

## Commodity Spotlight



Leafy Greens Council

# Leafy Greens: Foundation of The Vegetable Industry

Leafy green vegetables are arguably the foundation of the vegetable industry. Lettuces such as leaf and romaine are basic ingredients in vegetable-based salads. Iceberg lettuce supplies the main garnish for sandwiches and burgers. Cabbage is the basic ingredient in coleslaw, a frequent luncheon side dish and a picnic mainstay. And spinach is versatile enough to be a salad ingredient as well as a plate vegetable prepared from fresh, canned, or frozen product.

The term “leafy greens” refers to vegetables such as lettuce, cabbage, endive, escarole, spinach, broccoli, collards, turnip greens, mustard greens, and kale. Consumption of leafy green vegetables has been trending higher over the past two decades. Leafy greens accounted for about \$2.5 billion or 16 percent of all farm cash receipts for vegetables in 1996, up from 13 percent (\$1.1 billion) in 1986. California is the leading source for fresh-market leafy green vegetables, producing two-thirds of the U.S. total.

Most leafy green vegetables carry impressive nutritional credentials. Leafy greens are excellent sources of vitamins A and C, and several other nutrients. Cooking or canning does not diminish and may even enhance the vitamin A content of greens like spinach, turnip greens, and collards. For example, canned spinach delivers about 30 percent more of the recommended daily dietary allowance (RDA) of vitamin A than an equal weight of fresh spinach. One cup (214 grams, drained weight) of canned spinach contains more than three times the adult male RDA of vitamin A and half the vitamin C. The fact that cooking still leaves a nutritionally potent product is important for leafy greens because many greens are sold either in canned or frozen form or require cooking of the raw product for optimal palatability.

### *Lettuce: Leader of the Pack*

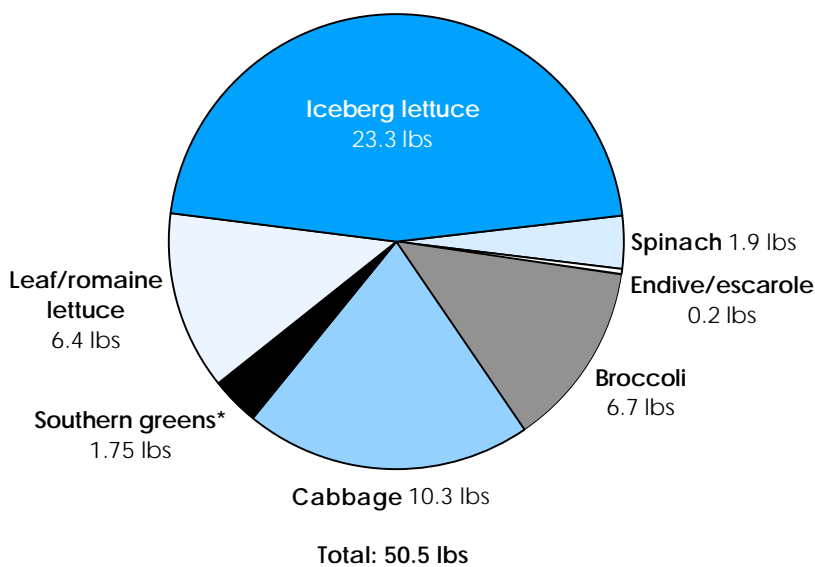
Lettuces of all types account for the largest share of farm cash receipts for leafy green vegetables, amounting to more than half in 1996. The U.S. is the world’s second leading producer of lettuce, behind China.

Total U.S. lettuce production in the 1990’s is up about 12 percent from the average of the 1980’s. During the past 5 years, total U.S. lettuce production has remained constant, but this stability masks dynamic changes within the industry—demand for iceberg or head lettuce has declined as consumption of other lettuces has surged.

Over 1992-96, leaf and romaine production has jumped more than 40 percent, offsetting an 11-percent reduction in iceberg lettuce from its 1989 production peak of 7.5 billion pounds. Demand for romaine has been particularly strong in the 1990’s, with production jumping 74 percent since 1992 in response. The popularity in both the foodservice and retail markets of Caesar salad (which features romaine) is undoubtedly a major factor behind this surge.

