

Alliums Year-Round ©Pam Dawling, 2023,

Author of *Sustainable Market Farming* and *The Year-Round Hoophouse*,

SustainableMarketFarming.com facebook.com/SustainableMarketFarming

We are in zone 7a, with an average annual minimum temperature of 0-5°F (-18°C to -15°C). We are located on Monacan land.

		Allium Calendar																								by Date 2022	
		<i>Dates are weather dependent. See Garden Full Crew for current info</i>																									
		<i>Note that quantities may be small and erratic at both ends of the season for that crop.</i>																									
		<i>Check which part of the plant to harvest - it may be leaves</i>																									
Week	Harvest frequency	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Dates		1/1-1/7	1/8-1/14	1/15-1/21	1/22-1/28	1/29-2/4	2/5-2/11	2/12-2/18	2/19-2/25	2/26-3/4	3/5-3/11	3/12-3/18	3/19-3/25	3/26-4/1	4/2-4/8	4/9-4/15	4/16-4/22	4/23-4/29	4/30-5/6	5/7-5/13	5/14-5/20	5/21-5/27	5/28-6/3	6/4-6/10	6/11-6/17	6/18-6/24	6/25-7/1
Garlic Scallions	3 x week						P	P	P		H	H	H	H	H	H	H	H	H								
Garlic Scapes	3 x week																		(H)	H	H	H	H	H			
Scallions, spring/outdoor	3 x week			S	S		S				(T)	T	(T)		T	T				H	H	H	H	H	H	H	
Scallions, fall & wntr/Hhs	As needed	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	(H)	(H)						
Garlic	long storage	St	St	St	St	St	St	St	St	St	St	St	St	St									(H)	H	H	H	
Leeks	As needed	H	H	H	H	H	H	H	H		S	S											T	T	T		
Elephant Garlic	When mature																							H	H		
Bulb Onions	short storage									T	T														H	H	H
Potato Onions	When mature			P	P	P														H	H	H	H				
Mini-onions/cipollini	When mature			S	S						T	T	T												H	H	
Perennial leeks	As needed										P	P	P	P	P	P	P	P									
Egyptian topset onions	As needed										P	P	P	P	P	P	P										
Shallots	When mature	P	P	P	SP	SP	P	P	P		T	T												H	H	H	H
L'ittoi perennial onion	As needed										H	H	H	H	H	H	H	H	H	H	H	H	H	P	P	P	P
Ramps	As needed												H	H	H	H	H	H									
Japanese bunching onion	As needed										H	H	H	H	H	H											
Welsh onion	As needed										H	H	H	H	H	H											
Unusual alliums (see June)																											

		S=Sow; P= replant; T=transplant; H=harvest; St=store																									
Week	Harvest frequency	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Dates		7/2-7/8	7/9-7/15	7/16-7/22	7/23-7/29	7/30-8/5	8/6-8/12	8/13-8/19	8/20-8/26	8/27-9/2	9/3-9/9	9/10-9/16	9/17-9/23	9/24-9/30	10/1-10/7	10/8-10/14	10/15-10/21	10/22-10/28	10/29-11/4	11/5-11/11	11/12-11/18	11/19-11/25	11/26-12/2	12/3-12/9	12/10-12/16	12/17-12/23	12/24-12/30
Garlic Scallions	3 x week																			P	P	P					
Garlic Scapes	3 x week																										
Scallions, spring/outdoor	3 x week																										
Scallions, fall & wntr/Hhs	As needed										S						S				S		H	H	H	H	
Garlic	long storage	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	St	
Leeks	As needed														H	H	H	H	H	H	H	H	H	H	H	H	
Elephant Garlic	When mature																			P	P	P					
Bulb Onions	short storage	H	H	H																S		S		S			
Potato Onions	When mature													P	P	P						P	P	P			
Mini-onions/cipollini	When mature	H	H																								
Perennial leeks	As needed	H	H	H	H	H	H	H	H	H	HP	HP	HP	HP	P	P	P	P	P	P	P	P	P	P	P	P	
Egyptian topset onions	As needed	H	H	H	H	H	H	H	H	H	HP	HP	HP	HP	P	P	P	P	P	P	P	P	P	P	P	P	
Shallots	When mature	H	H	H	H										P	P	P	P	P	P	P						
L'ittoi perennial onion	As needed					H	H	H	H																		
Ramps	As needed					S	S	S	S	S	S	S	S	S													
Japanese bunching onion	As needed										H	H	H	H													
Welsh onion	As needed										H	H	H	H													
Unusual alliums (see June)																											

Allium Growth Stages

Onions and garlic are biennial crops grown as annuals. The botanical group of bulb onions includes scallions (spring onions, salad onions or escallions), and the small pickling onions (cipollini). They have three distinct phases of growth — vegetative, bulbing and blooming (bolting) The switch from one phase to the next is triggered by environmental factors. Success depends on understanding what this crop needs during each of the three phases. It does not work to plant onions or garlic at a random date in the year. Leeks are not daylight sensitive.

