

Root Crops

Beets, carrots, parsnips, radishes, turnips, and rutabagas are all commonly known as root crops. These vegetables offer a prolonged harvest season and, for the most part, a long storage life. They also produce a large amount of food in a small amount of space.

Lime and Fertilizing

Root crops require a soil pH between 6.0 and 6.5. 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 into the soil in the fall.

In addition to organic matter and lime, broadcast 1 ½ pounds of 10-10-10 fertilizer per 100 square feet just prior to planting your seeds.

It is also a good idea to sidedress the plants with the same amount of fertilizer when the plants have reached about one third their growth. To prevent burning the roots though, apply fertilizer three to four inches away from plants.

Soil Preparation

Root crops grow best in well drained, loose soil. Drainage is important because these crops are among the earliest planted and the least harvested. If the soil is heavy (clay), you might want to build a raised four to five inches high and 12 to 24 inches wide. Raised beds will help to reduce soil compaction, permit easier digging, and will allow carrots and parsnips to attain greater length and be smoother in shape. Add sand and organic matter, such as manure, to heavy soils to improve drainage.

The following steps may be used to prepare soil prior to planting in the spring:

- Apply two or three bushels of well rotted manure or compost per 100 square feet. If carrots are to be grown, apply the organic matter in the fall prior to planting in the spring.
- Apply recommended amounts of lime.
- Rototill everything into the soil.
- Broadcast recommended amounts of fertilizer just prior to planting seeds and work into the soil.

NOTE: using organic matter or manure that is not well composted as a fertilizer for carrots can cause the roots to become rough and branched.

Natural Fertilizers

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

Watering

Root crops will not do well in a dry seedbed. The seedbed must be kept moist during the germination period. Therefore, you may need to sprinkle the bed with water every day until seeds have germinated. Some gardeners place a clear plastic sheet over the row after the seeds have been planted and watered. This warms the soil and conserves moisture. The sheet

should be removed as soon as seedlings emerge. This procedure is especially useful for root crops such as carrots and parsnips which have a long germination period.

Weed Control

Shallow cultivation (one to two inches deep) when weeds are small is best. Pull weeds when they are small, because as they get larger they compete with root crops for water and mineral nutrition.

Once seedlings are up, a mulch material such as compost or straw can be used to suppress weeds and conserve moisture. Only mulch a moist, warm soil.

Pests

Some major insect pests include root maggots on turnip, rutabaga and radish; leafminers on beets; and carrot rust flies on carrots and parsnips.

Storage

Root crops should not be put in storage until late fall. These crops withstand autumn frosts and are better off in the garden until nights are cold enough to permit proper storage temperatures. Dig root crops when the soil is dry and prepare them for storage. Cut the plant tops about ½ inch above the crown and do not wash until needed.

Root crops keep best between 32 and 40°F. They require high humidity to prevent shriveling.

Turnips and rutabagas give off odors; do not store them in your basement or home cellar. You may store them with other root crops in an outdoor cellar or pit. All other root crops can be stored in your home cellar if it is cool enough. Root crops keep their crispness longer when bedded in layers of moist sand, peat, or sphagnum moss.

Individual Crops

Beets (*Beta vulgaris*)

Seeding: Sow seeds ½ inch to one inch deep at a rate of two ounces per 100 square feet of row, with rows spaced 12 inches apart. Beet seeds require eight to ten days for germination. When beet plants reach a height of three to four inches, thin the seedlings to a spacing of three to four inches. If you use beet greens, delay the thinning process until the plants are six to eight inches tall.

Harvesting: Harvest beets as soon as the roots reach 1 ½ inches or two inches in diameter. At this stage, the roots are tender and the leaves are also satisfactory to use as greens. Large roots tend to become coarse, woody and have poor quality and color.

Parsnips (*Pastinaca sativa*)

Seeding: Sow parsnip seeds ½ inch deep at a rate of ½ ounce per 100 square feet of row. Since parsnips are slow to germinate, (approximately two weeks) quick germinating radish seeds can be sown along with the parsnips. The radishes will mark the rows and permit earlier cultivation. NOTE: If your garden soil is heavy, cover seeds with sand, vermiculite, or fine peat rather than soil.

As soon as plants reach a height of two to three inches, they should be thinned to stand two to three inches apart. Since parsnips require a long growing season there is only one seeding which should be made as early in the spring as the ground can be worked.

Harvesting: More the almost any other vegetable, parsnips are improved by cold or even freezing. The roots can be left in the ground until the late fall or on through the winter. If left over winter, they should be covered with a mulch to prevent alternate freezing and deterioration of the root. They should also be harvested early in the spring before new growth starts.

Radishes (*Raphanus sativas*)

Seeding: Sow seeds 1/3 inch deep at a rate of one ounce per 60 feet of row. Radishes will germinate in four to five days. Thin seedlings shortly after emergence to avoid disturbing the root system of radish plants left in the garden. For a continuous supply, make plantings every ten days during the early spring and again starting in August. Radishes grown during midsummer produce woody and pithy roots.

Harvesting: Radishes can be harvested at any stage.

Turnips (*Brassica rapa*)

Seeding: Sow seeds ½ inch deep in rows, 15 inches apart at a rate of ½ ounce per 100 feet of row. After the plants become established, thin plant three to five inches apart. Plant turnips in early spring, then again in summer of a fall crop. In hot weather, the roots are often strong or bitter in flavor and become pithy when they reach maximum size.

Harvesting: Turnips reach a good size and are ready for harvest in 60 to 80 days.

Rutabagas (*Brassica campestris* var. *napobrassica*)

Seeding: Plant rutabaga seeds from mid June until July for fall harvest. Sow seeds ½ inch deep in rows 24 inches apart at a rate of ½ ounce per 100 feet or row. Thin seedlings to a spacing of six to eight inches.

Harvesting: The roots should be allowed to reach full maturity before they are pulled, usually in late September and October, in order to be sweet and of peak quality. They do not become pithy if over mature as turnips do.

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