



# Summer Watering & Irrigation Guide

# INDEX

Start here: water is the first thing to check .....	3
The main rule: about an inch of water per week .....	3
The three ways we water a garden .....	3
1. Flood irrigation .....	4
2. Overhead sprinkling .....	5
3. Drip irrigation .....	6
My preference for tomatoes and melons .....	6
How to actually deliver an inch of water .....	7
The tuna can sprinkler test .....	7
The finger test .....	8
For drip systems .....	8
When to water: the cool of the morning .....	9
How to read your plants instead of guessing .....	10
Late afternoon droop, morning recovery .....	10
Wilt that doesn't recover by morning .....	10
Wilt with wet soil underneath .....	11
Yellowing leaves at the bottom of the plant .....	11
Aphids showing up out of nowhere .....	11
Soil cracks at the surface .....	12
A quick at-a-glance summary .....	12
Mulch is the best way to conserve water in your garden .....	13
Setting up a simple drip system .....	14
The weekly summer routine .....	15
What to skip .....	16
When something still goes wrong .....	17

## **Start here: water is the first thing to check**

Honestly, when a summer garden runs into trouble, watering is often the first thing to check, before pests or disease.

Either too much water (which suffocates roots and invites fungal disease) or too little (which stunts plants and stresses them into pest pressure).

The plants and soil tell you which one is happening, but only if you know how to read them.

Here's the number that anchors everything else: on average, plants are 75, even up to 90 percent water. They need a steady supply of water to thrive.

So when something looks off in the garden, water is the first thing to check, the first thing to fix, and the first thing to get steady.

Aphids tend to show up on stressed plants, and the stress is usually water. Soggy plants invite root rot and fungal disease.

A lot of the time, the answer isn't more chemistry. It's more honest watering practice.

This guide gives you four things:

1. The simple rule for how much water your plants actually need
2. The three ways we water a garden, and the trade-offs on each
3. How to read your plants instead of guessing
4. A simple drip setup that runs while you're not home

Read it once. Come back to it when something looks off.

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## **The main rule: about an inch of water per week**

On average, you'll want about one inch of water per week. That's the standard quantity recommended for the garden.

It's a starting point, not a prescription. There's going to be variation depending on the age of your plants. When your plants are young, they'll need more water and need to stay more moist. As they grow older, they can handle longer times between watering.

So the operating rule:

- **Young plants and seedlings**, more water and more often.
- **Established plants**, about an inch a week.
- **After a heavy rain that delivered an inch**, skip that week's watering.
- **During extended heat**, watch the plants more often than the calendar. Walk the garden in the cool of the morning. If the plants are wilting before the day's heat builds, that's the signal to water more, before you wait for the next scheduled session.

That last one depends on where you live. Here in middle Tennessee where our family is, summer can mean weeks in the nineties. Either way, the rule scales the same way: figure out what one inch looks like for your setup, deliver it consistently, and let the plants tell you when to water more.

Here's how to do it.

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## The three ways we water a garden

There are three irrigation methods, and each one has a trade-off worth naming.

I don't think there's a single "best" method. Pick by what you have, what you grow, and what your bed looks like.

### 1. Flood irrigation

Build a small soil basin around your bed or tree, run the hose into it, and let the water settle into the soil.

Our family has used flood on a home scale. My grandfather actually ran a connected-basin gravity-fed flood system for the family's orchard trees back when my Dad Edwin was a kid in California.

The hose flooded one basin, the water flowed down to the next, and the next, and the next, all the way down the row.

Basically, you make a basin around your tree or around your vegetable plot out of soil, and then flood the area with water from a hose or a bucket.

The trade-off: with flood irrigation, some water is lost to evaporation due to the standing water. So it's not the top of the list for conserving water.

Best for: small backyard plots, single beds, raised beds with built-in walls, and the times you want a soaking that keeps the leaves dry.

## **2. Overhead sprinkling**

A sprinkler, a watering wand, or a hose-end attachment. Water comes from above and falls on the leaves and the soil together.

It's what most gardeners default to.

A couple of trade-offs though. Sprinkler systems can be simple, but they're a slightly more expensive method than flood because you actually have to purchase the sprinkler heads and stands.

And there's a real drawback in that much more water is lost to evaporation, which really is just not as water efficient.

Some plants also don't do as well with overhead watering. Tomatoes and melons are the main examples. More on that below.

