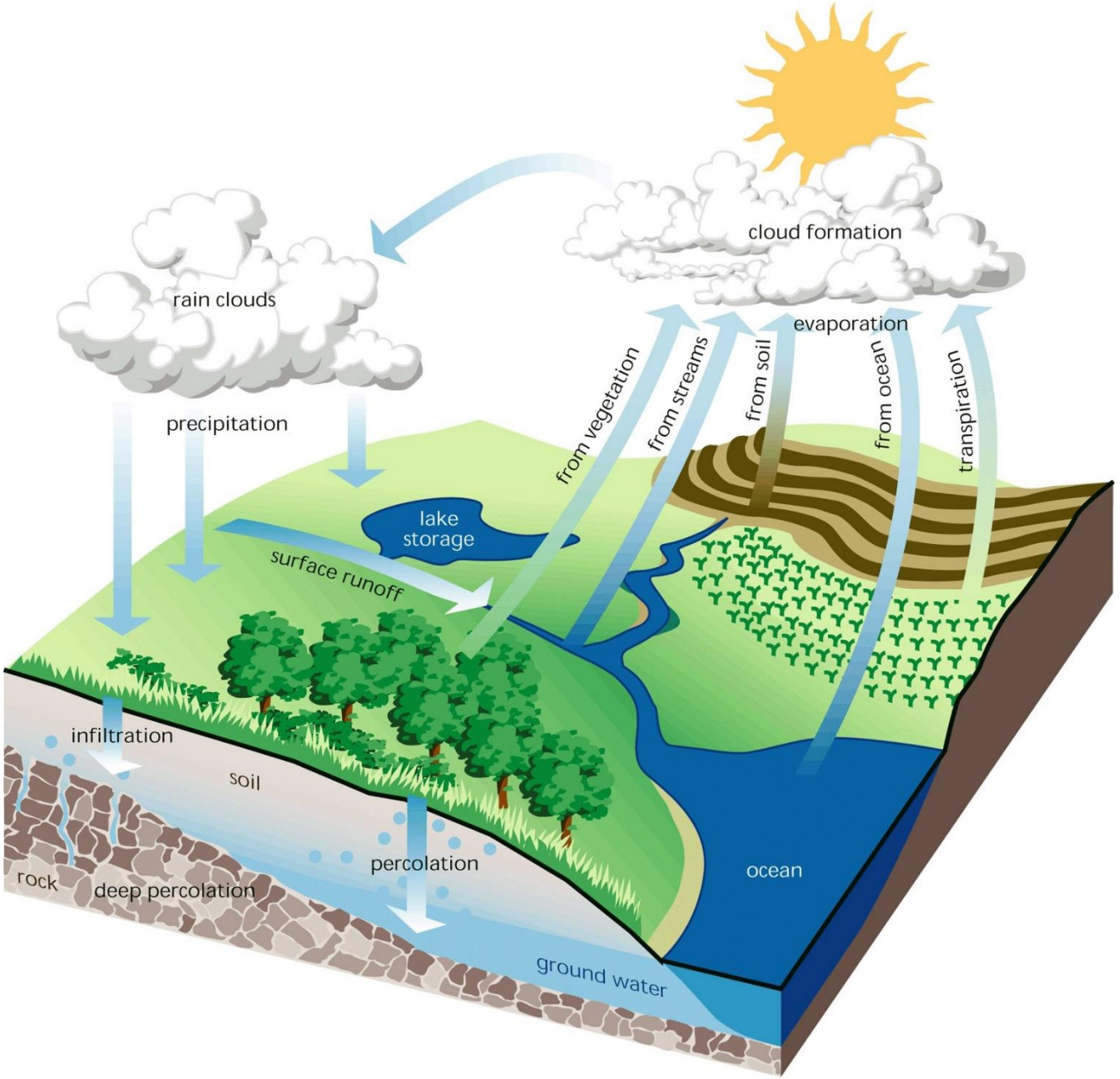
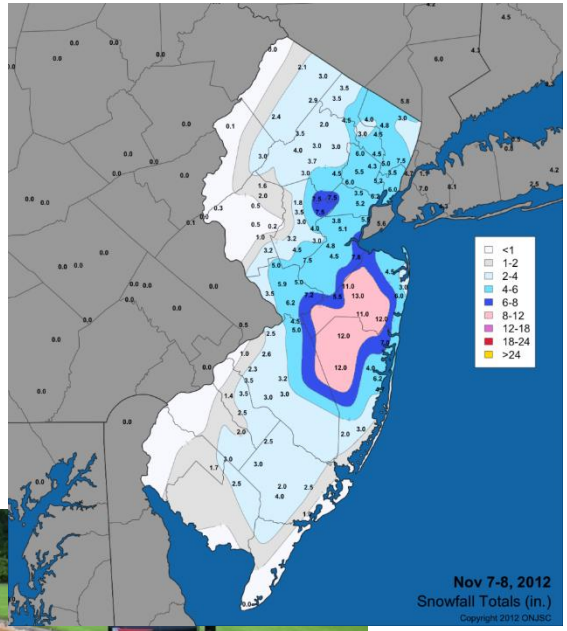
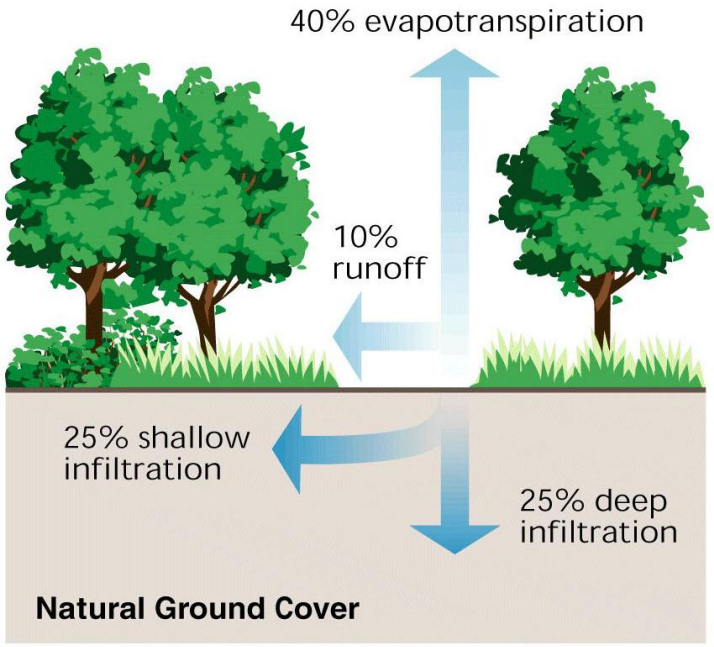
The Water Cycle

