

# Welcome to our Zoom Webinar Series

## Watering Wisdom: Growing a Healthy Lawn with Less Water

### *Part 2: Learning to Control Your Irrigation Controller*

*The webinar will begin shortly*



# Future Webinars

- **Turfgrass Species for Low-Input Minnesota Lawns**

Tuesday, August 18, 2020 at 2:00 p.m.

- **Lawn Care Best Management Practices**

Tuesday, September 8, 2020 at 2:00 p.m.

- **Winterizing Your Lawn**

September 29, 2020 at 2:00 p.m.



# Using Zoom

- Use Q&A to ask questions
  - Mouse over bottom of Zoom window to access Q&A
- Chat is disabled
- Live transcript can be turned off depending on device

Audio Settings ^



Chat



Q&A

Leave Meeting

Q&A

All questions (1)

My questions

**Lee** 01:54 PM

Will there be a follow-up session?



Comment

Type your question here...

# Watering Wisdom: Growing a Healthy Lawn with Less Water

*Learning to Control Your Irrigation Controller*

Presenter: Shane Evans





# Overview

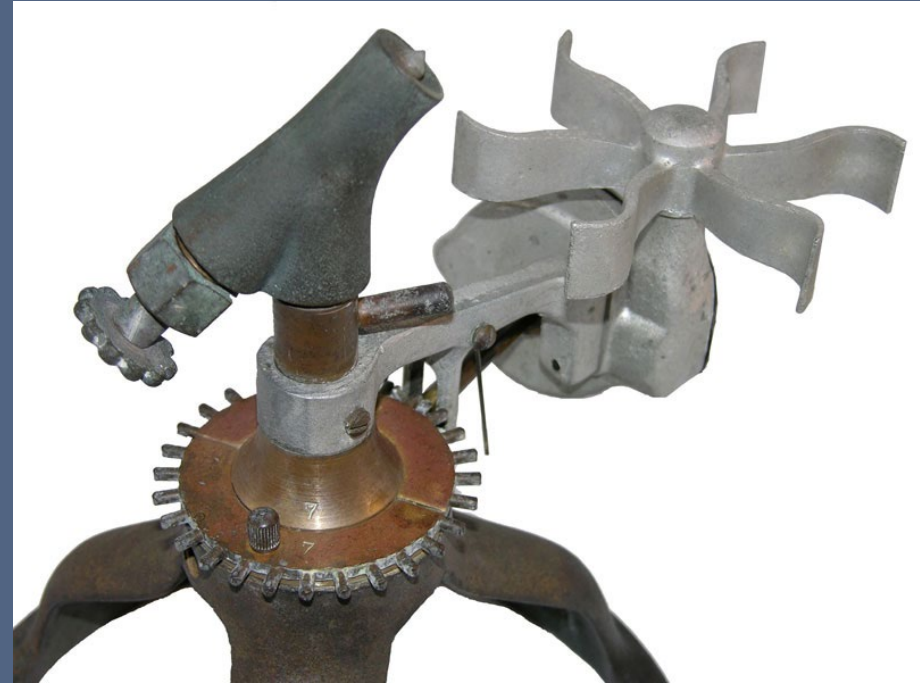
- Introduction to irrigation
- How to program an irrigation controller
- Technologies that make your controller more efficient
- What research says about these controller technologies



# Irrigation History



One Hole Sprinkler  
1899



Gear Drive Sprinkler  
1913



# Irrigation History





# Irrigation History



Moody Rainmaster 1950



Moody Rainmaster 1960



# What is an Irrigation Controller?

Automatically manages your sprinkler system so you don't have to

If your home has an underground sprinkler system, you likely have an irrigation controller



# Manually Programmed Controllers

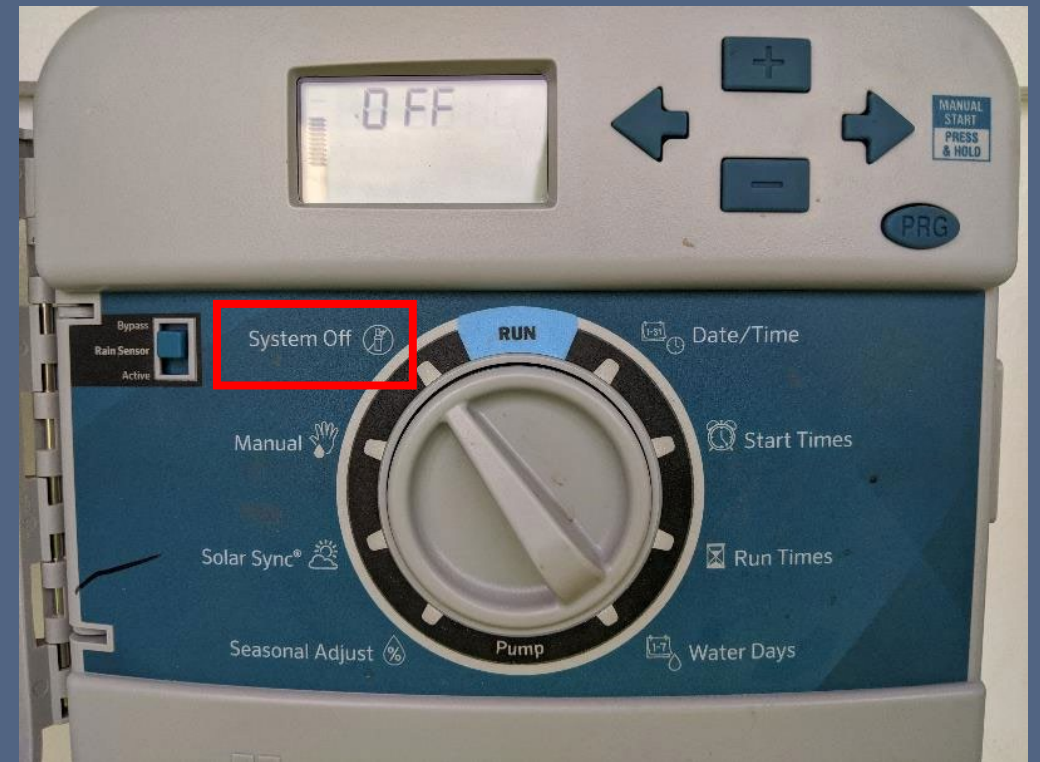




# Programming Your Controller

In Minnesota you often do not need to irrigate because of the amount of rain we receive

Try keeping your controller in the off position and only use it when you know your landscape needs some water





