PN-ABR-609

KENYA EXPORT DEVELOPMENT SUPPORT

U. S. MARKET SURVEY FOR SELECT KENYAN FRESH AND PROCESSED PRODUCE

Development Alternatives, Inc.
USAID Contract No. 623-0249-C-00-2021-00
KEDS Project P.O. Box 40312 Nairobi, Keny

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U.S. Market Survey

for

Select Kenyan Fresh and Processed Produce

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USAID Contract No. 623-0249-C-00-2021-00

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Market Opportunities for Kenyan Exporters

The table below gives a brief overview of U.S. market prospects for the Kenyan products evaluated under this task order. Products are rated on the following scale:

5 Excellent/Good market prospect, high volume potential
4 Excellent/Good market prospect, low volume potential (niche)
3 Fair market prospect, high volume potential
2 Fair market prospect, low volume potential (niche)
1 Poor market prospect
0 No market prospects exist

Those marked with an asterisk ("*") signify that additional market research is needed (in many cases just informal surveys of importers and distributors) before any further steps are recommended. Of course, the KEDS project team would need to ascertain whether further field research is justified for those products with relatively low ratings and are also marked with an asterisk. Project market research resources may be more advantageously used on those products where ratings are higher elsewhere (i.e. in Europe and Asia).

An additional comment is warranted on the rankings assigned to products in this market survey series. Readers should not dismiss the text portion of this report for those products with low rankings -- Kenyan producers may reach different conclusions from the authors of these reports based on the information available. Kenyan producers know their capabilities best, and the authors would welcome any comments if they believe that the product/market in question may hold greater promise than indicated below. Also, included as an Annex to this report are grades and standards for many of the products which may prove useful to Kenyan industry representatives in formulating Kenyan standards for other export markets.

Product	Rating	Notes
Standard Carnation	1	Hemispheric production increasing, non-competitive transportation costs
Miniature Carnation	2*	Assess past results of past Kenyan shipments, hemispheric production increasing
Hybrid Tea Rose	1	Hemispheric production increasing, non-competitive transportation costs
Sweetheart Rose	1	Hemispheric production increasing, non-competitive transportation costs

Product	Rating	Notes
Statice	1	Non-competitive transportation costs
Other Cut Flowers	2*	Tropicals?, importer survey may be warranted
Asparagus-Fresh	1*	Sept 15 - Nov 15 window of low duty
Asparagus-Frozen	0	High duties, consumption decreasing
Asparagus-Canned	0	High duties, consumption decreasing
Chili Peppers - Fresh	1*	Possible Asian varieties for ethnic markets
Cherry Tomatoes - Fresh	0	Domestic and Mexican suppliers dominate market - small shipments from Israel to NY reported in 1991
Okra - Fresh	1	Mexico dominates import market
Okra - Frozen	0	17.5% duty, strong regional competition
Snow Peas - Fresh	1	Strong seasonal domestic and year-round regional competition, Kenya not geographically competitive
Snow Peas - Frozen	2*	Price competitiveness needs to be assessed vis-a-vis expected strong domestic and regional competition -- additional field research needed
Snap Beans - Fresh	0	Strong domestic and Mexican competition
Snap Beans - Frozen	0	Domestic competition very strong
Snap Beans - Canned	0	Domestic competition very strong
Avocado - Fresh	0	Strong domestic competition, stringent phytosanitary controls
Mango - Fresh	0	Mexico dominates market, sea freighting required to compete in-season, winter window of higher prices supplied by air freight from Brazil
Mango - Dried	2*	Dried fruit consumption increasing rapidly, production for fruit mixes, mueslix, additional field research recommended depending on Kenyan production capabilities
Mango - Canned	2*	Import market may approach $3+ million per annum, Asian countries chief suppliers

Product	Rating	Notes
Mango - Pickled	2*	Small market, primarily East Indian communities, Kenya may wish to explore
Mango - Paste/Puree	2*	Import market has expanded rapidly since 1989 and is now approaching $10 million per year, imports primarily from distant suppliers
Strawberries - Fresh	0	Strong domestic competition
Strawberries - Frozen	0	Strong domestic competition
Strawberries - Jam	1	Declining imports, strict quality requirements, field research needed depending on Kenyan interest
Strawberries - Paste/Puree	0	Minimal imports, high duty, field research needed depending on Kenyan interest
Strawberries - Other Preps	0	Minimal imports, high duty

Not surprisingly, few market opportunities exist for the Kenyan products studied. In most cases this is not due to a small or stagnant market for the products studied. In fact, most of the products in this report are showing exceptional rates of import growth in the United States. The primary reason which prevents Kenya from exploiting the U.S. market is distance -- it simply must compete with low cost (Mexico for the most part, but also other Latin American producers) and geographically closer (Mexico, Latin America and domestic) producers. Transportation cost inequities would seem to leave Kenya out, at least at the present time, of the fresh produce market almost entirely (except for some possible niche markets).

Processed production market potential would seem to favor dried, canned juiced products (primarily tropical), which can be sea-freighted without worries of perishability and where domestic competition is low. Statistics on many tropical processed products, however, are not readily available (i.e. imports of non-citrus juices are grouped together making specific tropical fruit juices indistinguishable from other fruit juices, and from each other). Kenyan producers will need to establish market contacts in the United States to ascertain what is needed to meet labeling requirements and other grades and standards. Joint ventures could be a very good route for meeting U.S. requirements, while at the same time acquiring the latest technologies. The KEDS project team may want to consider bringing Kenyan producers to U.S. trade shows to make these contacts. Trade show contacts must be pre-arranged.

Import Restrictions

Tariff restrictions and required U.S. Customs documentation on imports of fresh and processed fruits and vegetables, as well as cut flowers, from Kenya are generally non-restrictive. The high duties on asparagus and processed strawberries are notable exceptions.

However, exporters to the United States face some harsh non-tariff barriers in order to prevent the importation of destructive pests and diseases, as well as to protect the health of the consumer (and, as argued by many, to protect U.S. producers). Chief among these are quarantine regulations which are enforced by the Animal and Plant Health Inspection Service (APHIS) of the Department of Agriculture and pesticide residue limitations enforced by the Environmental Protection Agency (EPA). Processed products are further subject to standards enforced by the Food and Drug Administration (FDA).

The following fresh fruit and vegetable products are the only items which can currently be imported from Kenya without a USDA import permit:

Cannonball fruit	Coconut (without husk or without milk)
Cyperus corm	Lily bulb, edible
Maguey	Macadamia kernals (no husk or shell)
Mushroom (fresh)	Peanut (raw)
St. Johnsbread	Tamarind bean pod
Truffle (fresh)	Waterchestnut
Waternut	

In addition to the above items, other food materials including such items as dried beans and peas (except Vicia faba, Lons spp., and Lathyrus spp.), dried seeds, dried bamboo leaves, dried herbs, and similar commodities are admissible for food purposes and may be imported without permit subject to inspection. Dried nuts without fleshy or leathery husk (except acorns, chestnuts, coconuts, and macadamia nits) are also enterable for food purposes without subject to inspection. Onion and pineapple (except destined for Hawaii) are also admissible from Kenya with a USDA import permit issued in advance of shipment.

Freezing is an acceptable treatment for most fruits and vegetables. The treatment involves an initial quick-freezing at subzero temperatures with subsequent storage and handling at not higher than 20 degrees fahrenheit at time of arrival.

APHIS is very strict about its import requirements. For products not on the above list, Kenyan exporters should contact APHIS to determine admissability potential and requirements. Any imports which do not meet APHIS requirements are subject to immediate treatment, destruction, and/or reexport (all at exporters'/importers' cost).

The author strongly recommends that Kenyan exporters work very closely with U.S. importers familiar with APHIS, EPA and FDA regulations. Assistance with establishing contacts with U.S. regulatory agencies can be obtained through the KEDS project office.

SECTION I: CUT FLOWERS (CARNATIONS, ROSES, STATICE)

Ranking Overview

Product	Ranking	Notes
Standard Carnation	1	Hemispheric Production Increasing Non-Competitive Transportation Costs
Miniature (Spray) Carnation	2*	Assess results of past Kenyan shipments
Hybrid Tea Rose	1	Hemispheric Production Increasing Non-Competitive Transportation Costs
Sweetheart Rose	1	Hemispheric Production Increasing Non-Competitive Transportation Costs
Statice	1	Non-Competetive Transportation Costs
Other Cut Flowers	2*	Tropicals, Obtain U.S. importers' views

Domestic Production

Standard carnation production stood at 238.1 million blooms in 1990, down from 248.6 million blooms in 1989 and from 345.7 million blooms in 1981. California and Colorado accounted for 99 percent of total U.S. production, with 83 percent and 16 percent shares, respectively. U.S. production was valued at $36.9 million (at the wholesale level) in 1990, up slightly from $36.2 million in 1989.

Miniature carnation production increased from 12.5 million bunches (each bunch contains approximately 10 blooms) in 1989 to over 14.7 million bunches in 1990. In 1981, U.S. production was under 6 million bunches. California and Colorado are the major producing states, with production shares of 87 percent and 9 percent respectively. The wholesale value of U.S. production increased to $20.9 million in 1990, up from $17.7 million in 1989.