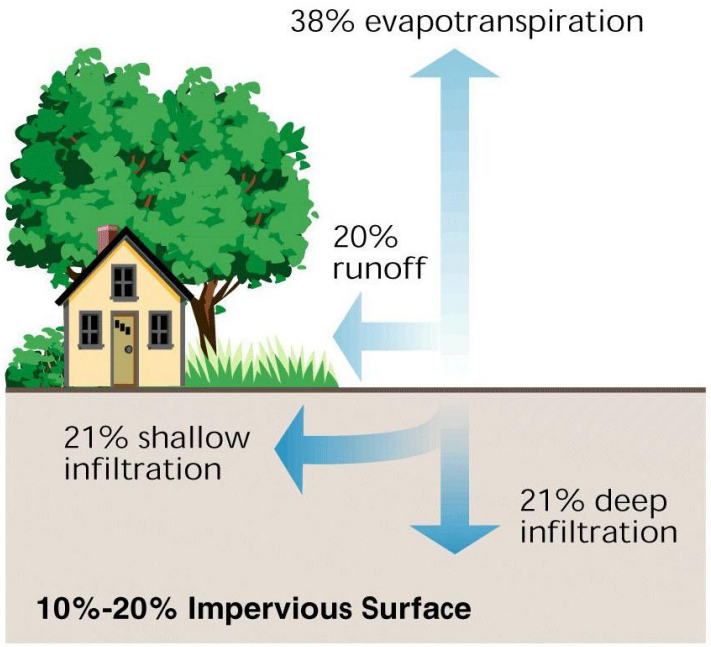


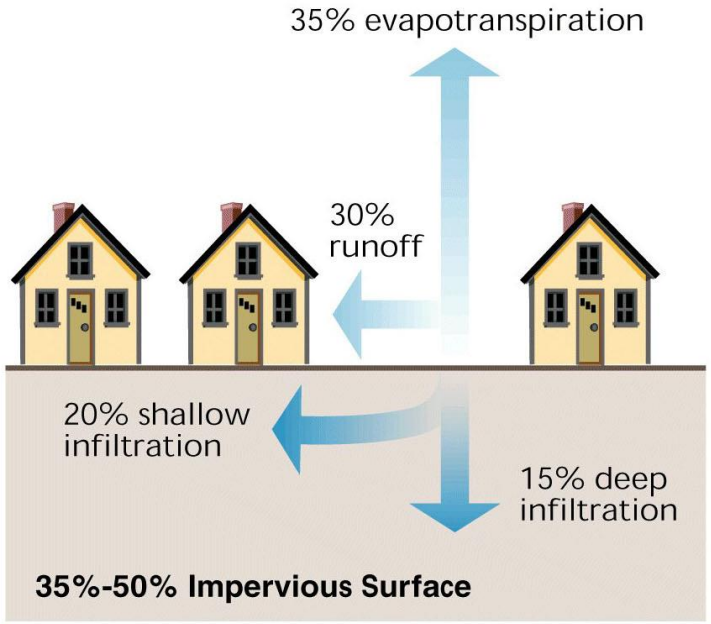
Factors Affecting the Water Cycle

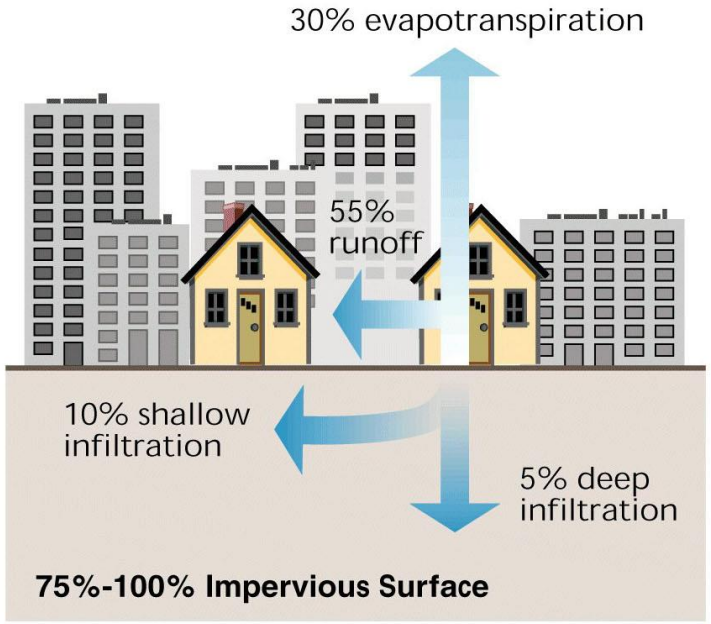
- Weather/climate
- Land use
- Vegetation
- Soil type
- Presence of waterbodies (ponds, lakes, reservoirs, etc.)




40% evapotranspiration
10% runoff
25% shallow infiltration
25% deep infiltration
Natural Ground Cover


38% evapotranspiration
20% runoff
21% shallow infiltration
21% deep infiltration
10%-20% Impervious Surface


35% evapotranspiration
30% runoff
20% shallow infiltration
15% deep infiltration
35%-50% Impervious Surface


30% evapotranspiration
55% runoff
10% shallow infiltration
5% deep infiltration
75%-100% Impervious Surface


But what can you do about all this?

Use Native Plants

- Plant species indigenous to a given area; plants that occur naturally in a particular area
- Plant species living on North American continent before European settlement

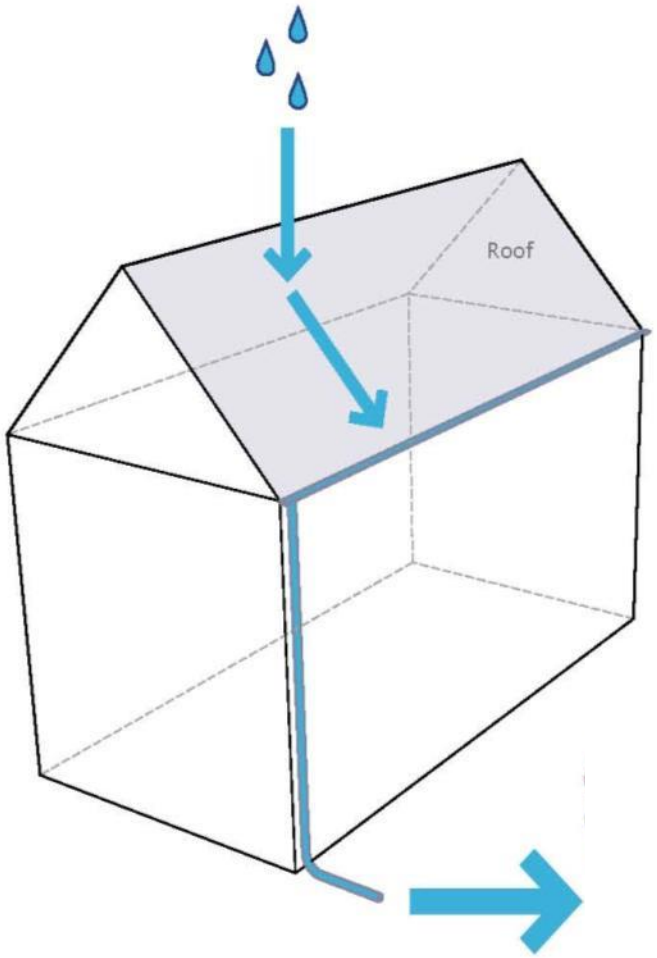
Adapted to local conditions

- rainfall amount
- hardiness
- soil type

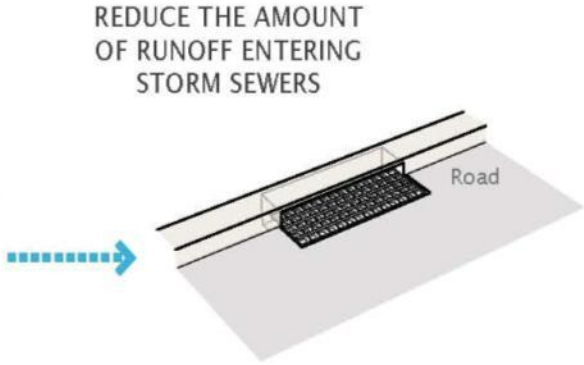
Use Native Plants

What Native Plants to Use?

