GROWERTALKS

Paul's Pointers

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Summertime: It’s Exponential

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When people think of summertime, I think most of them are probably picturing summer vacations, relaxing on a beach, barbecues, enjoying evening campfires and hanging out with friends and family. While I also enjoy participating in these activities, if you’re a grower like me, I find summer can be the opposite of relaxing.

Growing plants in the summer can be very stressful. Plants don’t go on vacations or take weekends off; they continue to grow and require care. I’d say plants are even more needy or take more effort during the summer months than they do in other times of the year.

Think about it—they typically require more irrigation in the summer, often needing to be watered daily, if not multiple times a day. With increased water needs each day, plants are more prone to leaf scorch or drought injury. When irrigation isn’t applied at the proper times, they can experience heat stress and are potentially more susceptible to plant pathogens and pest problems.

The challenge of summer watering

Some growers don’t have automation or proper systems to irrigate efficiently (time clocks, traveling irrigation booms, drip tape, etc.). Without the proper irrigation system in place, many growers have to hand water their crops or struggle to keep up with the needs of the crop throughout the day.
When growers can’t get to their crops in time (after wilt and drought symptoms are present), they risk not only damaging the leaves and possibly rendering the crop unmarketable, but they could also cause damage to the root systems. When root damage occurs, the roots are less able to take up moisture the plant needs to survive and are more susceptible to root pathogens. Root rots often occur after the roots are damaged followed by frequent irrigations since the watering practices in the summer often continue even though these damaged plants aren’t using the same amount of water as they did when the roots were healthy.

Many growers are on autopilot when watering their crops during the summer. Often, watering frequently delivers more water than is required by the crops. And when overhead watering at the wrong time of the day, the duration and frequency of leaf wetness is often conducive for foliar diseases to develop. Many diseases can infect plants when the leaves remain wet for as little as three to six hours.

Summer watering tips

- Apply enough water to bring the root zone up to container capacity with each irrigation. This can lengthen the duration between irrigation cycles.
- Use a low rate of wetting agent in the irrigation water with every irrigation. This allows the growing mix to reach container capacity faster, increases the time between irrigation cycles and reduces the amount of irrigation required.
- Growing plants under 35% to 50% shade in the summer can help significantly reduce stress, transpiration rates and water needs significantly without negatively affecting growth and plant quality.
- Frequent and/or untimely irrigation can lead to the development of foliar pathogens. To avoid these diseases, water at a time of the day when the leaves will dry down quicker. For example, the leaves will dry faster when watering at 10:00 a.m. than they will when watering at 5:00 a.m.

Summer pest management

If the heat and irrigation requirements of your crops don't already have you hot and bothered during the summer months, just wait until you see what happens to pests populations (and it's not good) during the heat of summer. Both insects and mites develop faster or have accelerated life cycles when the temperatures are warmer. If left unchecked, this combined with overlapping generations, results in rapid population explosions.
Check out the effects of temperature on life cycles and populations of two of the most common pests growers face during the summer:

Western flower thrips

- Egg to adult can be 12 to 44 days: 44 days at 59F (15C) or 12 days at 86F (30C).
- Females generally mate with males; however, they can lay viable eggs without mating.
- The populations generally contain more females than males; each female can lay two to 10 eggs per day producing 150 to 300 eggs in her lifetime.

Spider mites

- Egg to adult can be five to 20 days: 20 days at 64F (17C) or seven days at 81F (27C) and even slightly faster with warmer temperatures.
- Mating isn't required for females to lay eggs.
- There are approximately three females for every male within a population.
- Each female can produce up to 20 eggs per day (averaging 120 eggs in her lifetime).
- One female and her offspring can produce over 800 mites in 15 days. After another 30 days, with the additional generations, one female mite would have led to over 800,000 mites! That's just one female—imagine if there are hundreds in the crop at once.

I'm not a mathematician, but it sure appears to me that pest populations can grow exponentially if unchecked or when improper management strategies are implemented.

Tips on summer pest management
■ **Proper insecticide or miticide.** There are a number of products labeled for controlling various pests. Many of them work well preventatively, while others are more effective and can get good results when populations are present. I prefer to use the most effective products available. Be sure to rotate using different modes of action over time.

■ **Begin early.** As you can see, it doesn't take long for pest populations to rise to epidemic proportions during the summer months. Start management strategies early.
■ **Coverage equals kill.** Most insecticides and miticides control pests on contact. Be sure to obtain consistent and uniform coverage of the entire plant (upper and lower leaf surfaces). Apply at a time of day when the sprays will stay on the plant for as long as possible before drying down. Again, think about contact-only control; increasing the time the plants remain wet following the application increases the odds they'll come into contact with the pesticide.
■ **Repeat applications.** With multiple generations present at any given time and the very short life cycles these pests have during the summer, it's very important to apply multiple applications. Depending on the pest, temperature and pesticide being used, it may be beneficial or necessary to make applications at three- to five-day intervals until the populations are fully under control.

Pests certainly don't take vacations during the heat of summer and can easily take over when they go undetected. Add to that the fact that plants don't take a break and, if I dare say, they need more irrigation and care during the summertime than they do in less stressful times of the year. Although I think you deserve a break and suggest you find time for relaxation with what's left of this summer, I also encourage you to not become complacent and be aware of how challenging summer production can be. **GT**

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