

Day Length and Your Vegetable Garden

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How day length may affect your vegetable garden

The garden beds are in, the soil tested, sun exposure perfect, plant variety chosen especially for our area, outside temperature right on the mark and you've been faithful in watering but, lo and behold, that darn radish (spinach, beet, lettuce, turnip, fill-in-the-blank) has bolted to seed. Ever happen to you? What could possibly be the problem? Think day length.

Sensitivity to day length, known as photoperiodism, determines when a plant bolts, fruits or produces storage organs as potatoes do. "Day length" is actually a misnomer, as scientific research has confirmed it is the length of the dark periods that controls plant growth. Almost all living things have an internal circadian clock that controls many of life's processes within every cell. According to University of Washington researcher Takato Imaizumi, whose Imaizumi Laboratory studies seasonal response and circadian rhythms in plants, "The circadian clock is not constantly sensitive to light. It has a light-sensitive window at the end of the day that acts as a gating mechanism."

Long-day plants want to flower as we move toward the longest days of the year. Short-day plants want to flower earlier in spring or in fall. There are plants that disregard the day length and determine their flowering on factors such as temperature or the stage of maturity. These types are called day-neutrals.

Most plants don't grow when day length is less than 10 hours. Even if the temperature is kept within the optimum range in a climate-controlled greenhouse, they will sit dormant until the magic 10 hours of light arrives. Day length is a function of latitude with all places on the same latitude having the same amount of daylight on any given day. We are located at Latitude 47N and share that reading with such places as Manchuria; Mongolia; Budapest, Hungary; Salzburg, Austria; Loire Valley, France; Quebec; Minnesota; North Dakota; and Montana. Choosing cultivars that are proven to work not only in a similar climate to ours but at a similar latitude can lead to better yields.

Upstate New York garden writer Michele Owens, writing for Organic Gardening Magazine, was having bolting problems with her turnips which require 55 days to mature and plenty of cool weather. Her spring crop always bolted and the turnip roots were woody and unappetizing. In contrast, her fall crop yielded beautiful and plentiful results. The growing conditions for spring and fall were the same. The difference was day length. She found that turnips are long day plants which strive to flower as they move toward the longest day of the year, i.e. the summer solstice. By avoiding the summer solstice completely for fast-maturing long-day crops and planting them in midsummer as fall crops, she produced perfect turnips at her home garden.

Might this approach work for you? Only your own observations and experience can be the judge. There are so many variables to keep track of when growing vegetables: weather-related factors like temperature and moisture; differences in day length at different latitudes; light requirements of different vegetables and even different varieties of the same vegetable.

Being aware of the seasonal preferences of your plants and how they play out in your own garden over the course of several years will help improve your yield and the quality of your produce.

The chart below may help you in selecting when to plant your particular crop:

Long Day Plants (Day Length > 12 hrs)		Short Day Plants (Day Length < 12 hrs)	Day Neutral Plants (Ignores Day Length)
artichoke	lettuce	black-eyed peas	apples
barley	oats	blueberries	apricots
beets	onions	cotton	Brussels sprouts
carrots	peas	mung beans	cabbage
cilantro	potatoes	raspberries	corn
clover	radishes	rice	cucumbers
dill	rye grass	soy beans	kale
fennel	spinach	sugar cane	peaches
flax	turnips	sweet potatoes	pears
lentil	wheat		tomatoes

E-sources for this table: www.extension.oregonstate.edu/gardening; www.ag.arizona.edu; www.mggno.com; <https://www.canr.msu.edu/agriculture/news>; (and also a site that is no longer active: www.organicgardening.com)



Yellow onions growing in April in an Edison-area garden need 12 or more hours of daylight to thrive. Photo by Scott Terrell / Skagit Valley Herald

Note: some hyperlinks in this article have been updated since its initial publication.