Harvest Rainwater

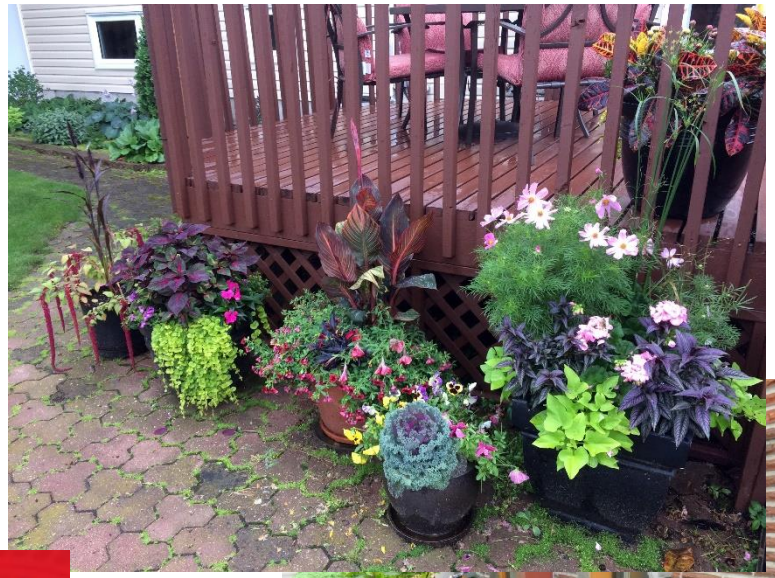


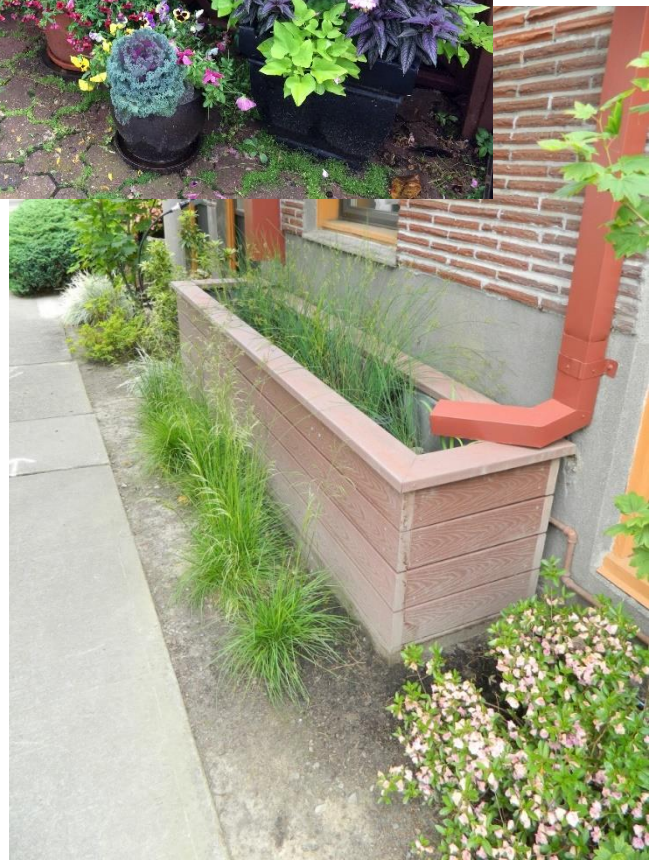
Disconnect your downspout by installing a rain barrel



One 55-gallon rain barrel can save about 1,400 gallons from April through October.

Harvest Rainwater





Rain Barrels Part III: Building a Rain Barrel from a Plastic Trash Can

Fact Sheet FS1127

Cooperative Extension

Cara Muscio, Marine Extension Agent, Monmouth, Ocean, and Atlantic Counties
Richard Mohr, Natural Resource Extension Agent, Ocean County

Using a rain barrel can help conserve water and reduce stormwater in your home landscape. When connected to a downspout, the barrel receives water from the roof and stores it for later usage. Rain barrels are made in various sizes and materials and can be purchased in home improvement or gardening stores. A rain barrel can also be constructed easily and economically from a 30-50 gallon plastic/rubber trash bin.

A rain barrel of this size (30-50 gallons) will only hold a fraction of the amount of water coming off your roof. For example, an inch of rain over 1000 square feet of roof will yield over 600 gallons of water. To accurately estimate the amount of water your barrel will receive, this number needs to be adjusted to match the square footage of your particular building, as well as the number of downspouts that drain the roof. In addition, realize that the average daily rainfall in coastal New Jersey is closer to a tenth of an inch, though larger totals are common during heavier storms (NOAA 2010).

The following materials will be needed to construct the rain barrel:

https://njaes.rutgers.edu/pubs/publication.php?pid=FS1127

Use of Rain Barrel Water: Don’ts

- Do not use rain barrel water for cooking or drinking

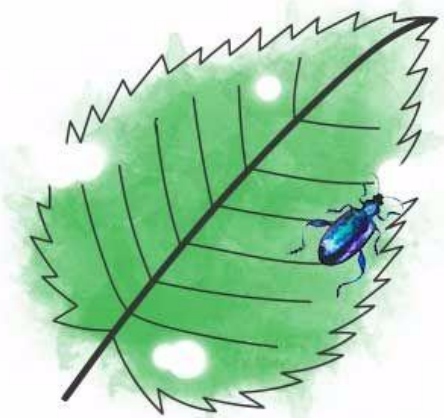
- Do not collect rainwater if you have used a moss-killer on your roof

Follow Smart Watering Practices

- **Water only when needed and water deeply.**
  - **1” to 1½” per week, including rainfall**
- **The best time of day to water is in the early morning hours (4 am to 8 am). Avoid watering in the middle of the day or when windy.**
- **Fix irrigation systems and sprinklers so that water isn’t wasted on pavement.**

“No matter how much you water a sidewalk it won’t grow.”

PEST PROBLEM



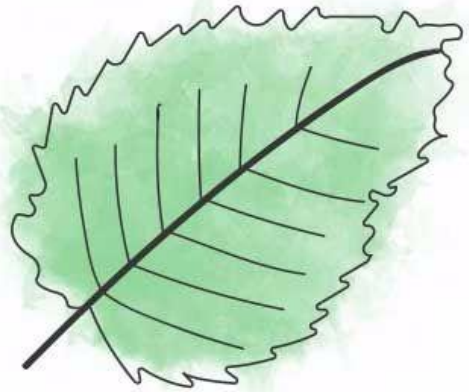
THE SIGNS

Insects living on & eating leaves

HOW TO FIX

Spray plant with neem oil or an insect killing soap.