# Programming Your Controller

Setting date/time

A common mistake is leaving the controller set to the default date

Make sure the year is correct

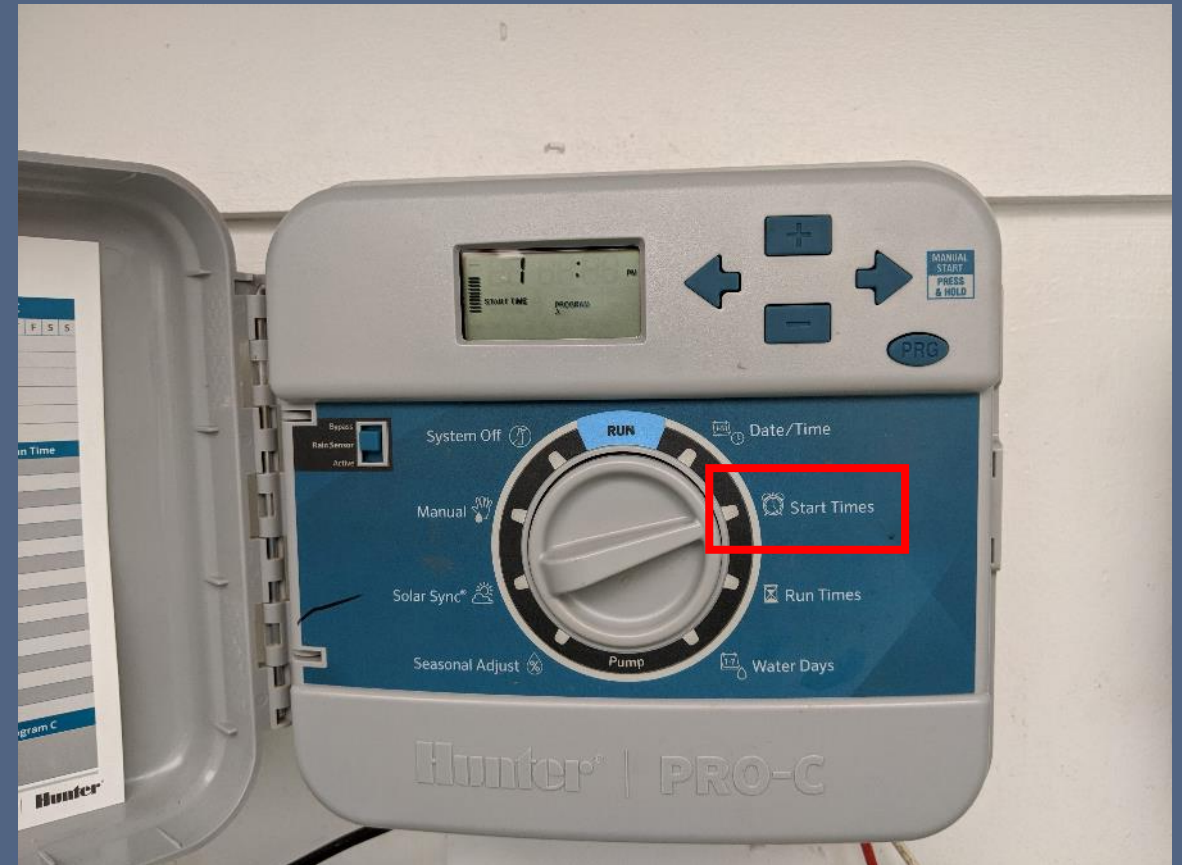


# Programming Your Controller

Choosing a start time

Does your area have times  
you are not allowed to water?