Here's what it's best for: cooling plants on extreme heat days, priming a bed that's dried out and now repels water at the surface, and seed beds where seedlings are too small to direct-water without disturbing them.

Avoid: tomatoes, melons, and other disease-prone crops as a regular system. And avoid overhead watering in the evening or at night on those same crops. Wet leaves overnight invite powdery mildew, blight, septoria, and the rest of the

fungal disease list.

### **3. Drip irrigation**

Drip tape or drip line runs along the base of your plants. Small emitters release water slowly at the soil level. Plants get water at the roots. Leaves stay dry. Less evaporation. Less disease pressure. Easier to put on a timer.

Drip irrigation is probably the most efficient watering system for water conservation. That's because it allows you the ability to only water where you want to.

You can water just where you want to and for just the amount of time that you want to, which can also help with weed control because you're not ending up watering all of your walkways.

The trade-off: drip systems are a bit more complex and costly.

So you're putting out a little bit more cash to get a drip system. And because they're a little bit more complex, you're putting down a little bit more time to set it up.

Best for: almost every home garden once it grows beyond a single bed.

Predictable, scalable, and you can run it on a timer while the family is gone for a long weekend.

### **My preference for tomatoes and melons**

Tomatoes and melons are especially susceptible to diseases with lots of moisture on the leaves. Places that get a lot of rain often grow their tomatoes and melons in greenhouses or undercover, to help reduce the moisture and disease pressure.

Use a drip or flood water system on them, not an overhead sprinkler. You want to keep their leaves dry.

For melons, I would extend the dry-down even further as harvest approaches. A tip for growing melons: it's best to actually stop watering them a couple weeks before picking. This gives them more time to dry out and concentrates the

sugars in the fruit making them sweeter.

Same idea for strawberries. If you pick them right after a rain, think of it as the berries becoming waterlogged. You just added a whole bunch of water to the fruit, and it dilutes the flavor.

Same idea across all three crops: water less right before harvest, and the sugars concentrate. The fruit tastes way better with a lot more flavor.

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## How to actually deliver an inch of water

Here's the math most gardeners never run, and without it you can easily end up over watering or under watering without even knowing it.

**One inch of water over one square foot is about 0.62 gallons.** My friend Diego Footer runs the math on a standard raised bed: a four by eight bed needs 20 gallons.

So a 4 by 8 bed needs about 20 gallons to deliver one inch. A 3 by 6 bed needs about 11 gallons. A 4 by 4 bed needs about 10 gallons.

Now, here's how to know your system actually delivered that.

### The tuna can sprinkler test

For overhead sprinklers, the field test Diego uses is the tuna can. Put a tuna can in the center of your bed, run your sprinkler, and time yourself on how long it takes to fill the can to one inch.

That's how long an inch takes for your specific sprinkler. Note the time. Use the timer on your phone going forward. Done.

A simple field record you can keep in a garden notebook or write on a card by the shed:

*My sprinkler minutes to one inch*

**Bed name:** \_\_\_\_\_

*Tuna can time to 1 inch: \_\_\_\_\_ minutes*

*Date measured: \_\_\_\_\_*

Re-measure if you change sprinklers or the bed sun exposure changes a lot.

## **The finger test**

When I need to know whether a watering session actually reached down into the soil, I poke my finger into the soil. Did the water soak in? Is the soil under the surface wet or dry? Use your finger and find out how deep the water is going.

Dig down a few inches after a watering session. Damp three to six inches deep means the water reached the root zone. Dry below the surface means the water sat on top.

Watch out for one thing: if you have really dry soil that hasn't been watered in a long time, often that really dry soil can tend to repel water. You may need to add a lot of water or have longer water contact with the soil for it to begin absorbing water back again.

That's where an exception Dad teaches comes in. If your bed has dried out and drip alone isn't spreading, an overhead pass first wets the surface so the drip can do its job after. The water will move across the moist soil using capillary action and water the whole bed better that way.

## **For drip systems**

For a 30 inch wide bed, we typically run two drip lines. We have done three when it's a baby greens crop or something like that, where the shallow roots need the whole surface covered.

For emitter spacing, the drip tape itself has a little slit that drips every so many inches. Those are spaced from four inches to two feet apart. One foot works good for us and does a pretty even job covering the bed.

In a real dry environment, you might want to go for the six or eight inch spacing. The closer the emitters are, the easier it covers your ground, which matters when your soil dries up quickly.

