

Nature's Calendar: Understanding Growing Degree Days (published 2026-08-22)
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This is Part 1 of a three-part series exploring how Growing Degree Days and nature's seasonal cues can help gardeners better time planting and care throughout the year.

Gardeners in Northeast Tennessee know that spring rarely follows the calendar. One year it feels like March brings summer, and the next year April still feels like winter. That uncertainty is why many gardeners are turning to a tool called Growing Degree Days, or GDD, to help guide their planting and garden decisions.

GDD is simply a way to measure how much heat has built up over the season. Plants do not grow because of the date on the calendar. They grow because they receive enough warmth. Growing Degree Days track that warmth by looking at daily temperatures and adding up the heat that plants can use.

Each plant has a base temperature, which is the point where it begins to grow. For cool-season crops like spinach, that base is around 40 degrees. Many vegetables and weeds use a base of 50 degrees, while heat-loving crops like peppers often use 60 degrees. When the average daily temperature rises above that base, those extra degrees count toward plant growth. Over time, the total builds, and that number can be used to predict when plants will sprout, bloom, or produce.

This is especially useful in our region, where spring weather can swing back and forth. For example, crabgrass tends to begin germinating when we reach about 200 to 250 Growing Degree Days using a 50-degree base. Some years that happens in late March, while in cooler years it may not happen until early April. Instead of guessing, gardeners can use GDD to better time the application of pre-emergent herbicides.

While air temperature drives GDD, soil temperature plays an equally important role, especially early in the season. Seeds do not respond to air temperature. They respond to the soil around them. A stretch of warm days may push GDD upward, but if the soil is still cold, seeds will sit and wait.

In practical terms, spinach can germinate in soil as cool as 40 degrees, which is why it can be planted so early. Corn, on the other hand, prefers soil temperatures closer to 50 to 55 degrees, and peppers do best when soil temperatures reach at least 65 degrees. Planting warm-season crops too early into cold soil often leads to slow growth or failure, no matter what the calendar or even the GDD might suggest.

This is where another helpful concept comes into play: phenology, or the study of recurring plant and animal life cycle events. Many gardeners already use phenology without realizing it. The blooming of certain plants provides clues about seasonal timing. When daffodils are in bloom, soil temperatures are warming enough for many cool-season crops. When forsythia blooms begin to fade, conditions are right for crabgrass to germinate. When redbud trees bloom, it often signals that it is time to apply crabgrass preventer.

These natural signals work because they respond to the same accumulated heat that GDD measures. In many ways, they form nature's calendar—and GDD serves as nature's growth calculator—helping gardeners read the season as it unfolds around them.

Growing Degree Days is just one piece of the gardening puzzle, but it helps track how much useful heat your plants have received. Pair that with soil temperature and simple cues like daffodils blooming or forsythia fading, and you can time planting and weed control more accurately. You can easily check your local Growing Degree Day totals by entering your ZIP code into North Carolina State Climate Office Growing Degree Day Explorer.

In Northeast Tennessee, where weather patterns vary from year to year, this approach offers a more reliable way to plan. Instead of strictly following dates, gardeners can respond to actual conditions. This leads to better germination, healthier plants, and more consistent harvests.

Paying attention to these cues can take some of the guesswork out of gardening and help ensure that each season is a little more successful than the last. Until next time, keep workin' th' dirt!

Resources

“Vegetable degree-day models: An introduction for farmers and gardeners,” <https://extension.oregonstate.edu/catalog/em-9305-vegetable-degree-day-models-introduction-farmers-gardeners>

“Calculating Degree Days,” <https://hort.extension.wisc.edu/articles/degree-day-calculation/>

“Growing Degree Days Explorer,” https://products.climate.ncsu.edu/ag/gdd-explorer/?search=24210&lat=36.8136&lon=-81.9971&revrs_loc=&pdate=2026-06-30&edate=2026-07-10&tbase=50&climoNyears=15#graphics

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