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## HORSERADISH GROWING

by

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Horseradish belongs to the Cruciferae or cabbage family and is native to eastern Europe. It is a hardy perennial plant but is grown as an annual crop, being propagated in commercial fields each spring. It produces a crop of large leaves similar in appearance to the leaves of the dock plant. The fleshy tap root has a pungent flavor and as a commercial product the roots are ground, preserved in vinegar and used as a condiment with meat. Seed is produced but it seldom matures and is never used for propagation. The tap root is fleshy and gives rise to many thickened laterals in the surface soil. The main roots may penetrate to a depth of several feet. The smaller lateral roots are used for propagation of the crop.

Climate and soil. Like many other members of the cabbage family, horseradish prefers a moderately cool season in which to grow. As a consequence a considerable part of the development of the leaves and roots takes place during the fall and early winter. The roots are resistant to freezing and usually will winter over satisfactorily in the soil in western Oregon. The leaves are usually killed at temperatures 4 or 5 degrees below freezing.

Horseradish does well on all soils that have a reasonably good structure, except the light sandy loams and the heavy clay soils. A moderately rich deep loam, well supplied with humus and holding moisture well will produce roots of the best quality and larger size. Commercially this crop is grown on deep, well drained soils through which the roots will readily penetrate and develop and thus grow larger, smoother and whiter. On lighter sandy soils the roots have a tendency to have a somewhat yellow color instead of the clear white that the heavier soils produce. It is important that the soil be well drained and the subsoil be fairly open as a hard subsoil causes excessive branching of the roots.

Propagation. Horseradish is grown from root cuttings usually about one-quarter to one-half inch in diameter and from 6 to 10 inches in length. These sets are obtained from the main roots at the time of preparation for market in the fall and winter. The root cuttings are usually cut off square at the top and sloping at the bottom in order that the ends may be thus distinguished.

It is important to have clean roots for planting. This vegetable is subject to a virus disease, which is most easily observed in the form of a dwarfed mottled foliage of the plant in contrast to the large, healthy, dark green leaves which are typical of a plant free from the virus. This disease

is transmittable to the roots and as a consequence if root cuttings are taken from plants having the mosaic the disease will be transmitted to the next crop. It is very important, then, that no roots be planted which have been taken from plants affected by the mosaic disease.

Fertilizers and planting. Soil in which horseradish is grown is commonly rich in humus but it is customary for growers of plants to apply manure at least every other year on land which is in use. In some sections of the country a complete commercial fertilizer is used having an analysis of possibly 5-10-5 or 5-8-10, using approximately 1000 pounds per acre. This crop is one which removes considerable potash from the soil.

It is necessary that the land be thoroughly prepared for horseradish. Shallow furrows are laid off 30 to 36 inches apart and from 3 to 5 inches deep, according to the method of planting. The usual distances of planting are 30 to 36 inches between the rows and 12 to 16 inches apart between the root cuttings in the row. Cuttings are usually laid in a slanting position with the square end up and about three inches below the surface of the soil. The soil should be well firmed about the root. Planting is usually done moderately early in the spring so as to give the crop as much of a full growing season as possible.

The plants should have sufficient cultivation during the summertime to control weeds and keep the soil in proper tilth. The crop makes its best growth in the cool autumn months and steadily develops after September. In the Northwest it is not usually injured by frost if left undug and is commonly harvested during the fall and early winter, according to the dictation of the market.

In order to secure large straight roots some growers remove the side roots early in the season. This is done by removing the soil and clipping off the side roots from the upper part of the main root; the soil is then replaced. This treatment results in the production of larger, more compact roots and the earlier in the season the clipping is done the less check there is to the growth.

Harvesting. A plow is used for taking out the roots. The first time the plow is run about four inches from the rows and the next time directly under them, or the soil may be plowed up from both sides and the roots readily dug out. By having the roots planted slantingly they will come out very easily.

When ready to begin marketing the side roots are trimmed and the large roots washed and packed. It is best that the young sets or side roots be kept cleaned up in the field, otherwise they might be a source of trouble the following year.

The average yields run from three to four tons per acre. One of the largest growers in Oregon usually averages three and a half to four tons, in addition to which there is some income from the side roots for propagation.