Run the system, then dig down with your finger to verify depth. If you want to calculate the equivalent of an inch of water you'll need to check your drip tape and it'll usually say how many gallons of water per minute the tape will run. You can then make the calculations off of that. If you don't want to do the math, start with about 1 hour per watering session, 2-3 times per week in average summer weather. Then check with your finger to see if the soil is staying moist 6 inches down.

In picture form, a 30 inch bed gets two parallel drip lines running the length of the bed. Emitters every foot along each line is our home-garden default; six to eight inch spacing is what you reach for in a real-dry climate where the soil gives up its moisture quickly. Baby greens are the one exception, where a third line up the middle of the bed helps keep the whole surface evenly moist for those shallow roots.

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## **When to water: the cool of the morning**

There's a myth that's been around forever: that watering at midday burns leaves. The idea is that water droplets on the leaves act like little magnifying glasses and the sun ends up burning them.

Here's the reality. I've watered in 90-degree Tennessee heat, my uncle's watered through Bountiful Blessings Farm summers, Dad has too, and none of us have ever actually seen leaf burn from midday watering.

It's one of those gardening myths.

The real reason to avoid midday isn't leaf burn. It's evaporation.

If you want to use less water, you'll want to water in the evening or in the cool of the morning. Those are the times to aim for in the summer.

So here's the timing:

- **Morning, ideally.** The cool of the morning, before the day's heat builds. Leaves dry as the sun comes up. Disease pressure stays low.
- **Evening, acceptable with one caveat.** Avoid evening watering on disease-prone crops (tomatoes, melons, squash) because wet leaves overnight feed fungal disease. If you must water in the evening, water at the soil with drip or flood, not overhead.
- **Midday, just inefficient.** Not because of leaf burn. Just because more water evaporates before it reaches the roots.

A quick note for the colder months. The winter watering rule is even more strict for a different reason. In winter you want plants to dry out before the cold night hits, so you water in the morning on a sunny day. Plants have a chance to dry out by the time nightfall comes and the temperatures drop. You don't like to go to bed soaking wet, and neither do your plants.

Worth tucking in your back pocket for November onward. November through February you may not need to water at all (or very little) in most of the northern hemisphere, depending on where you live.

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## How to read your plants instead of guessing

Plants tell you what they need. Watch for these signals before you reach for the hose.

### Late afternoon droop, morning recovery

Normal in summer. Plants close down in the heat to conserve water and reopen overnight. If they're drooping at 4pm but standing tall by 8am, your water is fine. Keep watering consistently and don't overdue it.

### Wilt that doesn't recover by morning

Now they're actually dehydrated. Water deeply (about an inch over the bed), in the cool of the morning, at the soil level if possible.

## **Wilt with wet soil underneath**

This one is the trap.

It's not a sign that they need more water. It's a sign that they have too much.

On both sides of the spectrum, if plants have too much or if they have too little, they'll have the tendency to wilt and their leaves will turn yellow.

The way you tell is by pushing your finger down into the soil to see whether the soil is dry or wet.

So before you add more water to a wilting plant, finger-check the soil. If it's wet, hold off and let it dry. Roots that sit in soggy soil can drown and rot.

## **Yellowing leaves at the bottom of the plant**

Yellowing lower leaves can mean over-watering or under-watering. The finger test tells you which.

If the soil is wet, the yellowing leans toward over-watering or poor drainage. Hold off on water for two to three days and let the soil dry.

If the soil is dry, the yellowing leans toward under-watering. Your plants will probably start having yellowing of the leaves and even drying up of the lower leaves as the plant conserves water in its stem and roots. (And if the soil is dry but soaking doesn't pull the plant back up, the yellowing might be a nitrogen signal instead.)

The finger test tells you which one.

## **Aphids showing up out of nowhere**

Aphids are often a stress signal, and the stressor is usually water. The presence of aphids is often a sign, and really even a danger, of under-watering.

One of the main causes for aphid infestation is plant stress due to under-watering (and sometimes even overwatering).

So one of the first things you wanna think about when you see aphids in your garden is: are my plants getting enough water?

This is also the third step of our NOW formula for pest response: **W** is for water it in well.

Aphid pressure rises when watering goes inconsistent. Steady watering is the first lever, before you reach for anything else.

### **Soil cracks at the surface**

The top of the bed is bone dry. Water deeply, then mulch over the surface to slow evaporation next time. (Mulch is its own section below.)

