



**CORNELL  
COOPERATIVE  
EXTENSION OF  
ONEIDA COUNTY**

## **HOME GROWN FACTS**

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### **Growing Degree Days**

Use growing degree days (GDDs) primarily to time control measures for pests of woody plants. You can also use them to track and predict other events that are synchronized with the accumulation of warmth during the growing season, such as the blooming of some plants.

In a nutshell, growing degree days accumulate anytime the average temperature for the day is more than 50°F. For example, if the high for the day was 70°F and the low was 40°F, the average temperature was 55°, and so 5 GDDs accumulated.

GDD measurements start March 1, and the GDDs for each day are added to the previous total. (When the average temperature for the day is below 50°F, it is ignored. It is **not** subtracted from the total.)

For those who prefer formulas, it looks like this:

$M_{50} = D_a$

50°F is used as the base for these GDDs because this is about the temperature that woody plants in the Northeast begin growth. Scientists may use other base temperatures for GDDs in other regions or for other purposes; for example, to predict the growth of heat-loving corn plants.

Use the table found at [http://www.nrcc.cornell.edu/dyn\\_images/grass/grassWeb\\_dd.html](http://www.nrcc.cornell.edu/dyn_images/grass/grassWeb_dd.html) to estimate the GDDs at your location. Keep in mind that your microclimate may differ substantially from the weather station where the temperature data is collected.

Several other online resources can help you use that information. Monitoring and management checklists from the University of New Hampshire Extension's Growing Degree Day website <http://extension.unh.edu/Agric/GDDays/GDDays.htm> provides a through-the-season list of what woody plant pests are up to and what you should be doing to minimize damage, as well as what trees you can expect to be flowering.

Using growing degree days for insect management at the same web site provides a table showing during what GDD interval major woody plant pests are most vulnerable to treatment.

#### **Helping You Put Knowledge to Work**

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The GDD concept may seem very familiar to you. It's one way of tracking phenological events—periodic biological phenomena—that are timed by the return and accumulation of warm weather during the growing season, not strictly by calendar date.

Japanese beetles, for example, do not just wake up one morning and say, "Oops. June 15th already. Time to get out there." Rather, their emergence is determined by the accumulation of growing degree days. They make an earlier appearance when spring is warm and GDDs accumulate early and appear later when it's cool.

You may already time some of your garden routines by phenological events you observe around you, such as bud break and flowering of lilacs. Being aware of these events as well as growing degree days can help make you a more observant gardener.

Phenology can have many uses in gardening and farming. In addition to insect management, phenology can be used to time crop planting, designing flower beds and orchards for sequential bloom or fruit maturity, planning refuge plantings for beneficial insects, and even tracking global warming trends.

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**READ THE LABEL BEFORE APPLYING ANY PESTICIDE.**

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Source: <http://www.gardening.cornell.edu/weather/gdd.html>