However, some of the shift in lettuce production and consumption patterns is likely due to increased nutritional awareness among consumers, the success of prepackaged salads, and a general desire for diversity in foods. Lettuces like leaf and romaine are higher in vitamins, minerals, and fiber than iceberg, and fresh-cut salads offer consumers variety while reducing preparation time. Nevertheless,

### **Iceberg Lettuce Leads in Per Capita Use of Leafy Green Vegetables**



1996 data. Fresh-weight equivalent.  
 \*Includes kale, and collard, turnip, and mustard greens.  
 Economic Research Service, USDA

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iceberg lettuce remains the top leafy green vegetable in terms of both production and per capita use.

*Per capita use* of all leafy green vegetables, despite a longrun upward trend, has remained fairly stable during the 1990's at around 50 pounds. Influenced strongly by iceberg lettuce trends, total per capita use of leafy greens peaked at nearly 52 pounds in 1989, a year of very strong vegetable consumption in general, reflecting high household disposable incomes and strong restaurant food sales.

Americans consumed 6.2 billion pounds of *iceberg lettuce* in 1996. At 23.3 pounds per capita, iceberg lettuce is second only to potatoes as the largest fresh-market vegetable consumed in the U.S. However, per capita use of iceberg has declined 5.5 pounds since the 1989 peak, returning to the level of the mid-1980's and early 1970's.

While iceberg lettuce's star may have dimmed slightly over the last few years, the rising stars have been *leaf and romaine lettuce*. Per capita use of leaf and romaine is up to a record-high 6.4 pounds, and the rise is expected to continue. Use has doubled since the last half of the 1980's. Among the likely factors driving

consumption gains in these lettuces are the popularity of Caesar salads, the introduction of salad mixes such as mesclun, increased nutritional awareness among consumers, and a general desire for new tastes and foods.

*Broccoli use* surged in the late 1980's and then cooled off in the early 1990's, reaching a low point in 1993. However, broccoli use has since picked up and fresh-market use is now sitting at an all-time high of 4.1 pounds per person. Broccoli use in frozen form has also reached a record high of 2.6 pounds (fresh equivalent) per person. The continued strong association of broccoli with good health plus the introduction of new products like broccoli coleslaw and various time-saving pre-cut items have undoubtedly played roles in the resurgence of demand.

Per capita use of *fresh-market cabbage*, after bottoming out in 1980, embarked on a slow, long-term upward trend. Per capita use during the 1990's averaged 9.1 pounds, 5 percent above the average of the 1980's. Per capita use in 1996 was up from the previous year at 9.1 pounds, but still far below the record 27 pounds reached in the early 1920's. Increased use during the 1990's could be due in part to the popularity of various fresh-cut

products containing cabbage, the continued popularity of products like coleslaw, and the increasing nutritional awareness of consumers.

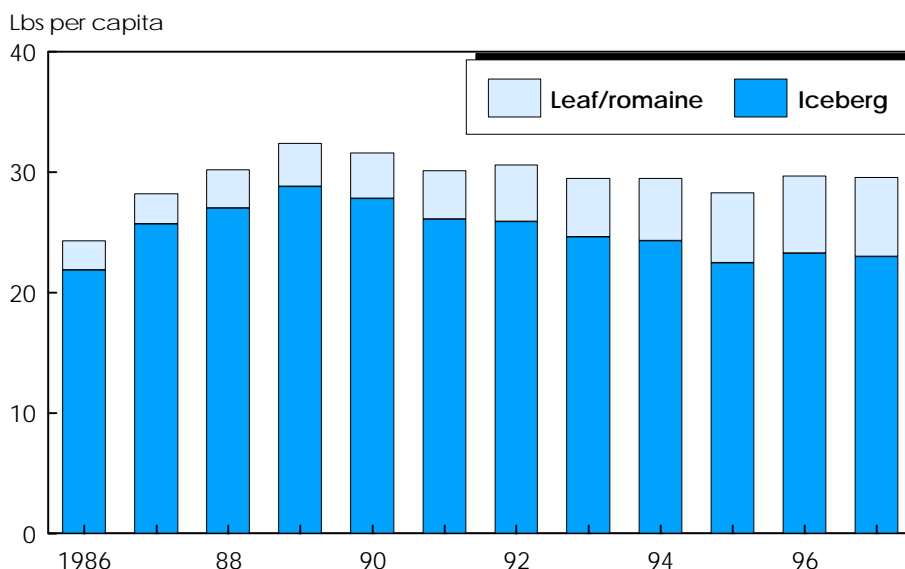
Americans used about 171 million pounds of fresh *spinach* in 1996. Per capita use peaked in the early 1990's at 0.8 pound but slipped to 0.6 pound in 1996. The popularity of well-stocked salad bars and of spinach salad in general was likely responsible for much of the growth in use during the early 1990's. However, consumers are fickle, and food fads come and go. While fresh spinach use is still double the level of the 1970's, it seems to have slowed a bit during the past 3 years and is now at the same level as in the late 1980's.