Hybrid tea rose production increased from 481.2 million blooms in 1989 to 495.1 million blooms in 1990, and is up dramatically from 1985 levels of 370 million stems. Primary producer states, with 1990 production share in parentheses are: California (68%), Colorado (6%), New York (4%), Indiana (3%), and Pennsylvania (3%). Other states account for the remaining 15 percent of U.S. production. The wholesale value of production was $173.2 million in 1990, an increase of slightly over $4 million from the previous year.

Sweetheart rose production has varied only slightly since 1985 when production stood at 99.3 million stems. Production in 1989 had increased to 106.3 million stems, only to decrease in 1990

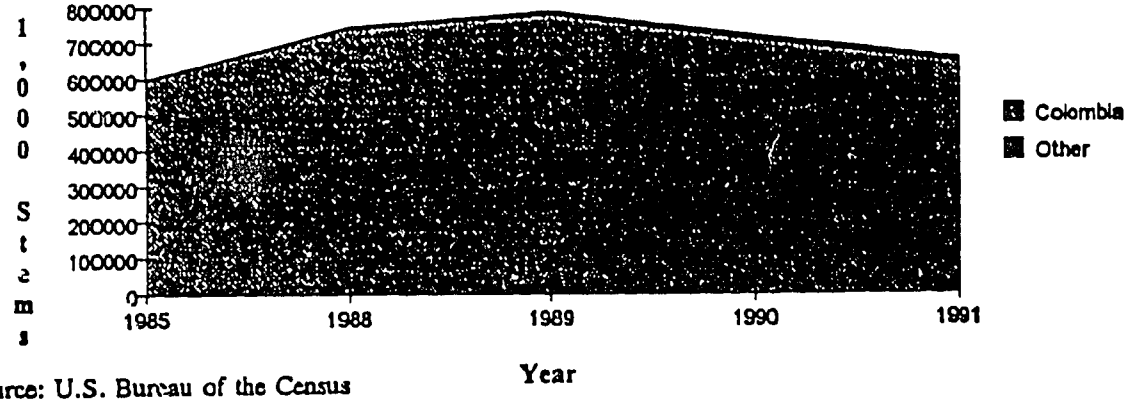
to 101.6 million stems. The largest producing states are: California (51% production share), New York (6%), Colorado (7%), Pennsylvania (6%), and Indiana (6%). The value of production, in wholesale terms, was estimated at $27.0 million in 1990, up slightly from $26.8 million in 1989.

Statice production figures are not reported for the United States. Based on price reporting in the Chicago and Philadelphia terminal markets, California is assumed to be the largest producer. Production is centered in San Diego and the Central Coast counties. Florida shipments stood at 275 thousand bunches in 1990, down 16 percent from the previous year.

Imports

Standard carnation imports have increased from 620.3 million stems in 1985 to nearly 652.3 million stems in 1991. However, 1991 levels are down from the previous year and from a high of 787.0 million stems imported in 1989. In value terms, 1991 imports stood at $48.7 million, up from $42.9 million in 1985, but down from a high of $56.6 million in 1989.

U.S. Imports of Standard Carnations, 1981-1991

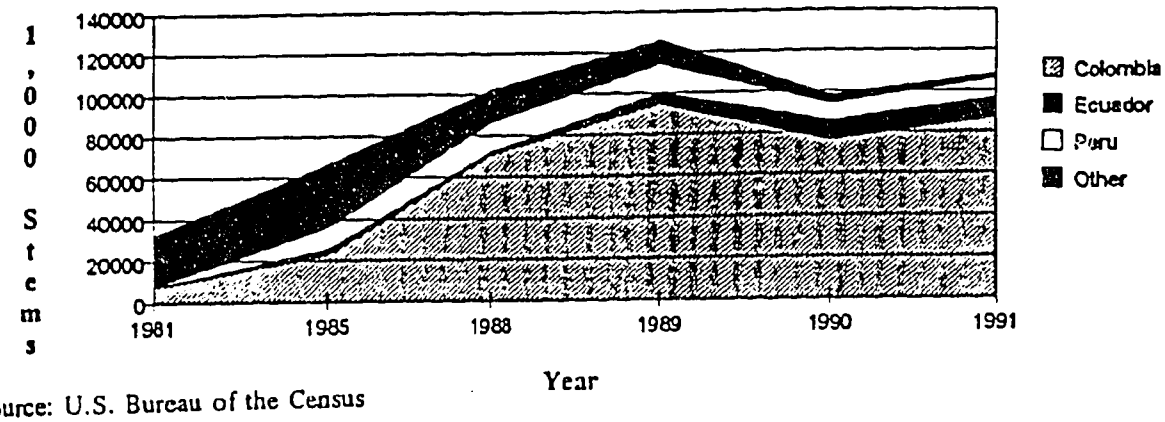


Source: U.S. Bureau of the Census

Miniature carnation imports have more than tripled since 1981, reaching 108.3 million stems in 1991. While higher than 1990 imports of 97.9 million stems, this is still lower than the high recorded in 1989 of 126.0 million stems. In value terms however, 1991 imports stood at an all time high of $23.1 million, up from $16.1 million in 1990 and over 8 times 1981 levels.

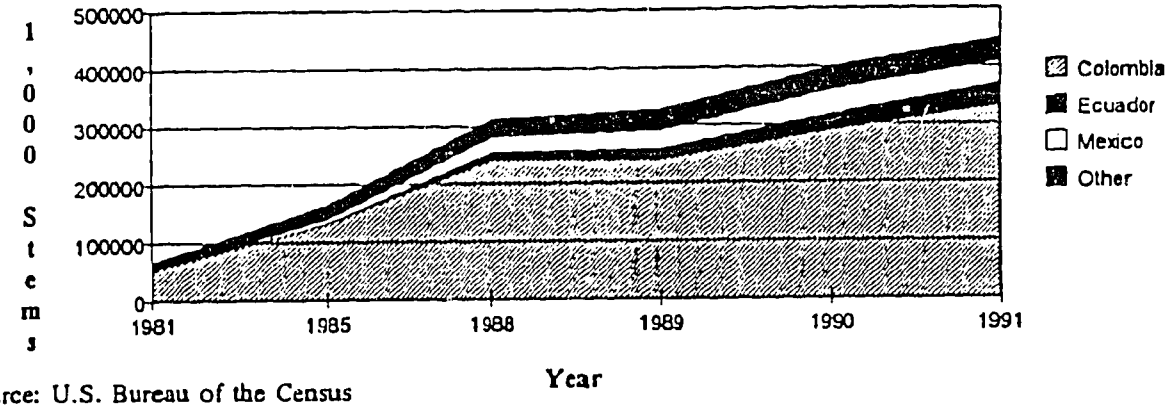
Imports of roses, other than sweetheart roses (primarily hybrid tea roses), increased from 399.9 million stems ($82.7 million) in 1990 to 447.8 million stems ($89.5 million) in 1991. 1991 imports are up dramatically over both 1981 (67.5 million stems, $13.1 million) and 1985 (166.3 million stems, $41.9 million) levels.

U.S. Imports of Miniature (Spray) Carnations, 1980-1991



Source: U.S. Bureau of the Census

U.S. Imports of Other Roses, 1981-1991



Source: U.S. Bureau of the Census

Sweetheart rose import statistics fluctuate widely over the period studied. In 1985, 2.3 million stems ($433 thousand) were imported, dropping off substantially in 1988 to 690 thousand stems ($243 thousand). Imports surged the following year to 33.1 million stems ($6.5 million), before declining in the two subsequent years to 9.8 million stems ($2.2 million) in 1991.

The U.S. Census Bureau includes statice imports in a large category encompassing many different varieties. The Animal and Plant Health Inspection Service (APHIS) estimates imports based on inspections performed during the year. APHIS statistics reveal that statice imports have increased from 40.5 million stems in 1985 to over 90.1 million stems in 1990. (For the purposes of this report, a bunch of statice is estimated to consist of 12 stems.)

Market Share

In terms of the total U.S. supply of standard carnations in 1990 (the last year comparable figures are available), imports accounted for 80 percent of volume. In 1991, Colombia remained the largest supplier to the U.S. market, with a 98 percent import share. The remaining imports came

chiefly from Ecuador, Mexico, Guatemala, and Ecuador.

Colombia has a smaller, yet still dominant, share of imports of miniature carnations. In 1991, Colombia accounted for 80 percent of all imports. Other significant suppliers included Peru and Ecuador, each with about 9 percent of the import market. In 1990, imports accounted for 42 percent of total blooms available on the U.S. market.

Colombia's share of imports for roses (other than sweetheart varieties) stood at 74 percent in 1991. Lesser amounts arrived from Venezuela (9 percent of imports), Mexico (9 percent), and Guatemala (5 percent). Twenty-two other countries supplied roses to the U.S. in 1991, many at negligible levels. Imports accounted for nearly 45 percent of total supply on the U.S. market in 1990.

