



GROWING ROOT VEGETABLES

What vegetables take up little space in the garden, can be eaten at almost any size, and will continue to grow after an early frost? Answer: Root crops - like potatoes, onions, garlic, shallots, beets, carrots, radishes, rutabagas, turnips, parsnips, Jerusalem artichoke, kohlrabi, and celeriac. Be sure to include some of these tasty and easy-to-store vegetables in your garden this year.

POTATOES - START WITH SEED POTATOES

To ensure a successful crop of potatoes, it is necessary to purchase “certified seed potatoes”. These are inspected, relatively disease-free and higher yielding. Cutting up potatoes from the grocery store into seed pieces is not recommended because many of them are treated with chemical sprout inhibitors and will not grow.

Good varieties for northern Nevada are *Red Pontiac*, *Russet Burbank (Netted Gem)*, *Kennebec*, and *Norgold*. Two pounds of seed potatoes is plenty for a 30 ft. row in the garden, and two 30 ft. rows will grow enough potatoes for a family of four.

SOIL PREPARATION IMPORTANT

Potatoes require a well-drained, sandy soil. They do not grow well in heavy soil. Cultivate the seed bed and if the soil is heavy clay, mix in 3 to 6 inches well-decomposed organic matter to a depth of 10 to 12 inches. Work in a 16-20-1 fertilizer at the rate of 1 ½ lbs/100 sq. ft. To decrease the occurrence of scab, a common soil-borne potato disease, avoid the use of manure and adjust the soil pH to below 5.7. For information on how to determine the pH of your soil, contact the Cooperative Extension office.

PLANTING TIME

Potatoes can be planted as early as mid-April. Cut the seed potatoes into halves or quarters, depending on their size. Each seed piece should weigh about 2 ounces and each must have at least one eye (two eyes are better) or it won't grow.

Following cutting, the pieces can be planted immediately, or allowed to “cure” by storing them for 2-3 days at around 70 degrees F in high humidity. This “curing” process promotes suberization (the development of a corky, protective layer) which helps to serve as a barrier against rot organisms and moisture loss. Whether cut and planted immediately, or “cured” first, it is recommended that the pieces be dusted with a fungicide such as powdered sulfur or Captan prior to planting to further protect them from organisms that cause rot. Read the fungicide label for recommended dusting rates. Plant seed pieces 3 inches deep and 1 foot apart. If planted in rows, the rows should be 3 feet apart.



HILLING UP

As plants grow, “hill up” or pile soil around their bases and about six inches to either side. Sunlight causes newly formed tubers to turn green (the green parts are bitter, inedible and slightly poisonous), and this practice helps keep them away from the sun. Do not completely cover the plant foliage. Continue “hilling up” until plants are blooming.

GENERAL CARE

Proper watering is very important for good yield and quality. From planting until tuber development is completed, soil moisture should be fairly constant. If the soil dries after tubers are formed, a second growth will start when soil is moist again. This will cause knobby, inferior potatoes. Alternate wet and dry conditions can also cause “hollow heart” or cavities near the center of the potato.

Water usage is greatest at the time of maximum vine growth. Water should be cut back as tubers near maturity, even though plant appears green and

active. Over watering at this time may result in tuber decay.

Weed control is also important. Cultivate carefully around plants when young. When plants are 8-10 inches high, stay at least six inches away from plants to avoid damage to feeder roots.

HARVESTING

Potatoes can be harvested and used at any time. If potatoes are to be stored for winter, however, harvest after the vines have died down as a result of frost or discontinuance of watering. At least two weeks should elapse after the vines die before starting to dig so that the skins will thicken and the tubers mature. Remove vines before digging.

ONIONS - SEED OR SETS

Onion seed should be planted in March, but no later than May 1. Onions are affected by day length and begin to bulb when the day length reaches 12 hours and the temperature reaches 70 degrees Fahrenheit. Once bulbing begins, top growth stops. If the tops happen to be small at this point, the bulb will be small too.

Onion sets offer a smaller selection of varieties than seed, but green onions planted from sets can be pulled sooner and the bulbs will mature three or more weeks before those grown from seed. Onions from transplants can be harvested even sooner.

