GROWERTALKS

Paul's Pointers

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Let ’em Rest

Paul Pilon

Have you ever had one of those nights following a long day and you just didn’t get a good night’s sleep? Perhaps it took hours to fall asleep, or you tossed and turned throughout the night; in either instance, you didn’t sleep well. The following day you were in a funk and just couldn’t function as you normally do. Did you know plants can experience this as well?

Please allow me to ask another question before I get to the topic of this article. Trust me, it will make sense soon.

Have you ever experienced erratic emergence and poor growth when bringing perennials out of dormancy and growing them for early sales or forcing plants for winter trade shows? The roots and crowns appeared healthy, but little to no growth appeared after placing them in a warm environment. Then you were confused when plants originating from the same dormant block emerged uniformly and grew well later in the spring. How’s this even possible?

Pictured top: Uniform emergence of salvia. Plants emerge uniformly when the proper amount of cold has been delivered during dormancy. Bottom: Variable emergence on agastache. When dormant plants don’t receive enough cold, they often emerge sporadically and often have lower vigor than they would otherwise exhibit if the proper amount of dormancy was provided.

Okay, this is where I try connecting the dots. Once plants go dormant, they can’t break dormancy and grow normally until certain conditions are met. Think of dormancy as a resting period. Once they’re resting, they don’t like to be woken up until they get enough rest. When you wake them up early, they emerge and perform poorly. Similar to how you and I perform after only getting a couple hours of sleep instead of a full night’s rest.

There it is. The connection between dormancy and sleep is not as profound as you’d think. Both plants and humans need to get enough rest or we both can’t be at our optimum best. Makes sense, doesn’t it?

Once a plant perceives certain environmental cues, such as short days and cold temperatures in the fall, it begins

the dormancy process. During this time, the plant goes through many physiological changes as it prepares for its winter slumber.

Acclimation

Acclimation refers to one of the changes a plant goes through that allows it to withstand cold temperatures. It's a gradual process that changes through the dormancy period. Plants will become acclimated or be able to tolerate cold temperatures when they're exposed to them for a period of time and will become de-acclimated or less able to tolerate cold temperatures when they're exposed to warmer temperatures.

An interesting side note to consider is cold injury can occur on plants you'd expect to tolerate cold temperatures depending on how they're acclimated. I like to use USDA Hardiness Zones to describe this. For example, many echinacea cultivars are cold hardy to Zone 3, however, an echinacea that's overwintered in Zone 3 can typically withstand much colder than an echinacea in Zone 6. The hardiness zone provides an indication of how much cold and where the plant can be overwintered, but the plant can only survive there if it's acclimated to those colder temperatures.

Back to dormancy

Once plants enter dormancy, they must remain dormant or rest for a certain amount of time before they can perceive environmental cues, such as warm temperatures, and wake up from their resting period and resume active growth.

For many plants, this time can be measured and determined by the amount of cold they receive. Once they receive a certain amount of exposure to cold temperatures, they can come out of dormancy and grow. When the right amount of cold is received, crops will break out of dormancy uniformly and grow normally.

The cold requirements vary by plant and crops can be vernalized under a range of temperatures. Cold doesn't mean below freezing—much of the research on perennials was done using 40F (4.4C), however, many plants can be vernalized (vernalization refers to the cold requirements for certain plants to flower) or receive enough cold to overcome dormancy with warmer temperatures. It just takes more time. To be consistent with research, I usually use temperatures below 40F when discussing vernalization and dormancy.

The next consideration is the duration of cold required for plants to overcome dormancy. The time required varies from plant to plant. It can range from just a few weeks up to several months. For most perennials, dormancy can be overcome after the plants have been exposed to 1,000 hours of cold (temperatures less than 40F). It takes six weeks to accomplish this if the temperatures are consistently less than 40F. This would be the minimum I would use; in most instances, I suggest growers deliver 10 weeks of cold. This is usually more than sufficient and satisfies the plants' cold requirements for dormancy and allows them to wake up uniformly once warmer temperatures are provided.

There are some instances where growers push the envelope a little and bulk their plants up well into the fall and early winter. Although it might not be a standard industry practice, it's not uncommon to learn that some growers are growing plants well into November and December before allowing the plants to go dormant. When this occurs, it can be challenging to deliver the proper amount of cold that's essential to breaking dormancy uniformly and to satisfy the vernalization requirements many plants have for flowering.

The requirements to overcome dormancy are usually met in the landscape and for plants being produced for mid- to late-season sales, but may not be met for growers producing plants for early season sales.

If you overwinter plants, I suggest you plan for the dormancy period and allow at least 10 weeks for the cold period before providing temperatures conducive for spring growth. This period is so important for plants to emerge evenly

and to grow the most uniform crops following dormancy. To summarize, “Let ’em rest!” **GT**

Paul Pilon is a Technical Manager at OHP, Inc. and editor-at-large of the Perennial Pulse *e-newsletter. Feel free to contact him with article topics or to address your production challenges. He can be reached at ppilon@ohp.com.*