Colombian-sourced sweetheart roses accounted for over 93 percent of total U.S. imports in 1991. Lesser amounts arrived from Canada, Venezuela, the Netherlands, Mexico, and Costa Rica. In 1990, imports supplied roughly 15 percent of the U.S. market

Colombia and Mexico were the largest exporters of statice to the U.S. in 1991, with 51 percent and 31 percent import market shares, respectively. Ecuador's and Peru's exports to the U.S. accounted for the remaining foreign market supply.

Consumer Preference

The International Trade Centre UNCTAD/GATT estimated in its 1987 world survey of the horticultural industry that over 90 percent of all cut-flower sales are made for special occasions, including Mother's Day, Valentine's Day, Christmas, funerals, and weddings.

Roses (hybrid tea and sweetheart) and carnations (standard and spray), along with spray chrysanthemums, remain the most popular cut flowers of U.S. consumers. Color preferences, much more pronounced in the U.S. market compared to the European market, depend on fashion.

In terms of roses, U.S. consumers continue to prefer the longer-stem roses to the shorter sweetheart roses. In 1990, U.S. production of sweetheart roses was only 13 percent of total U.S. rose production. In the same year, imports of sweetheart roses accounted for only 5 percent of total U.S. imports. 1991 trends show a continuing deterioration in the market share of sweetheart roses. Long-stemmed red roses make up a majority of the market (60-70% according to UNCTAD/GATT), with pink, yellow, white and other colors accounting for shares of about 10 percent each. Hybrid tea blooms should be 3.75 to 5 cm in depth. 60-90 cm in length roses are most popular, although shorter-stemmed roses, in the range of 40-60 cm, are gaining in

popularity.

In terms of carnations, standard carnations are more popular than miniature (spray) carnations, holding a domestic production share of over 60 percent (1990 figures) and an import share of over 85 percent (1991 figures) by volume. UNCTAD/GATT's survey reported that red, white and light pink were the most popular colors for standard carnations (at 30 percent share each), with the remaining 10 percent including dark pink and novelty colors. For spray carnation, no dominant colors were reported, and colors covered a much wider range. Color preferences are highly variable.

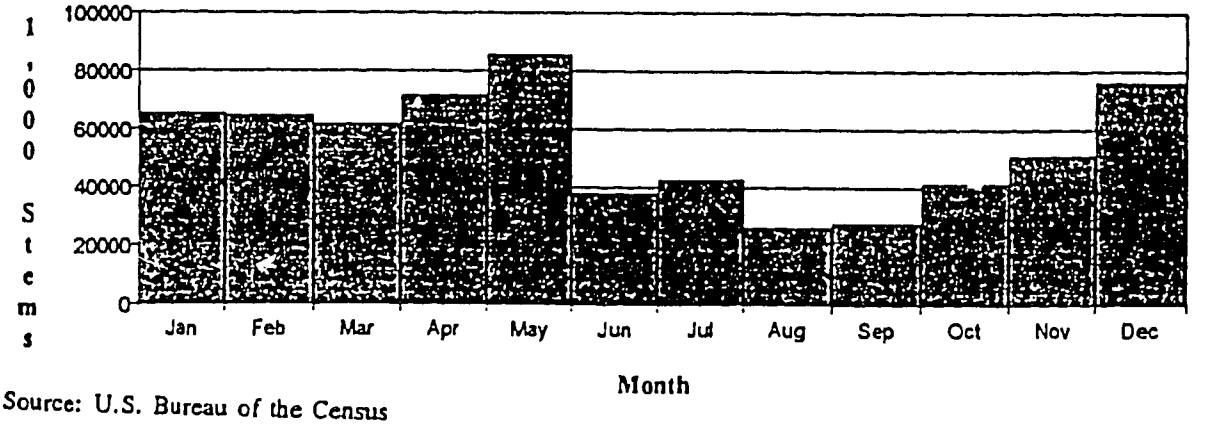
Statice color preferences include blue, purple, pink, yellow, white and blush. UNCTAD/GATT's survey reports that sales are generally made in assorted boxes, with blue and purple accounting for 80 percent of box contents. Colored statice, especially yellow and white, were growing in popularity at the time of the study.

As is the case with all exports, Kenyan exporters should work closely with U.S. importers to determine their specific requirements in terms of product size, color, mix, count, and packaging.

Seasonal Patterns of Demand

Imports of standard carnations are greatest in the winter and spring months, with between 60 million and 85 million stems entering during each of these months in 1991. Imports were highest in May, with 85.7 million stems entering -- more than likely corresponding to heavy demand during Mother's Day. As with all flowers, demand tends to peak in February (Valentine's Day), May (Mother's Day), and during the December holiday season. Import unit prices were highest during periods of peak import supply (averaging $0.07 to $0.08 customs value per stem). The average import unit price increased to $0.09/stem in June, before falling to $0.05-$0.06/stem

U.S. Imports of Standard Carnations, 1991 by Month

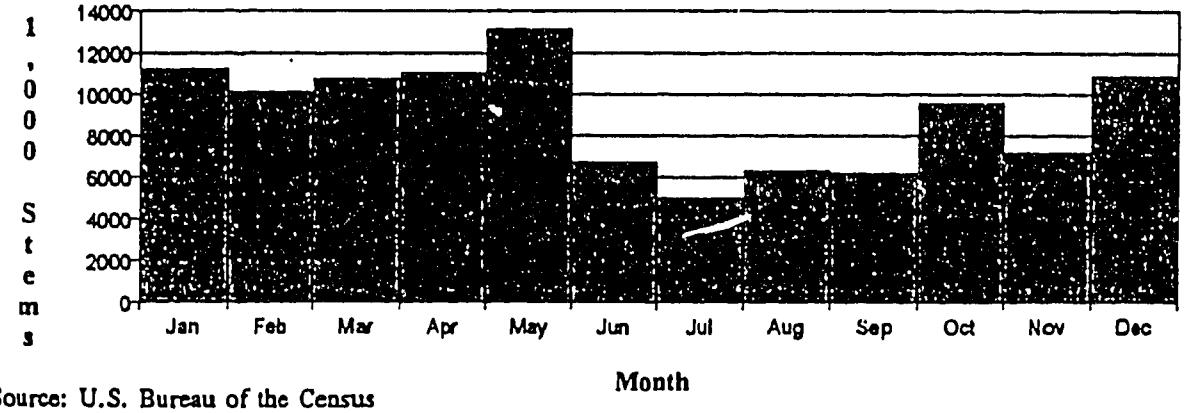


Source: U.S. Bureau of the Census

during the periods of off-demand from August through October. 1990 California interstate shipments were highest during the February and May holidays, with weekly shipments approaching 5.3 to 6.6 million stems. During the rest of the year, shipment ranged from 2 million to 3.7 million stems per week, with an average of 2.9 million per week for the year.

Like standard carnations, miniature (spray) carnation imports enter primarily during the winter and spring months. May, the month of greatest import supply at 13.1 million stems, is followed by the period December through April when monthly import supply ranges from 10.1 million stems to 11.2 million stems per month. During the period of lighter supply, June through November, monthly supply is below 10 million stems, with under 7 million stems the norm. Average import unit prices (based on customs value) range from $0.19 per stem in February and March to $0.24 per stem in January. Import unit price variability does not appear to follow any particular monthly pattern vis-a-vis levels of supply. 1990 California interstate shipments were highest right before Mother's Day, when a weekly shipment of 269 thousand bunches (1 bunch equals approximately 10 stems) was recorded. During other weeks during the year, average weekly shipments ranged from 70 thousand to under 200 thousand bunches, with an average of 120 thousand bunches per week.

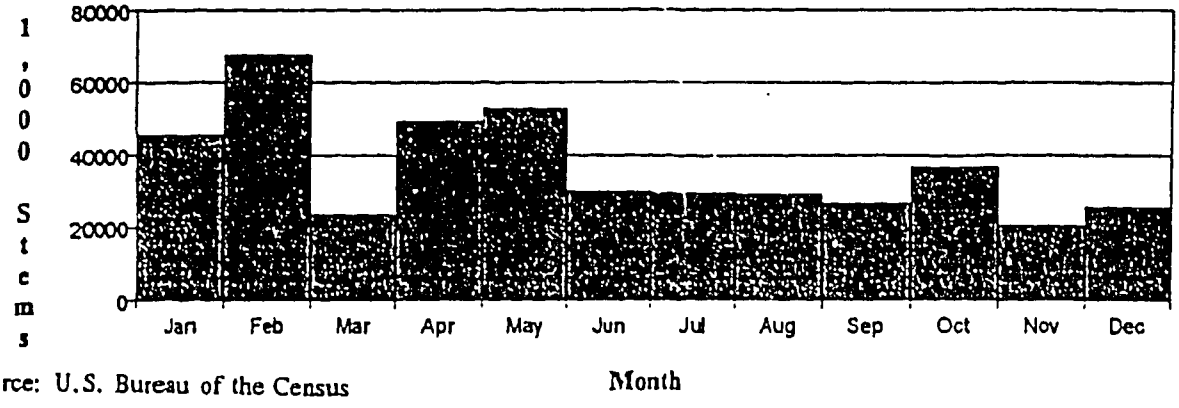
U.S. Imports of Miniature (Spray) Carnations, 1991 by Month



Source: U.S. Bureau of the Census

U.S. imports of roses, except sweetheart varieties, are greatest during February (for Valentine's Day) and May (for Mother's Day), with 67.5 million stems and 52.9 million stems, respectively. Imports for each of the preceding months, January and April, are also high at 45.5 million stems and 49.2 millions stems, respectively. During other months, monthly imports generally range from 25 to 35 million stems per month. During 1990, California interstate shipments (i.e. California production shipped to other states) of roses also peaked during the months of February and May, with weekly shipments exceeding 9 million stems during the two holidays. During other weeks of the year, shipments averaged between 2.5 and 5.0 million stems per week.

