GROWERTALKS

Paul's Pointers

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Let the Water Fall

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I imagine when you first saw the headline above your mind immediately took you to a place where you envisioned I would be talking about applying more irrigation water to greenhouse and nursery crops. This perception is the opposite of what I'm actually planning to cover in this article.

Rather than focusing on how much water to apply to keep crops alive, I'd like to use this transitional time of the year (autumn) to focus on how little water should be applied. During the summer, it seems like all we do is apply irrigation to support the growth, satisfy the transpiration rates and to just simply keep crops alive. However, as summer transitions into fall, growers can't continue to use the same irrigation practices they were doing just a few short weeks ago.

It's always too much

Before getting to the importance of reducing irrigation in the fall, I'd like to quickly bring up that the average grower is delivering 50% to 100% more water to their crops than what's needed to produce healthy, high-quality plants. I learned this visiting with many growers over the years, as well as through research trials where I looked at various wetting agents.

Think about that for a minute. I'm only talking about the volume of water that reaches the root zone itself—now imagine the additional 70% to 80% of the volume of water applied that falls between the pots. You'll soon realize, and likely be surprised by, how much of the irrigation water applied is actually wasted and doesn't even contribute to supporting the crop's actual growing needs.

My name is X and I over-irrigate my plants

The first step is to recognize and acknowledge that too much irrigation water is being applied. The next step is to identify how and why this is occurring. Are there improvements to be made with the type and size of the irrigation orifices (nozzles), the overall design of the watering system or how the system is being automated? Set it and forget it should not be how irrigation systems are being run. My intention here is not to provide you with the answers, but to encourage you to look at your irrigation practices and to ask yourselves these sometimes sobering questions.



Transition to fall

Fall is a beautiful time of year, but things can get ugly quickly when irrigation water is being applied improperly. As the seasons change, so does the water requirements of the crops you're growing. Fall is typically accompanied by shorter daylengths, lower light levels and cooler temperatures. These conditions greatly reduce the amount of water plants use each day.

Similar to other times of the year, irrigation management in the fall can be challenging. Proper watering is a learned skill that continues to develop with experience. Here are a few guidelines for you to consider:

- Besides the fact that water is a limited resource, the main goal when growing crops should be to produce crops using the least amount of water necessary to not only keep them alive, but to maximize their growth and quality attributes.
- Allow as much time between irrigation cycles as possible. Avoid watering before the plants need more water. You don't necessarily have to wait until the plants are showing signs of water stress, but aim to wait as long as possible between cycles.
- Aim to bring the root zone up to near container capacity (nearly saturated) with each irrigation. It's acceptable to deliver 5% to 10% more water than this on occasion to prevent the fertility levels from building up.
- In many cases, the need for irrigation isn't the question, it's the length of time (duration) the irrigation is being applied that becomes problematic. In many instances, growers are using longer-than-necessary irrigation cycles. Spend some time looking at what volume of water is necessary to bring the root zone up to near container capacity and adjust the duration of the irrigation cycle to match.
- Containers brought up to container capacity will dry out slower than partially watered ones. This will increase the interval between irrigations, help to reduce the total amount of water needed over the course of the crop and decrease the incidence of other issues, such as foliar pathogens.
- Besides the volume of water applied, the time of the day irrigation occurs in the fall can have a negative effect on crops. Overhead watering at the wrong time of the day allows the leaves to remain wet for long durations (especially in the fall), which is conducive for the development of many foliar diseases. Many diseases can develop when the leaves remain wet for as little as three to six hours.
- Consider what the weather patterns currently are and what they're expected to be. For example, there could be sunny morning conditions, however, it's expected to be cloudy with some rain in the afternoon. In this instance, it may feel natural to irrigate in the morning, but it would be best to delay watering if the plants aren't showing signs of water stress. You can easily re-evaluate the need for irrigation in the afternoon and again the following morning.

Water's role in acclimation

Besides the considerations and guidelines I've discussed above, there's one more very important reason for reducing water in the fall. This specifically applies to operations who overwinter their plants.

Water plays a role in the acclimation process and can affect a crop's ability to withstand cold temperatures and potentially its ability to survive the overwintering process. When plants are grown on the dry side during the acclimation process in the late fall, they can be induced into dormancy quicker than when moderate moisture levels

are present in the root zone.

Slight water stress prior to overwintering can increase the cold hardiness of many perennials and other crops. Slight water stress doesn't imply plants can be grown with drought-like conditions during this period, but the plants can be allowed to dry out slightly more and kept there longer before water is applied. Only apply a small amount of water when it's required. Consider maintaining the crop at 50% to 60% container capacity during the acclimation phase.

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Proper irrigation is probably one of the most challenging and overlooked aspects of producing plants. Water technicians must have an understanding of the crops they're growing, the characteristics of the growing mix and where the plants are being grown and combine these variables with various environmental factors to allow them to make good irrigation decisions.

Growers also need to adjust to seasonal changes like the recent transition from summer to fall. I've shared lots of reasons why less water is better and encourage you to look at your crops and irrigation practices and identify opportunities to reduce the amount of water you're applying this fall and throughout the next growing season. **GT**

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