VARIETIES

Evergreen White Bunching, Sweet Spanish White (Utah strain), Sweet Spanish Yellow (Utah strain), Southport White Globe, Southport Yellow Globe and Early Harvest are all good varieties for northern Nevada.

RELATED SPECIES

Bunching Onions may be onions of any variety that are pulled, bunched and sold before they bulb.

Chives are hardy perennials that may be grown from seed or plants. The clumps should be divided every three years.

Garlic differs from onion in that its bulb is composed of about ten cloves that are arranged inside a membrane like segments in a tangerine. The cloves are planted in early spring, producing mother bulbs

for fall harvest that are cured and stored like onions.

Leeks are distinguished from other members of the onion family in that they have flat, rather than tubular, leaves. Since only the white base of the plant is eaten, it is customary to blanch the base by pulling soil up around the stem to promote a longer white base.

Scallions are not another member of the onion family, but a name given to immature bulbing onions. Scallions have thick necks and will not store well. They may be bunched and sold as scallions, but they usually are left in the field when the mature onions are harvested.

Shallots or multiplier onions, have a mild flavor and resemble garlic in that they are composed of cloves that are united at the base but not enclosed in a membrane. Shallots are perennial and seldom produce seed. Therefore, sets are planted, and the clump that forms is thinned periodically. The bulbs may be cured and stored like onions while the young sprouts may be used fresh like green onions.

SOIL PREPARATION

Onions do best in a light, fertile, well-drained soil. Before planting, spread a 3-6 inch layer of well-decomposed organic matter over the bed, and cultivate in. A 16-20-0 fertilizer can also be incorporated at this time, at a rate of ½ lb. per 100 sq. ft.

PLANTING

Seed should be planted at a rate of two per inch, in a row to be covered with one-quarter to one inch of soil (the greater depth for soil that may dry out quickly). One-quarter ounce of seed will cover a 30 foot row.

Sets should be pressed into the soil not more than one inch below the surface and four to six inches apart. One-half pound of sets will cover a 30 foot row, which should be plenty of onions for a family of four.

Plants should be hardened off before transplanting, and can be put in the ground around April 15. Plants should be set out at the same level they were growing.

GARDEN CARE

Because onions are very shallow-rooted, they require more frequent watering than other vegetable crops. Hoeing or pulling can control weeds. Weeding is important because narrow-leaved onions are far less tolerant of weeds than other vegetables.

HARVESTING

Onions and garlic keep best if they are properly cured before harvest. The first step comes as tops begin to yellow. Go down the rows and push the tops over with the back of a rake. This procedure, called lodging, forces the bulbs to begin their final maturing stage and gets them in better shape for storage.

About three weeks after bending the tops, dig up the onions. Lay them on newspapers for 10 days in a dry, shaded place away from dew and rain. Then trim tops and roots off, and store the onions for use all winter.

OTHER ROOT VEGETABLES

The following recommendations apply to all the other root crops listed.

SOIL

Root crops do best in a light, fast-drained soil, well enriched with organic matter. Rocky and heavy clay soils make root growth difficult and result in misshapen roots. To prepare the soil, spread a 3-6 inch layer of well-decomposed organic matter and well-aged manure over the bed. Cultivate it in well. Fresh manure may burn the root hairs causing branches or misshapen roots, and new organic matter uses up available nitrogen in the soil as it decomposes. When plants are 2-4 inches high, side dress with a 16-20-0 fertilizer at the rate of ½ lb. Per 100 sq. ft.

TEMPERATURE

Roots are storage organs that expand to accommodate the food that is being manufactured in the leaves or tops. The faster the food is produced in the tops, the greater will be the root expansion. Warm, bright days, and cool nights are the conditions that produce maximum root expansion and the best color. That's why root crops do so well in northern Nevada's climate.

High temperatures, particularly at night, produce high respiration rates that burn off sugars, inhibit root expansion and the production of pigment that produces bright colors.

