

Water Quality, Sustainability, and Irrigation

Mvskoke Gardener Program

College of Mvskoke Nation
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Muscogee (Creek) Nation Executive Branch



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Water Quality, Sustainability, and Irrigation

- Things to Consider before Starting
- Types of Irrigation Techniques
- Ways to Improve Water Quality



Preparation



Preparation

Before you begin

- Choose a suitable location with good sunlight and drainage
- Test your soil to determine its pH level
 - Amend the soil by adding compost or other organic matter as needed.
- Remove existing weeds
- Prepare planting beds by tilling to desired depth.

Types of Soil Test Kits



The image displays four different soil test kits side-by-side. From left to right: 1. MySoil Soil Test Kit, featuring a white box with a green and red design and a photo of tomatoes. 2. Luster Leaf Rapitest Soil Test Kit, a green box with a clear window showing test strips. 3. Lowe's Soil Test Kit 60183L, a white box with a pink flower image and a 'LOW PRICE' tag. 4. Redmond Soil Test Kit 113835, a white box with a green and black design and a '100%' logo.

Product Name	Price	Availability	Rating	Reviews
MySoil Soil Test Kit	\$31.99	Home Depot & more	4.8	232
Luster Leaf Rapitest Soil Test Kit	\$16.57	Amazon.com - Seller & more	4.3	281
Lowe's Soil Test Kit 60183L	\$12.97 (Usually \$14)	Walmart & more	3.8	183
Redmond Soil Test Kit 113835	\$38.99	Redmond Agriculture & more	4.8	4

Preparation

Select a location

find a spot in your yard that receives ample sunlight and has good drainage

Soil testing:

Take soil samples to test its pH level to determine if any amendments are required

Soil Preparation:

- Remove existing vegetation: Clear the area of weeds and unwanted plants.
- Till the soil: Dig up the soil to a depth of 12 inches to aerate it and incorporate amendments.
- Add organic matter: Mix compost, aged manure, or other organic material into the soil to improve its texture and nutrient content.

Preparation

- **Create planting beds:**

Define your garden space by creating raised beds or marking out planting rows.

- **Weed control:**

Regularly remove weeds as they appear to prevent competition with your desired plants.

- **Mulch application:**

Once plants are established, spread a layer of mulch around them to help retain moisture and suppress weeds.

Important considerations:

- **Local climate:** Choose plants that are well-suited to your climate and growing season.

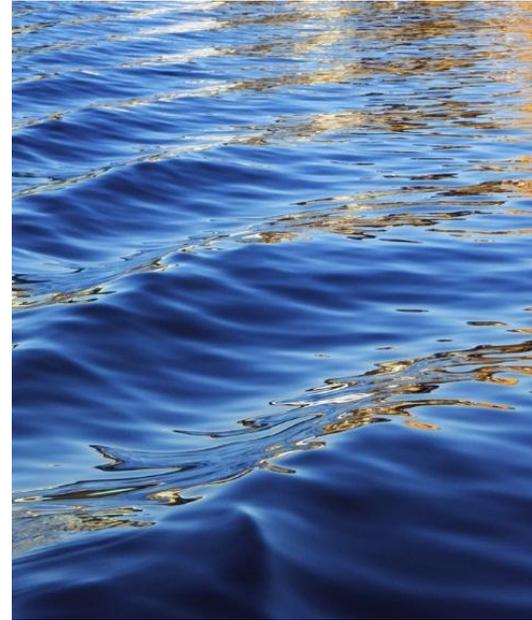
- **Plant spacing:** Follow planting instructions to ensure adequate space between plants.

- **Watering schedule:** Water your garden regularly, especially during hot weather, but avoid overwatering.

- **Monitor for pests and diseases:** Regularly check your plants for any signs of pests or diseases and take necessary control measure



Irrigation



Types of Irrigation

Rainwater Harvest

Automatic Irrigation

Rainwater Harvest

Rain collection irrigation, also known as rainwater harvesting for irrigation, is the practice of collecting and storing rainwater, typically from rooftops, and using it to irrigate gardens, lawns, and crops

- Storage:

- The collected rainwater is stored in tanks, cisterns, or rain barrels for later use.

- Irrigation:

- The stored rainwater is then used to water plants, crops, and lawns instead of relying solely on municipal water or groundwater.

Rainwater Harvest

How it works:

Catchment Area:

The roof of a building or other surface is the primary catchment area for rainwater.

Conveyance System:

Gutters and downspouts are used to direct the rainwater from the catchment area to a storage container.

Storage:

Rainwater is stored in tanks, cisterns, or rain barrels.

Distribution:

The stored water is then distributed to the irrigation system (e.g., sprinklers, drip irrigation).

Rainwater Harvest

Benefits:

Water Conservation:

Reduces reliance on municipal water supplies and groundwater, which can be valuable resources, especially in drought-prone areas.