LACK OF SUNLIGHT



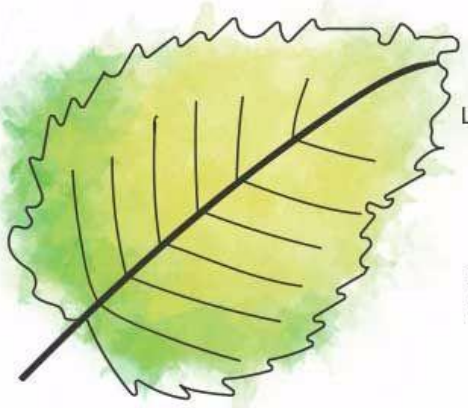
THE SIGNS

Leaves look faded and droopy

HOW TO FIX

The leaves aren't getting enough sun. Reposition your plant's location.

OVERWATERING



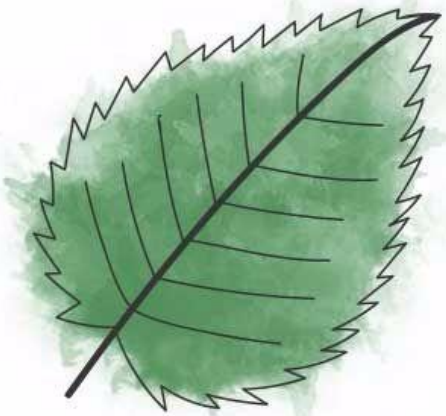
THE SIGNS

Leaves look yellow and wilted

HOW TO FIX

Poor soil drainage could result in your plant's roots drowning. Add sand to soil or replant to a raised bed.

DEHYDRATION



THE SIGNS

Leaves look dry and feel crunchy to touch

HOW TO FIX

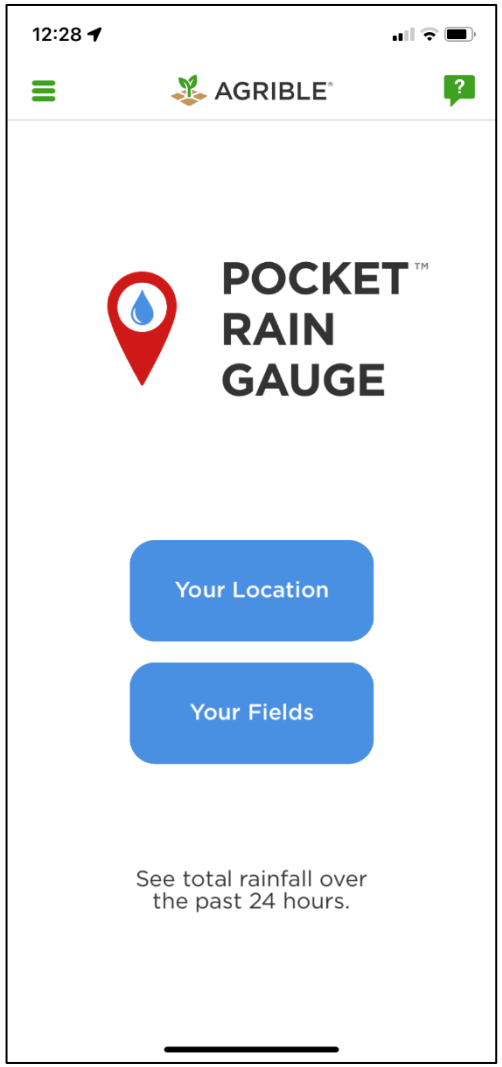
Plants should get at least 1" of water each week. Water your plants regularly.

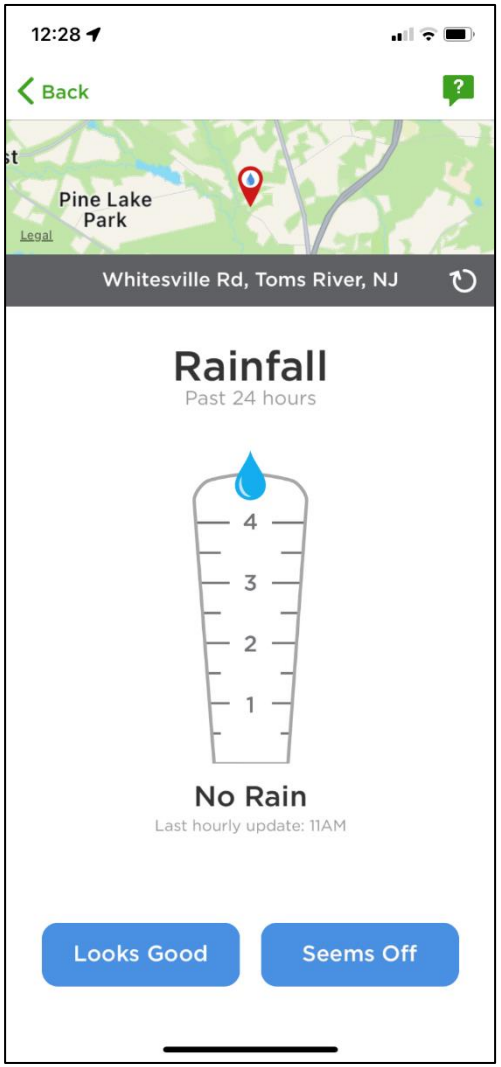
Follow Smart Watering Practices

- Be sure the gauge is in the path of the area being watered.
- Run the sprinkler for least 30 minutes.
- Measure the depth of water in the gauge and multiply by two to get the output of water per hour.
- Keep track of local rainfall and add to irrigation amounts.

