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# Whether a Pinch or a Dash, It Adds Up to a Growing U.S. Spice Market

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**T**he United States is the world's largest consumer and importer of spices. A growing population, a trend toward using spices to compensate for less salt and fat in food, and a heightened popularity of ethnic foods have pushed U.S. demand for spices to record levels.

Rapid expansion of eating away from home in recent years has increased the commercial use of spices. By the early 1990's, about 60 percent of domestically produced spices were used by the food processing and foodservice sectors, compared with 40 percent a decade earlier. Another trend in food manufacturing is the greater use of spice oleoresins (a concentrated form of spice) because they are easier to disperse in products.

The American Spice Trade Association (ASTA) defines a spice as "any dried plant produce used primarily for seasoning purposes." This definition includes tropical aromatics (such as pepper, cinnamon, and cloves); leafy herbs of the temperate zone (notably oregano, basil, and sage); spice seeds (sesame, mustard, and caraway); and dehydrated vegetables (such as onion, garlic, and chile peppers).

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## U.S. Spice Market Is "Hot"

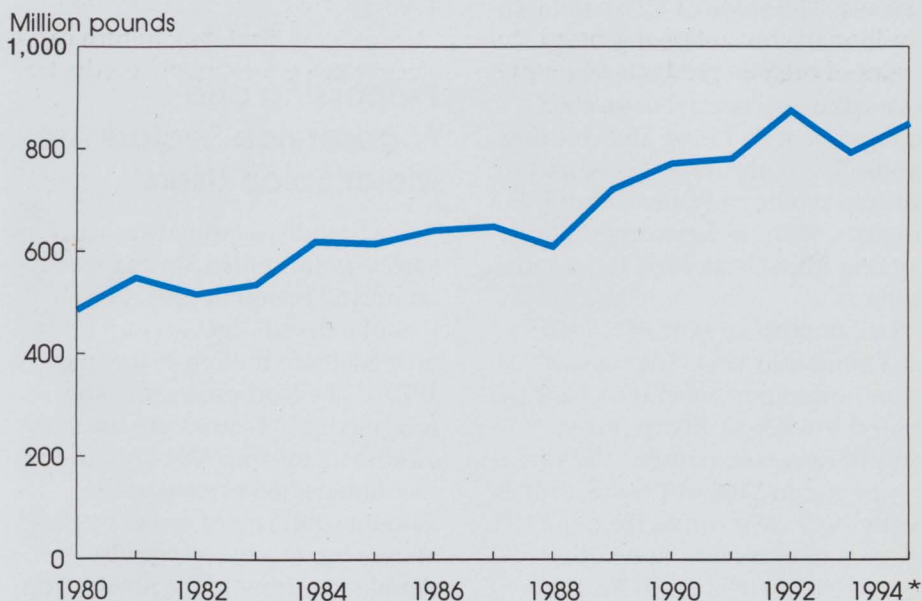
U.S. spice consumption averaged an estimated 815 million pounds in 1990-94, compared with 541 million in 1980-84 (fig. 1). Per capita spice consumption increased nearly 1 pound from a decade ago to 3.1 pounds in 1990-94. Imports and domestic production increased over the past decade in response to greater U.S. spice demand.

The United States produces more than one-third of its annual spice

needs. Domestic production accounted for 310 million pounds of U.S. spice consumption in 1990-94, up from 195.8 million pounds in 1980-84. Domestic production consists of four major spice types. Dehydrated garlic and onions represent nearly two-thirds of U.S. spice production, capsicum (cayenne or red) peppers represented about 30 percent, and mustard seed and various herbs account for the remainder.

Dehydrated garlic and onion production from domestically produced

Figure 1  
Americans Are Consuming More Spices



\*Note: 1994 estimate.



fresh material has been growing in recent years. Production, concentrated in California, totaled 206.3 million pounds (dry basis) in 1990-93, compared with 120.6 million in 1980-84.

New Mexico, California, and Arizona are important producers of capsicums for spices and other uses. U.S. production of dried chile peppers totaled 160 million pounds in 1994, nearly double the amount produced in 1985.

Imports supply nearly two-thirds of U.S. spice needs. The United States imports more than 40 primary types of spices each year. Seven major types (vanilla beans, capsicums, black and white pepper, sesame seed, cinnamon and cassia, mustard, and oregano) account for more than 75 percent of the total annual value of spice imports and almost 71 percent of the volume (see box).

A number of other spices are imported into the United States in significant volumes.