1. Vegetative growth (roots and leaves). For large onion bulbs it is important to produce large healthy plants before the vegetative stage gives way to the bulbing stage. If plants are small when bulbing starts, only small bulbs are possible. Cool, but not cold, weather and adequate irrigation encourage heavy leaf growth.

2. Bulbing is initiated when the daylight reaches the number of hours critical for that variety. Temperature and light intensity also play a role. It takes a daily average temperature of 60°F (15.5°C), or even 70°F (21°C), to trigger bulbing (depending on the variety). The rate of bulbing is more rapid with high light intensity and increased temperature. The optimum temperature for rapid bulb development is 75°F–85°F (24°C–29°C).

3. Flowering (bolting). Onions go dormant when they experience an extended period of cooling temperatures, such as a spring cold snap. After this, smaller seedlings with a diameter less than pencil thickness ($\frac{3}{8}$ " or 1 cm) and fewer than six leaves will resume growth and not usually bolt (bloom). Bolting is to be avoided because the flower stems are tough and inedible, and the bulbs start to disappear to feed the growing flower stems. Bolted onions will not dry down to have tight necks and so will not store.

Day-length sensitivity: long-day and short-day onions

- Long-day onions start bulbing at 14-16 hours of daylight, with temperatures of 60°F–70°F (15.5°C–21°C).
- In cooler northern regions, the day-length trigger is reached before the temperature trigger. Onions bulb during the summer, once it is warm enough, and are harvested in the fall.
- In warmer long-day areas, the temperature trigger may be reached before the day-length trigger, so bulbing starts as soon as the days are long enough, and finishes in the summer.
- South of their ideal growing region, long-enough days don't happen until close to the summer solstice. Long-day onions then start bulbing, and are exposed to hot conditions as they mature. Soils dry out fast under hot conditions, and if water supply is insufficient, growth is stunted. The bulbs may get sun-scald as they mature.
- Short-day onions start to bulb at 10–12 hours of daylight, provided the temperatures are warm enough.
- In the South, below 35° N, they are sown in September or October, grown over winter, and are harvested in May.
- If short-day onions are started in spring too far north (where it is too cold to overwinter them) they will bulb before much leaf growth has occurred, and so the bulbs will be small.
- At our latitude (38°N) bulbing initiation for short-day onions gets delayed beyond the day-length trigger, until temperatures are higher than 60°F–70°F (15.5°C–21°C), which is early April. It's a waste of time to sow short-day onions here in spring, as they have an impossibly brief time (January to early April) to grow a decent-sized plant before bulbing starts.
- One way to work around this is to start short-day onion seedlings in the late fall/early winter, let them make some vegetative growth, and keep them alive indoors over the winter, to continue growth in the spring.

Garlic growth stage triggers

- Garlic **bulb initiation** (and the end of leaf growth) is triggered by daylight increasing above 13 hours in length (April 10 here at 38°N). Soil temperatures over 60°F (15.5°C) and air temperatures above 68°F (20°C) are secondary triggers.
- **Garlic scapes:** Scapes are the hard central flower stems of hardneck garlic. It is important to get plenty of good rapid vegetative growth before conditions stop growth. Garlic can double in size in its last month of growth, and removing the scapes can increase the bulb size 25%. In 2017, scapes came early, as did Tulip Poplar flowers, at the end of April. In 2015, scapes were later than average. We always reckon on 3 weeks to bulb harvest after scapes start appearing. This might not apply everywhere in the US!
- **What triggers garlic scapes?** In general, plant flowering is triggered by some combination of enough vernalization (chilling hours – maybe 10 weeks below 40°F/4.5°C), plant maturity, temperature and photo-period (the relative length of day and night). In cold weather the plants suppress the flowering signal. When the daylength and the temperature are both right, they trigger flowering. Almost all these factors are outside our control, once the plant is in the ground, so the best we can do is pay attention and be ready to act.
- **Drying down:** Hot weather above 91°F (33°C) ends bulb growth and starts the drying down process. I don't yet know how many hours over that temperature the garlic needs before drying down is triggered.
- **Growing garlic in the tropics:** it *may* be that temperature is a bigger trigger and daylength is less important in tropical latitudes where daylength does not vary much. Certainly some growers had produced garlic when I didn't expect it to be possible.