U.S. Imports of Other Roses, 1991 by Month

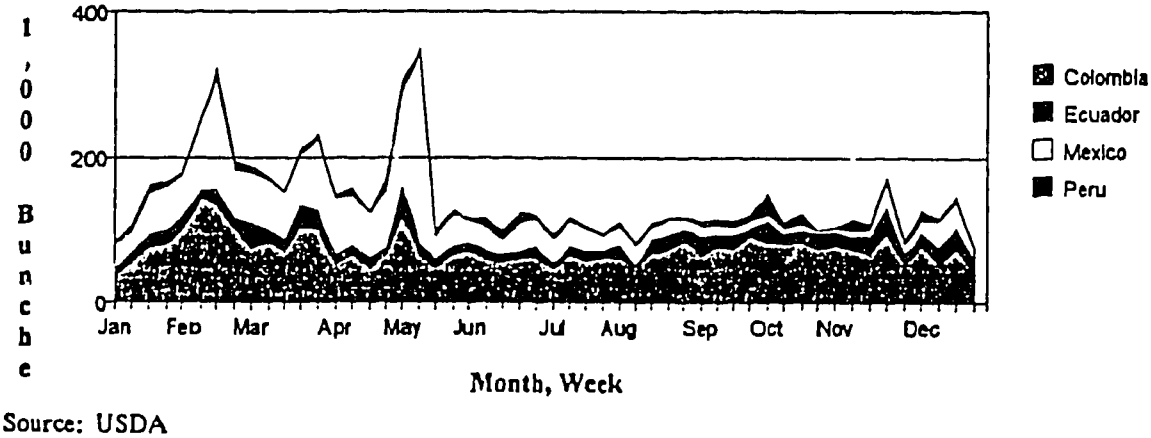


Source: U.S. Bureau of the Census

1991 U.S. imports of sweetheart roses were highest in February when they reached 3.8 million stems. During January and April, imports stood at 1.9 million and 1.8 million stems, respectively. With the exception of March imports of 558 thousand stems, all other months reported imports of less than 250 thousand stems. In November and December, imports were only 27 thousand and 9 thousand stems, respectively. Weekly and/or monthly statistics for domestic shipments are not readily available.

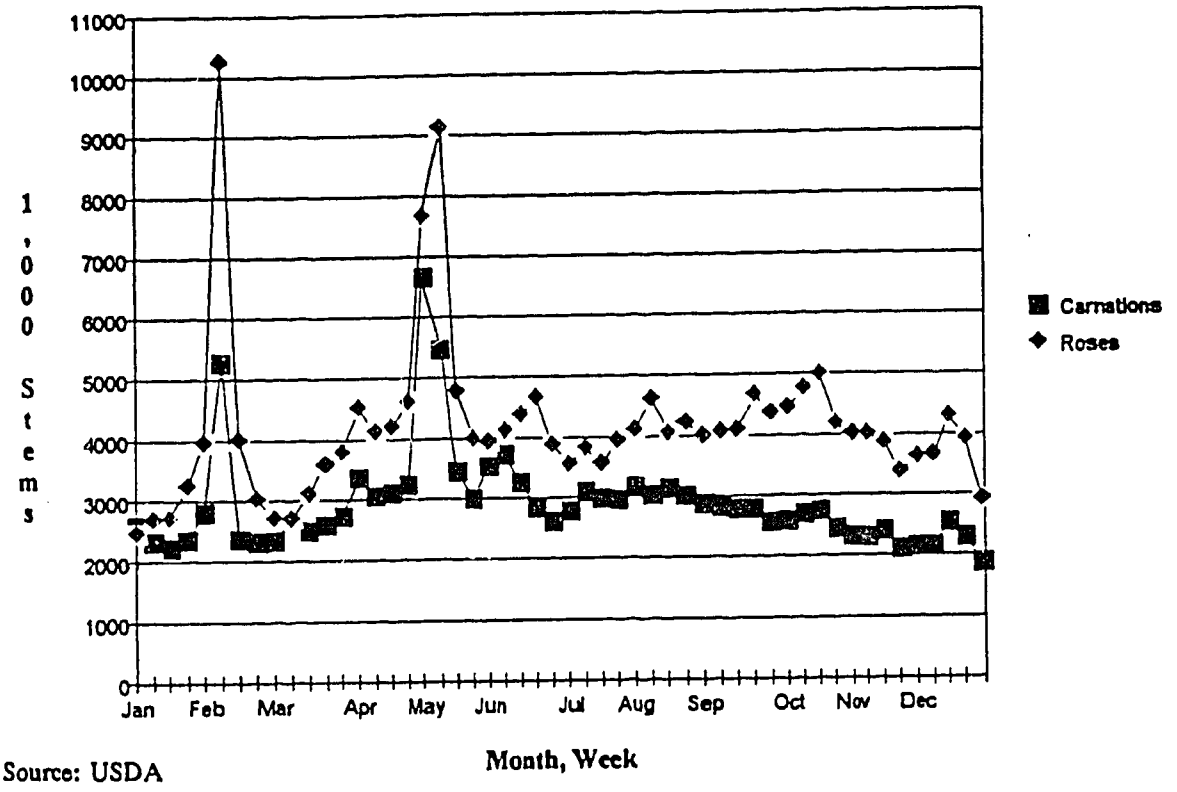
U.S. imports of statice also peak during Valentine's Day and Mother's Day when weekly imports approach 322 and 351 thousand bunches (1 bunch equals approximately 12 stems), respectively. Weekly imports throughout the year average 144 thousand bunches, with the lowest levels occurring from mid-May through December. No data exists on weekly or monthly interstate shipments from California, but Florida supplies small amounts (2 thousand to 37 thousand bunches per week) during the period February through May.

