

The Phenomenon of Phenology

Diana Alfuth, Horticulture Educator
UW-Extension

We are all “phenologists” to a certain extent. We pay attention to such things as when the robins show up in spring, when the spring bulbs start to sprout and flower, and when the ice is off the lakes.

Phenology is a branch of science that studies the relations between climate and cyclic events of nature. In other words, it is the study of how living organisms respond to seasonal and climatic changes in their environment.

There seems to be no such thing as a “normal” weather year in Wisconsin. Nature responds to what the weather actually is, not what the calendar says! The timing of most events in nature is based on a combination of sunlight, moisture, and most importantly, how much warmth we’ve had.

Historically, especially prior to the 1900’s, phenology received much more attention than it does these days. It was frequently used to predict when certain events in nature were expected to occur. Those phenological observations were used to help with daily life, especially as it related to agriculture. Many of those “rules” developed through phenological observation are still with us today.

For example, it is still said “plant corn when the oak leaves are the size of a squirrel’s ear.” While oak leaves and squirrel’s ears have nothing to do with each other, the rule works. Farmers learned that by the time conditions were warm enough for oak leaves to reach the size of a squirrel’s ear, the soil was warm enough for corn seed to germinate without rotting in the soil.

Other examples of how phenology is used include the recommendation to hunt for morel mushrooms when the lilacs are bloom. It may be several weeks later one year than the next, but both events require the same amount of growing degree days, or accumulated warmth, to develop.

For homeowners looking to control crabgrass in their lawn, lilacs can also tell you when to apply pre-emergent crabgrass herbicide. Crabgrass will germinate when the soil temperature at 4 inches deep stabilizes at 55 degrees. This correlates roughly with when the common lilac is in the early bloom stage. By watching the lilac flowers forming, you can plan when to apply your crabgrass preventer. If your lilacs are in full bloom, you’re too late!

Phenology also can be used to predict outbreaks of insects. "June beetles" are called "June beetles" because they typically are out in June. Many years, however, they are out in May because there is enough warmth for them to develop sooner. Phenology can even be used to predict when allergy symptoms will be at their worst, because it can predict when certain plants, such as ragweed and grasses, will be flowering.

Historical records of phenological events can also be used to track climate changes. It can show how things such as deforestation of an area can affect seasonal temperatures, and can even be used to follow global warming trends.

If you would like to become a phenological observer, now is the time to start! All you need is a journal and a good pen, along with good eyes to observe the details what is going on in nature around you.

At the start of the spring season, take note of things occurring in nature, such as when various plants are budding and blooming, migration patterns of birds, animals and insects, and emergence of hibernating animals. Also watch for such things as the appearance of fireflies, mosquitoes and other insects, as well as fruiting and harvest dates and pests in your garden. Also keep track of each day's weather, especially high and low temperatures.

Computers can be very handy for recording phenological information, and you can even purchase software programs made just for this purpose.

Notice what occurs when, and in which order. Next year, compare the timing of events to this year. Things may happen earlier or later, but most everything will happen in the same order. Following these events can help with predicting what happens next in nature, and help with your timing in planting your garden. For example, plant your potatoes later, after the Colorado Potato Beetles have emerged, and you'll have much less of a problem.

You can become a backyard phenologist individually, just as an interesting hobby, or become involved with one of several groups, such as the Wisconsin Phenological Society, where you can share information. There are many resources available at libraries and on the internet, to help you get started.

The UW-Extension Horticulture Website has more information about phenology in Wisconsin, including a list of indicator plants and how many growing degree days they need. Find it at <http://www.uwex.edu/ces/wihort/>.

Phenology can be fun and interesting, and activity for kids that can get them more tuned into the natural world around them.