Unusual Alliums

- **Pearl onions** (*Allium ampeloprasum* var. *sectivum*), also known as button or baby onions in the UK, or creamers in the US, are a close relative of leeks, with thin skins and a mild, sweet flavor. They grow up to 1' (2.5 cm) in diameter. They are especially popular in the Netherlands and Germany. Unlike bulb onions, they do not have layers of storage leaves but only a single storage leaf, like the non-layered cloves of garlic. The onions are ready to harvest 90 days from sowing. They are mostly used for pickling. Most onions grown for pickling today are simply small crowded bulb onions, with layers.
- Perennial **Rakkyo** (aka as true pearl onions, Japanese scallions, Vietnamese leeks) are *Allium Chinense*. These small onion bulbs are generally pickled.
- **Canada onion** (aka Wild onion) (*Allium canadense*) is a perennial sounding very like what we call onion grass or wild garlic in Virginia, although that is *Allium vineale* (crow garlic). The leaves of onion grass are hollow and round, while those of Canada onion are more flat.
- **Kurrat** (*A. kurrat*), is a Middle-Eastern cultivated leek, used mainly for the greens, which may be cut from the plant repeatedly.
- **Field garlic** *Allium oleraceum* is native to most of Europe, where it is a wild perennial, growing tall leaves (the part that is used).
- **Ramsons** *Allium ursinum*, buckrams, wild garlic, broad-leaved garlic, wood garlic, bear leek, or bear's garlic, common in Europe. Looks like **Ramps**, (*Allium tricoccum*) but is not the same. Eat the broad flat leaves.
- **Japanese bunching onion** and **Welsh onion** (native to Siberia or China, not Wales) are *Allium fistulosum*. They are sometimes used as scallions, as are some *A. cepa*. Young plants of *A. fistulosum* and *A. cepa* look very similar, but may be distinguished by their leaves, which are circular in cross-section in *A. fistulosum* rather than flattened on one side. *A. fistulosum* has hollow leaves (*fistulosum* means "hollow"), scapes and does not develop bulbs – the leaves are the part which is eaten.

Cold-Hardiness of Alliums

Alliums are more cold-tolerant than most people believe. Here are my observations of killing temperatures for outdoor crops. Note that crops often survive night-time lows in the hoophouse that would have killed them outdoors. Onion seedling can survive at 20°F (−7°C), but not colder conditions. We have tried overwintering onions outdoors, but even with rowcover, our losses were too high.

- 12°F (−11°C): garlic tops if fairly large, most fall or summer varieties of leeks (*Lincoln*, *King Richard*), large tops of potato onions
- 10°F (−12°C) some leeks (*American Flag* aka *Musselburgh* and *Scottish Flag*, *Jaune du Poiteau*)
- 5°F (−15°C): garlic tops if still small, some leeks (*Bulgarian Giant*, *Laura*, *Tadorna*, *Bandit*), some bulb onions, potato onions and other multiplier onions
- 0°F (−18°C): chives, garlic, a few leeks (*Alaska*, *Durabel*); some bulb onions, yellow potato onions, some onion scallions (*Evergreen Hardy White*, *White Lisbon*), *Walla Walla* onions sown in late summer (with rowcover for winter)

Resources (accessed January 2023)

- ❑ *Garlic, Onion & Other Alliums*, Ellen Spencer Platt
- ❑ *Onions, Leeks and Garlic - A Handbook for Gardeners*, Marian Coonse
- ❑ *Alliums, Post Harvest and Storage Diseases* <https://ag.umass.edu/vegetable/fact-sheets/alliums-post-harvest-storage-diseases>
- ❑ [The Clove Garden](https://www.clovegarden.com/ingred/li_onion.html) has lots of info on all types of onion https://www.clovegarden.com/ingred/li_onion.html .
- ❑ [The Backyard Larder: Ali's Alliums](#) is also a good read.
- ❑ [Useful Temperate Plants Site](#) Pearl Onions
- ❑ [How to grow Pearl Onions](#) by Jenny Harrington

