



California Fresh Carrot Advisory Board

## What's Up, Doc?—Carrots!

Carrots have found increasing favor among U.S. consumers. In the 1990's, per capita use of fresh-market carrots has averaged 25 percent above the average of the 1980's, while use of carrots for freezing is up 30 percent during the same period. Carrots are popular as snacks, side dishes, salad ingredients, juice mixtures, and ingredients in desserts (e.g., carrot cake). As a result of the increase in demand, both domestic production and imports have soared in recent years. The U.S. is now the second-largest producer of carrots in the world behind China—Russia is third.

### California Dominates U.S. Carrot Production

Underscoring the rising popularity of carrots is an expansion in both the acreage and the number of farms producing this root crop. According to the Census of Agriculture, carrots were produced on 2,039 farms in 1992—up 29 percent from the previous Census in 1987. California accounts for 73 percent of the *fresh-market* carrot crop, followed by Colorado and Michigan with about 5 percent each (USDA statistics include baby carrots and other fresh-cut products in fresh-market output). On the *processing* side (canned, frozen, juice, dehydrated), Washington

state produces about a third of the U.S. crop, followed by California with 25 percent and Wisconsin with 13 percent.

*Fresh-market* carrots account for 70 percent of total U.S. carrot output. Fresh-market volume is heaviest during the spring months (March–May) and lowest during late-summer months (August–September). California produces carrots for the fresh market year round. Kern County, 90 miles northeast of Los Angeles, is the center of California carrot production, followed by Imperial and Monterey Counties. With a constant supply of quality product, California shippers are the price leaders in the carrot market throughout the year. Although California is the volume leader each month, other states such as Michigan (during the fall) and Texas (late winter and early spring) have also carved out market niches.

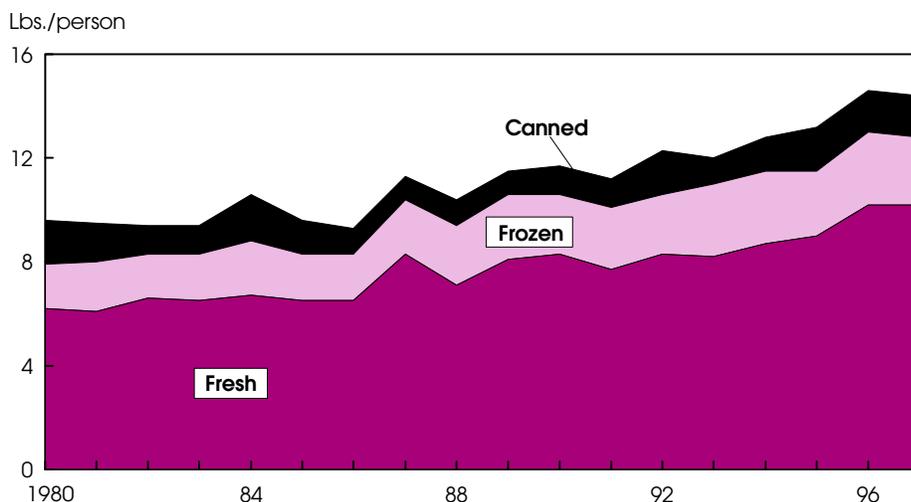
The shipping side of the fresh market is highly concentrated. Although there are eight shippers of fresh carrots in California, the two largest California firms reportedly control 90 percent of the market for California fresh carrots. These large integrated grower/shippers contract with other growers to produce carrots. Similar to the processing side of the business, the majority of fresh-market carrots are produced under contract or agreement with a shipper or processor prior to planting. Because of the concentration of ship-

pers and the cost of establishing a packing/processing plant, contracting is more prevalent in the carrot industry than in most other fresh produce industries where many growers also act as shippers.

Carrot production in the U.S. is highly mechanized. With few exceptions, carrots for both the fresh market and for processing are machine harvested. *Fresh-market* carrots are harvested when most of the roots are 1 to 1.5 inches in diameter near the top. Different varieties tend to be used for processing than for fresh consumption. While the fresh market favors long slender carrots with high sugar content, many processors can use short, thick varieties since they are going to be diced, sliced, or otherwise cut. In some areas, *processing* carrots tend to be left in the ground longer to increase size, dry matter, and color.

Over the past decade, carrot production has become increasingly segmented between carrots for the freshmarket (including fresh-cut products) and those for processing. Because of their characteristics, the short, thick carrot varieties have always been geared toward the frozen, canned, juice, or dehydration markets. However, in years past, some of the carrots destined for fresh use ended up being processed when low fresh-market prices encouraged diversion to the processed market.