U.S. Imports of Statice, 1991 by Month



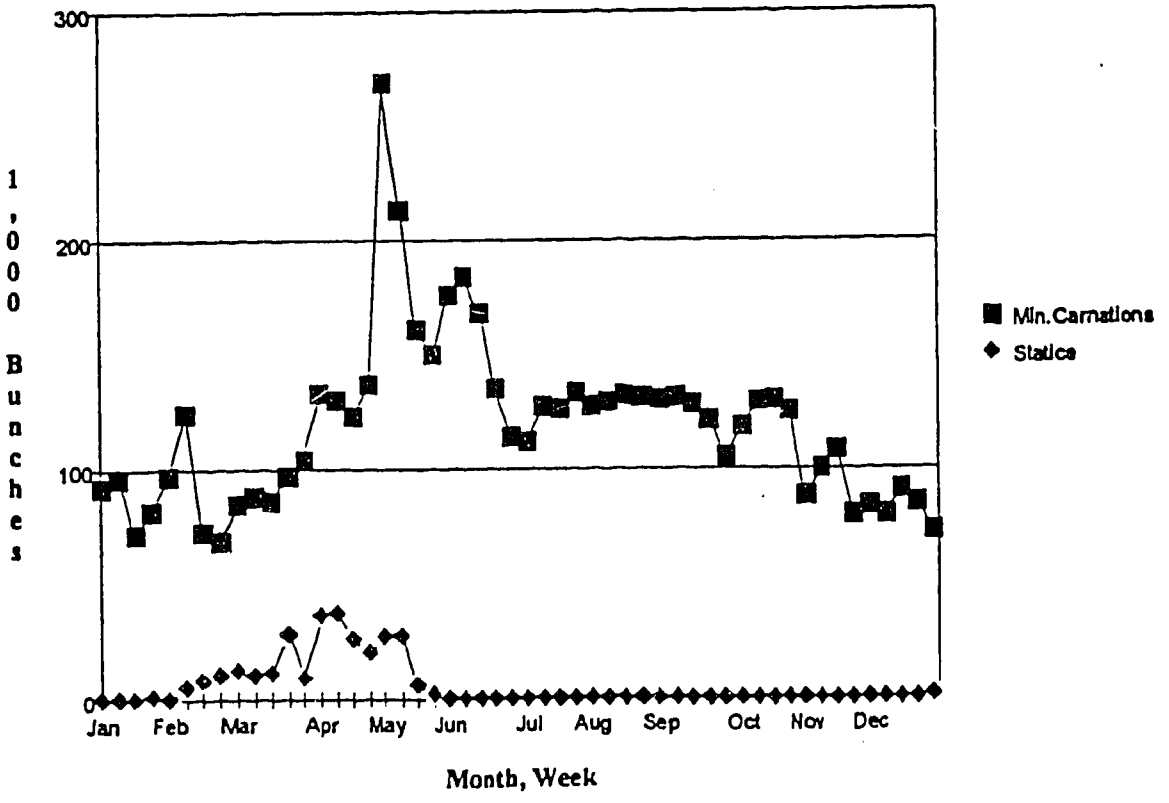
Source: USDA

U.S. Interstate Shipments - California Std. Carnations and Roses, 1990



Source: USDA

1990 Interstate Shipments: Calif (Min. Carnations) & Florida (Statice)



Source: USDA

Seasonal Prices

The author surveyed 1991 weekly wholesale prices in Chicago and Philadelphia for the four cut flower products included in this survey. USDA's Federal-State Market News Service provides an annual report on the high and low prices of one day during the week (generally Monday or Tuesday -- a day later if a holiday occurred) for stock of generally good quality and condition. The cut flower statistical appendix provides selected averages of these highs and lows. Prices for all cut flowers are dependent on source of supply, variety, size, and timing. For example: longer-stemmed roses generally sell at a premium over shorter-stemmed varieties; imports are generally cheaper than domestic production; latifolia statice fetches higher prices than sinuata statice; prices are higher during Valentine's Day and many times also around Mother's Day.

Standard carnation prices were generally higher in the Chicago market. "Select" carnations from Colombia in this market received an average of $0.28 to $0.35 per bloom, with higher prices occuring around Valentine's Day and Easter (during which prices were in the $0.40 to $0.50 range). Colombian "select" carnations in Philadelphia were sold at average prices of $0.15 to $0.38 per bloom. Based on price reporting , Colombia appears to be the predominant supplier of "select" carnations in both of these markets. At times when California production was on the market, it sold at a premium. Prices for "fancy", "standard", and "short" carnations were all lower than for "select" carnations, with "fancy" receiving a premium over "standard", and "standard" receiving a premium over "short." "Standard" carnation prices in the Chicago market ranged from $0.25 to $0.47 per bloom, for California supplies, and $0.12 to $0.40 per bloom for Colombian supplies. In the Philadelphia market, Colombian product obtained between $0.06 to $0.28 per bloom.

Prices of miniature carnations were also mostly higher in Chicago, where average California prices ranged from $3.38 to $6.00 per bunch (higher prices in January-February and around Mother's Day) and Colombian average prices ranged from $2.00 to $5.50 per bunch (higher prices in February-March and Mother's Day). California did not supply the Philadelphia market in any significant quantities for the period December-April. At other times, average prices in this market for California miniature carnations ranged from $2.25 to $4.50 per bunch (the norm being around $2.50 per bunch). Colombia, which supplied the Philadelphia market throughout the year, obtained average prices of between $2.00 to $4.13 per bunch (highest prices during Valentine's and Mother's Days).

Prices for assorted color California and Illinois roses on the Chicago market were highest for those with stems of 26 inches or longer (average prices ranging between $0.83 and $2.13 per bloom, highest in January and February). Prices for shorter-stemmed roses were approximately $0.10 to $0.20 per bloom lower for each 4 inch reduction in length. Colombian Visa variety

roses on the Chicago market obtained prices an average of $0.10 to $.30 lower than domestically grown roses. California rose (26 inch or longer) prices in Philadelphia averaged between $0.68 to $1.63 per bloom (highest during January-February), while Pennsylvania roses received a premium (garnering $0.90 to $2.35 per bloom). Colombia rose prices ranged between $0.25 to $1.20 per bloom, significantly lower than prices received for domestic production. On the Philadelphia market, prices received for Colombia and California shorter-stemmed roses (down to 18 inches) did not vary considerably from the prices received for longer-stemmed products from the same sources.

Philadelphia wholesale market prices for California sweetheart roses are generally about $0.10 per bloom lower than those in Chicago, where California production received between $0.48 to $1.38 per bloom (highest prices in January-February, and to a lesser extent March-May and December). Colombia supplied these markets only sporadically. Pennsylvania producers, which supplied the Philadelphia market in all but August, often received premiums of up to $0.10 to $0.15 per bloom over California prices.

Statice prices are not currently available for the Philadelphia terminal market. 1991 wholesale prices in the Chicago market depended on the variety for sale. Sinuata sourced from California fetched between $3.00 and $6.00 per bunch (the highest prices were received in January and the first half of February). Mexican Sinuata generally was not available on the Chicago market (except for small shipments) from June through November. When Mexican production was available, prices ranged from $3.00 to $4.85 per bunch.

The Seafoam variety received a premium over Sinuata (except for January-February) of between $0.50 and $1.25 per bunch. This was not the same case for Mexican production of Seafoam, which prices were more comparable for the Sinuata and Seafoam varieties.

Chicago market quotations show that the German and Latifolia varieties from California garnered the highest prices. The former's prices ranged from $4.00 to $7.00 per bunch (with the most common price being in the $5.00-$5.50 range, and availability during the periods December-January and May-August. The latter's prices ranged from $4.50 to $8.00 per bunch (with $8.00 per bunch most common and supplying the Chicago market in all months except August and September, although actual levels of supply may be small for some of the other months)

Market Distribution

Imports of cut flowers into the United States are generally handled by importer-distributors (90 percent of all imports according to UNCTAD/GATT) on a consignment basis (sometimes they

may buy outright from foreign producers at a fixed price). A commission of 15-20 percent is normally charged, in addition to normal import and storage charges. The importer-distributors primarily sell to wholesalers.

The remaining percentage (10 percent) is handled by importing wholesalers, with a small volume imported directly by large supermarket chains. Wholesalers' customers are primarily smaller retail outlets, with a smaller amount going to supermarkets and other types of outlets. Wholesalers also may buy outright at a fixed price, or sell on consignment (commission of 20-25 percent plus applicable import charges).

In terms of retail outlets, the market is still dominated by the smaller traditional florists, although supermarkets are increasing their overall share. Other retail outlets include street vendors (approximately 5 percent of the total cut flower market) and mail order/telephone sales operations.

Grades and Standards

There are no federally enacted grades and standards for any of the products studied. Kenyan exporters should work closely with U.S. importers in determining appropriate grades and standards, as well as packaging requirements.

There are no specific labelling regulations, however adhesive labels should be attached to the boxes and include: destination (incl. company name and address), description of contents, pack size/count, code/reference/line number, information on the supplier, and care and handling information.

Kenyan exporters should work closely with U.S. importers in determining grading and packaging requirements, as they seem to vary considerably within the industry.

Import Regulations and Duties

Imports of cut flowers are subject to inspection by USDA's Animal and Plant Health Inspection Service. Flowers should be free of insects, pests, and disease.

In addition to the value of the consignment (which is the basis of duty), the number of stems must also be reported. For flowers which are imported on consignment, duty is based on the reference prices which are determined regularly.

The following duty rates are charged on cut flowers entering the U.S. (Kenya is included under

the GSP category):

Product	General	GSP/CBI/Israel	Canada	Communist
Std. Carnations	8%	Free	5.6%	40%
Spray Carnations	4%	Free	2.8%	40%
Roses, Sweetheart	8%	Free	5.6%	40%
Roses, Other	8%	Free	5.6%	40%
Other (incl. Statice)	5%	Free	3.5%	40%

No quantitative restrictions exist at present.

Market Opportunities for Kenyan Exporters

U.S. production is growing at about eight percent per year. But as consumption is growing at about twice that, imports will have make up the difference. U.S. consumption is also expected to increase since the United States has one of the lowest per capita expenditures of cut flowers in the developed world (i.e. it has not reached its saturation level) : U.S. ($23.61 in 1991), Germany ($42.29), Japan ($47.23), Italy ($70.34). Some industry analysts expect the U.S. to have the highest per capita consumtion in the world by the year 2000. As cut flowers continue to become more widely available (through supermarkets for instance), consumption will also increase. There therefore is great promise for the U.S. cut flower market.

However, with regard to Kenyan possibilities in the U.S. market for the five products studied, the short to medium term outlook is not as bright. Kenya has only made small shipments to the United States of standard carnations, roses, and statice (total shipments for any one year were no larger than small trial shipments). Of the five products studied, only miniature (spray) carnations have been imported in any significant quantity from Kenya. In 1985, the U.S. imported $168 thousand (3.2 million stems) of miniature carnations from Kenya. This grew to $190 thousand (but only 1.4 million stems) in 1988, before a steady annual decline to $38 thousand (225 thousand stems) in 1991. The author recommends that HCDA and the KEDS project team contact current and past Kenyan exporters of these products to the United States to ascertain: (1) the results of the apparent trial shipments; and (2) the reasons for the steady decline in U.S. imports of spray carnations. Kenya participated in the Philadelpia Flower Show a couple of years back -- what was the reception of Kenyan products at that time?