Early morning is a typical  
recommendation

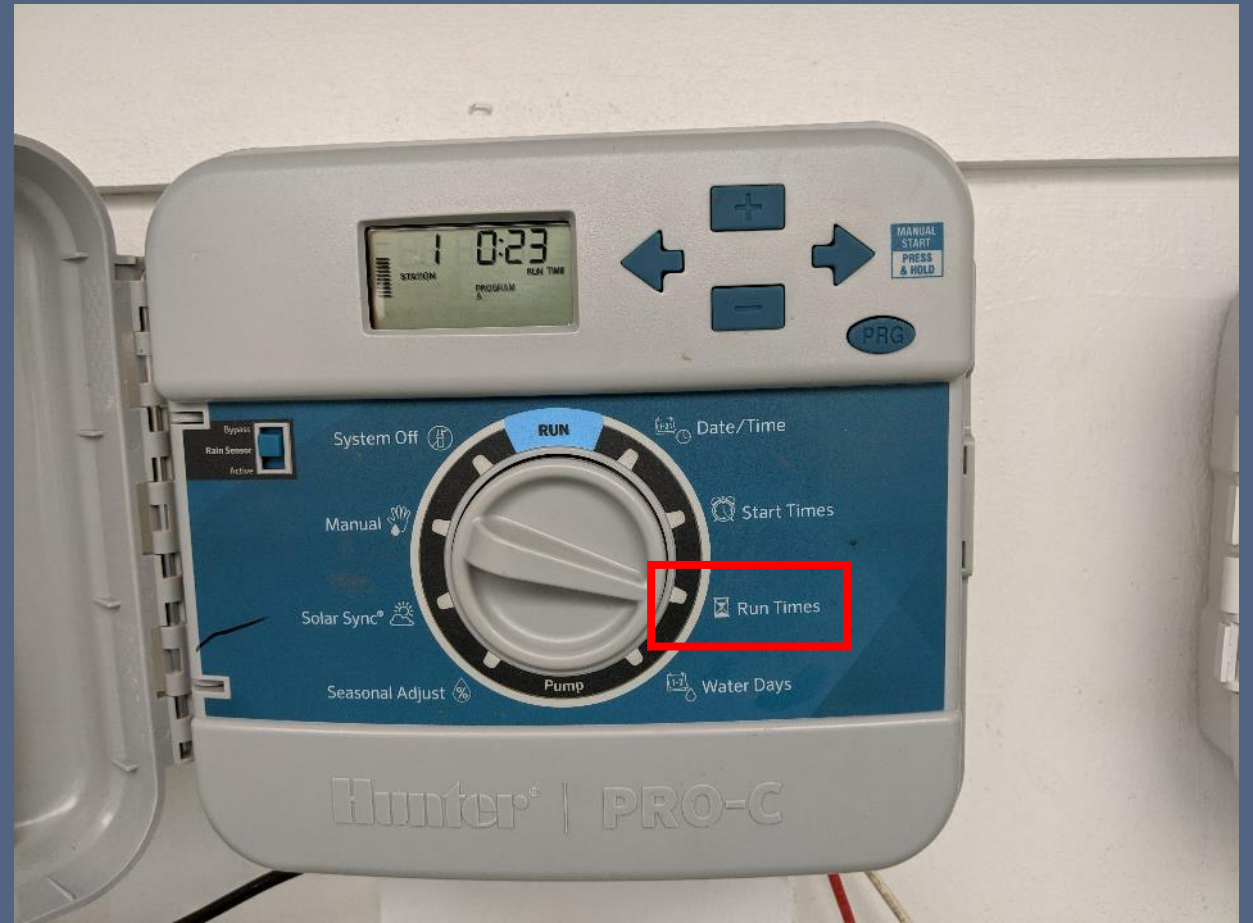


# Programming Your Controller

Choosing a run time

This is based on the irrigation audit you performed previously

You choose a zone and set the run time

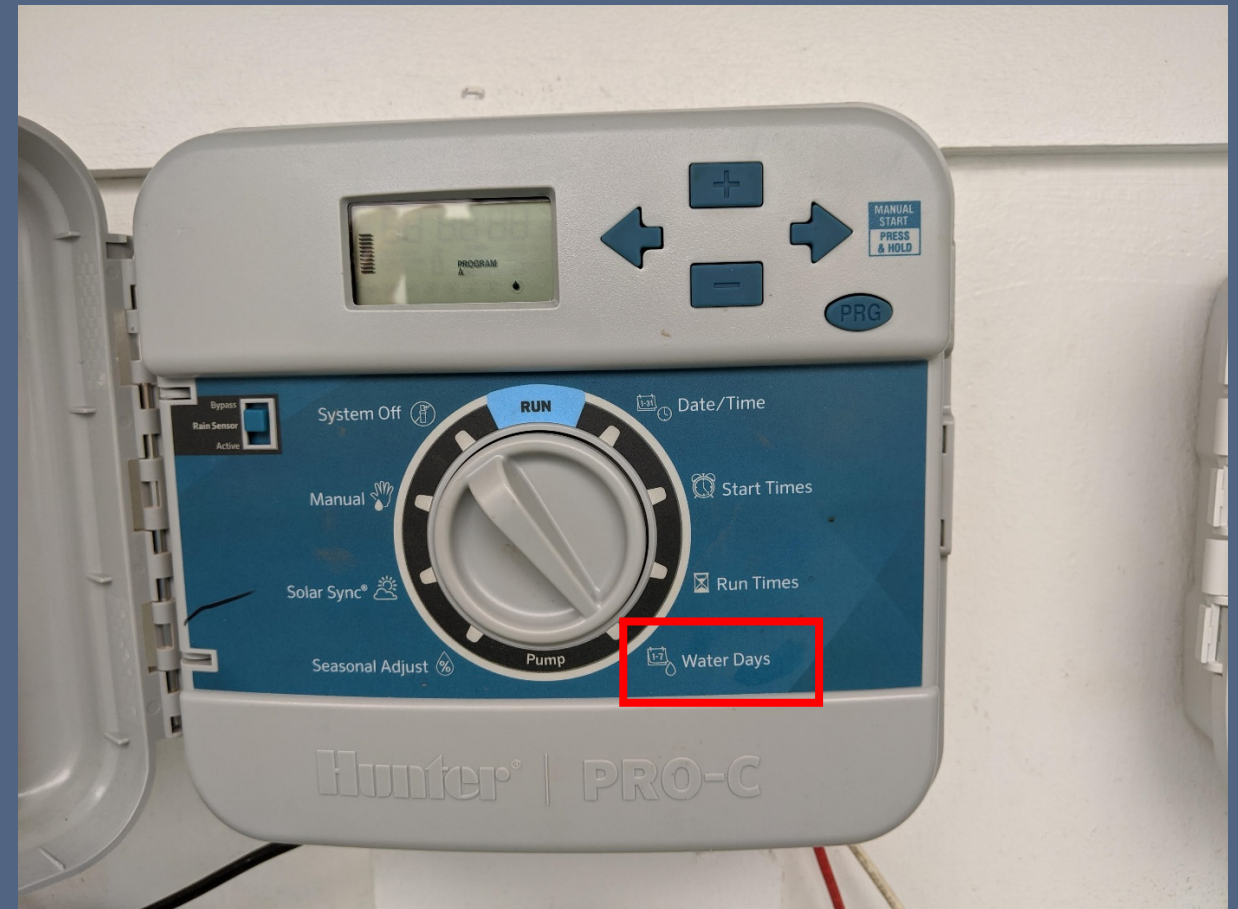




# Programming Your Controller

## Water days options

- Choose which days to water
- Odd or even watering days
- Interval watering (every 3 days)



# Programming Your Controller

In this position your controller uses the program you just created to run your system automatically





https://www.revisor.mn.gov/statutes/cite/103G.298



# Office of the Revisor of Statutes

[Statutes](#) [Laws](#) [Rules](#) [Court Rules](#) [Constitution](#) [Revisor's Office](#) [Search Law by Keyword](#)



[2018 Minnesota Statutes](#) > [WATER](#) > [Chapter 103G](#) > Section 103G.298

◀ [103G.297](#)

[103G.299](#) ▶

## 2018 Minnesota Statutes

[Authenticate](#)

### **103G.298 LANDSCAPE IRRIGATION SYSTEMS.**

All automatically operated landscape irrigation systems shall have furnished and installed technology that inhibits or interrupts operation of the landscape irrigation system during periods of sufficient moisture. The technology must be adjustable either by the end user or the professional practitioner of landscape irrigation services.

**History:** [2003 c 44 s 1](#)

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# Technologies that improve irrigation efficiency

Rain Sensor

Soil Moisture Sensor

Wi-Fi Enabled Smart Controllers



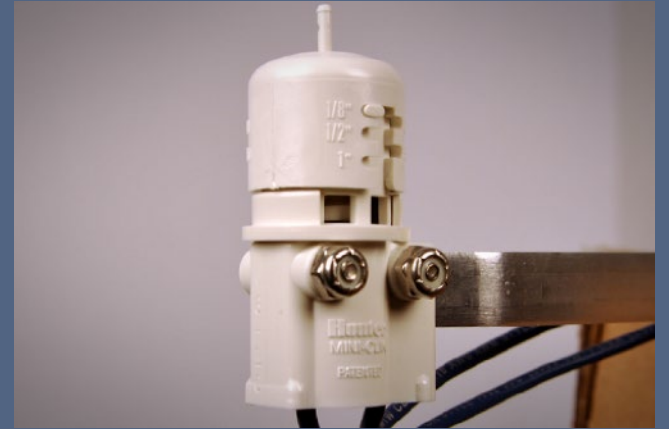
# Rain Sensors

## Bypass irrigation

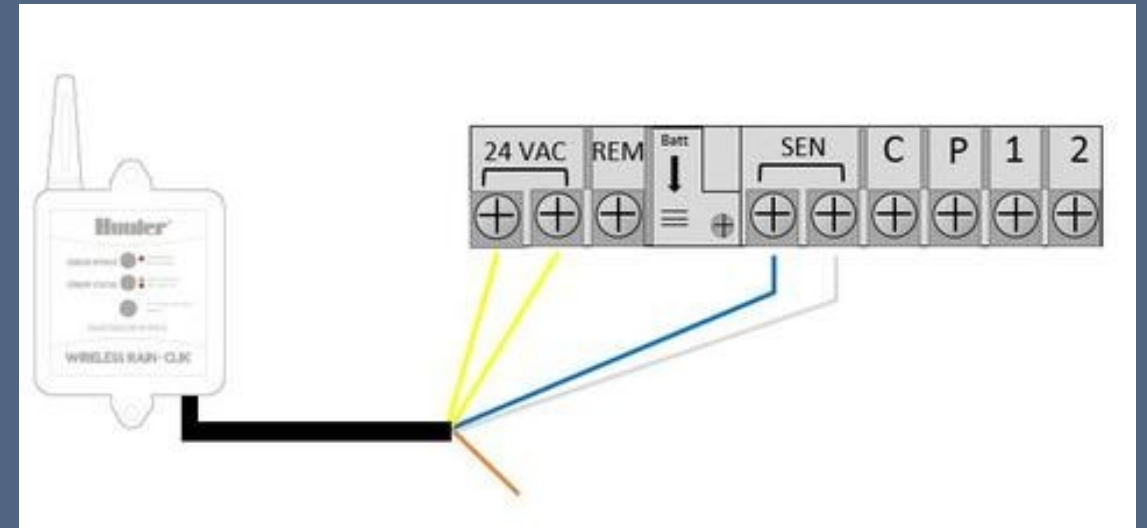
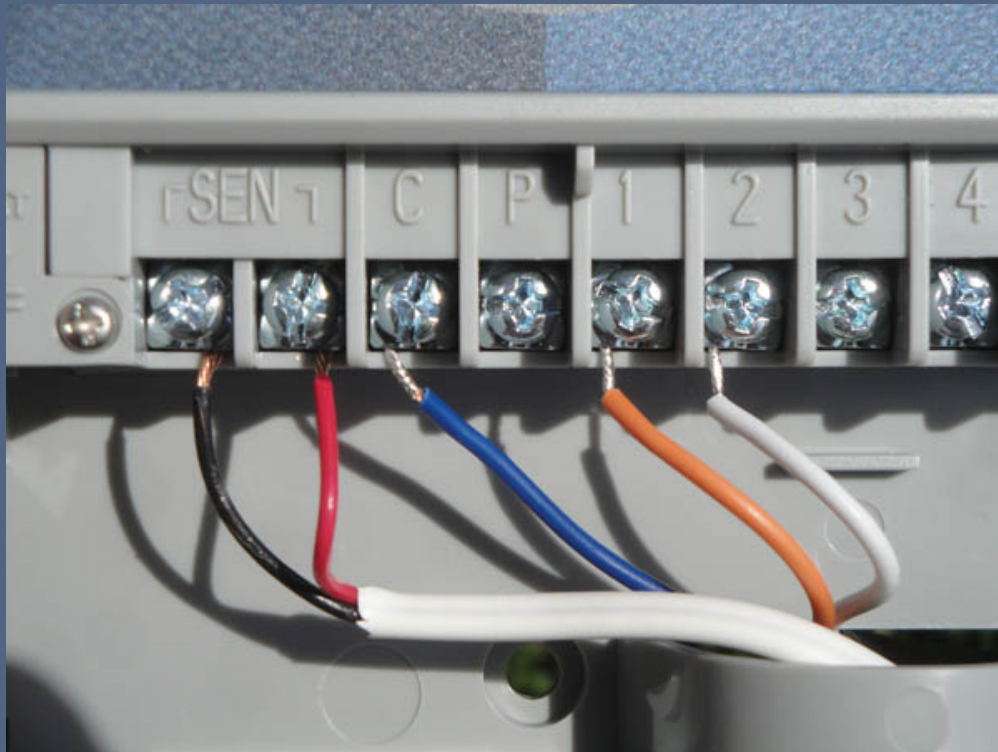
- Shutoff sprinkler system immediately
- Rainfall threshold shutoff

Common rain sensors use cork disks which swell upon wetting which triggers a signal to irrigation controller to bypass scheduled irrigation

