Daucus carota var. sativus

Apiaceae

High Carotene Carrot, Beta Iii

Origin

Wild carrots (*Daucus carota*) are native in Western Europe, the Near East, and the Mediterranean region. Wild carrots now are widely distributed in temperate Europe, Asia, and in parts of Africa, Australia, and the Americas. It has become a common weed species in croplands in many portions of its distribution. Most wild carrots are white-rooted; some wild forms, from Afghanistan, for example, have red or purplish roots. Yellow carrots were noted in Turkey as early as the 10th century. Records of four varieties of the cultivated orange carrots date back to the late 18th century in Holland. Cultivated carrots with high carotene content, such as Beta III, resulted from selective carrot breeding efforts during the 1980's, conducted largely by Drs. P.W. Simon and C. E. Peterson with the United States Department of Agricultue, Agricultural Research Service (USDA-ARS), at the University of Wisconsin.

Uses

Earliest uses of carrots were medicinal rather than for food. Today, carrots are recognized as an important dietary component principally because they are one of the best vegetable sources of pro-vitamin A from the orange-colored carotene pigments contained in the carrot root. These carotene pigments are converted in the human body to vitamin A, known well for promoting healthy eyes in children, prevention of night blindness and promotion of healthy skin. Improved High Carotene Carrot varieties, like A-plus and Beta III may have up to three times as much carotene content as ordinary varieties. These improved varieties have been highly touted for alleviation of vitamin A deficiency in world regions where high levels of malnutrition exists. Handling raw leaves, especially when wet, may irritate the skin and even cause blisters for persons with light-sensitive skin. Roasted carrots have been used as a coffee substitute. Both the tops and the roots have been used as small animal and livestock fodder.

Cultivation

Planting can occur relatively early in the spring. Carrots are grown from seed. Sow carrot seeds thinly and in shallow trenches approximately 1 cm deep. Place seeds 2.5 cm (1 in) apart. Cover with 0.5 cm (1/4 in) fine soil. Planting can occur relatively early in the spring. Germination takes 7-10 days at preferred germination temperatures ranginge from 10-30^{o} C (50-85^{o} F). Germination requires 7-10 days. Thin seedlings to 8-10 cm (3-4 in) apart. The soil should be deeply tilled prior to planting and have good drainage. Carrots often rot in water logged soils.

High Carotene Carrot varieties, including Beta III, with long tapered growth forms, may perform best on raised ridges. The loose deep muck soils in northern regions have been used profitably for growing carrots. Fertilizers low in nitrogen but rich in phosphorus and potassium (2-8-16, for example) often are applied. Carrots grow best in temperate climate environments, including moderate altitude regions of the topics. They do not thrive, nor produce seed in the lowland tropics. In warmer climatic regions the Uberlandia carrot variety should be used.

Harvesting and Seed Production

Carrots generally require from 60-70 days to reach maturity. High Carotene Beta III Carrots, may require 30-40 additional days to mature fully and produce the rich orange color provided by their high carotene content. Carrots may be heavily mulched with straw and left in the ground until just before the ground freezes. The longer maturity period also improves Beta III carrot taste. Larger carrots can be removed earliest; later-maturing ones can be removed later to prolong the harvest season.

Carrots store well for a long period under refrigeration at 0.5^{o} C (33^{o} F). For shorter durations, carrots may be stored in a cool, vented, underground storage pit or root cellar. Carrots are biennal plants, therefore, when grown for seed, two years are required to complete the life cycle. The first year they produce a root and a tuft of leaves. Select and dig roots that have desirable root shape and color. Trim the tops to about 2 cm (1 in). Store the roots in a cool environment, and replant them again in the spring. The second year the plant “bolts” producing flowering stalks, and later, seeds.

Seeds may be collected after the flowering shoot has turned brown. To select seeds from plants having desirable root shape and color, for example, it is preferable to harvest first year plants, trim the tops to about 2 cm (1 in), store the roots in a cool environment, and replant the selected roots again in the spring.

Pests and Diseases

Carrots, like other root crops, may suffer from nematode infestation. Rotate carrots with non-root crops to reduce nematodes and soil-borne diseases. The larvae of many insects feed on the roots of carrots. Wireworms, larvae of click beetles, also infest carrot crops. Numerous mite species of carrots and celery, as well as aphids, damage carrot tops. A number of fungal and viral diseases have also been reported on carrots.

Rotate carrots with non-root crops to reduce nematodes and soil-borne diseases. Use fresh seed sources to secure strains free of contamination and rotate crops to help reduce disease problems. Avoid the use of celery as an alternate crop with carrots. Celery is subject to many of the same pests and diseases as carrots. Be sure to keep wild carrot weed plants out of carrot crops used as seed sources. Cross-pollination between carrots and wild carrots occurs readily.

Cooking and Nutrition

High Carotene Beta III Carrots are prepared and consumed in the same ways as other carrot varieties.They may be eaten raw, cut into strips as a snack food, shredded for salads. or made into juice. Carrots also may also be cooked as a vegetable or added to soups and stews,. They also are sauteed, pickled, glazed, or used inadded to bread dough. baking. Carrot juice is highly appreciated by some carrot enthusiasts. In Britain, carrots have been used to make wine. In Java, the leaves also are eaten.