Kenya will find it very difficult to compete with other foreign producers in the U.S. market, who have the advantage of shorter transport times and cheaper transportation alternatives. While the author does not believe any significant opportunities exist in these five cut flower product areas for Kenya at the present, the author recommends the following:

(1) Contacts be established between Kenyan producers of these products and U.S. importers to ascertain their interest in taking Kenyan supplies during market windows of highest prices (February and May, lesser extent Easter and Christmas). These contacts will provide a definative assessment of Kenyan opportunities in the marketplace.

(2) These same market contacts (which can also be made by a delegation visting a major U.S. trade show) should also be used to assess opportunities in other cut flower sectors. Specifically, more study needs to be made of specialty or exotic tropical cut flowers -- i.e. those products with higher values to offset non-competitive transportation costs vis-a-vis Mexican and South American producers (although some of the larger tropicals such as ginger, Bird of Paradise and heliconia are heavy and more costly to ship). USDA's Economic Research Service cites anthuriums and dendrobium orchids as having good potential for the tropical cut flower market in the U.S.

References

Floriculture Products: A Study of Major Markets, International Trade Centre UNCTAD/GATT, Geneva, 1987.

"1990/91 Outlook for Floriculture Production and Greenhouse and Nursery Trade," Doyle C. Johnson, Agricultural Economist, Economic Research Service, USDA.

1980-1989 Trade Statistics, Microfiche, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

1990-1991 Trade Statistics, CD-ROM, U.S. Bureau of the Census, U.S. Department of Commerce, Washington. D.C.

Marketing California Ornamental Crops 1990, Federal-State Market News Service, California Department of Food and Agriculture (Market News Branch) and USDA (Agricultural Marketing Service, Fruit and Vegetable Division, Market News Branch)

Chicago Ornamental Crops Wholesale Market Prices 1991, United States Department of Agriculture, Agricultural Marketing Serivce, Fruit and Vegetable Division, Market News Branch.

Philadelphia Ornamental Crops Wholesale Market Prices 1991, United States Department of Agriculture, Agricultural Marketing Serivce, Fruit and Vegetable Division, Market News Branch.

Harmonized Tariff Schedule of the United States (1991), United States International Trade Commission, Washington, D.C.

"New Developments in World Floriculture Markets," outline and text of speech given at USDA's Agriculture Outlook Conference, December 2, 1992 by Harry K. Tayama, The Ohio State University, Department of Horticulture, Colombus, Ohio.

"Tropical Cut Flower Markets," text of speech given to OICD-CBI Luncheon, May 1, 1991, Library of Congress, Washington D.C. by Doyle C. Johnson, Agricultural Economist, Specialty Agriculture Branch, Economic Research Service, U.S. Deparment of Agriculture.

Table 1: U.S. Production of Carnations and Roses, 1989 and 1990

PRODUCT State	PRODUCERS 1989	PRODUCERS 1990	PLANTS GROWN 1989	PLANTS GROWN 1990	PRODUCTION AREA 1989	PRODUCTION AREA 1990	QUANTITY SOLD 1989	QUANTITY SOLD 1990	PERCENT OF SALES AT WHOLESALE 1989	PERCENT OF SALES AT WHOLESALE 1990	WHOLESALE PRICE 1989	WHOLESALE PRICE 1990	VALUE OF SALES AT WHOLESALE 1/ 1989	VALUE OF SALES AT WHOLESALE 1/ 1990
	Number		1,000 Plants		1,000 Square Feet		1,000 Units		Percent		Cents		1,000 Dollars	
CARNATION							Stems	Stems						
California	152	141	26,050	25,510	14,985	16,250	203,200	197,300	100	100	13.3	14.5	27,026	28,609
Colorado	41	39	3,685	3,715	1,660	1,620	42,500	38,120	97	98	20.0	20.0	8,500	7,624
Hawaii	4	5	104	162	60	95	402	563	100	100	29.9	34.2	120	193
New York	19	19	57	45	25	16	450	351	64	47	32.1	33.9	144	119
Pennsylvania	15	15	113	103	42	43	871	820	58	57	20.4	18.3	178	150
Other	25	31	192	165	101	95	1,238	916	69	69	20.6	22.1	255	202
TOTAL	256	250	30,201	29,700	16,873	18,119	248,661	238,070	99	99	14.6	15.5	36,223	36,897
MINIATURE CARNATION							Bunches	Bunches			Dollars			
California	139	137	11,250	13,300	7,800	8,460	10,310	12,800	100	100	1.37	1.36	14,125	17,408
Colorado	26	25	1,400	1,020	555	530	1,720	1,385	99	98	1.45	1.66	2,494	2,299
Florida	4	3	414	433	346	296	247	232	98	100	1.55	1.55	383	360
Hawaii	10	10	178	168	125	118	149	155	87	92	2.76	2.91	411	451
New York	17	21	50	52	17	24	63	78	75	72	3.19	3.28	201	256
Pennsylvania	10	10	33	32	16	15	28	32	79	64	3.03	3.01	85	96
Other	12	15	24	30	14	29	24	31	32	41	2.04	2.35	49	73
TOTAL	218	221	13,349	15,035	8,873	9,472	12,541	14,713	99	99	1.42	1.42	17,748	20,943
HYBRID TEA ROSE							Stems	Stems			Cents			
California	115	125	15,930	16,820	25,100	26,170	320,700	334,900	100	100	27.1	27.4	86,910	91,763
Colorado	18	17	1,370	1,295	2,270	2,160	31,200	32,105	97	100	31.0	29.0	9,672	9,310
Hawaii	15	13	340	334	921	960	7,562	8,586	99	89	32.3	29.5	2,443	2,533
Indiana	13	12	952	977	1,348	1,390	16,697	16,924	100	100	52.7	54.8	8,799	9,274
Michigan	7	10	370	370	500	490	5,280	5,720	99	99	70.0	65.0	3,696	3,718
Minnesota	8	7	255	298	348	419	6,234	6,726	97	89	58.1	65.6	3,622	4,412
New York	26	25	1,122	1,156	1,361	1,356	21,395	22,193	99	98	67.5	67.6	14,442	15,002
Ohio	13	12	648	663	854	904	12,095	11,972	99	99	50.2	50.0	6,072	5,986
Oregon	5	5	539	497	1,029	1,010	11,296	13,620	98	98	38.7	46.0	4,372	6,265
Pennsylvania	14	15	882	887	1,093	1,135	15,629	15,043	99	99	68.1	66.6	10,643	10,019
Other	53	53	1,768	1,486	2,503	2,299	33,076	27,295	99	99	55.4	54.8	18,331	14,961
TOTAL	287	294	24,176	24,783	37,327	38,293	481,164	495,084	100	99	35.1	35.0	169,002	173,243
SWEETHEART ROSE							Stems	Stems			Cents			
California	74	72	1,915	1,805	3,430	2,950	55,680	51,800	100	100	16.8	17.0	9354	8806
Colorado	14	12	245	170	345	320	8,140	6,710	95	100	17.0	16.0	1384	1074
Hawaii	6	6	44	32	102	91	948	793	100	90	27.5	28.7	261	228
Indiana	11	10	210	200	280	268	7,556	5,793	100	100	28.6	34.6	2161	2004
Michigan	5	4	110	110	150	160	2,075	2,500	100	100	45.0	40.0	934	1000
Minnesota	5	4	43	44	69	62	1,786	1,695	99	91	36.6	44.1	654	747
New York	21	17	358	280	390	386	6,035	6,330	98	98	53.5	46.5	3229	2943
Ohio	10	11	107	102	129	135	2,360	2,299	100	99	32.5	30.9	767	710
Oregon	4	4	196	210	364	403	4,748	5,940	95	96	25.5	32.9	1211	1954
Pennsylvania	12	12	201	199	316	318	5,984	5,955	99	99	43.8	44.9	2621	2674
Other	35	37	358	352	595	586	11,007	11,749	99	99	38.1	41.6	4199	4882
TOTAL	197	189	3,787	3,504	6,170	5,679	106,319	101,564	99	99	25.5	26.6	26,775	27,022

1/ Equivalent Wholesale Value of all Sales
Source: National Agricultural Statistics Service, USDA

