Degree Day Maps for Improved Timing of Insect Pest Management

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Pest management is an important aspect of agriculture, shade tree maintenance, and forest health. Correctly timing activities, such as pesticide applications or scouting for specific insect pests, can be challenging because of variation in the weather from one year to the next and from one part of the state to another. A new degree day resource is available online to help you improve the timing of your insect management activities.

What are degree days?

Many farmers, arborists, and Christmas tree growers know that "degree days" can be a useful tool to help time pest survey and management activities.

"Degree days" is a term that refers to the accumulation of thermal units above a threshold temperature over time. In other words, it is a convenient measure of how warm or cold it has been during the growing season.

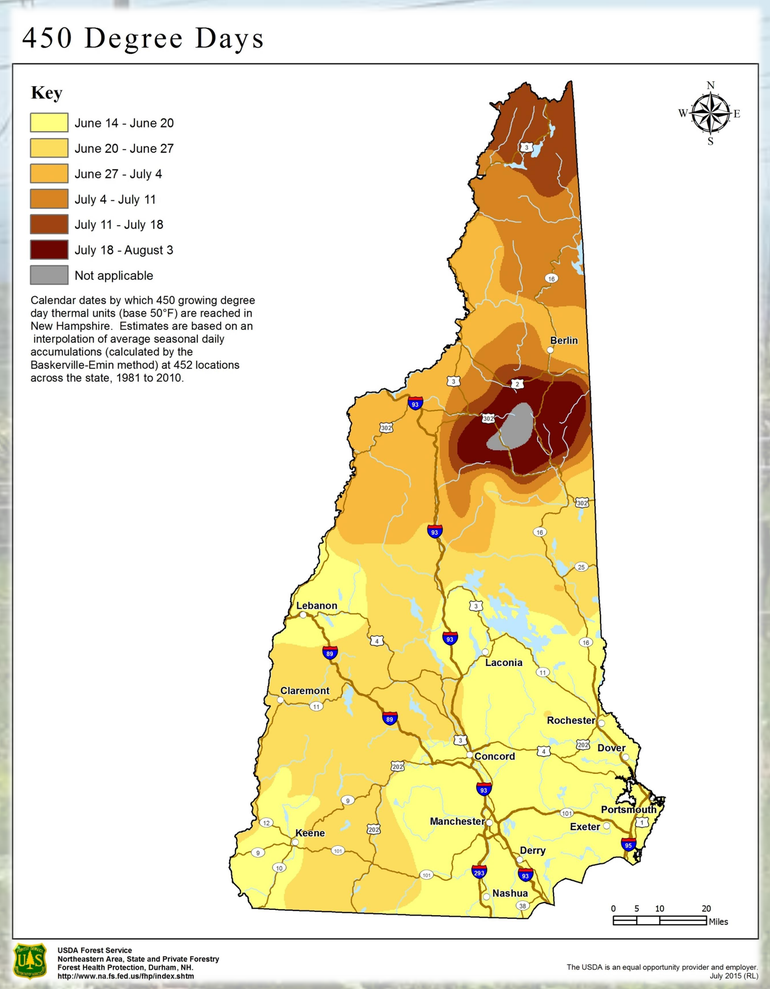
Because insects are cold-blooded animals, temperatures generally need to be relatively warm before egg hatch, feeding, flight, or other important activities can occur. Monitoring degree day accumulation in your area can help you estimate when specific insect pests are likely to be present.

Growers can successfully improve the timing of their pest scouting, pesticide applications and similar activities by using degree day accumulation rather than relying on calendar dates.

Figure 1. Blueberry maggot fly adults begin to emerge by 900 degree days (base 50°F) from the soil under infested blueberry plants.

Degree day accumulation maps

Using daily weather records, we calculated the 30-yr average seasonal accumulation of growing degree day thermal units from 1981 to 2010 across New Hampshire. We developed our degree day accumulations using the Baskerville-Emin method with a base temperature of 50°F, a standard threshold used across the country to monitor insect development.



We generated maps of average seasonal degree day accumulations of 50 to 2000 degree days (base 50°F), at 50 degree day intervals, throughout New Hampshire. Maps were produced with assistance from Rebecca Lilja, GIS Specialist with the US Forest Service.

Figure 2. Balsam twig aphid control should be targeted for 100-150 degree days (base 50°F) when the stem mothers are present and beginning to feed.

Available online!

Degree day maps are available on the New Hampshire Department of Agriculture, Markets & Food website, on the Division of Plant Industry webpage:

http://agriculture.nh.gov/divisions/plant-industry/growing-degree-days.htm

Simply select the appropriate degree day map for an insect pest of interest from a list of common insect pests, then find the location of your property and use the map legend to determine when that specific degree day accumulation is likely to occur.

Is your insect pest of interest not on the list? Entomologists have collected this information for many common or economically important species of insects. If your pest of interest is not on the list, let us know and we will add it if information is available.

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