



PERRY LABORATORY

HORTICULTURAL ADVISING AND TESTING

March 2007 Musings

This is the time of year when seasonal changes start to become evident. Our days are becoming longer, although in our minds they seem to be changing faster than they actually are. December 21, our winter solstice, is our shortest day and longest night of the year. On that day, we experience less than 10 hours of daylight, while on our longest day we receive almost 16 hours of sunlight. By the middle of this month, we will have equal day and night hours.

Although we feel this in how dark it is when we get up in the morning, plants are receiving day length, or photoperiod signals constantly from the time of the summer solstice, June 21. The subtle change in the light and dark photoperiod are very strong inputs to how our plants grow. Some plants reproduce or flower according to photoperiod. The chrysanthemum and poinsettia are examples of plants that flower when the days become shorter and nights become longer. All of our spring flowering plants are those that reproduce when the days are becoming longer and nights shorter.

There is an old saying that relates to how irrigation practices can be best twice per year. This generally occurs once in the spring and again once in the fall. This goes back to when more people were watering according to the calendar and not according to plant need. At this time of year, I begin to see more effects of irrigation practices. In some cases, winter watering schedules are still being employed and plants may be somewhat water stressed. Greenhouse crops may lose their older leaves and develop smaller than normal flowers and shorter stems. In contrast, there can be an increase in the irrigations when we perceive that the plants may be growing faster. This occurs when we have abundant sunshine as we had this January and short periods in February. When plant growing media stay too moist, plants may experience a reduction in root growth activity. In some cases this may manifest as micronutrient deficiency chlorosis and in extreme cases will result in root diseases.

Although we have become more sophisticated in our environmental monitoring, there is still the need for manual input. Many modern greenhouse operations now measure accumulated solar radiation and this information can be used to set irrigation management set points. This would seem to be an excellent method of determining plant water use. I believe the problem comes in when there are defaults in these programs that call for an irrigation at a minimum interval, say every 2 or 3 hours, regardless of any other input. I liken this to having a heating thermostat where, instead of having it dictate when the heating system should be turned on, a timer is set to turn it on every 2 to 3 hours regardless of temperature. We generally do not do this as it is too costly; however it is perceived that irrigations are not very costly and therefore they are easily applied.

Incidentally, I did have one situation where there was extensive freeze damage inside a greenhouse. I asked if they had their thermostats set and they had, although the manager then mentioned in passing about the timer setting. I asked about the timer and it turns out there was also a timer on the heating system to keep it from coming on until 3:00 AM in order to save money. In this case, the freezing temperatures occurred before the timer was set and so the plants sustained damage before the heat came on. The result was freeze-damaged plants that were warm in the morning--a double whammy from damaged crops and heating expense. So it is fine to have a backup monitoring system, however common sense might tell us that it should be set in such a way as not to create a situation that might be worse than the one we are trying to control.

Spring is around the corner; we just need to wait a bit more for it to arrive.

Respectfully submitted, Cliff Low