The U.S. market for cumin, for example, has been expanding, reflecting growing use in both Hispanic and Asian foods. Shipments of cumin, primarily from Pakistan, Turkey, and Syria, reached a record 15 million pounds in 1994, up from an average of 8.8 million pounds in 1980-84. The value of U.S. cumin imports totaled \$9.5 million in 1994.

Saffron, the world's most expensive spice, has several uses, chief among them flavoring and coloring foods. Spain, the largest producer of saffron, provided 86 percent of U.S. imports, with the balance primarily coming from Costa Rica, Italy, and India.

U.S. imports of saffron totaled \$3.2 million in 1994. The unit value of saffron imports averaged \$464 per pound in 1989-92. Sharp increases in supply, however, reduced the value per pound to \$168 in 1994. Saffron is costly because it comes from the stigmas of a crocus and no other part of the plant is used. An acre planted for saffron will yield only 8

to 12 pounds of dried spice per year. Despite its high price, demand remains strong because of its distinctive taste and intense yellow color.

Other commonly used spices include ginger from China, India, Fiji, Indonesia, and Jamaica; parsley from Israel and Mexico; poppy seed from Australia and The Netherlands; dill from India; and curry and curry powder from India and Japan. U.S. imports of basil, primarily from Egypt, more than doubled from 1980-84 to an average of 5.2 million pounds annually in 1990-94. The value of basil imports rose from \$1.2 million annually in 1980-84 to \$3.3 million in 1990-94.

Some previously unfamiliar spices are becoming more popular, especially in processing. Anise, for instance, is used both whole and ground to flavor candy and pastry. Anise imports averaged 2.5 million pounds annually in 1990-94, compared with 1.4 million pounds a decade earlier. U.S. imports of cardamom, used whole as a pickling spice and ground as a flavoring for pastries, in curry powders, and in spice blends for sausages, have also been increasing. Cardamom imports have grown to an annual average of 0.5 million pounds in 1990-94, compared with 0.3 million pounds in 1980-84.

### Processing and Foodservice Sectors Are Major Spice Users

Trade sources estimate sales of spices in the United States totaled around \$2 billion in 1994, double that of a decade ago, and up from only \$400-450 million in the mid-1970's. The food processing and foodservice industries are the major customers for spices, accounting for an estimated 60 percent of the amount sold. Use of spices by these sectors has expanded because of population growth, the greater popularity of ethnic foods and prepared

meals, and increased consumption of food away from home.

With Americans eating a third of their meals outside the home, the foodservice sector uses sizable quantities of spices. Among the major users are large fast-food chains, such as Kentucky Fried Chicken and McDonald's. Fast food restaurants use natural spices, like pepper and paprika, as ingredients. In addition, restaurants provide customers with prepared seasonings and flavors, such as mustard and pepper, in packages or dispensers specially made by spice processors.

Some sales of spices and seasonings are shifting from foodservice outlets to food processors, because foodservice products increasingly are being prepared by food processors rather than on-site. Many pizzas sold in foodservice establishments and for home delivery, for example, are prepared by food processing firms and reheated at the restaurant. This growing trend means the demand for oregano at the food processing level has increased sharply.

The food processing sector uses spices in meat preparations, soups, bakery products, beverages, snacks, convenience foods, and many other products. The largest users of spices in the food processing industry are meatpackers, such as Armour and Oscar Mayer. Large quantities of spices are also used in soups. Sesame, caraway and poppy seeds, cinnamon and cassia, nutmeg and mace, cloves, and cardamom are widely used in bakery products.

Beverages, particularly soft drinks, contain sizable amounts of liquid spice flavorings, which are derived from the essential oils in spices. Colas, for example, may contain nutmeg and other liquid flavorings.

Although the food industry uses spices in their natural or powdered form, there is a trend toward greater use of spice flavorings and mixes prepared to meet the specifications



## Getting the Flavor of the Popular Spices

Seven products make up about three-fourths of U.S. spice imports. Here's a profile of those spices' markets, trade value, and major producers.

### Vanilla beans

- The United States is the world's largest market for vanilla beans.
- Vanilla beans rank as the leading U.S. spice import in terms of value. At an average unit value of \$22.79 per pound, imports averaged \$61.6 million annually in 1990-94 for 2.7 million pounds.
- Indonesia is the largest supplier to U.S. market. Other suppliers include Madagascar, the Comoros, and several Pacific islands.
- Ice cream is the largest use for natural vanilla, accounting for half of the market.
- The natural spice faces strong competition from synthetic flavorings, such as vanillin.