Cost Savings:

Can lower water bills and reduce the need for expensive water treatment.

Environmental Benefits:

Reduces stormwater runoff, which can carry pollutants into waterways, and helps recharge groundwater.

Improved Water Quality:

Rainwater is naturally soft and free of chemicals, making it a good source for irrigation, especially for plants and crops.

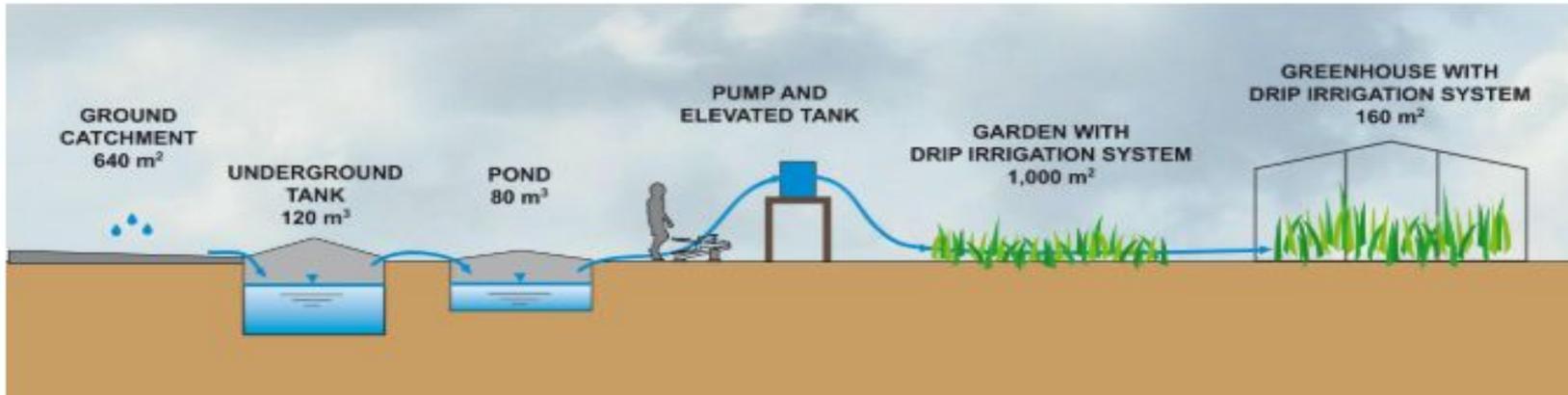
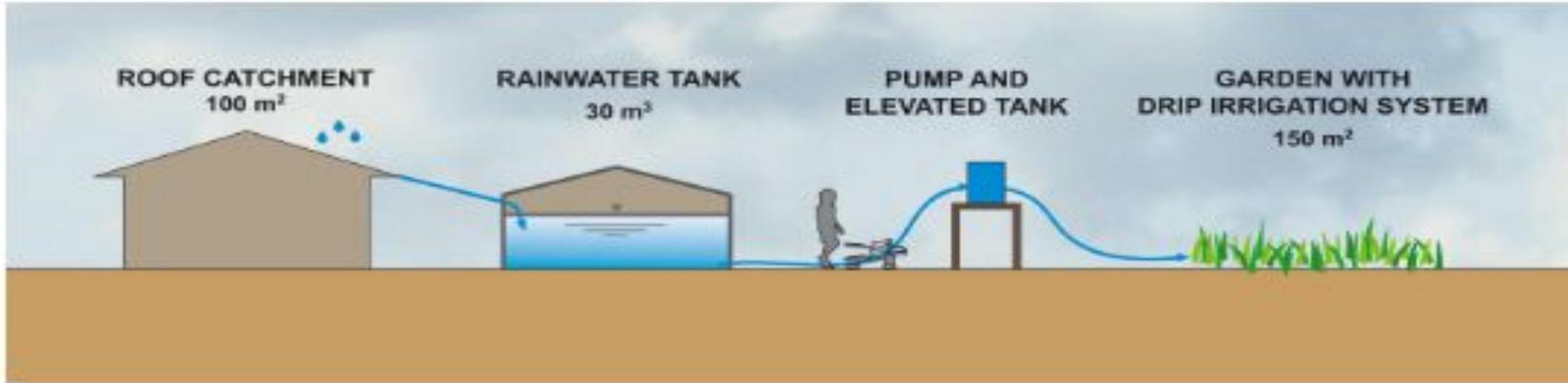
Reduced Erosion:

Capturing and using rainwater can help prevent soil erosion, especially in areas with steep slopes.

