

Carrot (*Daucus carota L. var. sativus Hoff.*)

French: Carotte; Spanish: Zanahoria; Italian: Carota; German: Möhre

Under Temperate Conditions

Crop data

Biennial, cropped as annual. Harvested part: root.

Growth cycle for root production 100-180 days depending on cultivar.

Plant density: about 100/m² (for half-long cultivars). Yields 25-50 t/ha (half-long cultivars). Requires light or well-textured soils, rich in decomposed organic matter; does not tolerate acid, alkaline or saline soils. Adapts well to climatic conditions.

Nutrient demand/uptake/removal

In kg for crop yielding 30 t/ha : N = 90-120, P₂O₅ = 30-45, K₂O = 150-300.

Fertilizer recommendations

Adequate rate of fertilizer use in normal soils is estimated to be 120 kg N, 100 kg P₂O₅, 200-250 kg K₂O per ha. It is recommended that one-quarter of the total N should be applied at sowing and the remainder in two topdressings. P₂O₅ and K₂O should be incorporated in the soil before sowing. Direct use of organic manures should be avoided.

N deficiency impairs root colour by diminishing carotene synthesis. Excessive N may not only delay root growth and reduce keeping quality but may also increase the nitrate content, an important factor in roots to be processed for use in babyfoods. Excessive K can reduce uptake of Mg. Chloride salts should be avoided because excessive Cl reduces carotene content.

Boron is an important nutrient; foliar spray application is beneficial where calcareous soils contain <1 ppm B and where there is less than 18 ppm B in the leaves.

7.2.4 Carrot (*Daucus carota L.*)

Under Tropical/Subtropical Conditions

Crop data

Directly seeded. Harvested four months after sowing. Plant density: 435 600 plants/ha. Preferably grown in loose, deep, well-drained soil. The crop is adapted to highland conditions in the tropics. Target marketable yields in intensive commercial production = 25 - 37 t/ha.

Nutrient demand/uptake/removal

Nutrient uptake/removal - Macronutrients					
Yield t/ha	kg/ha				
	N	P2O5	K2O	MgO	CaO
43	126	71	175	20	224
Source: various					

Plant analysis data

Plant analysis data - Macronutrients						
Plant part	Growth stage	% of dry matter				
		N	P	K	Mg	Ca
Young mature leaf	Midseason	3.8	0.5	4.0	0.3	1.6
Source: various						

Plant analysis data - Micronutrients						
Plant part	Growth stage	ppm dry matter				
		Fe	Mn	Zn	Cu	B
Young mature leaf	Midseason	54	44	27	2	15
Source: various						

Fertilizer recommendations

Apply well decomposed organic matter to prevent forked root development. Excessive N may also be partly responsible for splitting or forked roots; heavy N treatments also promote foliage growth at the expense of root growth. Fertilizer should be applied at least 7 days before sowing, as the crop is susceptible to salt injury. Carrots respond well to B and to lime and Mg applications, as well as to N, P and K. N and K are applied before root enlargement, about 30 days after germination.

Present fertilizer practices

Senegal (Camberene)

On light sandy soils in semi-arid conditions apply 20t/ha of organic manure, 60 kg/ha N, 60 kg/ha P2O5 and 120 kg/ha K2O. All organic manure and P2O5 and 20 % of N and K2O broadcast before planting; 40 % of N and K2O sidedressed 30 and 60 days after planting.

Brazil (Minas Gerais)

General recommendations are, firstly, 40 kg/ha N, 320 kg/ha P2O5 and 240 kg/ha K2O incorporated in the soil at planting and, secondly, 80 kg/ha N and 40 kg/ha K2O broadcasted in 2 applications 15 and 30 days after planting.

Philippines (Los Banos)

A broadcast application of 500 - 600 kg/ha of a 10-25-25 mixture is recommended, or in K deficient soils 1 000 - 1 200 kg/ha 5-10-16 .

Further reading

BIENZ, D.R.: Carrot splitting and second growth in Central Washington as influenced by spacing, time of sidedressing and other cultural practices. Proc. Amer. Soc. Hort. Sci. 86, 406-410 (1965)