



## CARROTS AREN'T JUST ORANGE ANYMORE!

Carrots are a familiar orange vegetable to most Americans. The compounds that give carrots their bright-orange color are  $\alpha$ - and  $\beta$ -carotene. They are the most important source of vitamin A for people in the United States, Africa and Asia. Carrots have had an increasing popularity for Americans because of "baby" carrots. Because of their importance in the American diet, carrots are a long-standing classical "functional food."

Orange carrots originated in the seventeenth century. Interestingly, purple and yellow carrots came before orange carrots while red and white were developed around the same time in different parts of the world. Thus, this array of unusually colored carrots occurred naturally throughout time.

The purple carrots are highly colored because of "anthocyanins" that are also responsible for the colors of red potatoes, apples and cranberries. Anthocyanins are very potent "antioxidants." Antioxidants are able to trap "bad" compounds formed in our body so that they do not damage cells.

The yellow carrots contain lutein, which is another compound in the carotenoid family. Lutein, also an antioxidant, is found in the back of the eye. Thus, lutein might be an important compound in the prevention of macular degeneration, the leading cause of blindness in the elderly. Lutein is also found in green leafy vegetables.

Another of these beautiful carrots is red. The carotenoids that give this carrot its deep, rich color are lycopene and  $\beta$ -carotene. Lycopene might prevent prostate and other cancers. In the U.S. diet, tomatoes provide about 85% of dietary lycopene. Thus, the availability of carrots with lycopene could increase consumption of lycopene and reduce certain forms of cancer.

Although the white carrots do not have any color and therefore are not a significant source of carotenoids, they are a good source of fiber. Can you imagine a salad made with white, yellow, orange, red and purple carrots? The possibilities are endless!



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## Growing Carrots in Wisconsin

Garden grown fresh carrots have become popular because the flavor surpasses that of supermarket carrots. Carrots originally were cultivated over 2000 years ago in Asia. Carrots are actually biennials that form a rosette of fern-like leaves and an edible root the first year. Queen Anne's lace is a wild form of carrot that produces the typical carrot flower. Carrot roots consist of four sections: periderm (peel), cortex (food conducting tissue where carotene and sugar are concentrated), cambium, and the core.



### Planting Carrots

- Seed in late April
- Use tillage to a depth of 6 to 8 inches
- Remove rocks, clods and debris to prevent irregular growth
- Carrots grow best at 59° to 65°F
- Seeding depth: 1/4 inch
- Space between rows: 15 to 30 inches
- Space between plants: 1 to 3 inches
- Hoe soil around the top of the root to prevent it from turning green
- Carrots can withstand mild freezing

### Soil and Fertility

- Choose a sunny site with deep, well drained, friable soil
- Soils may range from organic to sandy loam
- Grows best on fluffy soils with good tilth
- Follow soil test recommendations
- Carrots tolerate pH from 5.5 to 7.0

Under optimum soil test levels apply...

3.75 oz of nitrogen per 100 sq ft

1.7 oz of phosphate per 100 sq ft

9.0 oz of potassium per 100 sq ft

### Soil and Fertility continued...

Excessive nitrogen will cause too much top growth. Carrots need moderate amounts of manganese, boron, and copper.

### Selecting Carrots Varieties

Carrots can be grown that come in a range of colors including orange, red, white, yellow, and purple. Carrots are grouped by shape and market use into four classes. Emperor carrots are long and tapered with a deep orange cortex and lighter core. Nantes are bright orange and cylindrical with a blunt, rounded base. Baby Nantes are only about 3/4 inches by 3 inches and are very high quality. Chantenay carrots are short, tapered and primarily used for processing or stored. Danvers varieties often have a green tinge and are used for baby food.

### Handling Your Carrots

Harvest when carrots are sweet and not too large or fully mature. Mature carrots become woody and loose flavor. Undercut roots and then pull the plants. Market carrots can be sold in bunches with the tops on or removed. Wash carrots thoroughly in a water bath or by spraying. After washing, maintain at a high humidity to prevent shriveling. Line boxes with a damp cloth or pack roots in a perforated plastic bag. Store fresh consumption carrots at 32°F and 95% relative humidity for 2 weeks. Storage type carrots should be removed from the ground shortly before freezing. Remove tops and keep in a cool, humid place.