- ❑ *Flame Weeding for Onions and Garlic* <https://ipm.ucanr.edu/agriculture/onion-and-garlic/integrated-weed-management>
- ❑ *Farmscaping to Enhance Biological Control*, ATTRA <https://attra.ncat.org/publication/farmscaping-to-enhance-biological-control/>
- ❑ *Golden Gate Farming*, Pam Pierce, excellent descriptions of onion growth phases
- ❑ Dixondale Onion Farms: <https://dixondalefarms.com/> Helpful information
- ❑ Johnny's onion chart <https://www.johnnyseeds.com/growers-library/vegetables/onions/onions-full-size-comparison-chart-pdf.html>
- ❑ *Onion Harvest and Storage* <https://ag.umass.edu/vegetable/fact-sheets/onions-harvest-curing>
- ❑ ATTRA: *Organic Allium Production* <https://urbanagriculture.horticulture.wisc.edu/wp-content/uploads/sites/35/2016/01/allium.pdf>
- ❑ North Carolina Extension *Bulb Onion Production in Eastern North Carolina*: <https://content.ces.ncsu.edu/bulb-onions>
- ❑ University of Georgia *Onion Production Guide*: <https://extension.uga.edu/publications/detail.html?number=B1198&title=onion-production-guide>
- ❑ *Organic Vidalia Onion Production*: <https://extension.uga.edu/publications/detail.html?number=C913>
- ❑ Dr Joe Masabni of Texas AgriLife Extension, *Onion* (not organic) <https://aggie-horticulture.tamu.edu/vegetable/files/2011/10/onion1.pdf>
- ❑ *Growing Great Garlic*, Ron Engeland
- ❑ *Garlic Harvest, Curing and Storage* <https://ag.umass.edu/vegetable/fact-sheets/garlic-harvest-curing-storage>
- ❑ ATTRA *Organic Garlic Production*: <https://attra.ncat.org/wp-content/uploads/2019/05/garlic.pdf>
- ❑ The Garlic Seed Foundation: www.garlicseedfoundation.info, Growers, eaters, suppliers, extensive library, information on building your own harvesting equipment, resources, including the ARS Germplasm Resource which supplies small amounts of plant material to growers.
- ❑ *Dr Gayle Volk's Garlic DNA Analysis*: www.garlicseedfoundation.info/allium_sativum_DNA.htm
- ❑ Garlic Bloat Nematode: <https://extension.umaine.edu/publications/1205e/>
- ❑ Gourmet Garlic Gardens growing instructions, pests and diseases, growing in the South, and more: <https://www.gourmetgarlicgardens.com/growing-garlic.html>
- ❑ Colorado State University Specialty Crop Garlic Project: <https://agsci.colostate.edu/specialtycrops/the-garlic-project-2004/>
- ❑ Southern Exposure Seed Exchange, VA: <https://www.southernexposure.com/> 540 894 9480.
- ❑ *Garlic and Perennial Onion Growing Guide*, Jeff McCormack: <https://www.southernexposure.com/garlic-and-perennial-onion-growing-guide/>
- ❑ *Leeks*, Oregon State University: <https://horticulture.oregonstate.edu/oregon-vegetables/leeks-0>
- ❑ Ontario Ministry of Agriculture, Food and Rural Affairs: *Leek Production Factsheet*: <http://omafra.gov.on.ca/english/crops/facts/91-004.htm>
- ❑ *Leek Moth*: <http://omafra.gov.on.ca/english/crops/facts/08-009.htm>
- ❑ Buy ramp seeds year-round and bulblets in late winter at <https://rampfarm.com> and <https://www.mountaingardensherbs.com/>
- ❑ Read more about ramps in *Growing and Marketing Ginseng, Goldenseal and Other Woodland Medicinals* by W. Scott Person and Jeanine Davis of North Carolina.
- ❑ *Having Your Ramps and Eating Them Too*, a book by Glen Facemire
- ❑ *Ramps*: <https://www.wildedible.com/blog/foraging-ramps> on sustainable foraging, by Eric Orr
- ❑ *Ramps, part 1: Wild Delicacies Under the Forest Floor* By Bjorn Bergman <https://ediblemadison.com/stories/ramps-part-1>
- ❑ *Ramps, part 2: Sustainable ramp harvesting* Bjorn Bergman: only 5 to 10 percent of the ramps in a patch should be harvested each year to ensure their future survival <https://ediblemadison.com/stories/ramps-part-2>