Follow Smart Watering Practices

- **Or you can get an app that records rainfall**

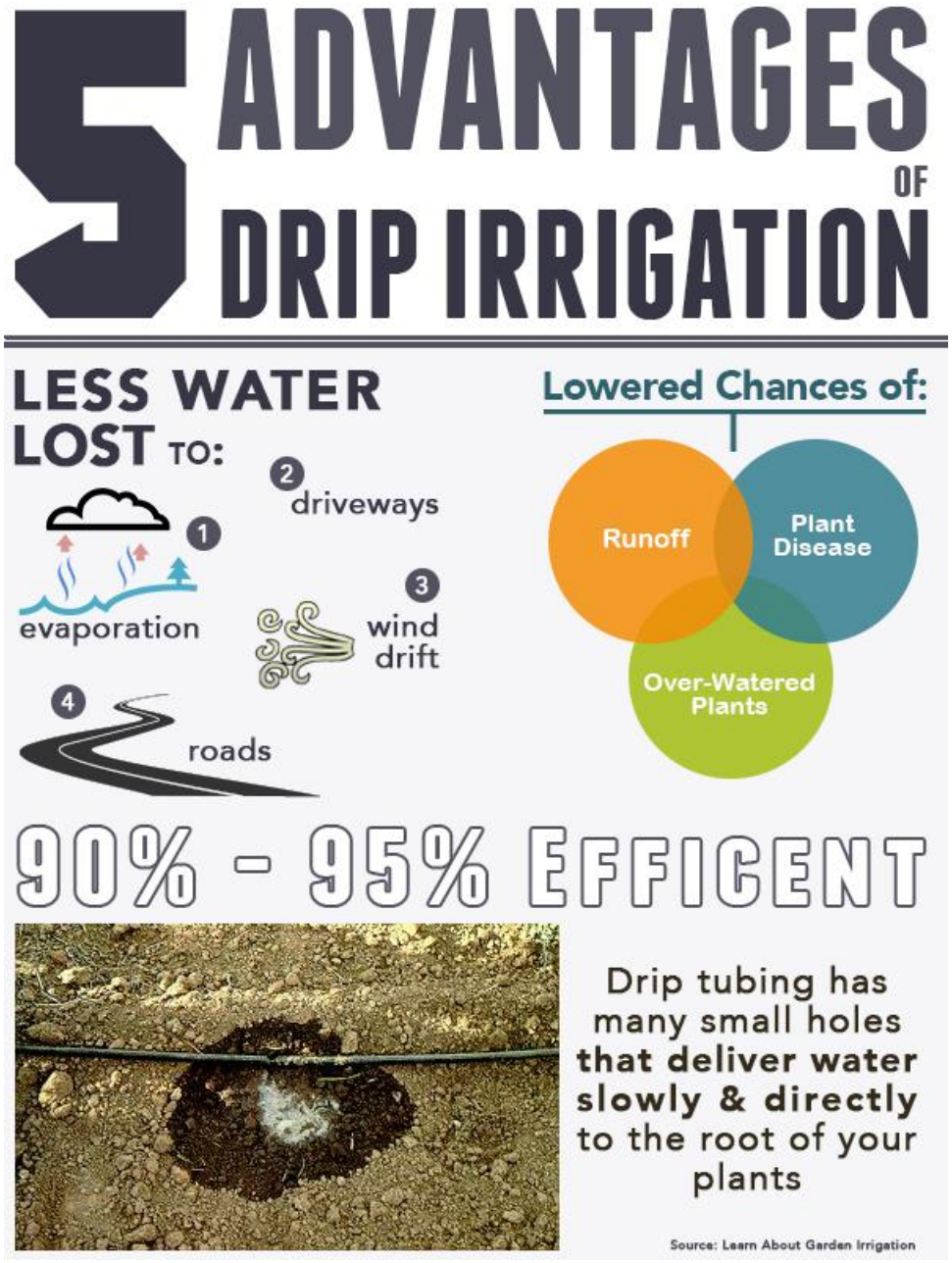




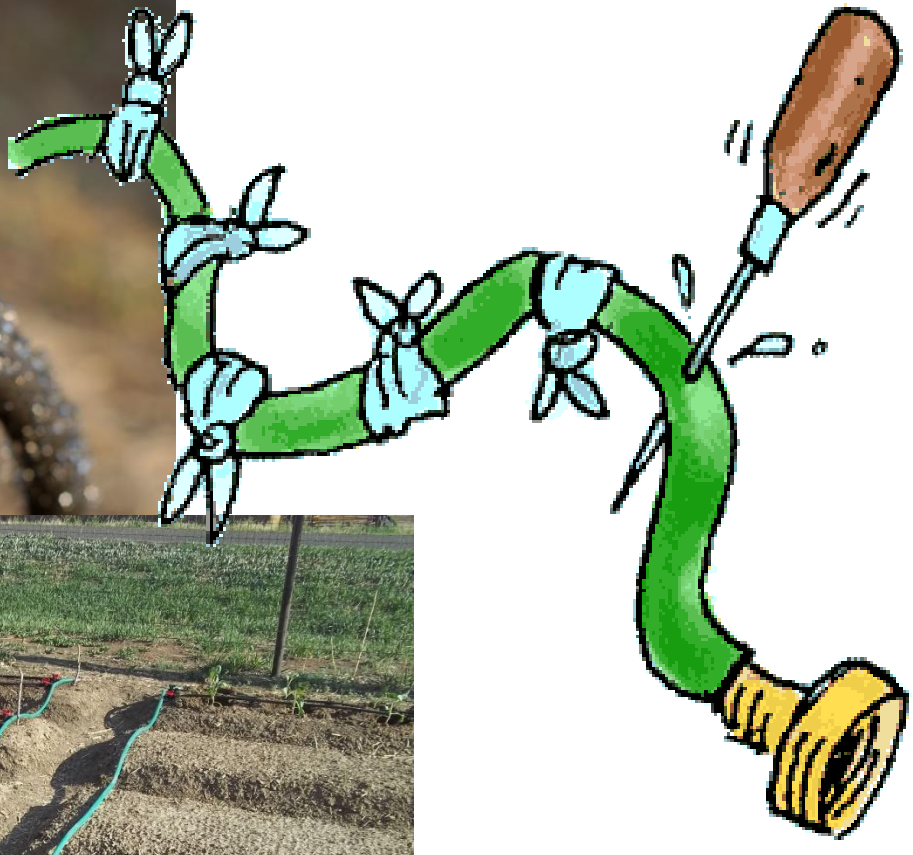
Follow Smart Watering Practices

DRIP IRRIGATION

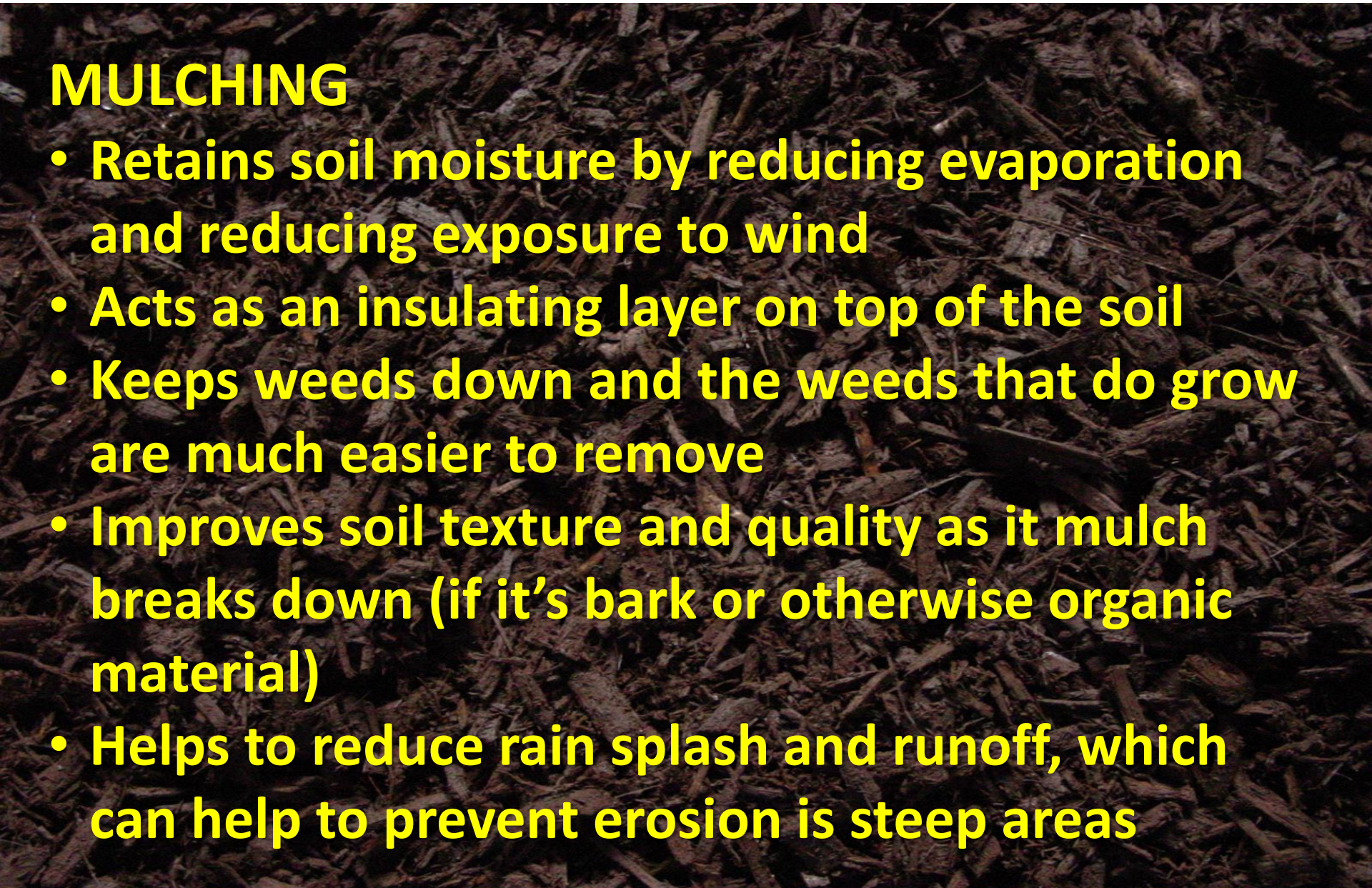
- A drip irrigation system delivers water directly to a plant.
- It allows water to seep slowly into the soil one drop at a time.



