

**Alternaria blight:** This disease can be controlled by disinfecting seed with a seed dressing containing thiram or captab or sowing certified seed. In areas where blight is a problem, carrots should not be cultivated in fields that remain damp for long periods in the morning after dew. Crop rotation can be practised.

**Bacterial blight:** The disease can be controlled by using disease-free, certified seeds.

### Acknowledgement

[http://www.browfarm.co.uk/carrots\\_about.htm](http://www.browfarm.co.uk/carrots_about.htm)

JOUBERT, T.G., BOELEMA, B.H., DAIBER, C.C. & HATTINGH, I.D. 1980. The production of carrots in South Africa. Root Crops A.2/1980. *Farming in South Africa*.

KOTECHA, P.M., DESAI, B.B. & MADHAVI, D.L. 1998. Carrot, pp. 119–139. In *Handbook of Vegetable Science and Technology: Production, Composition, Storage and Processing*. Edited by Salunkhe, New York: D.K. & Kadam, S.S. Marcel Dekker, Inc.



# Carrots

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## Background

### *Origin and distribution*

Carrot is believed to have originated in Afghanistan, which remains the centre of diversity of *D. carota*. They were known to the Greeks and the Romans. The greatest development and improvement of the original wild carrot that had thin, long roots took place in France. Carrots are now a popular vegetable grown all over the world.

### *Soil and climatic requirement*

Deep, loose, friable, well-drained sandy loam or loamy soils with a pH of 6,0 to 6,5 are ideal for carrot production. The crop produced in humus-rich soils tends to increase in foliage excessively and forms forked and hairy carrots. Brack soils should also be avoided as carrots are very sensitive to saline soils.

Carrots are a cool weather crop and they also do well in warm climates. The optimum temperature for growth is between 15 °C to 20 °C. Temperatures below 10 °C cause longer, more slender and paler roots and shorter, thicker roots are produced at higher temperatures. Extended periods of hot weather can cause strong flavour and coarse roots. Development is also slower in winter than in spring and summer.

## Uses

The use of carrots was mainly medicinal, to cure stomach problems and treat wounds, ulcers, and liver and kidney ailments. Carrots are consumed fresh as a salad crop or cooked. They are also processed either alone or mixed with other vegetables. The juice is extracted and used as a drink. Tender roots are pickled or made into jam and sweetmeats in some countries. Carrot cake and carrot pudding can also be made. The aromatic seeds are used as a stimulant and to

relieve flatulence. The entire plant can also be used as fodder for cattle and horses.

## Cultural practices

### *Propagation*

Carrots are only propagated by means of seeds.

### *Soil preparation*

The soil should be well tilled and as level as possible in order to obtain a good stand. It must have a good crumbly structure and kept moist enough to allow seed germination. Therefore the soil must be ploughed deep to loosen the soil to a depth of at least 30 cm. The soil should be fumigated for nematodes.

### *Planting*

The rows are generally spaced from 200 to 400 mm apart. In double or triple rows, the width between sets of rows may range from 400 to 600 mm. Row spacings in baby carrot production may be 100 mm. A planting density of 150 to 160/per m<sup>2</sup> gives good results in double rows while a density of 100 m<sup>2</sup> is ideal for single rows. In-row spacing of about 5 cm is recommended.

The seeds are directly sown in the field on ridges or raised beds. Row planting is preferred to broadcast sowing. The seeding depth should be 10 to 25 mm or 40 mm in loose, light sands. Planting depth should be shallow in heavier soils and in colder months. Slightly deeper planting is recommended in summer when the soil dries out quickly. The chance of a successful establishment of the crop will be increased if the seed is sown in moist soil and only if the soil is kept moist.

### *Fertilisation*

Carrots have low nitrogen requirements and good yields can be obtained with applications of 80 kg/ha.

Nitrogen can be applied at planting and the remainder at 4 to 8 weeks. Forty kilogrammes of phosphorus per hectare are sufficient to produce a good crop. The crop has a high potassium requirement and half is applied as side dressing at 4 to 8 weeks after planting. The balance is applied as late dressings. Compost or organic manure should not be applied because it results in unattractive, hairy roots, with a coarser texture.

### *Irrigation*

The soil should never be allowed to dry out. Too much moisture causes short carrots with a light colour and a larger diameter. The field should be irrigated lightly immediately after sowing. Irrigation water should be applied once or twice a day, using a solid-set sprinkler system. Watering should be reduced gradually to prevent longitudinal splitting of the roots when the crop approaches maturity. Water stress during root development also causes cracking of the roots, which also become hard.

### *Weed control*

Soil cultivation between the rows is carried out at an early stage merely to control weeds. Weeds should not at any time be allowed to compete with crops. Weeds can be controlled mechanically, by hand, chemically or by combining all these methods.

### *Pest and disease control*

Pests that frequently affect carrots include: aphids, red spider mites and cutworms. Remedies for such pests can include applying registered pesticides. Practising crop rotation is critical. Remove all types of weeds that will serve as hosts to these pests.

Frequent diseases include *Alternaria* blight and bacterial blight.