### Black and white pepper

- The United States is the world's largest pepper buyer, accounting for over one-quarter of annual world imports.
- Black pepper imports averaged \$52.9 million annually in 1990-94; white pepper, \$10.9 million. Ground pepper imports totaled \$1.4 million.
- While the value is near the leading U.S. import, vanilla, the volume is significantly higher, at an annual average of 98.1 million pounds in 1990-94. Per-unit values averaged \$0.63 per pound for black pepper and \$0.80 per pound for white pepper.
- Indonesia, India, and Brazil are leading suppliers.

- Black pepper is used to season many prepared meats and foods. White pepper is used when dark specks of black pepper are undesirable.

### Capsicum and paprika peppers

- One of the fastest growing spice import groups in the U.S. market.
- Three basic types in demand are chili powder, chile pepper, and paprika (the mildest of the capsicum peppers).
- Imports averaged 57.3 million pounds in 1990-94 at an average annual value totaling \$44.6 million.
- Peppers are imported from Mexico and Asia, particularly India, China, and Pakistan.
- Paprika imports originate in Spain, Morocco, and Hungary.
- Increasing domestic production in New Mexico, California, and Arizona.

### Sesame seed

- One of the leading spices imported into the United States in both volume and value.
- Widely used by the baking industry and is popular as a topping for yeast-leavened buns in the fast-food sector.
- Imports averaged \$43.7 million for an annual average of 84.6 million pounds in 1990-94.
- Mexico accounts for nearly half of U.S. imports. Guatemala and El Salvador are also important suppliers.

### Cassia and cinnamon

- Cinnamon quills or curls are widely used in pickling, preserves, pudding, flavorings, and

stewed fruits. In ground form, the largest end use is baking.

- Cassia, which can be sold under the name cinnamon, is widely used in making doughnuts.
- An average of 31.5 million pounds was imported in 1994 at a value of \$27.9 million.
- Indonesia supplies 90 percent of U.S. import market.

### Mustard seed

- Mustard use has been growing at home and in fast-food restaurants (however, part of the increase in use may include the waste common with minipackets of mustard at fast-food establishments).
- A small amount is produced domestically, but most is imported from Canada.
- Import volume, the largest of any spice group, averaged almost 135.1 million pounds in 1990-94, compared with 76.4 million in 1980-84. Total import values rose from an average of \$11.9 million in 1980-84 to \$20.2 million in 1990-94. Imported mustard seed averaged \$0.13 per pound.

### Oregano

- Growth in imports reflects increasing demand spurred by use in the rapidly expanding market for pizza.
- Imports averaged 12.6 million pounds in 1990-94, up from 7.7 million pounds in 1980-84. The value of imports totaled \$12.1 million in 1990-94, more than double a decade earlier.
- Turkey and Mexico are the leading sources of U.S. imports.



of individual food processing companies. For instance, manufacturers may require a number of different spices for hot dogs. Purchasing blends of these spices from a spice supplier in exact unit sizes premixed for manufacturing a certain amount of product is more efficient and accurate than is acquiring the spices separately from different suppliers and mixing them at the meatpacking plant.

A small number of large spice processing and marketing companies grind imported or domestically produced spices and pack them in a variety of containers. McCormick/Schilling is the industry leader, accounting for 37 percent of the U.S. retail spice market. As in other segments of the food processing sector, a trend of mergers is resulting in fewer, larger firms operating in the spice industry.

## Natural Concentrates Growing...

U.S. imports of natural spice concentrates, called spice oleoresins, averaged \$25.7 million in 1990-94, compared with \$8.7 million in 1980-84. U.S. demand for oleoresins, principally paprika and black pepper, is increasing because they offer certain advantages over natural spices, such as consistency of quality, freedom from microorganisms, uniform dispersion in the product, and easy handling and storage.

Spice oleoresins contain the aroma and flavor of the spice in a concentrated form, and are usually viscous liquids or semisolid materials. Because of their high concentration, oleoresins cannot be incorporated into food products unless they are diluted.

Oleoresins are used by food processors in liquid products when even dispersion is desirable. For example, black pepper oleoresin may be used in products, such as salad dressing, when it is important that no flakes are visible.

Spice oleoresins are generally more expensive per pound than their natural counterparts. Black pepper oleoresins averaged \$7.12 per pound in 1990-94, for instance, compared with \$0.63 per pound for black pepper. However, because oleoresins are highly concentrated, a manufacturer would need to use a much smaller amount of the oleoresin than the natural spice.

