

# GROWERTALKS

Paul's Pointers

8/1/2024

## Watering is an Art

*Paul Pilon*

It may sound a little cliché, but not only is proper watering a skill, it's an art form. Like fine art that draws upon various principles and is highly subjective, irrigation also has certain fundamentals growers must follow, but the delivery of water and how to manage watering crops is highly subjective. It's easy to take for granted the importance of proper irrigation management and even easier to mismanage watering while growing crops.

### Fundamentals of watering

I think we'd all agree that water is essential for plants and most of them can't survive without it. Besides keeping plants alive, water plays many roles. Water influences plant growth and appearance, affects plant quality and can promote or inhibit foliar, crown and root pathogens.

Did you know that most growers are irrigating with 50% to 100% more volume of water than most the crops they're growing require? Think about that for a moment. Like so many things in life, more is not better. Not only is excess water wasteful, but it also promotes lush growth, is conducive for diseases and displaces nutrients.

### Factors

There are numerous factors that influence how much irrigation may be necessary at any given time. Understanding and managing these factors can greatly improve irrigation efficiencies and reduce the total amount of water needed to produce high-quality crops.

**The crops:** The types of plants being grown (plant species), their age, types of root systems and plant stage (amount of growth present) all influence how much irrigation is necessary.

**Type of growing mix:** There are a large number of growing mixes being used and each of them has its own unique water-holding capacity and aeration characteristics (think air space and drainage).

**Irrigation systems:** The method in which water is applied and the type of irrigation system being used greatly influences the volume of water that's delivered, the application interval and how irrigation decisions are made.

**Weather conditions:** The past, present and future weather conditions are perhaps the number one factors



influencing the need for irrigation. All water decisions should be based on the current and future anticipated weather conditions.

Unfortunately, there's no recipe to follow that allows growers to apply the appropriate amounts of irrigation all the time. However, understanding and managing the factors listed here can greatly improve irrigation efficiencies while reducing the total amount of water needed to produce healthy crops.

## **Proper irrigation is very important**

Irrigation management requires good judgment to determine when to irrigate and how much water to apply under any set of growing conditions. Besides the outcomes listed above, providing too much irrigation causes plants to develop water roots (lazy roots with no root hairs), they appear half rooted (the roots may not reach the bottom) and the root ball often doesn't hold together. Conversely, allowing plants to dry down too far increases the risk of severe wilting, elevated soil ECs, root injury and potentially plant mortality.

Having just laid out the consequences of keeping plants at the extremes, it should go without saying that most plants should be kept in between these levels and maintained at consistently moist levels (not too wet and not too dry). With consistent moisture levels, plants will develop better roots with more branching and root hairs that allow for more water and nutrient uptake, plants will be easier to transplant, have reduced crop times and increased shelf life.

## **Water application guidelines**

- To conserve water and promote optimal growth, it's best to apply irrigation only when it's necessary.
- In general, plants should be watered before they show symptoms from water stress (wilt) and the growing mix shouldn't dry out excessively between irrigation cycles.
- When irrigation is necessary, it's always best to water the pots thoroughly and then allow the soil to dry slightly between waterings. Aim to bring the soil moisture back up to approximately 80% of the container's capacity following the irrigation. Fun fact: Results from numerous trials I've conducted have shown drought symptoms typically appear after 43% to 48% of the water by weight is lost from the growing mix.
- To prevent foliar diseases, avoid watering susceptible crops very early in the morning or in the evening, as the leaves will remain wet for long durations, which is conducive to disease development. It's best to water these crops in the mid-morning or early afternoon when the foliage will dry out more quickly.
- Only water crops when they need it. It's best to determine the need for irrigation throughout the day, evaluating the factors that influence the need for irrigation mentioned above, and making confident and educated decisions on when water is needed. Avoid irrigating crops unless it's necessary.
- I also advise growers to use timeclocks, but not to solely rely on them for watering crops. These are great tools, but the need for irrigation needs to be conscience decisions based on more than a set-it-and-forget-it mentality. Timeclocks are good for delivering irrigation, but they're incapable of evaluating the need for water on a daily basis. Solely relying on them could lead to overwatering and other problems.
- It's okay to hand water. There are times when hand watering is necessary, beneficial and will help growers to avoid problems with overwatering. It's often necessary to hand water the edge rows in between irrigation cycles. There are times when certain crops are older, larger or just simply require more irrigation than others around them. When managed properly, hand watering is an acceptable and beneficial process.

Proper watering is a learned skill that gradually develops into an art form over time. Growers and water technicians must constantly evaluate the current environmental conditions and take numerous factors into consideration when determining when to water crops. I can't emphasize enough the importance of proper water management. Sure,

anyone can water, but relatively few understand and manage irrigation properly. **GT**

---

*Paul Pilon is editor-at-large of the Perennial Pulse e-newsletter and Director of Growing at Opel Growers in Hudsonville, Michigan. He can be reached at [paul@opelgrowers.com](mailto:paul@opelgrowers.com).*