Per capita use of *endive and escarole* had been on a steady longrun decline since the early 1970's. It appears that the decline has halted during the past few years, and use has stabilized at 0.2 pound per person. Although most consumers have heard of endive and escarole, these salad ingredients still seem to suffer from their relative unfamiliarity.

In the 1990's, grower prices for the major fresh-market leafy greens have averaged about 26 percent of the retail prices paid by consumers. The other 74 percent of the retail price is the marketing margin—expenses associated with packaging, wholesaling, distributing, and retailing of the vegetables. Because the total retail price is dominated by several relatively stable components such as store labor, electricity, and rent, there exists a perception that changes in retail prices do not adequately reflect changes in grower prices. Retail prices do eventually follow changes in grower prices, but the retail changes tend to be less noticeable because of the small share of the total retail price earned by growers.

The 26-percent grower share of retail prices for leafy greens is about average for major fresh vegetables. For fresh tomatoes, for example, the grower share is 28 percent, for fresh potatoes 20 percent, and for onions 32 percent.

### Consumption of Leaf and Romaine Lettuce Is Rising



## The Varieties of Greens

Leafy green vegetables include a wide range of commodities. Most greens are high in vitamins A and C, and many also contain minerals such as calcium and iron. Many varieties need no introduction. Others, although familiar in one region of the country, may be virtually unknown in another. Collard greens, for example, are popular in the South but are not marketed widely in the Northeast.

Eliminating the veil of mystery surrounding some leafy greens and improving their visibility is a major mission of the National Leafy Greens Council. Founded in 1974, this industry association provides market, nutritional, and educational information to both growers and consumers.

Following is a descriptive sampling of specialty leafy greens:

*Arugula (also called rocket salad)*: Tender with a sharp mustard flavor; popular as a salad green in Europe. Considered an aphrodisiac by ancient Romans. In India, the seeds are crushed for oil.

*Belgian endive (endive or witloof)*: Force-grown under cover; white pod-shaped head with yellow-tipped leaves; mild, delicate flavor; used in salads but can also be steamed, baked, or sautéed; popular in Europe.

*Bok choy (Chinese chard)*: An oriental cabbage; resembles celery, with long thick white stocks topped with shiny dark green leaves; mild flavor similar to cabbage; good steamed and in stir-fry and soups.

*Collard greens*: A traditional southern green; wide, flat, loaf-shaped dark green leaves with a taste similar to cabbage; often slow-boiled with salt pork, fried with bacon or salt pork, or simmered in seasoned broth. In South Carolina, it is considered good luck to eat collards on New Year's Day.

*Escarole (Batavian endive)*: Crisp green heads with large loose bunches of green ragged-edged leaves; used mostly

raw in salads and salad mixes; can also be boiled or steamed.

*Kale*: Another traditional southern leafy green; dark green curly leaves used in salads (young leaves are sweeter), steamed or sautéed, or added to soups and cheese-based pies; used as garnish on plates and salad bars.

*Mustard greens*: Oval-shaped leaves with scalloped edges and a sharp, radish-like flavor; young leaves add zest to salads while mature leaves add flavor to soups, stews, and sautés; slow cooking mellows the flavor.

*Radicchio (red chicory)*: Red broadleaf heading form of chicory; distinctive bittersweet flavor when raw; favored by Europeans in salads; can also be grilled, roasted, or used as colorful garnish.

*Rapini (also called broccoli raab)*: Slightly bitter green; stalks topped with dark green, chard-like leaves; used in Chinese recipes and Italian pasta dishes; cooks like broccoli.

*Swiss chard*: Has oval-shaped, glossy, crisp, dark green leaves with white center ribs, on fleshy green or red stalks (for red chard); mild taste similar to beets, leaves used in salads; both leaves and stalks can be steamed or sautéed.

*Turnip greens*: The tops to the root crop; slightly fuzzy green leaves known for their sharp flavor; traditionally prepared in broths flavored with ham or salt pork.

*Watercress*: Small green heart-shaped leaves clustered on long thin stalks; peppery, spicy flavor; used most often as a garnish for salads and other recipes.

*Dandelion greens*: Commercially grown varieties popular in parts of the South, high in Vitamin A; generally less bitter and lighter green than wild plants; can be cooked like other greens or used in salads.