## ...As Are Synthetics

Use of synthetic substitutes, such as vanillin, is an emerging trend in food manufacturing—particularly beverages, ice creams, and frozen desserts. Vanillin accounts for more than 90 percent of the U.S. market for vanilla flavorings. Most vanilla flavorings used in baking, confectionery, and in many frozen desserts contain some vanillin, ethyl vanillin, vanitrope, or a combination of these products.

The market for synthetics is expected to remain strong because of their relatively low and stable prices, as well as their reliable supply and demand. However, use of natural flavorings in food products continues to keep demand for natural spices steady despite the strong competition from some synthetics. Legislation requiring the labeling of products to show whether real or artificial flavors have been added has also aided the sale of natural spices.

## Spices Perk Up Agricultural Trade

The volume of U.S. spice imports grew 46 percent in the past decade. The United States imported an annual average 530 million pounds of spices in 1990-94, compared with 362 million pounds in 1980-84 (table 1). The value of these imports increased from an average of \$225 million per year in 1980-84 to \$374 million in 1990-94.

Spice sales to the United States are important for many countries, espe-

cially those in the Asian tropics. While more than 50 countries export spices to the United States, Indonesia, Mexico, India, Canada, and China regularly account for half of the annual value of U.S. spice imports. Indonesia accounted for 19 percent—or \$71.1 million—of U.S. spice imports in 1990-94, followed by Mexico with 12 percent. India, Spain, and Morocco regularly account for two-thirds of the value of spice oleoresin imports. India claimed the largest share at 33 percent in 1990-94.

While the United States is the major spice importer, it also exports commercially grown spices and spices that have been imported and then cleaned, sorted, or graded. Counting these "re-exports," U.S. spice exports totaled 94.8 million pounds in 1994, up from 63.2 million in 1990. The value of U.S. exports has risen from \$77.1 million to almost \$100 million. U.S. exports of whole or ground spices grown in the United States averaged 32.6 million pounds in 1990-94 at a value of \$87 million. Canada, Japan, and Germany are the principal markets for U.S. spice exports.

Dehydrated garlic and onion led the growth in U.S. spice exports in recent years, accounting for nearly half the value. U.S. exports of dehydrated garlic and onion have outpaced imports. Australia and the European Union are the major markets for U.S. dehydrated garlic, while Canada, Japan, and the European Union are the largest customers for U.S. dehydrated onions.

Capsicum peppers, mustard, and ginger are the other leading U.S. spice exports. Other spices exported include anise, cassia and cinnamon, and sesame seed. Few of these spices actually are grown commercially in significant quantities in the United States. However, imported spices are cleaned, sorted, or graded in the United States and then exported. These re-exports are counted as U.S. merchandise in the trade statistics.



Table 1  
U.S. Spice Production and Trade Are Expanding

| Year              | Imports <sup>1</sup> | Production <sup>2</sup> | Exports of U.S.-grown spices <sup>3</sup> |
|-------------------|----------------------|-------------------------|---|
| 1,000 pounds      |                      |                         |   |
| 1980              | 323,094              | 181,120                 | 18,339                                    |
| 1981              | 353,600              | 208,816                 | 14,747                                    |
| 1982              | 344,519              | 187,320                 | 15,040                                    |
| 1983              | 370,990              | 183,662                 | 18,698                                    |
| 1984              | 416,888              | 218,019                 | 15,827                                    |
| 1985              | 400,990              | 228,781                 | 13,284                                    |
| 1986              | 438,878              | 217,340                 | 14,513                                    |
| 1987              | 442,922              | 224,676                 | 17,771                                    |
| 1988              | 399,974              | 228,875                 | 17,641                                    |
| 1989              | 480,439              | 262,115                 | 20,246                                    |
| 1990              | 505,634              | 296,492                 | 29,624                                    |
| 1991              | 507,469              | 306,088                 | 31,515                                    |
| 1992              | 531,080              | 337,700                 | 31,619                                    |
| 1993              | 520,973              | 307,878                 | 34,440                                    |
| 1994 <sup>4</sup> | 582,910              | 303,500                 | 36,000                                    |

Notes: <sup>1</sup>Spices and oleoresins. <sup>2</sup>Domestic production consists of capsicums, mustard seed, dehydrated garlic and onions, and herbs used as spices. <sup>3</sup>Excludes re-exports. <sup>4</sup>Production and exports are estimates. Source: Buzzanell, Peter J., Rex Dull, and Fred Gray. *The Spice Market in the United States: Recent Developments and Prospects*, AIB-709. U.S. Dept. Agr., Econ. Res. Serv., July 1995.