PLANTING

Root crops generally are directly seeded into furrows one-half to one inch deep in rows one to three feet apart. Space seed in furrow one to three inches apart. As the seedlings emerge, thin to a spacing equal to the diameter of the root when harvested. A root to be harvested at two inches would be thinned to a spacing of two inches, for example. Some vegetables that are so delicious when eaten as thinnings or greens, such as carrots, beets and turnips, are planted more thickly.

Root crops seldom are transplanted, because this usually breaks the tap root, which causes forked or distorted roots to develop.

WATERING

After planting, the seedbed should be watered well. If sprinkling, be sure that the seeded area is completely wet and the moisture penetrates to the soil below the seed. Light watering should be done as needed to keep the soil around the seed moist until seeds have germinated. After the young plants are up, water only when the top three inches of soil are dry.

BEETS - Recommended varieties:

Crosby's Egyptian, Early Wonder, Detroit Dark Red, Chioggia.

After planting, delay thinning of excess plants until the leaves are large enough to eat as greens. Thin plants to one to two inches apart. Beets mature in 60 to 70 days but may be eaten when they reach the size of golf balls. If they grow larger than three inches in diameter they lose some of their flavor and tenderness. An August planting will be ready by November, but may be left in the ground and pulled when wanted.

CARROTS - Recommended varieties:

Chantenay Royal, Danvers Half Long, Gold Pax, Nantes Coreless, Nantes Half Long, Tendersweet. Carrot seeds are tiny and should be planted only one-half inch deep. The roots are edible at any stage. They will continue to develop until the ground freezes. The exposed shoulders will be damaged by freezing and thawing and either the

shoulders should be mounded over with soil, or the crop should be harvested before weather gets too cold.

CELERIAC - Recommended varieties:
Giant Prague, Early Paris

A type of celery that develops a turnip-like root, celeriac is more common in Europe than America. Its primary use is as a flavoring in soup, although it can be eaten like any other root crop. The seed is quite small and requires a finely prepared seed bed, shallow planting and meticulous moisture control until seedlings emerge.

JERUSALEM ARTICHOKEs - Recommended varieties: *Brazilian White, Brazilian Red*

It does well on poor soil and may become a weed. Whole tubers are planted in the spring and the crop is dug before the ground freezes. The tubers have a thin skin and shrivel readily in a dry atmosphere. They store best in the soil but will keep in a root cellar if packed in moist sawdust.

KOHLRABI - Recommended varieties:
White Vienna, Purple Vienna

Actually a swollen stem and not a root, it is sown in rows and harvested at two or three inches in diameter. Kohlrabi has a tendency to become woody if allowed to grow over three inches in diameter. Because of this, Kohlrabi grown for storage should not be planted until July 1.

PARSNIPS - Recommended varieties:
Improved Hollow Crown, All-American

This crop should be planted in April because the seed germinates slowly and the crop requires 100 or more days to mature. This is one of the few root crops that can be over wintered in the garden, and this enhances its eating quality. If this is done, soil should be hilled over the crown. This may also be fall dug and stores like carrots.

Early Scarlet Globe, Cherry Belle, White Icicle, Champion

Radishes are planted in April as a spring crop or in August as a fall crop. When planted in summer, they generally go directly to seed without producing edible roots. Because radishes mature in three to four weeks, fertilizer must be worked into the soil before planting so that it will be readily available to the young seedlings. To reduce competition, thin radishes to one to two inches apart very soon after they come up. (When sowing seeds, scatter them fairly far apart to reduce the need for thinning).

For a continuous supply of radishes, start planting early and replant every 10 to 14 days throughout the season.

“Smarty” radishes are caused by uneven watering.

TURNIPS - Recommended varieties:
Purple Top White Globe, Tokyo Cross

Turnips are harvested at two inches in diameter and therefore, three successive plantings may be made to provide for a continuous table supply. The last planting may be stored like carrots. When allowed to grow to large sizes they develop fiber and a strong flavor.

University of Nevada/Washoe County
Cooperative Extension
4955 Energy Way
Reno, NV 89502
(775) 784-4848 Fax (775) 784-4881
www.unce.unr.edu

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RADISHES - Recommended varieties: