Nature's Calendar: Counting Down to the Fall Garden (published 2026-11-07)
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This is Part 2 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.

By late summer, many gardeners in the Tri-Cities are thinking about winding things down. Tomatoes may be slowing, squash plants are looking tired, and after months of heat, even the gardener may be ready for a break. But August and September can also mark the beginning of another productive season. Fall is an excellent time for growing many vegetables, provided we understand that the clock is now running in the opposite direction.

In spring, we use Growing Degree Days, or GDD, to measure how much useful heat has accumulated. As temperatures rise, GDD builds and plants progress through germination, growth, flowering and production. For the fall garden, we can turn that idea around. Instead of asking, "How much heat have we accumulated?" we can ask, "How much growing weather do we have left?"

Think of it as a heat budget—or a GDD countdown.

Every vegetable needs warmth and time to develop. A radish may be ready relatively quickly, while carrots, broccoli or cabbage can require considerably longer. Seed packets usually express this as "days to maturity," but those days are not all equal. Fifty days of warm August weather are very different from fifty days in October and November.

As fall approaches, temperatures decline and GDD accumulates more slowly. At the same time, the days become shorter. A plant that grows rapidly in August may grow much more slowly in October even though it has not yet experienced a killing frost. That is why simply counting backward from an average first-frost date does not tell the whole story. Average frost dates are useful planning tools, but they are not deadlines written in stone.

Fortunately, many of our favorite fall vegetables tolerate frost. Spinach, kale, collards, turnips and other cool-season crops can continue producing after temperatures that would finish off tomatoes, peppers or beans. This difference is important when deciding how late a crop can be planted.

Frost, however, is only one cue. The other is sunlight.

As autumn progresses, the Tri-Cities loses several minutes of daylight each day until only about 10 hours of daylight remain. Gardeners sometimes call this the "Persephone period." Plant growth becomes very slow under these short-day conditions. A cold-hardy spinach or kale plant may remain alive and healthy, while adding little new growth.

That changes the goal of fall gardening. Rather than expecting plants to grow rapidly throughout winter, we want many fall crops to reach a useful size while sufficient warmth and daylight remain. Once established, hardy vegetables can tolerate colder conditions and may provide harvests well beyond the main growing season.

A practical way to plan is to work backwards. Start with the crop's expected days to maturity, usually printed on the seed packet or listed in a seed catalog. Then decide approximately when you want that crop to mature. UT Extension recommends adding about 10 days to the stated maturity time when calculating fall planting because cooler temperatures and shorter days slow development.

Next, consider the crop's tolerance for frost. A frost-sensitive vegetable must mature earlier. Kale, collards, turnips and other cold-tolerant crops give gardeners considerably more flexibility. This is where the GDD countdown adds another useful piece of information. Watch how quickly heat units are accumulating in August and September. As average daily temperatures fall toward a crop's base temperature, fewer GDD are added each day. The seasonal heat budget is running down. Eventually there simply is not enough warmth and daylight left for a newly planted crop to develop quickly.

There is one interesting complication. Cool-season fall vegetables often must be planted while summer conditions are still hot. Warm soil can encourage quick germination, but seeds near the surface can also dry out quickly. Consistent moisture is especially important when starting a fall garden. Temporary shade over a newly seeded bed can also help protect young seedlings from intense late-summer sun.

The lesson for the Tri-Cities fall gardener is simple: don't plant by the calendar alone. Consider the crop, its time to maturity, its tolerance for frost, the heat remaining and the daylight ahead. Spring gardening asks, "Is it warm enough yet?" Fall gardening asks a different question: "Do I have enough growing season left?"

Learning to answer that question can turn what once seemed like the end of the gardening year into another productive season. Even though Fall is quickly approaching, we can still keep workin' th' dirt!

References

"Fall Vegetable Gardens," https://trace.tennessee.edu/server/api/core/bitstreams/dd03fda4-b669-4c1d-9874-39ba00ea6a8f/content

"The Persephone Period," https://ucanr.edu/blog/napa-master-gardener-column/article/persephone-period

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