## Changes Ahead

If the current rate of per capita consumption continues and the U.S. population reaches the forecasted 274.8 million by the year 2000, total domestic use of spices would increase 8 percent from 1990-94 to an estimated 877 million pounds. But all indications are that the growth likely will be even higher. The trend toward less salt in foods will likely continue to stimulate more spice use to compensate for flavor loss.

### Consumption

Increased consumption of ethnic foods will also encourage growth in the use of more and greater variety of spices. The U.S. population is becoming both more Asian and more

Hispanic. According to the U.S. Census Bureau, the Asian population grew from 4.4 million in 1982 to 8.2 million in 1992 and the Hispanic population grew from 15.9 million to 23.7 million in 1992. Moreover, Asian and Hispanic cuisine is increasing in popularity, and this will continue to cause a surge in use of the spices common to these cultures. For example, capsicum imports increased by 85 percent from 32.0 million pounds in 1984 to 59.2 million in 1994—an indicator of the increasing popularity of Latin American foods.

Many restaurants are popularizing the terms "Pacific Rim" and "Tastes of Asia" cooking, signifying a menu apt to offer dishes from parts of Korea, Taiwan, Thailand, Vietnam, Burma, Malaysia, the

Philippines, and Indonesia, as well as India, Japan, and the various regional cuisines of China. Typical spices of these countries—ginger, onion, garlic, red pepper, coriander, black and white pepper, anise, cumin, fennel, cloves, nutmeg, curry powder, cinnamon, star anise, mace, and turmeric—are increasingly being imported to service the growing demand.

While this growth scenario is likely for those spices, a downtrend may occur for particular spices. Short-term changes in prices (either up or down) will not likely radically alter demand. However, if prices for natural spices were to move sharply higher for a sustained period, artificial spice substitutes are frequently available. Major U.S. spice processors have a number of artificial flavors ready in the laboratory for many of the world's major spices if the need arises.

### Production

The outlook for increased domestic production of certain spices is strong. While many spices will continue to be grown overseas because of comparative advantages in climate, soils, and labor costs, domestic production of certain spices (such as capsicum, and garlic and onions used for spices) should expand, reflecting prospects for expanded demand. For example, the surge in demand for chiles has created opportunities for large and small growers. Based on the continued popularity of Mexican and southwestern cuisine and the discovery of new uses for chile pepper products, the demand for chile peppers and the U.S. chile pepper industry will likely continue expanding.

### Trade

Increased participation in global sourcing programs has important implications for both importing and exporting countries. Under these



programs, processors buy directly from sources in producing countries rather than from agents or importers. For example, McCormick has developed several long-term alliances with growers and governments, such as with Indonesian growers of black pepper and vanilla beans.

With global sourcing, sellers learn directly the quality requirements of various buyers. Buyers heighten their knowledge of foreign crop conditions and improve their ability to analyze current market forces; sellers increase their knowledge of the buyers' current season demand. Global sourcing also enables buyers to improve their knowledge of crop prospects and potential, while sellers gain greater perspective on the outlook for buyers' needs.

### **Regulation**

The heightened concern over food safety may foster tighter safety regulations. At present, many spices imported into the United States are treated in order to kill insects and microorganisms that thrive under the tropical weather conditions and rudimentary packaging common in many spice-producing countries. For example, cumin seed from Pakistan packed in jute or burlap bagging must be treated to prevent the possible entry of the Khapra beetle into the United States. Sterilization of spices is also critical for maintaining the quality of processed foods and retail spices.

Ethylene oxide and methyl bromide gas are currently used to treat spices. Ethylene oxide is used to lower microbial counts in spices, while methyl bromide reduces insect infestation. However, new Federal regulations will phase out methyl bromide by the year 2001, because it

contributes to the depletion of the ozone. Federal regulators are also currently debating the continued use of ethylene oxide.

Therefore, U.S. spice companies must consider alternative techniques for ridding spices of insect and microbial pests. One choice available is irradiation, which uses gamma rays or high-energy electrons to kill insects, molds, and microbes. The spice industry has generally not adopted this alternative, however, because of uncertain consumer acceptance.

Other alternatives are available, although they are more expensive and less convenient than methyl bromide and ethylene oxide. Steam sterilization, for example, is useful on certain "hard" spices, such as black pepper and nutmeg, but does not work well on leaf spices, such as oregano. ■