\$20 to \$30

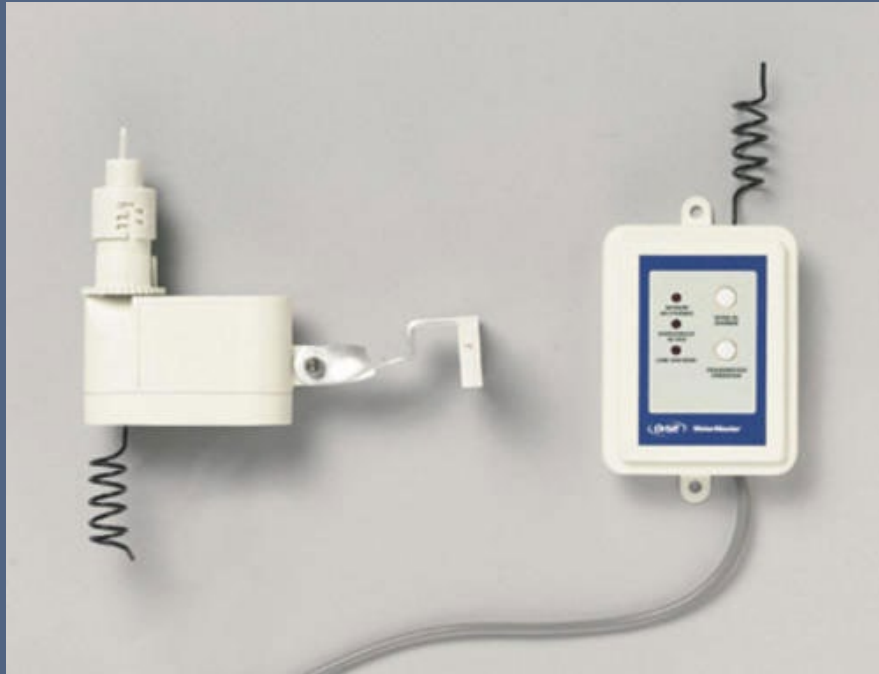


# Rain Sensors

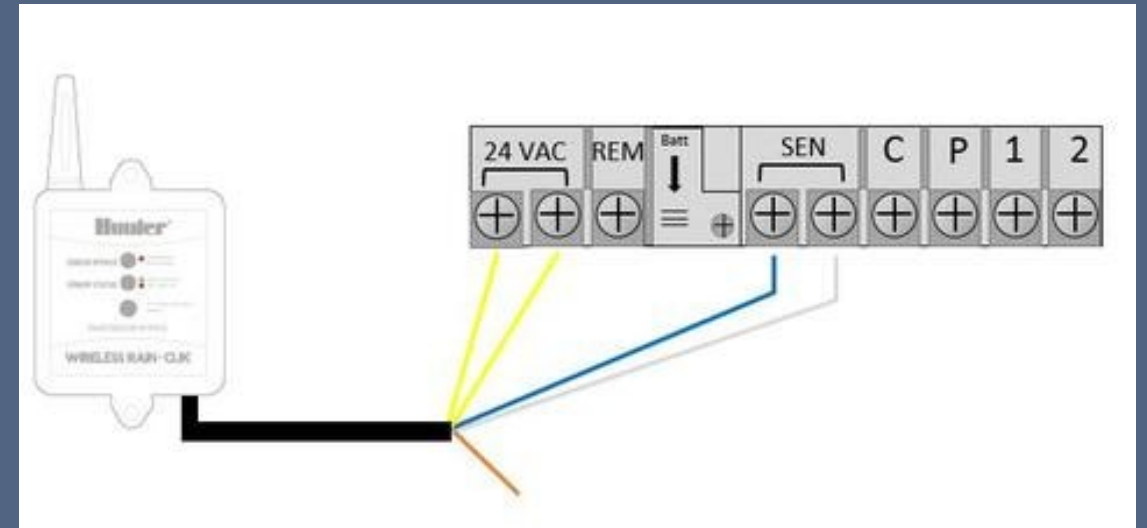
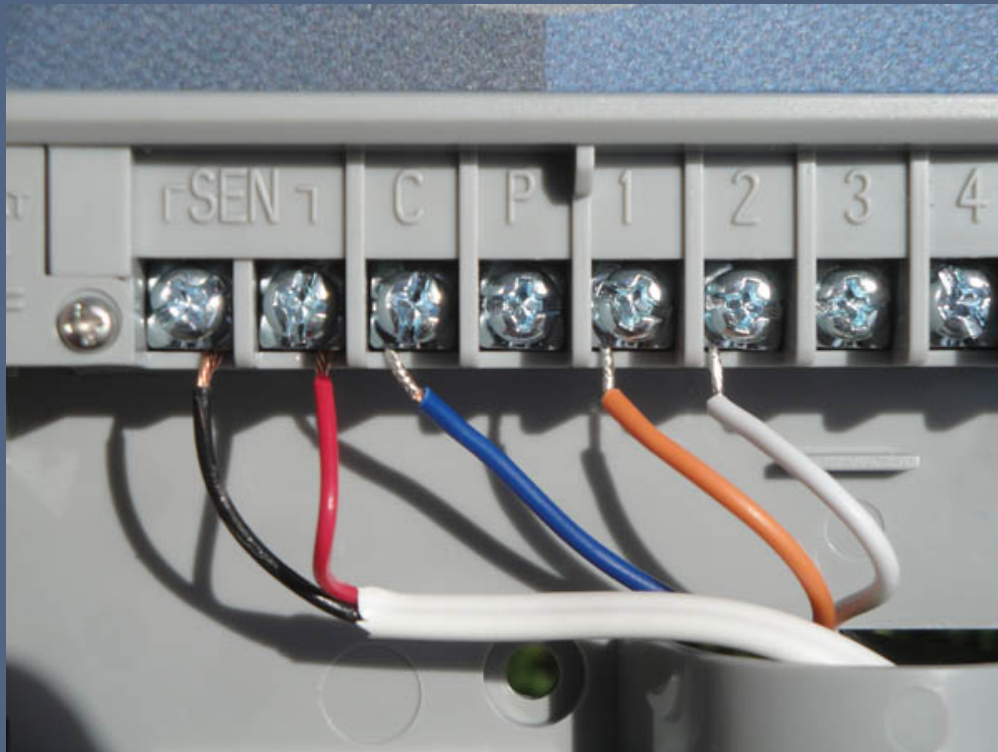




# Rain Sensors



# Rain Sensors



# Soil Moisture Sensors

Continuously monitor soil water content

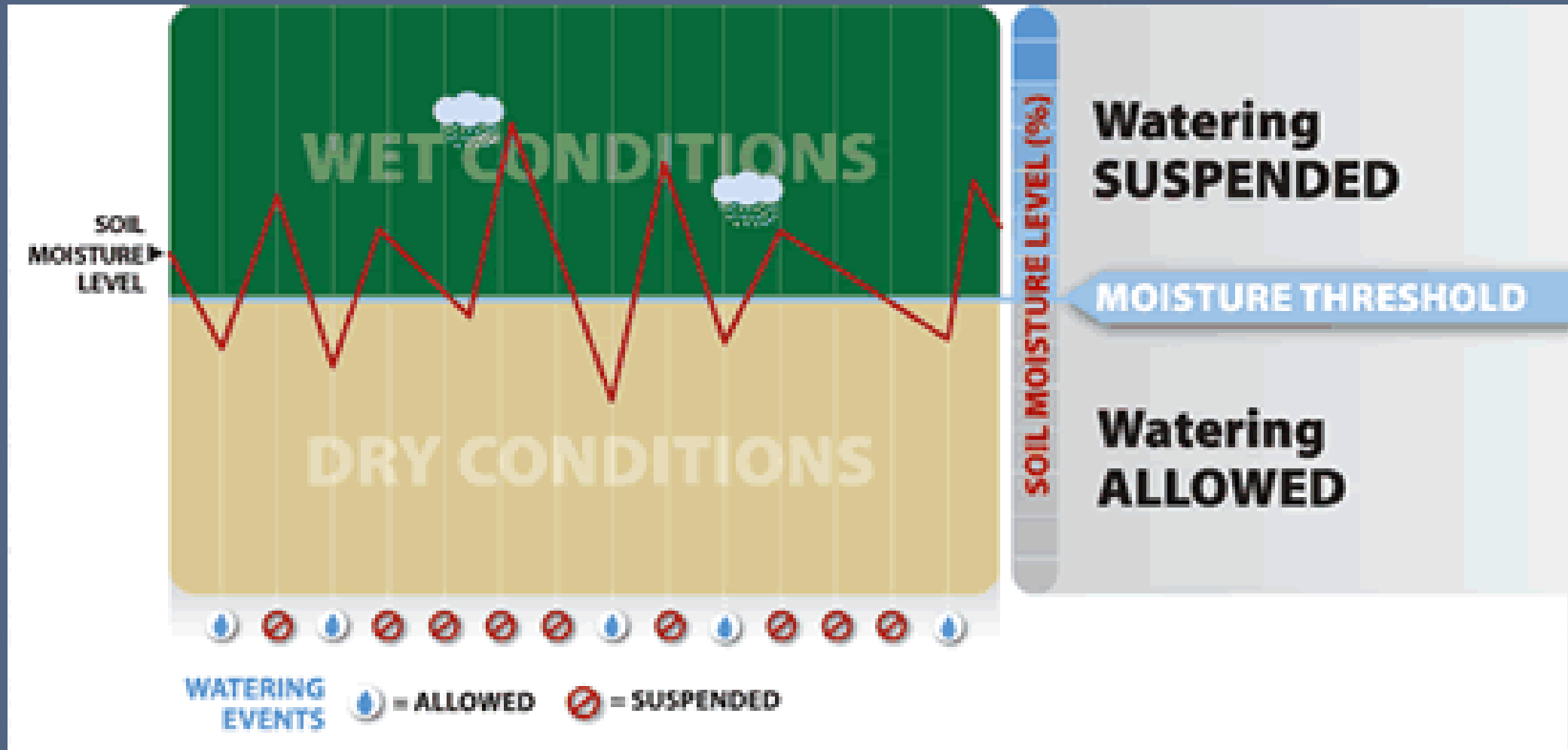
Suspended cycle irrigation

- Set like traditional timer controllers, with watering schedules, start times and duration. The difference is that the system will stop the next scheduled irrigation when there is enough moisture in the soil.

- ~ \$120 to \$160







Retrieved from <https://ww3.rainbird.com/landscape/products/controllers/SMRTY.htm>

# Soil Moisture Sensors





# Smart Irrigation Controllers

- B-Hyve
- Green IQ
- Hunter Hydrowise
- Rachio
- Rain Bird ST8
- Rainmachine
- Scotts Gro Controller
- Toro Evolution
- and many more....

