

Onions and Related Crops

Onions, garlic, and shallots and leeks are members of the lily family and belong to the genus *Allium*. Onions are an important commercial vegetable crop worldwide in addition to being widely grown by home gardeners in Massachusetts. Garlic, shallots and leeks are often grown at home since they are sometimes hard to find in stores.

Lime and Fertilizer

Alliums are sensitive to acid soils and grow best when the soil pH is between 6.0 and 6.8. Have your soil tested by the UMass Soil and Tissue Testing Lab (www.umass.edu/soiltest) and follow the recommendations given. Strongly acid soils should be limed according to test results. Lime (if needed) is most effective when mixed thoroughly with the soil in the fall.

Since the root system of alliums are very limited, high soil fertility is essential for good production.

Apply two and one half to three pounds of 10-10-10 fertilizer per 100 square feet. Fertilizer should be broadcast evenly and worked into the top two to three inches of soil prior to seeding.

Gardeners may find it necessary to sidedress with fertilizer after one month. This is especially important on light sandy soils or if heavy rains leached nitrogen from the root zone. To sidedress, apply one pound of 10-10-10 fertilizer per 100 linear feet of row. For best results, work fertilizer into the row with a light cultivation and then water well.

To avoid burning roots though, bands of fertilizer should be placed three to four inches away from the plant on each side.

Natural Fertilizers

Natural fertilizers can be very effective when the right choice is made from the many types available.

Soil Preparation

Alliums grow best in a loose, well drained, highly fertile soil which is well supplied with organic matter. Heavy, compact soils such as clay tend to restrain bulb development causing bulbs to be irregularly shaped and small. Add sand and organic matter such as manure or compost to clay soils to improve draining and aeration.

The following steps may be used to prepare soil:

- Apply recommended amount of lime
- Apply three to four bushels of well rotted manure or similar material per 100 square feet
- Rototill everything into the soil
- Broadcast fertilizer evenly over the area and work into soil
- Plant onions, or your other alliums

Watering

Water when dry periods occur. Alliums require at least one inch of water per week. If water is needed, irrigate thoroughly early in the morning until the soil is moistened eight to ten inches

deep. If rainfall is deficient, it may be necessary to water once a week, or if you have sandy soils, two times per week.

Weed Control

For best results, alliums should be kept free of weeds. Cultivate shallowly when weeds are small to avoid damaging the plant root system. A mulch material such as straw or compost applied after the plants are well established can conserve soil moisture, prevent soil compaction, and help suppress weed growth.

Pests

The principal insect pests of alliums are thrips and maggots. Common diseases include blast, downy mildew, neck rot and smut.

INDIVIDUAL CROPS

Onions (*Allium cepa*)

Planting: Onions can be planted either as seeds, transplants or sets. When raising onions from seed, the spacing should be 1 ½ to 2 inches apart in rows 12 to 16 inches apart. Sow the seed approximately one-half-inch deep.

Transplants purchased from a reliable dealer are inexpensive and easy to handle. Purchase plants which are stocky, have bulbs the size of peas and have bushy roots. Plant seedlings three to four inches apart in rows twelve inches apart.

Onions sets (immature bulbets) can be used for green onions in spring or mature onions in late summer. Plant onion sets three to four inches apart at a depth of one inch or rows 12 inches apart. Onion sets can be planted in early spring as soon as the ground can be worked. However, delay planting transplants until danger of severe frost is past.

Harvesting: Onions can be harvested at any stage of development. Scallions can be pulled when only slightly swollen bases have formed. Green onions have a definite bulb formation and are harvested throughout the growing season. Hilling the stems with soil once they reach a height of four inches will help green onions to have a longer, usable white stem.

Harvest onions for storage when the bulbs have matured and the tops are withered over. The best varieties for storage are grown from seed rather than sets or transplants. Before storage, onions must be allowed to dry out for several weeks until the skins are papery, the necks are tight, and the roots are completely shriveled and dry. This can be done by pulling the plants and spreading them out for drying. Thick-necked onions do not store well and should be used promptly.

If you are going to braid the onion tops, do it soon after digging while the tops are still relatively pliant. After braiding, hang the bulbs in a dry, well-ventilated place. Instead of braiding, you can also cut the tops off one inch above the bulb after drying. Store bulbs in crates or netted sacks in a cool, dry, well-ventilated space. A temperature around 35°F is ideal, but don't let the onions freeze.

Garlic (*Allium sativum*)

Planting: Garlic produces a group of cloves encased in a sheath rather than a single bulb. Separate the cloves for planting. The larger outer cloves produce the best garlic. Garlic can be planted in fall (September) or in spring (May).

Fall-planted garlic and spring planted garlic are harvested at approximately the same time, but the fall planted garlic will be larger. Plant cloves with points up in rows twelve inches apart with

the cloves spaced five to six inches apart. Fall planted cloves should be planted two inches deep so frost will not heave them out of the soil where as spring planted garlic need only be planted 1 inch deep.

Harvesting: Harvest garlic when the tops die down. To prepare garlic for long term storage, cure the bulbs for four to six weeks in a warm, dry, shady location where there is very good air circulation. Pile bulbs no more than two or three deep. The purpose is to toughen the outside skin and drive out all moisture beneath the outer scales to prevent decay. After curing, store in a cool, dry, well ventilated spot. When properly stored, garlic can be kept for many months.

Shallots (*Allium ascalonicum*)

Shallots are sometimes grown for dry bulbs but usually for young plants which are used as green onions.

Planting: Shallots have multiple sections like garlic. Also, like garlic, shallots can be planted in spring and/or fall. Plant separate sections with points up three to five inches apart in rows 12 inches apart. Depth of planting for shallots is the same as for garlic.

Harvesting: Shallots can be used like green onions or left until the tops wither like garlic. For long term storage, treat shallots like garlic.

Leeks (*Allium porrum*)

Leeks are onion-like but have a milder flavor and are hardier than onions. They produce a sheaf of leaves rather than a bulb.

Planting: Leeks are grown as an annual from seed started indoors six to eight weeks before transplanting into the garden.

Plant leek transplants when danger of frost is past. Prepare a trench 12 inches deep and six inches wide. Fill the bottom six inches with a layer of well-rotted manure or compost. Set seedlings four to six inches apart in trenches spaced fifteen inches apart. As the plants grow, fill in the trench so that by the end of June the ground is level and six inches of leek stem is underground. This area of the stem then becomes white (blanching). However, do not bank soil around plants too soon or stems may decay. Leeks may also be planted on flat ground. Soil should be hilled around them though, beginning in June to blanch them.

Harvesting: Leeks can be used anytime the stems reach $\frac{3}{4}$ to one in diameter until fall. They can be stored upright in bunches in a root cellar for four to eight weeks. The roots should be in moist sand or soil, but take care not to store with water on the leaves.

UMass Extension Agriculture and Landscape Program 4/12

UMass Extension is an equal opportunity provider and employer, United States Department of Agriculture cooperating. Contact your local Extension office for information on disability accommodations. Contact the State Extension Director's Office if you have concerns related to discrimination, 413-545-4800 or see www.extension.umass.edu/civilrights/.