Follow Smart Watering Practices



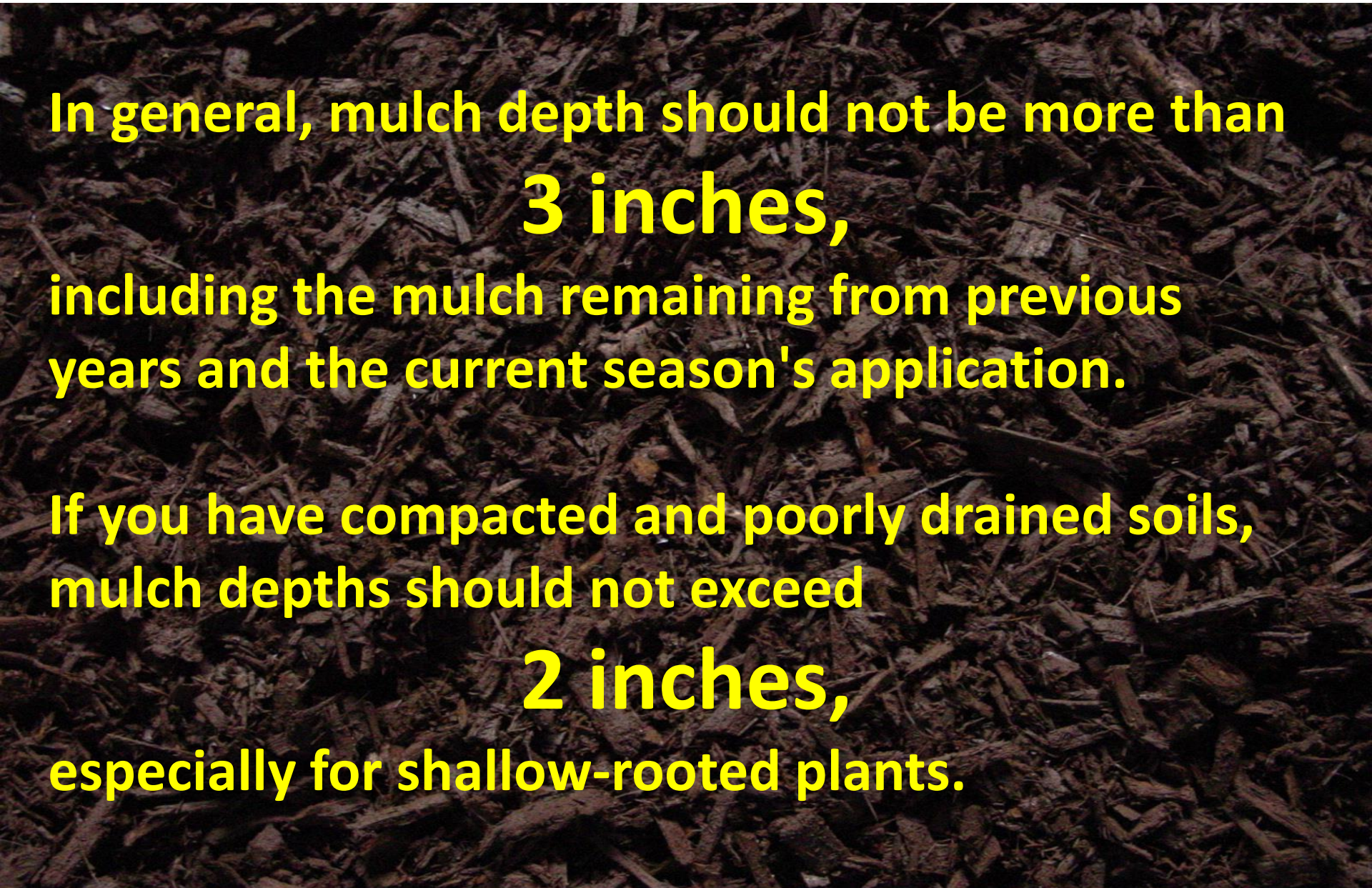
Follow Smart Watering Practices



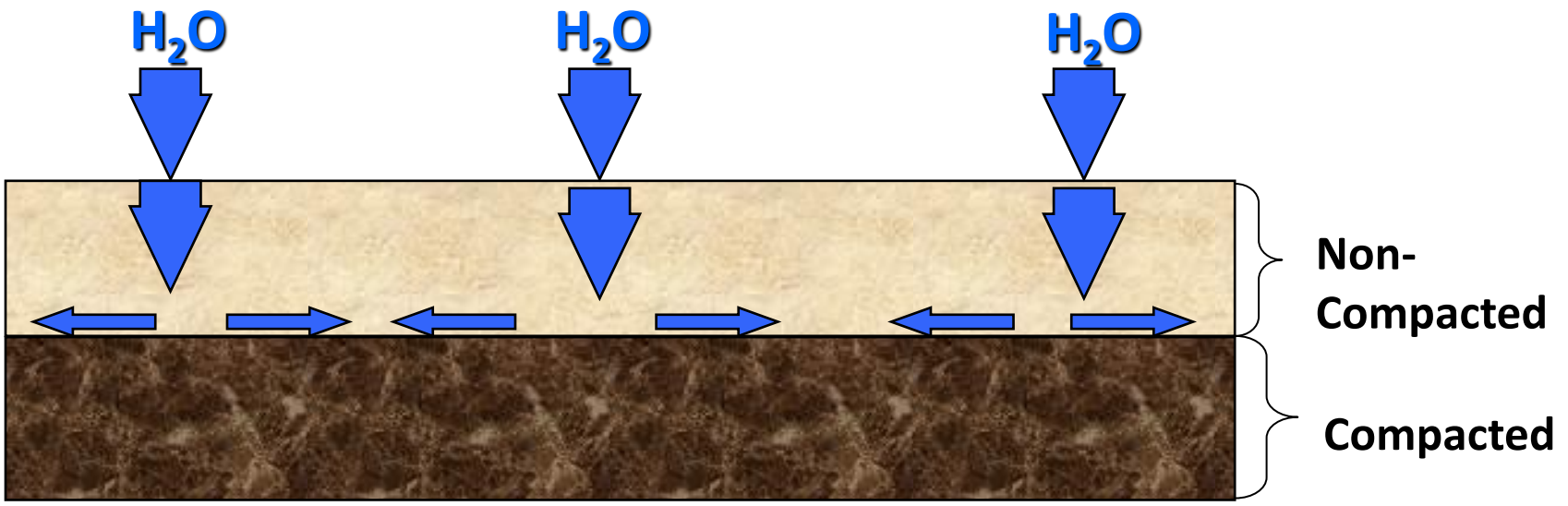
MULCHING

- Retains soil moisture by reducing evaporation and reducing exposure to wind
- Acts as an insulating layer on top of the soil
- Keeps weeds down and the weeds that do grow are much easier to remove