### **A quick at-a-glance summary**

Before you decide, finger-check the soil. Then match what you see:

- **Drooping at 4pm, perky again at 8am.** Normal. Hold off the hose.
- **Drooping plus wet soil underneath.** Over-watered. Hold off and let the bed dry.
- **Drooping plus dry soil underneath.** Under-watered. Soak the bed deeply in the cool of the morning.
- **Yellowing lower leaves with damp soil.** Over-watered. Let the bed dry for two or three days.
- **Yellow leaves at the bottom of dry plants.** Under-watered, or possibly a nitrogen signal. Soak first; if the yellowing keeps spreading after, look at feeding.
- **Aphids showing up out of nowhere.** Plants are stressed, and water is usually the stressor. Water steady before reaching for anything else.
- **Soil cracking at the surface.** Bone-dry top. Soak deeply, then mulch over the surface.

That's the whole picture. Keep it close to where you walk the garden so the next decision is quick.

# Mulch is the best way to conserve water in your garden

When somebody asks me how to save water in the garden, mulch and drip irrigation are the first things I name.

Mulch is very effective at conserving moisture in your soil. The added protection helps keep the water from evaporating and your soil from drying out. I've seen this firsthand. We mulched our flower beds a while back, and all through the summer that followed, we hardly had to water them at all. Maybe once or twice, maybe a few times, but way less than we'd have watered if we hadn't mulched them.

The depth that works for us is about four to six inches of bulky mulch (straw, hay, leaves, or wood chips) on top of the bed. A thinner compost layer, about 2-4 inches, can also work.

The other big factor is the soil itself. Soil-building is really a watering decision, because different soils hold very different amounts of plant-available water. Sandy soils drain quickly and hold relatively little water. Clay soils hold more, though some of it is locked up too tightly for plants to use easily. Soil rich in organic matter holds much more plant-available water while still maintaining good drainage.

Improving soil organic matter is one of the best ways to reduce watering frequency and drought stress. Every wheelbarrow of compost you spread is also a watering decision.

Every year you add compost and mulch, you're also reducing how often you have to water. The work compounds.

The good news is it doesn't all have to happen at once, and it doesn't have to be perfect to keep paying off.

Truth is, we're not perfect on this either. We definitely could do more on certain beds 😊

That's part of working with nature instead of fighting it.

One caveat on wood chips and leaves: use them as mulch ON TOP of the soil. Don't till them in. Wood chips and leaves tilled in tie up nitrogen for months while they break down. On top of the soil, they break down slowly and feed the soil over time. Worked in close to planting time, they cause problems.

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## Setting up a simple drip system

A basic drip system for a home garden takes a morning to install.

Here's the whole setup.

First, you'll want a filter at the beginning of your system. Then you'll run a main header line from that filter. From that header, drip lines attach and run off down each bed.

Here's the practical layout most home gardens use:

1. **Water source.** A regular outdoor hose bib works.
2. **Pressure reducer.** Drip tape and emitters are designed for low pressure. Household water comes through at a higher pressure than drip systems can handle, so a pressure reducer goes between the hose bib and the system. Skip it and the drip line can burst. Any reputable drip kit pairs one with the rest of the parts.
3. **Filter.** A simple mesh filter catches sediment that would otherwise clog emitters. Especially important on well water or pond water.
4. **Header line.** A larger-diameter line, usually half inch or more, runs perpendicular to your beds. The drip tape connects off this.
5. **Drip tape or drip line.** Runs along each bed at the base of your plants. The spec we use on a 30 inch bed is two lines with emitters spaced about a foot apart. For dry climates, closer (about 6-8 inch) spacing covers more ground.
6. **End caps.** Close off the far end of each drip tape line. You can get auto flush valves to install in the end that will automatically allow the drip tape to flush extra water out when the water is turned off.

7. **Optional: timer.** A simple battery-powered timer at the hose bib runs the system on a schedule. Set it to early morning so plants water before the day's heat and leaves dry off in the sun.

In plain form: the hose bib feeds the pressure reducer, which feeds the filter, which feeds a half inch main header line running along the ends of your beds. Off that header, a drip line splits down each bed and ends in an end cap/flush valve.

Picture a comb laid out flat: the spine is the header, and each tooth is a drip line running the length of a bed.

A timer at the hose bib turns the whole thing on and off on a schedule while you go about your day.