EPA defines smart controllers as being able to automatically tailor watering schedules and runtimes on sprinkler systems





# Wi-Fi-Enabled Irrigation Controllers

Residential / light commercial sites

Utilize weather station data from regional/nearby weather stations (airports, regional/USDA labs) or add-on weather stations

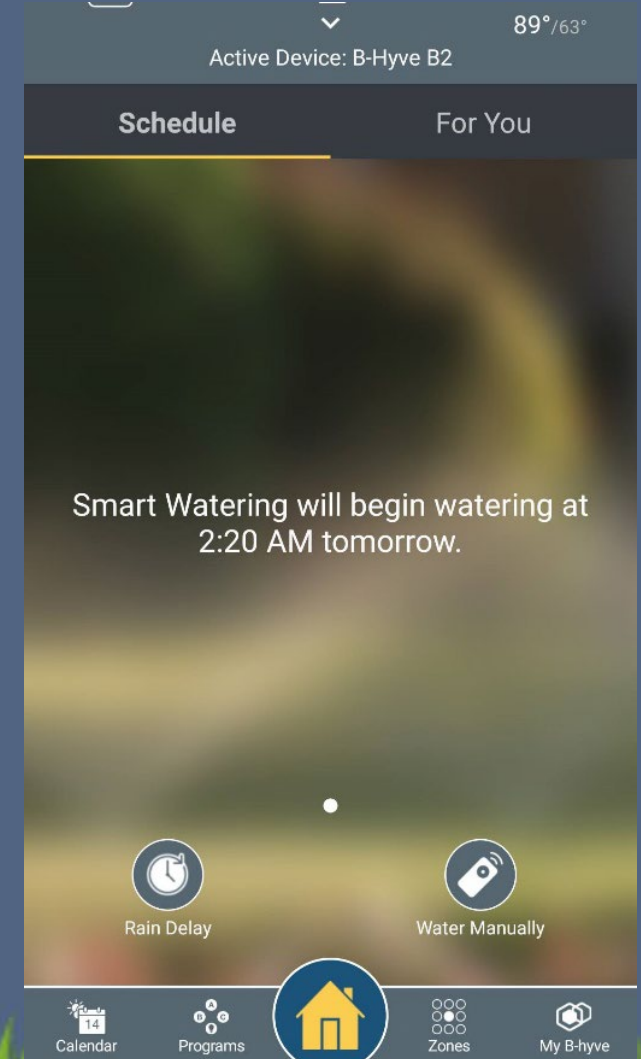
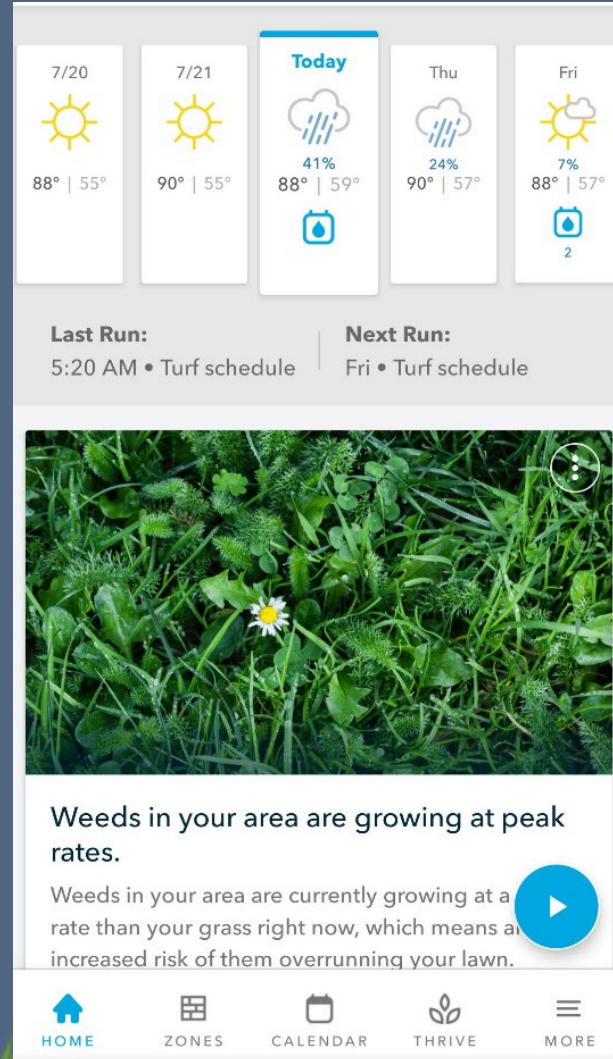
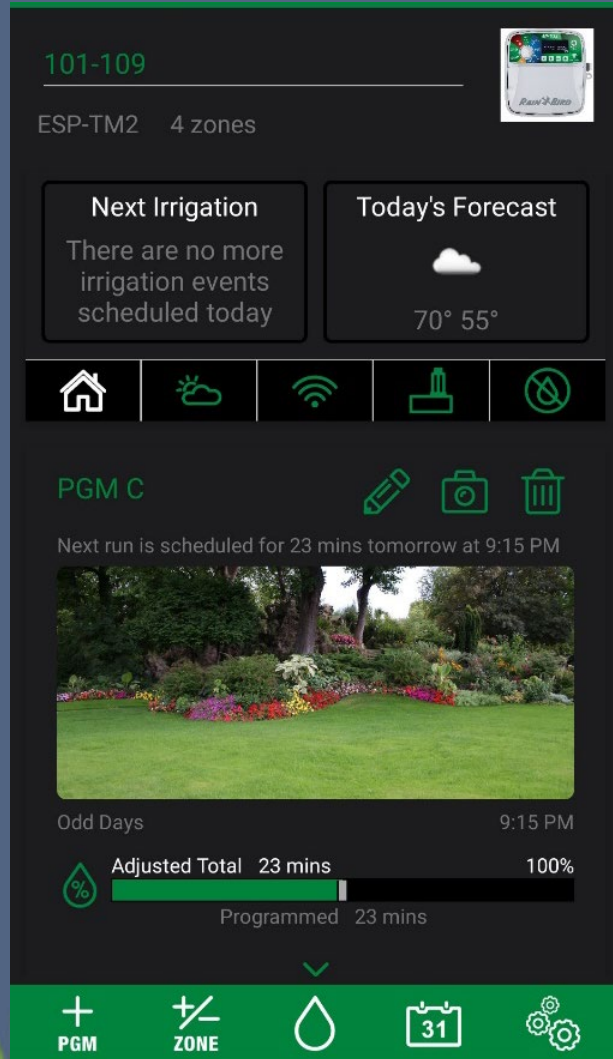
Adjust runtimes based on environmental conditions

Many work with smartphones and utilize Wi-Fi

Cost dependent on number of zones



# Programming a Wi-Fi Enabled Controller



# Programming a Wi-Fi Enabled Controller

Cancel Edit Schedule Done

PGM A Custom Name

Frequency

Odd Even Custom Cyclic

Seasonal Adjustment

Use Automatic Seasonal Adjust for this PGM ☒

Seasonal Adjustment 100%

Soil Type

None Clay Sand Other

Start Times

10:15 PM X

Zones

Programmed (Adjusted)

Zone 1 23 mins (23 mins)