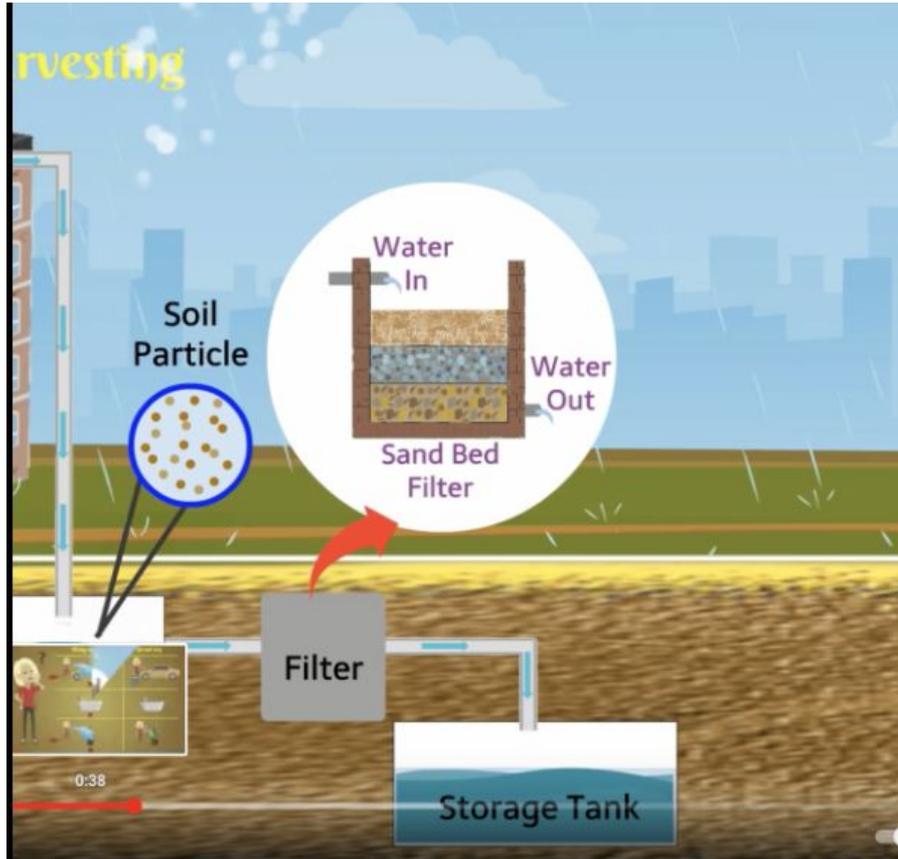
Rainwater Harvest



Rainwater Harvest



Rainwater Harvest



Rainwater Harvest



Automatic Irrigation

Automatic irrigation systems use devices to control irrigation structures, enabling the flow of water to start and stop without manual intervention, such as through timers, sensors, or controllers.

Automatic Irrigation

How it works:

Components:

These systems typically include a controller, valves (solenoid valves), sensors (soil moisture, pressure, etc.), and a water supply.

Control:

The controller receives input from sensors and uses this information to activate or deactivate valves, controlling the flow of water to the plants or crops.

Scheduling:

Automatic systems can be programmed to irrigate at specific times, durations, or based on real-time conditions like soil moisture levels.

Types:

Sprinkler Systems: Use sprinklers to distribute water over an area.

Drip Irrigation: Delivers water directly to the roots of plants through a network of pipes and emitters.

Surface Irrigation: Floods the field with water, common for crops and orchards.

Automatic Irrigation

Benefits:

Water conservation:

By accurately delivering water based on needs, automatic systems can reduce water waste.

Labor savings:

Eliminates the need for manual irrigation, saving time and effort.

Improved crop yields:

Consistent and timely irrigation can lead to healthier plants and higher yields.

Enhanced efficiency:

Automation allows for precise control of water delivery, optimizing water use and resource management.

Automatic Irrigation

10% OFF



Rain Bird 32ETI Underground Irrigation Automatic Sprinkler System Kit

\$143.99 ~~\$160~~

 Amazon.com & more

Free delivery

30-day returns

4.0 ★★★★★ (691)

11% OFF



2-Zone In-Ground 1/2 in. Sprinkler System with Hose Faucet Timer

\$174.50 ~~\$197~~

 Home Depot & more

Free delivery

90-day returns

3.5 ★★★★★ (128)

 Also nearby

Raindrip R560DP Automatic Watering Kit

\$35.98

 Lowe's & more

Free delivery on \$45+

Free 90-day returns

3.8 ★★★★★ (84)

Water Quality



Nearby, 25 mi

Safe Home Ultimate Water Test Kit

\$29.99

Lowe's & more

Free 90-day returns

4.0 ★★★★★ (20)



Nearby, 24 mi

Pro Lab Total Water Quality Test Kit

\$23.99

Ace Hardware & more

30-day returns

3.7 ★★★★★ (117)



Nearby, 24 mi

LabTech H2O OK Drinking Water Analysis Kit

\$9.98

Walmart & more

Free 90-day returns

3.5 ★★★★★ (328)



Nearby, 25 mi

Safe Home Basic 120 Water Quality Test Kit

\$13.00

Lowe's & more

Free 90-day returns

3.6 ★★★★★ (31)

MVTO

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