Drip kits from any reputable garden supplier include all the pieces and instructions for a typical home garden setup. Johnny's Selected Seeds or Dripworks are great companies and they carry home-scale drip components too. The exact brand matters less than getting the pieces matched and the pressure reducer installed.

If a full drip system is more than you want to take on this season, a soaker hose is a reasonable bridge. It does less than drip (no per-plant emitter control, more uneven water distribution) but more than overhead (water at the soil, leaves stay dry). The principle is the same: deliver water at the roots, keep the leaves dry, and put it on a timer if you can.

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## The weekly summer routine

Once your system is running, the work is in the walking, not the watering.

**Daily, a few minutes.** Walk the garden. Look at each bed. Are leaves perky? Is the soil dark and damp at the surface, or dry and cracking? Spot-check by sticking a finger an inch or two into the soil. Most gardens, most days, that's all the audit you need. Our friend Michael Kilpatrick puts it this way: the footsteps of the farmer are the best fertilizer. When he gets out and walks the crops every

single day, he's always in a better place than spending more money on something else. Just getting out there, checking on things, catching the problems when they first appear.

**Weekly, the audit.** Run the system for whatever delivers an inch. Use the tuna can on your sprinkler, or the finger test on your drip beds, to verify. Adjust the timer if the season is shifting hotter or cooler.

**During extended hot stretches.** Plants are losing more water through their leaves.

Don't switch to one heavy soaking on the calendar; switch to walking the garden more often and reading the plants. If they're wilting in the morning before the day's heat builds, water before you wait for the next scheduled session.

Reading the plants is more honest than running on a fixed schedule once the heat sets in.

(Structural protections like shade cloth, row cover propped on stakes, and good ventilation handle the other side of the heat problem. This guide stays focused on the watering lever.)

**After heavy rain.** Skip a scheduled watering. Soil holds water longer than you think, and the rain you got often delivered most of what the plants needed for the week.

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## What to skip

A few common mistakes to look out for. These are patterns to watch for in your own garden:

- **Watering at night, especially overhead, on disease-prone crops.** Wet leaves plus overnight humidity invite powdery mildew, septoria, blight, and the rest of the fungal disease list. Water in the cool of the morning instead.
- **Watering on a calendar without checking the soil.** A wet week from rain skips a watering. A dry week needs an extra one. Don't run the timer blindly.

- **Letting soil get bone dry between waterings, then expecting one quick pass to soak in.** Dry soil repels water. You either need a long contact time, or you need an overhead pass first to prime the surface before the drip takes over. This is the priming trick Dad teaches.
  - **Adding more water to a wilting plant without finger-checking first.** Wilting can mean too much or too little. The finger test tells you which.
  - **Watering walkways with sprinklers.** Wasted water, more weed pressure, no upside.
  - **Failing to drain drip lines before winter freeze.** Frozen water in the drip line breaks it and costs you a season setting it up again.
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## When something still goes wrong

If you've followed all this and plants are still struggling, the answer is usually not more water. Check:

1. **Drainage.** Heavy clay soil holds water too long. Add compost over time to improve structure. In the short term, water less often and let the soil dry between waterings.
2. **Mulch.** A 4 to 6 inch layer of straw, leaves, hay, or wood chips on top of your soil cuts evaporation, keeps soil cooler, and reduces watering frequency. Our flower-bed receipt: mulched beds, watered "once or twice all summer."
3. **Plant family.** Tomatoes and peppers are deep-rooted and prefer infrequent deep watering. Lettuce and herbs are shallow-rooted and prefer frequent shallow watering. Group plants with similar needs in the same bed when you can and/or make sure your soil is getting moisture at both levels for optimum support.
4. **Soil itself.** This is the long game. Organic matter can hold roughly 10–20 times its weight in water, far more than sand or clay particles. Compost, mulch, cover crops, living roots. Every year you build the soil, you reduce how often you have to water.

The goal isn't perfect water to every plant. It's good-enough water reliably, so the plant can do the rest. A garden with consistent watering and steady soil-building does better than a garden with perfect-but-inconsistent watering every time.

One honest note.

Our family farm we used to run sits where water is a real blessing we don't take lightly. A spring feeds a pond, and the pond gravity-feeds down to the garden.

Not every garden has that.

So if you're growing in a place where water is the precious thing, mulch is even more important, soil-building is even more important, and the drip-on-a-timer setup pays back even faster.

Use what you've got. Steward it well. The plants tell you the rest 😊

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You can grow this. Keep growing.

Talk soon,

Paul