



What is Phenology?

by Lynne Brosch, UCCE Master Gardener of Lake Tahoe



Almost every gardener has a method they like to use to determine when it is best to plant seeds or seedlings outside and or transplant annuals or perennials to the soil. Maybe you have relied on the Farmer's Almanac or some signs of bird or insect activity or most certainly the temperatures rising especially during the night hours. We know that there is an official first day of spring. In the Northern Hemisphere that day can occur anywhere from March 19-21. Depending on the tilt and rotation of the earth, this is the day when the hours of daylight and dark are nearly equal, thus called equinox.

Phenology is the scientific timing of natural living processes with weather events. Phenology also involves the keeping of records of these natural processes and weather events for your local area over time. Up until the early 1900's, phenology was the primary source for planting information. These records are still used to determine plant hardiness zones due to records of first and last frost over time to determine the length of the growing season. See the USDA Plant Hardiness Zone map: <https://planthardiness.ars.usda.gov/PHZMWeb/>.



In our Lake Tahoe basin area, we have conditions many years that surpass the usual growing conditions expected. A common complaint of new gardeners in this area is the unpredictability of the growing season and how to plan. Well, this is a unique feature of gardening in the basin and in a high altitude mountain climate like ours. It may be helpful to start your own phenology records and keep a journal or a separate calendar where you can record the natural processes you observe and the weather conditions for each day and compare to past years.

Why should we care about phenology? Phenology is more important today than ever as we observe major changes in our environment due to global warming and climate change. We are seeing mammals and insects being forced to change their life cycles to attempt to adapt to their changing environment. Our plants are facing the same difficulties. Some plants that could stand full sun are now being

burned and suffering from conditions that are too dry due to warming. We may find that we are able to plant earlier and grow plants, especially vegetables that were previously too difficult to grow in our short growing season. We are finding that different mammals and insects are entering our environment which may prove to be a danger to successful gardening at certain times during the season. Being able to determine when pests are prevalent and what types are entering our local climate will help us to provide better pest control. These are just a few of the observations recorded by a community of citizen scientists that would prove helpful to all of us as gardeners.



Phenology is not fool-proof but it is much more scientific than relying on the groundhog. So what should we record? Besides, the high and low temperatures for the day, record some basic weather information such as cloud cover, wind speed, precipitation amount and form. What wildlife do you observe? Are new birds arriving, new activity with other wildlife? Are you seeing buds form on trees and shrubs even though there is still a large degree of snow cover? What is happening where the ground is becoming exposed due to snow melt? Have you seen some insects arriving? These observations would be just a start for this time of the year. Things will progress quickly as the season moves forward. You can keep your records as formal or informal as you like. You

may just want to keep weather records. You may be more interested in the wildlife or certain plants in your yard. If you would like to join a community of citizen scientist observers and share your findings, look at the website Nature's Notebook: https://www.usanpn.org/natures_notebook. Here you will find an online notebook system which will help you learn to observe and record and you can keep your observations all recorded within the online system. There are manuals you can download to help you learn to observe and record and even resources for identifying plants, animals, and insects as well as teaching resources.

Another source for online recording is at the website: <https://accounts.budburst.org/register>. Budburst is run through the Chicago Botanic Garden. You may see some information on phenology programs for your community as well. At this time Lake Tahoe Master Gardeners are considering starting a phenology program and providing training and resources. Please let us know if you are interested and watch for more information at upcoming summer farmers' markets.

For more information on this exciting science hobby check out the resources below:

Budburst (Chicago Botanic Garden) <https://budburst.org/phenology-defined#history>

Using Phenology in the Garden by Colleen Vanderlinden <https://www.thespruce.com/using-phenology-in-the-garden-2539872>

Phenology- Nature's Planting Signs by Barbara Pleasant <https://www.growveg.com/guides/phenology-natures-planting-signs>

USA National Phenology Network - Nature's Notebook https://www.usanpn.org/natures_notebook