Table 2: U.S. Imports of Standard Carnations, 1980-1991, 1,000 Stems

	1981	1985	1988	1989	1990	1991
Canada	n/a	3,449	52			
Mexico	n/a	10,475	5,825	6,516	2,261	3,998
Guatemala	n/a	33		276	4,746	2,951
Honduras	n/a	170				
Costa Rica	n/a	407	26	100		
Jamaica	n/a		112	2		
Dominican Rep	n/a	56	166	70	803	
Montserrat	n/a	96				
Neth Antilles	n/a	28				
Colombia	n/a	597,340	737,879	775,870	702,830	639,521
Ecuador	n/a	3,324	1,007	1,088	973	4,051
Peru	n/a	201		1,631	4,908	1,225
Bolivia	n/a		141		25	22
Chile	n/a	2,295	599	418	164	318
United Kingdom	n/a	9	58			
Netherlands	n/a	452	31	100	21	70
France	n/a	1	11	11	12	
Germany	n/a	15	14	4		69
Spain	n/a	916	54	49		
Italy	n/a	494	348	626	90	
Romania	n/a		23			
Israel	n/a	235	27	220	113	
Burma	n/a					32
Indonesia	n/a		21			
Singapore	n/a	12				
Macao	n/a	185				
Australia	n/a		1			
Kiribati	n/a	26				
Cocos Islands	n/a			19	19	
Egypt	n/a			26		
Ivory Coast	n/a		53		104	
Ghana	n/a					16
Congo	n/a				30	
Kenya	n/a	107	4		45	
Mauritius	n/a			7		
Brit Indian Ocn	n/a				55	
Total	n/a	620,326	746,452	787,032	717,198	652,271

Source: U.S. Bureau of the Census

Table 3: U.S. Imports of Standard Carnations, 1980-1991, Customs Value, US$000s

	1981	1985	1988	1989	1990	1991
Canada	n/a	229	4			
Mexico	n/a	777	413	415	145	241
Guatemala	n/a	3		20	302	189
Honduras	n/a	2				
Costa Rica	n/a	47	3	8		
Jamaica	n/a		10	4		
Dominican Rep	n/a	5	13	5	55	
Montserrat	n/a	7				
Neth Antilles	n/a	4				
Colombia	n/a	41,167	52,151	55,741	49,829	47,708
Ecuador	n/a	198	75	77	88	262
Peru	n/a	37		120	333	211
Bolivia	n/a		12		2	1
Chile	n/a	98	59	31	8	80
United Kingdom	n/a	2	4			
Netherlands	n/a	116	13	22	8	16
France	n/a	6	4	2	1	
Germany	n/a	3	1	4		14
Spain	n/a	40	6	10		
Italy	n/a	89	58	112	16	
Romania	n/a		2			
Israel	n/a	41	12	18	9	
Burma	n/a					3
Indonesia	n/a		2			
Singapore	n/a	2				
Macao	n/a	13				
Australia	n/a		3			
Kiribati	n/a	2				
Cocos Islands	n/a			1	1	
Egypt	n/a			2		
Ivory Coast	n/a		3		6	
Ghana	n/a					1
Congo	n/a				2	
Kenya	n/a	4	2		1	
Mauritius	n/a			2		
Brit Indian Ocn	n/a				4	
Total	n/a	42,089	52,848	56,592	50,811	48,726

Source: U.S. Bureau of the Census

Table 4: U.S. Imports of Standard Carnations, 1980-1991, Customs Value, US$/Stem

	1981	1985	1988	1989	1990	1991
Canada	n/a	0.07	0.07			
Mexico	n/a	0.07	0.07	0.06	0.06	0.06
Guatemala	n/a	0.09		0.07	0.06	0.06
Honduras	n/a	0.01				
Costa Rica	n/a	0.11	0.10	0.08		
Jamaica	n/a		0.09	1.50		
Dominican Rep	n/a	0.09	0.08	0.07	0.07	
Montserrat	n/a	0.07				
Neth Antilles	n/a	0.15				
Colombia	n/a	0.07	0.07	0.07	0.07	0.07
Ecuador	n/a	0.06	0.07	0.07	0.09	0.06
Peru	n/a	0.18		0.07	0.07	0.17
Bolivia	n/a		0.08		0.07	0.05
Chile	n/a	0.04	0.10	0.07	0.05	0.25
United Kingdom	n/a	0.18	0.07			
Netherlands	n/a	0.26	0.40	0.22	0.37	0.23
France	n/a	8.09	0.40	0.16	0.11	
Germany	n/a	0.17	0.08	0.94		0.20
Spain	n/a	0.04	0.12	0.19		
Italy	n/a	0.18	0.17	0.18	0.17	
Romania	n/a		0.09			
Israel	n/a	0.18	0.45	0.08	0.08	
Burma	n/a					0.09
Indonesia	n/a		0.07			
Singapore	n/a	0.16				
Macao	n/a	0.07				
Australia	n/a		3.48			
Kiribati	n/a	0.06				
Cocos Islands	n/a			0.06	0.07	
Egypt	n/a			0.06		
Ivory Coast	n/a		0.06		0.06	
Ghana	n/a					0.06
Congo	n/a				0.07	
Kenya	n/a	0.04	0.51		0.03	
Mauritius	n/a			0.33		
Brit Indian Ocn	n/a				0.07	
Total	n/a	0.07	0.07	0.07	0.07	0.07

Source: U.S. Bureau of the Census

Table 5: U.S. Imports of Standard Carnations, 1991 by month, US$000s Customs Value

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mexico	5	29	25	42	40	24	32	13		8	17	6	241
Guatemala	7	9	13	37	24	9	2	4	18	25	12	29	189
Colombia	4,793	4,785	4,727	5,649	6,817	3,189	3,355	1,315	1,488	2,568	3,368	5,654	47,708
Ecuador	9	16	38	31	57	25	12	8	15	12	14	25	262
Peru	16	22	23	1	7		12	75	4	20	20	11	211
Bolivia		1											1
Chile		19		6							55		80
Netherlands			1		2		1			3	1	8	16
Germany					14								14
Burma						3							3
Ghana								1					1
Total	4,830	4,881	4,827	5,766	6,961	3,250	3,414	1,416	1,525	2,636	3,487	5,733	48,726

Source: U.S. Bureau of the Census

Table 6: U.S. Imports of Standard Carnations, 1991 by month, 1,000 Stems

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mexico	62	333	295	1,021	595	346	552	221	(0)	159	314	100	3,998
Guatemala	220	174	192	449	364	106	31	91	321	415	179	411	2,951
Colombia	64,596	63,453	60,253	69,698	83,845	37,190	41,913	25,612	27,202	40,670	50,066	75,021	639,521
Ecuador	266	292	473	377	699	299	154	214	289	241	258	489	4,051
Peru	213	336	327	30	96	(0)	37	94	5	35	31	19	1,225
Bolivia		22											22
Chile		113	0	94	(0)						110	(0)	318
Netherlands			16		6	(0)	1	(0)		6	8	32	70
Germany					69	0							69
Burma						32							32
Ghana								16	0				16
Total	65,357	64,723	61,557	71,669	85,673	37,972	42,688	26,248	27,817	41,527	50,968	76,073	652,271

Source: U.S. Bureau of the Census

Table 7: U.S. Imports of Standard Carnations, 1991 by month, US$ Customs Value per Stem

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mexico	0.08	0.09	0.08	0.04	0.07	0.07	0.06	0.06		0.05	0.05	0.06	0.06
Guatemala	0.03	0.05	0.07	0.08	0.07	0.09	0.06	0.04	0.06	0.06	0.07	0.07	0.06
Colombia	0.07	0.08	0.08	0.08	0.08	0.09	0.08	0.05	0.05	0.06	0.07	0.08	0.07
Ecuador	0.03	0.05	0.08	0.08	0.08	0.08	0.08	0.04	0.05	0.05	0.05	0.05	0.06
Peru	0.07	0.07	0.07	0.03	0.07		0.33	0.79	0.76	0.56	0.64	0.56	0.17
Bolivia		0.05											0.05
Chile		0.17		0.06							0.50		0.25
Netherlands			0.06		0.32		1.11			0.48	0.12	0.25	0.23
Germany					0.20								0.20
Burma						0.09							0.09
Ghana								0.06					0.06
Total	0.07	0.08	0.08	0.08	0.08	0.09	0.08	0.05	0.05	0.06	0.07	0.08	0.07

Source: U.S. Bureau of the Census

Table 8: U.S. Imports of Miniature/Spray Carnations, 1980-1991, 1,000 Stems

	1981	1985	1988	1989	1990	1991
Canada	14	45	71	126	67	4
Mexico	97		780	1,624	419	13
Guatemala	10	27				
Costa Rica	5	528	2,253	2,563	1,170	233
Dominican Rep				32	141	29
Neth Antilles		308				
Colombia	7,614	22,822	70,557	94,553	76,200	86,620
Ecuador	2	3,231	1,722	5,588	9,399	9,972
Peru	298	10,514	13,933	14,331	8,719	9,422
Iceland		17	352	370		
United Kingdom	609	103				
Netherlands	5,423	4,984	1,350	429	499	478
France		15	21			
Germany		136	34		61	82
Spain		487	556	158	73	56
Portugal				10		
Italy	296	280	118	197	44	15
Greece						2
Turkey			125	80		
Israel	18,442	19,584	8,937	5,061	640	1,121
India				9	8	
Thailand		16		4		
Singapore		26				
Macao		25			6	
Japan		27				
Australia			0			
Egypt		15				
Morocco			20			6
Congo					5	
Mali		9				
Kenya	26	3,291	1,397	865	466	225
South Africa		20				
Brit Indian Ocn			93		2	
Total	32,836	66,509	102,318	126,000	97,917	108,278