## Acreage & Sales Up for Traditional Greens

Nutritional awareness is likely behind the recent robust gain in acreage planted to traditional southern greens like kale, collard greens, turnip greens, and mustard greens. These dark green vegetables are especially rich in nutrients such as beta carotene, vitamins A and C, and a range of minerals. While USDA does not collect production and value statistics for traditional southern greens, the census of agriculture reports that 47,000 acres of these four leafy greens were harvested in 1992—up 14 percent from the previous census in 1987. Assuming no increase in acreage since 1992, ERS estimates suggest the combined per capita use of these four greens is likely close to 2 pounds today.

Georgia plants about a fourth of U.S. acreage of these specialty leafy greens, accounting for 27 percent of collard green area, 19 percent of kale, 20 percent of turnip greens, and 18 percent of mustard greens. Substantial acreage is also found in California, Texas, Tennessee, and South Carolina.

Information on market volume for these crops is limited to data on *processed* products—frozen vegetable production, and canned and frozen supermarket volume. Data from the American Frozen Food Institute indicate that frozen kale production has declined since the early 1980's. However, acreage of kale has more than doubled since 1982. Most of the additional kale has likely moved into the fresh market, where its popularity has

risen as a salad green and as a garnish for plates and salad bars.

Supermarket sales of these four greens have increased during the 1990's, according to information from Nielsen Marketing Research. The data indicate that supermarket volume of the processed forms of these four greens rose 30 percent between 1989 and 1996. For canned products, retail sales volume was up 36 percent, led by mixed greens (up 164 percent) and collard greens (up 109 percent). For frozen greens, the sales volume rose 17 percent, led by collard greens (up 29 percent) and kale (22 percent). In 1996, supermarket sales of these four frozen leafy greens totaled \$14 million, while canned sales were valued at \$23 million.

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### *The U.S. Is a Net Exporter*

The U.S. has remained a net exporter of leafy green vegetables. Exports of the major fresh-market leafy greens (lettuce, cabbage, broccoli, and spinach) were valued at \$257 million in 1996, while imports totaled just \$36 million. Fresh-market broccoli was the highest valued export at \$85 million, followed closely by iceberg lettuce at \$82 million and other lettuces at \$58 million.

Exports provide a key market for several leafy greens. About 21 percent of fresh-market broccoli supplies are now exported—up from 17 percent in 1990. Since 1990, the volume of fresh-market broccoli exports has grown 66 percent to 279 million pounds. As with most U.S. fresh vegetable exports, Canada is the leading foreign market, taking 58 percent of the volume. Japan follows with 36 percent.

Exports are also important to spinach and lettuce growers. About 14 percent of the U.S. fresh-market spinach supply is exported, with virtually all going to Canada. Exports also take 12 percent of the supplies of leaf and romaine lettuce, 6 percent of head lettuce, and 4 percent of

fresh cabbage. Canada receives about 80 percent of all U.S. lettuce exports, while Hong Kong and Mexico each account for 7 percent. Canada is also the top export market for cabbage, but substantial volumes also move to places like Hong Kong and Russia.

Unlike with other major vegetables like tomatoes, bell peppers, and squash, imports do not play a significant role in most fresh leafy green markets. While imports of fresh tomatoes, for example, account for 30 percent of use, leafy green imports account for less than 2 percent of domestic use.

Leafy greens are cool-season crops, which grow best at moderate temperatures and can withstand an occasional light frost. Kale, in fact, becomes sweeter following a light frost. Thus, it is not necessary to import large volumes of leafy vegetables to supplement winter supplies, since most can be grown in sufficient volume year-round in the U.S.

Fresh cabbage and lettuce are the highest valued imports at \$8 million each, followed by broccoli at \$7 million. Leafy green imports come primarily from

Mexico and Canada. Iceberg lettuce would qualify for a “made-in-America” award, since only half a percent of domestic consumption comes from import sources.

Backed by the urgings of the Federal Government, industry groups, nutritionists, and the medical community, demand for all vegetables is expected to remain strong into the next century. Since vegetables like spinach, collards, kale, and broccoli are among the most nutritious foods grown in the U.S., leafy greens will likely continue to play an important role as Americans “strive for five” and move closer to consuming five servings or more a day of fruits and vegetables.

Many growers, especially former tobacco growers, are looking for profitable alternative crops. If the industry can spur demand in other regions of the country for the traditional leafy greens like collards and kale, more acreage of these crops could be planted. Future growth depends principally on industry’s effectiveness in getting the word out to consumers that leafy greens are both tasty and nutritious.  
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