## Lawn

Name  
Lawn

Photo

Zone Type  
Cool season grass

Spray Head  
Rotary Nozzle

Soil Type  
Loam

Exposure  
Lots of sun

Slope  
Flat

Advanced

Smart Attributes  
Zone 3

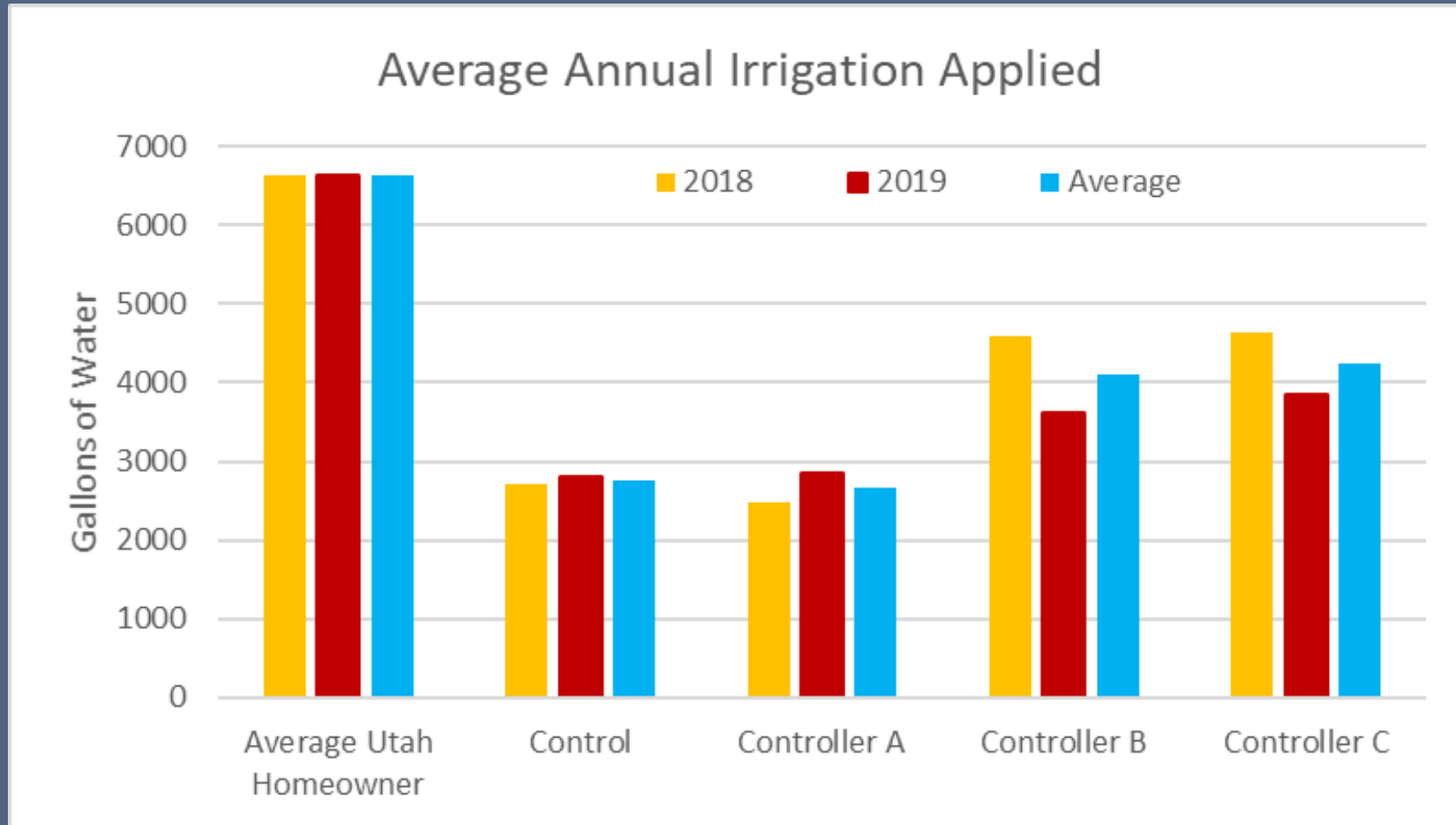
Smart watering helps you save water. The more information you provide about your zone, the more water you can save!

### Zone Smart Watering Details

- ☒ Soil Type
- ☒ Plant Type
- ☒ Sprinkler Type
- ☒ Sun/Shade Partial Shade
- ☐ Slope
- ☐ Head Count 0 sprinkler heads
- ☐ Catch Cups 0 cups configured
- ☒ Watering Schedule Adjustments
- ☒ Advanced Details



Two year study performed at Utah State University  
by Shane Evans

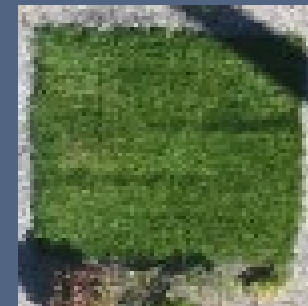
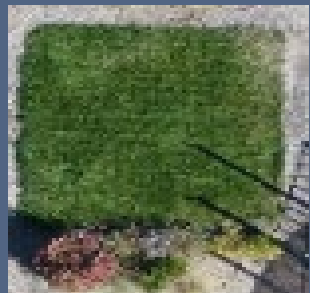
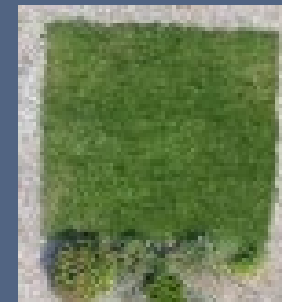
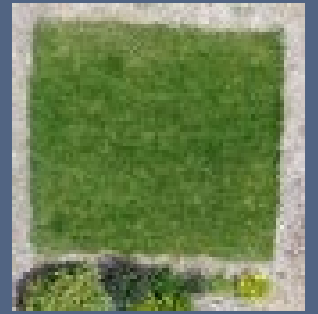
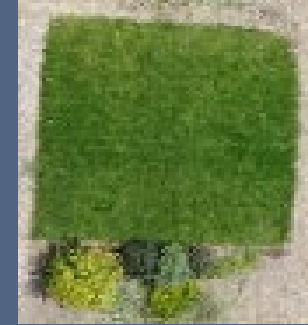