- Improves soil texture and quality as it mulch breaks down (if it's bark or otherwise organic material)
- Helps to reduce rain splash and runoff, which can help to prevent erosion is steep areas

Follow Smart Watering Practices

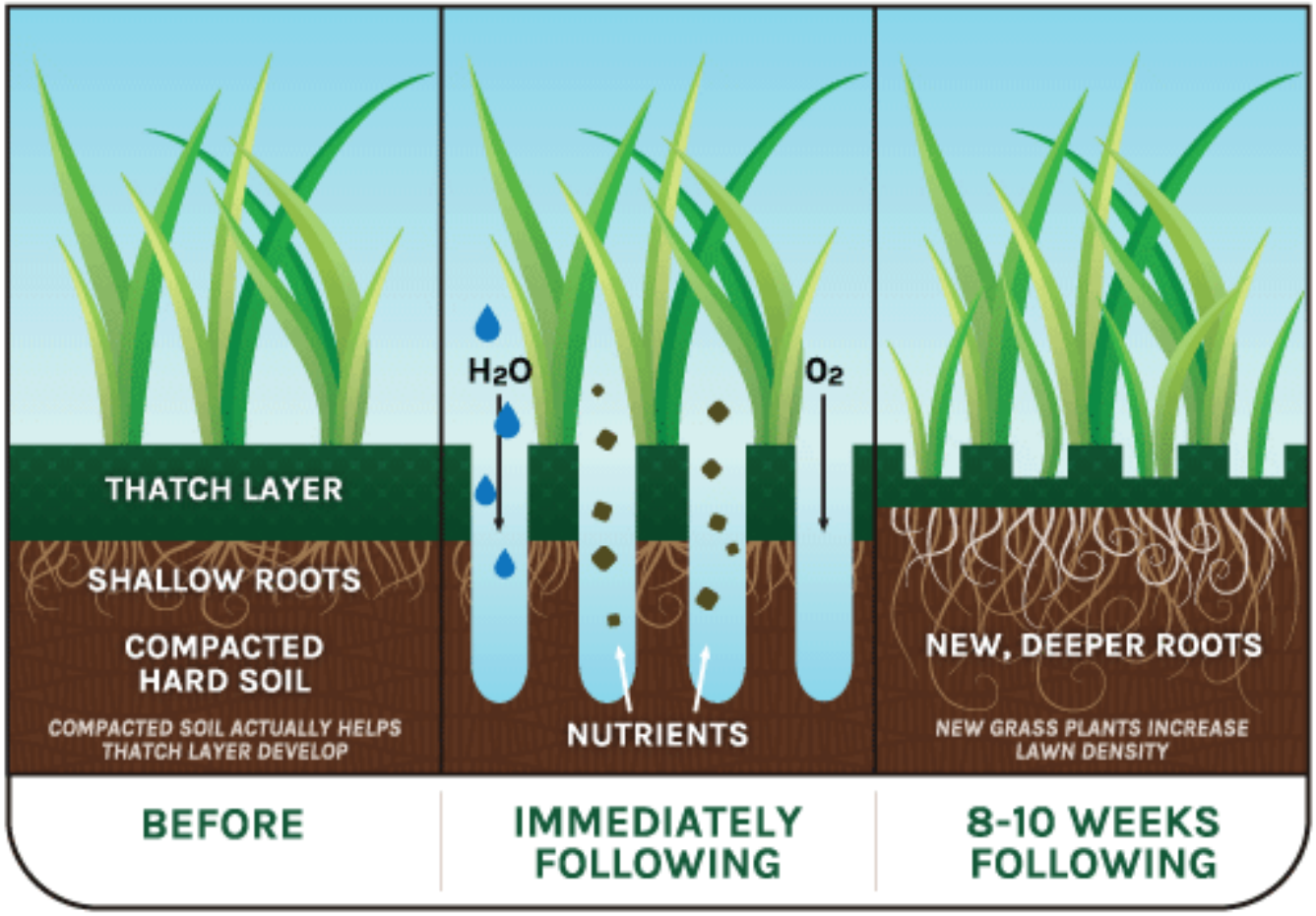


Maintain Healthy Soil

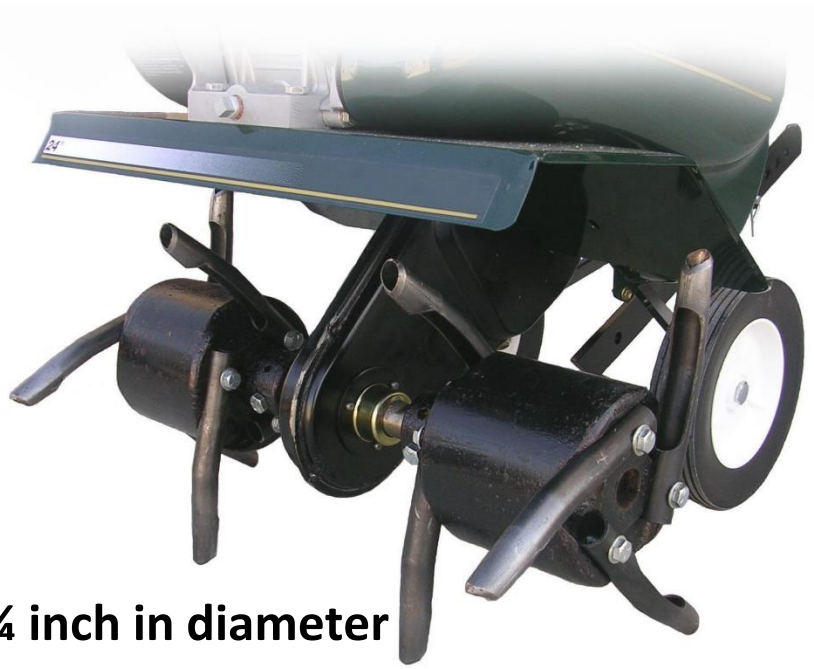


Maintain Healthy Soil

- **Aerate the soil to help improve water infiltration & nutrient availability to plants**



