

Community Horticulture Fact Sheet #40 Climate Data & Frost Dates

Gardeners, especially those new to our region, often ask about spring and fall frost dates and about our USDA zone. It's easy to say April 4, October 30, and zone 8, but that really tells a gardener very little about our climate. For a good understanding, many factors need to be considered including frost dates, minimum winter temperature, accumulated heat units, percentage of sunny days during the growing season, as well as precipitation.

Micro-climate

All of the climatic factors must be adjusted for a gardener's specific micro-climate. The statistics given here are the Puget Sound basin in general. Different places within Snohomish County vary considerably.

Terrain and bodies of water play a big role in determining your micro-climate. Cold air is more dense than warm air and flows downhill. As air near the summit of a ridge or along a slope cools, it flows down the slope. The coldest air stagnates and accumulates in valleys and lowlands. Gardens in valleys have a higher risk of late spring or early fall freezes.

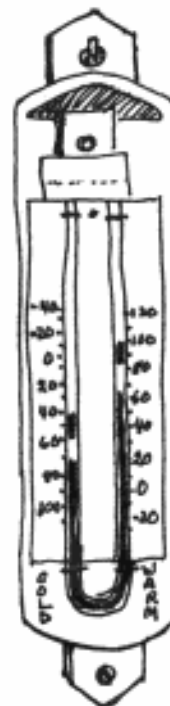
North-facing areas receive less heat from the sun than areas with a southern exposure. The growth of plants may be delayed on a north exposure and the danger of injury by a late spring freeze may be reduced. Conversely, though, a warmer south slope may speed up plant development and reduce the chance of a fall freeze before plants have matured.

Gardens near large bodies of water are less prone to frost and often a bit cooler on warmest days. Along Puget Sound the moderating effect of the water extends inland over a large area.

Moving inland from Puget Sound in Snohomish County also involves elevation gains. Higher gardens will usually be cooler and may also be wetter.

Frost Dates

The mean spring and fall frost dates are often used to show that Snohomish County has a 209-day growing season. For parts of Everett, that figure is accurate. Many areas are much cooler.



<u>Location</u>	<u>Last Frost</u>	<u>First Frost</u>
Everett	Mar. 23	Nov. 18
Bothell	May 13	Oct. 5
Darrington	May 12	Oct. 10
Monroe	Apr. 16	Oct. 23

Within relatively short distances the growing season may vary by a month or more.

Keep in mind that the frost dates are mean freeze dates. By definition, there is a 50% chance of a freeze on that date. It is not a guarantee, simply an

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assessment of probability. Gardening is a gamble, so you have to consider what you are risking. You might try planting seeds on the last frost date (at \$1.29 a pack) with hopes of getting a crop or flowers a week or two sooner. On the other hand, you won't want to endanger a favorite tuberous begonia or your tomato and pepper seedlings until the odds are better.

At Everett the probability of a spring freeze goes to 25% on April 17 and to 10% on April 30. Waiting until after Mother's Day to plant out tender plants is prudent in most locations in Snohomish County.

Minimum Winter Temperatures

The USDA Plant Hardiness Zone designation is a measure of average annual minimum temperature. We are in zone 8, which means that we get down to 10 - 20°F in an average winter. That fact is nearly useless alone (most of Louisiana is also in zone 8), but is helpful when combined with other data.

Accumulated Heat Units

Growing degree days, or accumulated heat units above a certain temperature, are measured to estimate the rate of growth and development of crops. The most frequently used base temperature is 50° F. for warm- weather crops. Heat units are the difference between the mean temperature for the day and 50°. (The day's mean temperature is found by adding the maximum and minimum temperatures and dividing the sum by 2.) If the mean temperature is below the base of 50°, there are no heat units.

As an example, on a day when the maximum temperature is 72° and minimum 50°, the mean temperature would be 61°. There would be 11 heat units, added to the accumulation for that day. The average annual accumulated

heat units at some locations in Snohomish County are listed below:

Bothell	1518	Skykomish	1598
Darrington	1676	Snohomish	1553
Everett	1586	Startup	1838
Monroe	1816	Stevens Pass	475

For comparison, eastern Washington sites may have a growing season of only 150 days, but more like 2,500 heat units.

Many plants require a certain number of accumulated heat units to do well or to mature fruit. Local gardens may not get enough heat to properly ripen certain varieties of tomatoes, peppers, grapes, etc. Plastic row covers, planting against a south-facing wall and other tricks to build and retain heat are often practiced by determined gardeners.

Days of Sunshine

We have very low light intensities through most of the year. Plants that can be grown in part shade in many regions may need full sun exposure in Snohomish County gardens. Cloudy or partly cloudy days are usual fall through spring and common even in summer.

With little sunshine, apples may not get very red, hot peppers may seem mild, peaches may not get very sweet, the vitamin C content of tomatoes may not be as high, etc.

Experienced gardeners have learned to consider all the factors that make our climate unique. They learn how these influence the garden and find ways to compensate when needed.