2019

Week 26

Week 32

Week 38



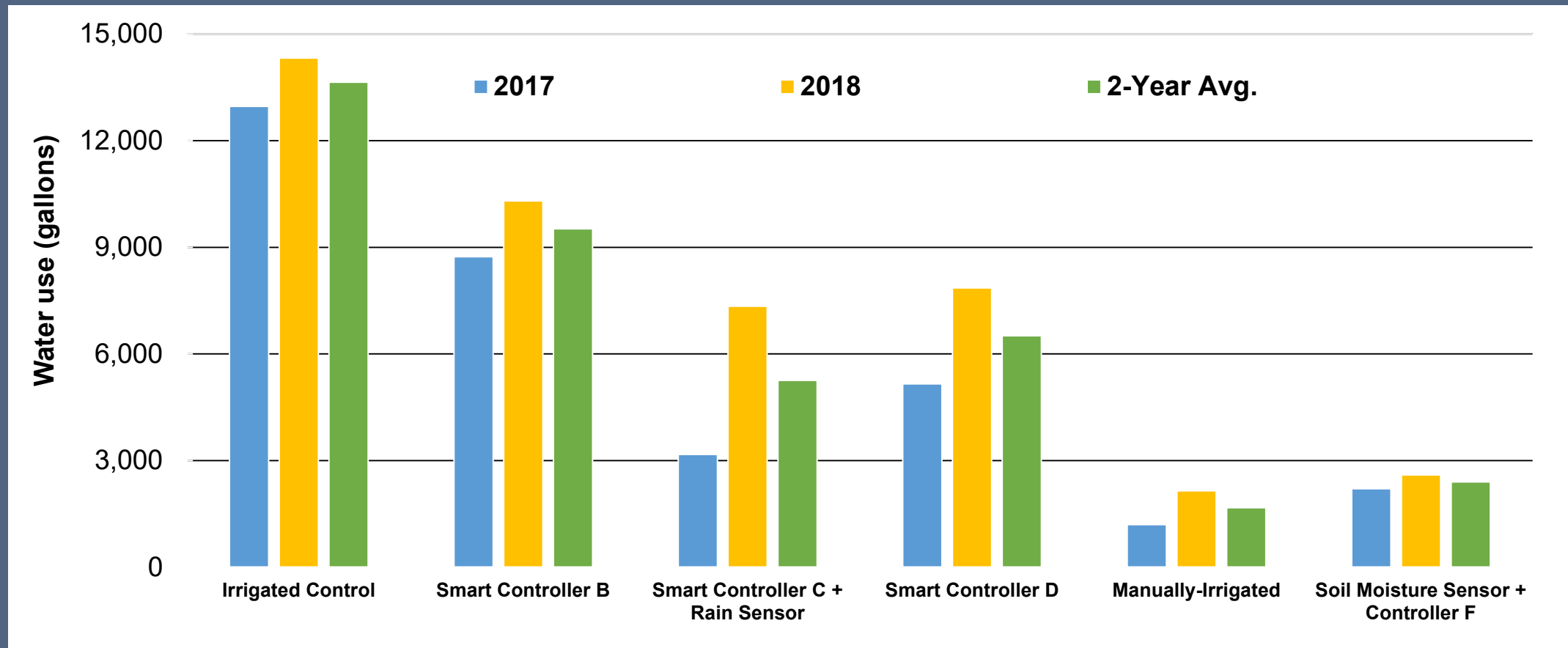
Control

Controller A

Controller B

Controller C

# Two year study performed at The University of Minnesota by Dr. Dan Sandor





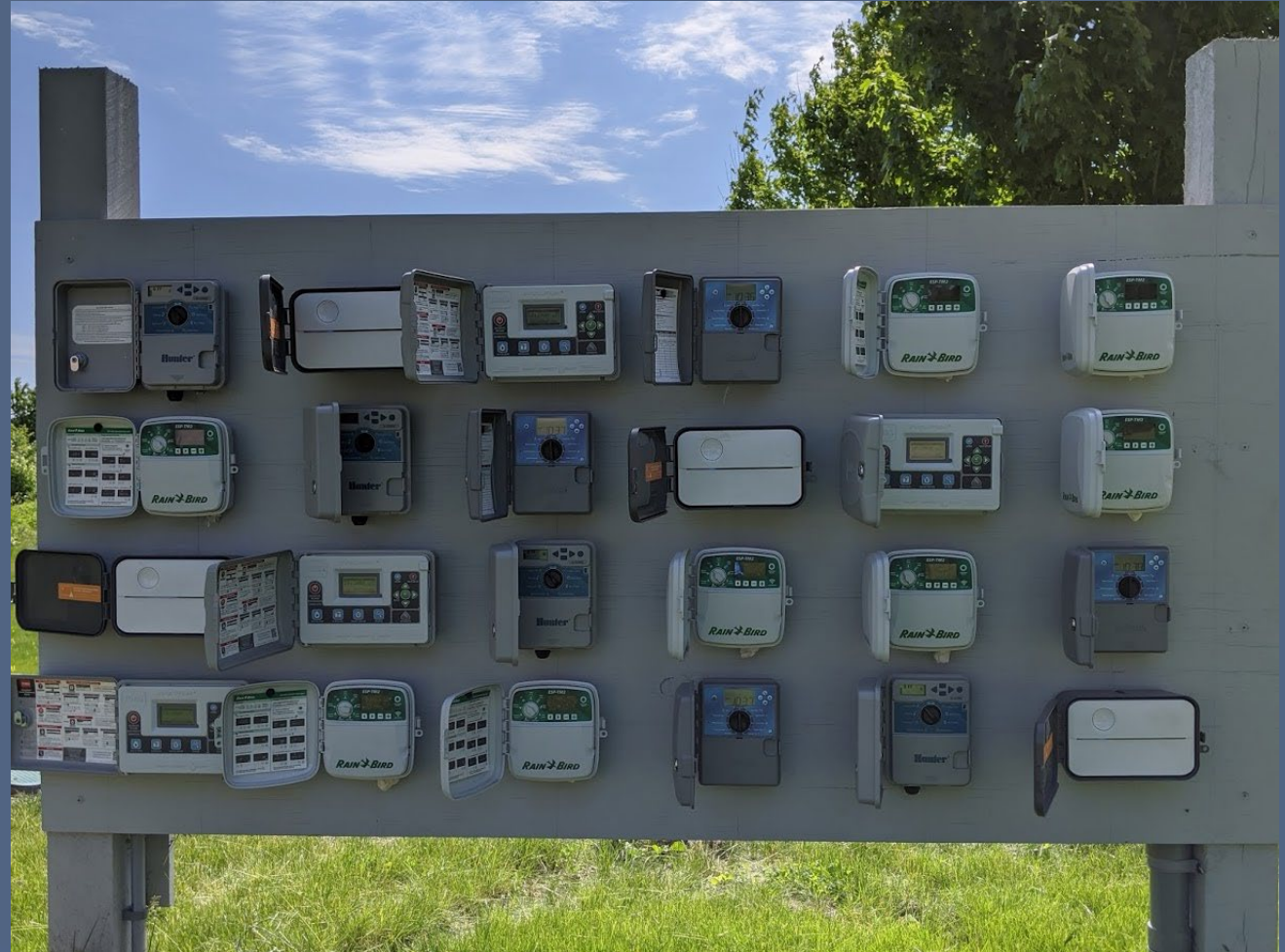
# Future Research

## Smart irrigation controllers

- Soil moisture sensors
- Rain sensors
- Wi-Fi-enabled controllers

Located at the UMN

Landscape Arboretum



# Summary

Several irrigation controllers are commercially available

If you would like to add a sensor, most are compatible with any type of controller

Do a little research and find which is best for you





# Summary

## Rain Sensor

- Will cancel irrigation during or shortly after rain events
- Need to be replaced every couple of years

## Soil Moisture Sensor

- Sets a moisture threshold and cancels irrigation event if above threshold
- Higher cost but tend to last longer

## Wi-Fi Enabled Smart Controllers

- Takes in to account weather data and current condition at site
- Look for the EPA WaterSense label
- Good option if looking to replace your controller







# Questions?

Please use the Q & A feature in Zoom to ask any questions you have

Please join us for our future  
webinars

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