U.S. Per Capita Carrot Consumption Has Risen in the 1990's



1997 forecast.  
Economic Research Service, USDA

## Commodity Spotlight

### Purple Carrots?

Carrots, a cool-season crop, are members of the parsley family and are believed to have originated in western Asia near Afghanistan. Originally, carrots did not have the familiar orange hue of today. Centuries ago, carrots were various shades of white, purple, and yellow, with today's orange carrot an apparent aberration reportedly developed in the 16th century by the Dutch. When carrots arrived in England and France soon after, the lacy green tops were prized as an adornment for women's hats and hair. And when early European settlers came to Virginia, they brought carrot seeds to the New World to grow the root for food.

Carrots were reportedly used for medicinal purposes before becoming a popular consumer vegetable. Long ago, the Greeks are said to have used carrots to cure stomach ailments. Carrots also have other traditional roots. During Rosh Hashanah, the Jewish New Year, carrots are traditionally served—sometimes in round forms to look like coins—as a symbol of future prosperity.

Virtually devoid of fat, carrots are also low in calories and sodium and provide dietary fiber, potassium, and vitamin C. However, the carrot's nutritional claim to fame is as a leading source of a carotenoid called beta-carotene (other carotenoids measured by scientists and found in carrots are alpha-carotene and lutein). Beta-carotene is found in most yellow/orange vegetables and melons (e.g., carrots, sweet potatoes, squash, and cantaloupe), as well as in dark green leafy vegetables such as spinach and broccoli. The human body converts dietary beta-carotene as needed to vitamin A, a fat-soluble vitamin stored in the body. Vitamin A is essential for normal vision, regulation of cell development, healthy skin, and proper immune-system response.

The rise of the *fresh-cut* industry has meant some of the misshapen and otherwise imperfect carrots have an alternative profitable outlet. Carrots that would not have made the grade in a standard cello pack of fresh carrots do not have to be sent to freezers or canners to be cut, diced, or juiced. Today, the cutting and peeling process for various fresh-cut carrot products allows a majority of the raw carrots destined for the fresh market to become fresh-market products. One of the largest food processing facilities in the world is a California fresh-cut carrot cutting/peeling/packing operation.

#### Domestic Demand Surges in the 1990's

U.S. consumers have significantly increased consumption of carrots during the 1990's. In terms of domestic use, carrots are now the seventh-largest fresh vegetable (including melons) and third among frozen vegetables. Use of fresh-market carrots totaled 10.2 pounds per person in 1996—up 23 percent since 1990, the highest per capita use since the 1940's and the third largest on record. Per capita use of carrots for freezing between 1990 and 1996 rose 22 percent to 2.8

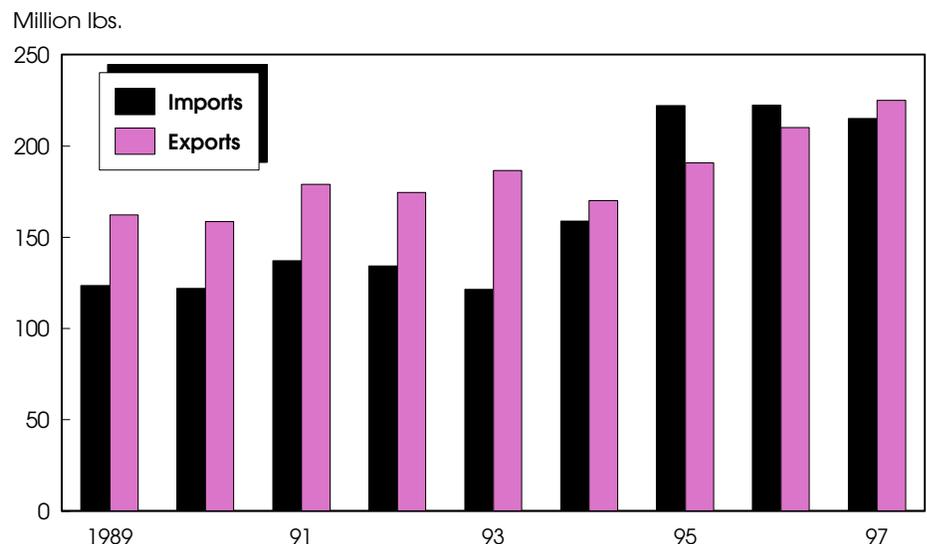
pounds—tied for the highest on record. Although there is no production or pack data for canned carrots, evidence suggests that canned carrot use may have expanded as well during the 1990's.

What is driving carrot consumption higher? A combination of several factors are at work including:

- convenience of fresh-cut and peeled (baby) carrots;
- rising nutritional awareness of consumers;
- continued popularity of salads and salad bars;
- economic expansion and lifestyle changes that fuel increases in away-from-home meals;
- consumer interest in new organic products;
- development of sweeter, more tender carrot varieties; and
- new marketing approaches.

