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Carrot Growing in California

Paul G. Smith

Carrot industry in California. There has been a steady increase in consumption of carrots in the United States for the past 20 years. In 1923 the total commercial average in the U. S. was 7,850 acres, which by 1940 had increased to 46,800 acres. The importance of the carrot industry in California is illustrated by the fact that one half of the entire acreage of the country was grown in California in 1940. At present the main producing centers for the fall and winter crop are Salinas Valley and Los Angeles County. The bulk of the spring crop is produced in Imperial Valley, with Los Angeles County and Salinas Valley as secondary areas. Other centers are near Santa Maria, Oxnard and the Delta region, but carrots may be grown in many other localities throughout the state.

Soil and fertilizers. The carrot requires a deep, mellow, sandy loam soil for its best development. A soil that is too heavy will cause the formation of misshapen roots which are not attractive when bunched. The soil must also be well drained. It should be free from nematodes. An application of fertilizer containing not over 50 pounds of nitrogen per acre should be adequate. This may be applied as ammonium sulfate (250 pounds) at planting time, or a nitrate of soda (300 pounds) as a side-dress after the plants are well along. The nitrate should be divided into several applications. Less nitrogen is needed during the summer than in the winter. An over supply of nitrogen will cause excessive top growth which is objectionable for market and shipping carrots because U. S. No. 1 carrots are limited in top length. For this reason soil lacking somewhat in nitrogen is better than one too well supplied. In the Imperial Valley, on the peat soils in the Delta, and on some very sandy soils elsewhere, applications of phosphorus in addition to nitrogen may be beneficial. Phosphorus may be supplied in treble superphosphate (200 pounds per acre), single superphosphate (400 pounds per acre), or in combination with ammonia as ammonium phosphate.

Planting time. In the Salinas Valley, planting begins in November and continues at intervals until the following September. In the Imperial Valley, planting may begin in the latter part of September and continue throughout the winter. Plantings in Los Angeles County are made throughout most of the year. Approximately three months during the spring and summer and five months during late fall and winter are required for carrots to reach harvest stage.

Method of growing. In most districts the crop is handled about the same as lettuce. Raised beds are made three to three and a half feet from center to center. Beds are 4 to 6 inches high and 15 to 18 inches wide after smoothing. The lower ridges will generally aid in getting better germination with less water. Furrows between the beds are used for irrigation. The ridges for the beds are usually thrown up by listers just before planting. Some growers put a few tons per acre of composted manure in the center of the beds as they are listed. Seeders are usually attached to the sled that shapes the bed; two seeders are used per bed, and these plant parallel rows 12 to 14 inches apart. A wide planting shoe on the seeder allows for a better spread of seed, resulting in less crowding and resultant misshapen roots. Seed is sown at a rate of 1½ to 3 pounds per acre. By proper regulation of the planting rate and with use of the wide shoe, thinning will not be necessary. Seed should be covered just enough for good germination, or not over ½ inch. On the peat soils in the Delta the carrots are planted in 12 inch rows on the flat using 3 to 4 pounds of seed per acre.

Irrigation and Cultivation. The irrigation of carrots should be regulated so as to maintain an adequate supply of moisture within the root zone. Carrot roots penetrate the soil thoroughly to a depth of 2½ to 3 feet. For this reason, once the plants are well established, sufficient water should be applied at each irrigation to wet the soil to the three foot level. The depth of penetration of the water may be measured by the use of a bar or soil tube or soil augur. Too frequent waterings on the heavier soils, especially during hot weather will cause rotting of the roots. Allowing the soil to become too dry tends to cause poor shaped roots. Water should be withheld for a short period before harvesting. Cultivation should be done only to the extent necessary to control weeds, for deep cultivation will destroy many roots and retard growth.

Harvesting, grading and bunching. Carrots are usually harvested when 1½ to 1-3/4 inches in diameter at the crown. Harvesting in different districts is done by plowing the soil away from the side of the row making pulling easy, or a cutter is run beneath the row severing the taproot and loosening the soil. The carrots are pulled and bunched in the field, the number placed in a bunch depending upon their size. To meet State laws for carrots packed in closed containers, the bunches must weigh not less than 1 pound and contain not less than 4 carrots. In grading those roots should be discarded that are diseased, misshapen, discolored, cracked, bruised, have yellow foliage, or growth cracks. All dead leaves should be removed. It is advisable for a grower to know the State Standardization laws governing the quality of carrots for sale.

Recently Federal Grades have been established for carrots with tops cut to a length of not more than 4 inches. The tops may be cut by hand or by a mower in the field before digging.

Packing. The bunched carrots are packed loosely in crates in the field and then hauled to the packing house where they are washed in large vats of clear water, or run through washers that spray the carrots from all sides with jets of water under high pressure. Carrots are usually packed in an oil paper lined standard lettuce crate; the usual pack consisting of six dozen bunches. Three two-dozen bunch layers are used, with about five pounds of crushed ice placed between each layer. The bunches in each layer are placed with the roots to the center, and the tops to the ends of the crates. The tops are then frequently folded forward to level off the layer, the tops of the bottom layer are folded under to provide a cushion for the roots. From 10 to 15 pounds of crushed ice is placed on top of the pack. For local market the bunched carrots may be loosely packed in crates without either the paper lining or ice.

Yield. The average yield in California is about 250 standard lettuce crates to the acre. Yields vary considerably depending upon soil, stand and various other conditions.

Varieties. The two main varieties used for shipping are Imperator and Morse's Bunching. For dehydration, the variety recommendations of the dehydration firm should be followed.

Diseases and insects. There is no serious insect pest on carrots in California aside from nematodes. Very recently a bacterial blight has caused considerable damage in some regions where carrots have been followed too closely by more carrots in the rotation. The disease causes areas which may be either spots or more or less narrow sunken lesions, often extending a considerable way around the root. Badly scabbed carrots are unmarketable. Where possible, a crop rotation program should be followed, which will help to keep the disease to a minimum.

At certain times of the year a foliage blight is sometimes troublesome, especially in the Salinas and Santa Maria Valleys. For information regarding the control of both diseases consult your County Farm Advisor or Agricultural Commissioner.