Maintain Healthy Soil



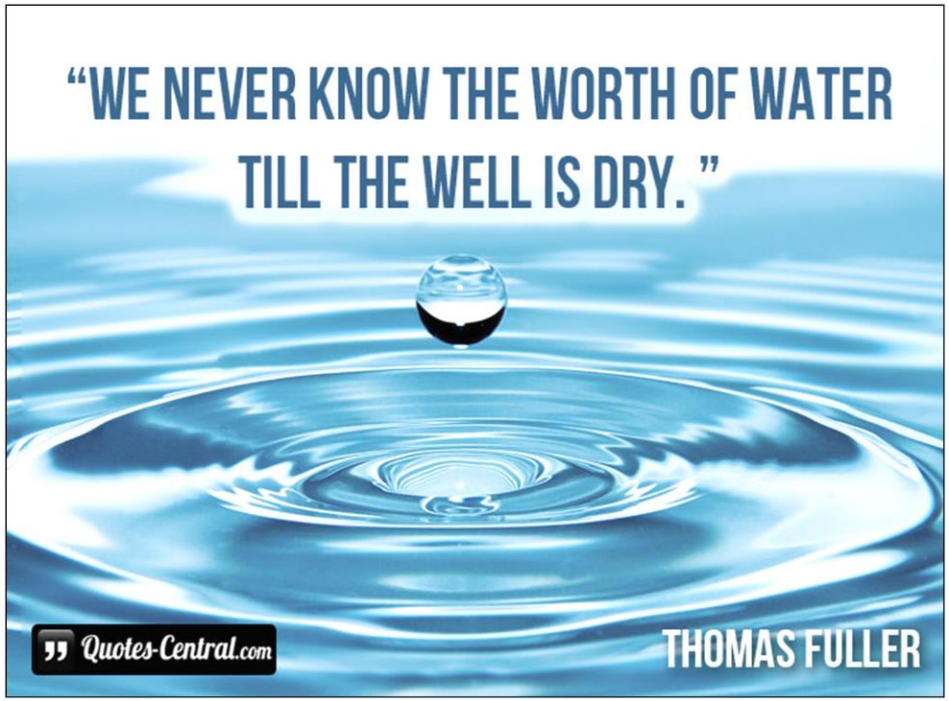
- Core aeration pulls cores (typically ½ to ¾ inch in diameter and 3 to 4 inches deep) from the ground
- Best done in September or in early spring (NOW!)
- Core aeration only treats shallow compaction, but it can rapidly and significantly improve conditions in the topsoil
- The cores that are left on the surface can be broken up and raked into the lawn, with some loose soil falling into the holes (do NOT fill holes)

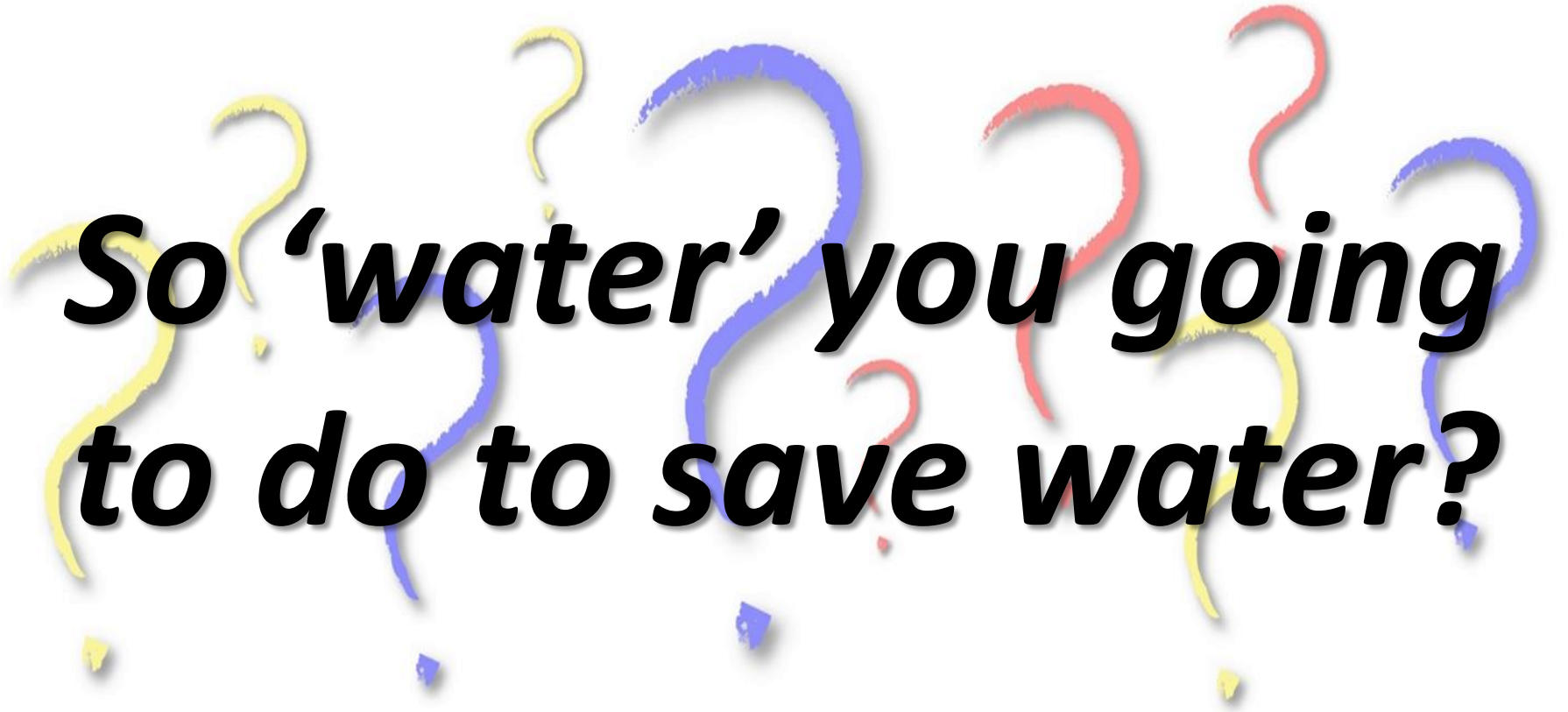
Maintain Healthy Soil

https://njaes.rutgers.edu/fs1313/

Why Conserve Water?

- Saves drinking water from being used for non-drinking purposes, i.e. irrigation
- Saves money on utility bills
- Helps prevent water pollution
- Protects valuable landscape plants during times of drought
- Extends the life and reliability of septic systems and stormwater infrastructure




So ‘water’ you going
to do to save water?

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