Why eat carrots? A privately funded annual consumer produce survey ("Fresh Trends," by Vance Research) consistently indicates that carrots are the leading vegetable snack item—celery is usually second. The annual surveys have also shown that carrots are consumed for a variety of health-related reasons including cancer prevention, vitamin/mineral intake, calorie control, and fiber content. For years, consumers have strongly associated carrots with vitamin A. In fact, 51 percent of the respondents to the 1994 survey considered carrots the most nutritious vegetable, ahead of broccoli and potatoes.

#### U.S. Carrot Exports to Surpass Imports in 1997



1997 forecast.

Economic Research Service, USDA

Always popular in salads, carrots have also consistently been identified in consumer surveys as the most popular raw vegetable. At the same time, carrots were cited as lacking convenience because of time required for peeling and cutting. In response to this finding, “baby carrots” were introduced in 1988. However, possibly because of concern over cost and quality, the new product did not catch on with consumers until the early 1990’s.

Today, fresh-cut and peeled carrots have been credited as the primary driving force behind growth in the fresh and frozen carrot industries. Baby carrot products are not tiny carrots but are selected long and slender fresh-market carrots that have been trimmed, grated, polished, and shaped into small uniform sizes.

The kind of creative marketing that devised baby carrots is still at work. Recently, some airlines have decided to offer a new in-flight snack. A small pack of mini baby carrots produced by industry leader Grimmway Farms will be offered on some flights as an alternative to peanuts. In addition to carrot sticks, baby carrots, and mini baby carrots, fresh carrot snacks also come in the form of crinkle-cut pieces and “coins”—small round shapes that are easy to eat on the go. Finally, demand for organic carrots is on the rise. Organic carrots, for example, may account for as much as 10 percent of the carrots sold in the Boston wholesale market despite a strong price premium.

After a decade as a net exporter of fresh carrots, the U.S. has become a net importer. Although imports and exports have both been trending higher in the

1990’s, import growth has been stronger (up 82 percent since 1990 versus 32 percent for exports). Much of the import growth reflects a combination of rising demand for fresh-cut product and the 1994/95 peso devaluation which caused imports from Mexico to jump 300 percent between 1994 and 1995. Imports of fresh-market carrots account for 8 percent of U.S. supply, up from 5 percent in 1990.

The popularity of fresh-cut carrots has spilled over into the import market as producers in Canada and Mexico seek to replicate the success of U.S. companies. Imports from Canada and Mexico make the U.S. the world’s third-leading importer of carrots. The leading importer is Belgium-Luxembourg, a primary point of entry for Europe.

Ninety percent of U.S. fresh carrot exports go to three countries—Canada, the United Arab Emirates (UAE), and Japan. Shipments to Canada account for 84 percent of exports and help make the U.S. the world’s fourth-leading exporter of fresh carrots. The Netherlands is first, followed by Italy and Belgium-Luxembourg. Exports now account for 7 percent of U.S. supply and are valued at \$44 million.

Japan has slowly been opening as a market for U.S. fresh carrots. The uniform appearance and consistent high quality of today’s fresh-cut and peeled products is more appealing to Japanese consumers than a standard cello pack of carrots. Although accounting for just 3 percent of U.S. fresh carrot exports, shipments to Japan totaled 6.9 million pounds in

### November Releases—USDA’s Agricultural Statistics Board

The following reports are issued electronically at 3 p.m. (ET) unless otherwise indicated.

#### November

- 3 *Crop Progress (after 4 pm)*
- 4 *Dairy Products*  
*Egg Products*  
*Poultry Slaughter*
- 5 *Broiler Hatchery*
- 7 *Cheddar Cheese Prices*
- 10 *Cotton Ginnings (8:30 am)*  
*Crop Production (8:30 am)*  
*Crop Progress (after 4 pm)*
- 13 *Broiler Hatchery*
- 14 *Cattle on Feed*  
*Milk Production*  
*Sheep*  
*Turkey Hatchery*  
*Cheddar Cheese Prices*
- 17 *Crop Progress (after 4 pm)*
- 19 *Broiler Hatchery*
- 21 *Chickens & Eggs*  
*Cold Storage*  
*Farm Labor*  
*Livestock Slaughter*  
*Cheddar Cheese Prices*
- 24 *Catfish Processing*  
*Crop Progress (after 4 pm)*
- 25 *Cotton Ginnings (8:30 am)*
- 26 *Agricultural Prices*  
*Broiler Hatchery*  
*Peanut Stocks & Processing*
- 28 *Cheddar Cheese Prices*

1996—up from an average of only 500,000 pounds in the early 1990’s. If this growth continues, Japan will soon overtake the UAE as the second-leading export market for U.S. fresh carrots.

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