

Q&A

Is today your day?

What date should I apply my pre-emergence herbicide? What month should I begin to fertilize my fields? What is the best date to treat for beetles?

I often get questions asking for a calendar date to initiate annually reoccurring management activities. These activities are often seasonal activities that may relate to environmental conditions. While I have generally resisted the temptation to associate every management practice to a calendar date, I have found myself doing just that more and more over the past several years. I'll discuss that more in a moment, but first let's look at the examples in the questions above.

Pre-emergence herbicides obviously need to be applied before the weeds emerge. Some people have suggested that crabgrass germination can be linked to initiation of flowering by dogwood trees. While this technique may work for some, these trees bloom in relation to day length, not temperature. The data indicates that crabgrass can begin to emerge when the soil temperature reaches about 54 degrees near the soil surface for 3-5 days with most emergence kicking in at soil temperatures of 60 degrees. Goosegrass will also begin emerging at 60 degrees. What date is that in your area? It may be well before the dogwoods bloom.

Timing of initial spring fertilization of bermudagrass fields depends on green-up, assuming your fields went dormant. Green-up is also largely dependent on soil temperatures. In central North Carolina green-up begins as early as mid-February to as late as mid-April. Assuming we want at least 80 percent green-up before fertilizer application (plus wanting to be after the last frost date), we often do not start fertilizing bermuda-

grass fields until at late March. But there was one year in the past five that early March was an appropriate fertilization date. What date do you typically have 80 percent green-up?

Beetle mania? If you have ever had a bad case of grubs, then you know what I'm talking about. Grubs are the larvae stage of an adult beetle. The beetles emerge sometime in the early summer (most places), eat plant material, mate, and then (females) lay eggs

Grubs are best controlled when they are small and feeding near the soil surface. When is that in your area? Apply at the wrong time and control is almost zero.

toward end of summer. The eggs hatch relatively soon after being deposited in the soil and the larvae burrow deeper in the soil in the fall while feeding on roots and organic matter. The grubs return to the soil surface in the spring with warmer soil and emerge as adults to complete a year life cycle. I am no entomologist, but it seems to me that this year-long process is at least partially related to temperature. The grubs hang out in the soil and feed and then emerge when it is fairly warm. Grubs are best controlled when they are small and feeding near the soil surface. When is that in your area? Apply at the wrong time and control is almost zero.

So, all three scenarios have a relationship with temperature. We associate days and months of the year with "normal temperatures," at least that is the relationship our

meteorologist tells us every day when giving the day's forecast. But warmer or cooler-than-average temperatures that may shift germination, green-up, or beetle emerge in one direction or the other. Of course one great attribute of today's products is the residual aspects. Pre-emergence herbicides often last 6 to 10 weeks, slow release fertilizers can last a few weeks to months, and many insecticides may last 2 to 3 weeks.

This residual activity allows a turf manager to get their products out a little ahead of the peak need without negative consequences—lack of control of the target pest (weed or grub) or too rapid a flush of new growth from the fertilizer. This is particularly important with weed control because once the weed is present, it is largely a waste of money and product to apply the preemergence herbicide.

So consider other factors than just a calendar date. You can track your on-site soil temperatures, or you may be able to use a state weather tracking service for regional information. For example in North Carolina we can track 24 hour mean soil temperatures at <http://www.nc-climate.ncsu.edu/products/wx>. These types of weather sites can often be found by searching climate along with your state's name in a search engine.

So, yes we often put management practices on calendar schedules because we are asked to do so and we realize it is easy for some people to use these references. But realize that the need for management inputs may often be more related to temperature or other biological events much more so than a date on a calendar. Knowing this will allow you to better time your applications so that you get better control of pests and healthier turfgrass on your fields. ■



BY DR. GRADY MILLER

Professor, North Carolina State University

Questions?

Send them to
Grady Miller at

North Carolina State University,
Box 7620, Raleigh, NC 27695-
7620, or email
grady_miller@ncsu.edu

Or, send your
question to

David Minner at
Iowa State University, 106 Horti-
culture Hall, Ames, IA 50011
or email
dminner@iastate.edu