Source: U.S. Bureau of the Census

Table 9: U.S. Imports of Miniature/Spray Carnations, 1980-1991, Customs Value, US$000s

	1981	1985	1988	1989	1990	1991
Canada	27	21	82	124	69	9
Mexico	12		74	140	59	3
Guatemala	1	3				
Costa Rica	3	64	442	397	127	165
Dominican Rep				12	16	30
Neth Antilles		28				
Colombia	1,124	5,924	8,137	12,934	13,801	20,213
Ecuador	1	357	265	594	1,056	1,423
Peru	220	1,902	1,029	1,078	612	1,000
Iceland		2	75	93		
United Kingdom	25	41				
Netherlands	773	917	321	87	87	87
France		5	4			
Germany		8	6		8	18
Spain		23	69	32	9	2
Portugal				2		
Italy	41	54	29	37	8	7
Greece						2
Turkey			17	12		
Israel	538	2,200	1,346	645	173	123
India				1	5	
Thailand		4		1		
Singapore		4				
Macao		3			5	
Japan		1				
Australia			1			
Egypt		2				
Morocco			5			1
Congo					4	
Mali		1				
Kenya	3	168	190	126	79	38
South Africa		2				
Brit Indian Ocn			7		1	
Total	2,769	11,736	12,100	16,312	16,120	23,121

Source: U.S. Bureau of the Census

Table 10: U.S. Imports of Miniature/Spray Carnations, 1980-1991, Customs Value, US$/St

	1981	1985	1988	1989	1990	1991
Canada	1.86	0.46	1.16	0.98	1.03	2.01
Mexico	0.12		0.10	0.09	0.14	0.23
Guatemala	0.08	0.13				
Costa Rica	0.53	0.12	0.20	0.15	0.11	0.71
Dominican Rep				0.37	0.11	1.05
Neth Antilles		0.09				
Colombia	0.15	0.26	0.12	0.14	0.18	0.23
Ecuador	0.52	0.11	0.15	0.11	0.11	0.14
Peru	0.74	0.18	0.07	0.08	0.07	0.11
Iceland		0.11	0.21	0.25		
United Kingdom	0.04	0.40				
Netherlands	0.14	0.18	0.24	0.20	0.17	0.18
France		0.35	0.20			
Germany		0.06	0.18		0.14	0.22
Spain		0.05	0.12	0.20	0.12	0.04
Portugal				0.15		
Italy	0.14	0.19	0.25	0.19	0.19	0.47
Greece						1.11
Turkey			0.13	0.15		
Israel	0.03	0.11	0.15	0.13	0.27	0.11
India				0.12	0.69	
Thailand		0.28		0.28		
Singapore		0.15				
Macao		0.10			0.80	
Japan		0.05				
Australia			2.70			
Egypt		0.10				
Morocco			0.25			0.17
Congo					0.83	
Mali		0.12				
Kenya	0.13	0.05	0.14	0.15	0.17	0.17
South Africa		0.12				
Brit Indian Ocn			0.08		0.95	
Total	0.08	0.18	0.12	0.13	0.16	0.21

Source: U.S. Bureau of the Census

Table 11: U.S. Imports of Miniature (Spray) Carnations, 1991 by month, US$000s Customs Value

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada	1				3	2			3				9
Mexico			1								2		3
Costa Rica	17	10	26	44	37	10		4	6			11	165
Dominican Rep	2		3	2		1	3		8	4	4	3	30
Colombia	2,421	1,597	1,607	2,096	2,460	1,305	1,019	1,195	1,065	1,766	1,438	2,244	20,213
Ecuador	134	119	180	128	172	129	117	87	89	98	70	100	1,423
Peru	126	165	152	77	52	43	37	15	39	85	66	143	1,000
Netherlands		15	11	6	38		1		4		10	2	87
Germany					18								18
Spain					2								2
Italy					3							4	7
Greece		2											2
Israel	2	11	24	18	68								123
Morocco		1											1
Kenya		11	6							3	9	9	38
Total	2,703	1,931	2,010	2,371	2,853	1,490	1,177	1,301	1,214	1,956	1,599	2,516	23,121

Source: U.S. Bureau of the Census

Table 12: U.S. Imports of Miniature (Spray) Carnations, 1991 by month, 1,000 Stems

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada	1	(0)			1	1	(0)		2	(0)			4
Mexico			1	0							12	(0)	13
Costa Rica	35	10	22	36	27	8	(0)	3	7	(0)		84	233
Dominican Rep	2	(0)	2	2	0	1	2	(0)	8	5	3	3	29
Colombia	8,605	6,486	7,444	8,886	10,292	5,219	4,004	5,608	5,275	8,542	6,277	9,982	86,620
Ecuador	919	744	1,011	816	1,217	855	816	673	837	858	645	580	9,972
Peru	1,670	2,561	2,021	1,073	599	669	176	22	67	183	162	219	9,422
Netherlands		103	45	35	193	0	22		10	(0)	58	13	478
Germany					82	(0)							82
Spain					56								56
Italy					1	(0)						14	15
Greece		2	(0)										2
Israel	11	65	186	198	662	0							1,121
Morocco		6											6
Kenya		130	50							3	35	7	225
Total	11,243	10,107	10,783	11,045	13,131	6,753	5,020	6,307	6,206	9,590	7,192	10,902	108,278

Source: U.S. Bureau of the Census

Table 13: U.S. Imports of Miniature (Spray) Carnations, 1991 by month, US$ Customs Value per Stem

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada	0.95				3.11	2.86			1.70				2.01
Mexico			0.83								0.17		0.23
Costa Rica	0.49	0.97	1.20	1.22	1.35	1.20		1.27	0.82			0.13	0.71
Dominican Rep	1.23		1.25	1.31		0.69	1.22		1.03	0.85	1.23	0.90	1.05
Colombia	0.28	0.25	0.22	0.24	0.24	0.25	0.25	0.21	0.20	0.21	0.23	0.22	0.23
Ecuador	0.15	0.16	0.18	0.16	0.14	0.15	0.14	0.13	0.11	0.11	0.11	0.17	0.14
Peru	0.08	0.06	0.08	0.07	0.09	0.06	0.21	0.67	0.58	0.46	0.41	0.65	0.11
Netherlands		0.15	0.24	0.17	0.20		0.05		0.40		0.17	0.16	0.18
Germany					0.22								0.22
Spain					0.04								0.04
Italy					4.52							0.28	0.47
Greece		1.11											1.11
Israel	0.18	0.17	0.13	0.09	0.10								0.11
Morocco		0.17											0.17
Kenya		0.08	0.12							1.20	0.26	1.29	0.17
Total	0.24	0.19	0.19	0.21	0.22	0.22	0.23	0.21	0.20	0.20	0.22	0.23	0.21

Source: U.S. Bureau of the Census

Table 14: U.S. Imports of Other Roses, 1980-1991, 1,000 Stems

	1981	1985	1988	1989	1990	[illegible]
Greenland						
Canada	597	681	532	622	510	[illegible]
Mexico	373	7,801	26,419	31,763	42,150	[illegible]
Guatemala	1,689	7,130	16,953	19,853	22,636	[illegible]
Honduras						
Costa Rica		2,007	2,261	3,069	3,428	
Panama		6		2		
Jamaica		125	790	208	215	
Dominican Rep	1,728	1,802	2,570	2,540	2,508	2,021
Montserrat		17		67		
Dominica				5		
Neth Antilles		6				
Colombia	52,931	132,736	240,447	239,531	288,249	[illegible]
Venezuela	7	247	582	1,779	938	[illegible]
Ecuador		378	14,392	20,501	30,357	[illegible]
Peru		80				
Bolivia			787	1,208	1,568	[illegible]
Chile	6	180	61	85	97	[illegible]
Brazil	450	264		43		[illegible]
Denmark		11				
Norway			4			
Faroe Islands			9			
United Kingdom	102		7	240	0	
Netherlands	3,230	6,092	5,647	5,565	5,688	[illegible]
Monaco				18	1	
France		62	234	168	850	[illegible]
Germany			24			8
Switzerland		5				
Spain	221	509	229	88	110	17
Italy		27	123	45	2	3
Greece		12	13	118	5	80
Israel	6,172	5,561	811	666	344	510
Bangladesh					9	
Thailand		24	30	13	15	
Laos		9				
Malaysia			6			
Indonesia			8			
Philippines			5			
Korea				2		
Japan				17	8	
New Zealand	15			76	32	21
Vanuatu			45			
Kiribati		471	103	114	18	
New Caledonia		24			30	
Cocos Islands		5			41	
Egypt	5		22			
Morocco		38	34	139	52	13
Mali		11				5
Guinea Bissau					8	
Ivory Coast		6	60			
Niger		8				
Ethiopia						5
Kenya					4	
Zimbabwe		8			2	
South Africa						3
Mauritius				39		
Total	67,526	166,343	313,206	328,585	399,874	447,797

Source: U.S. Bureau of the Census

Table 15: U.S. Imports of Other Roses, 1980-1991, Customs Value, US$000s

	1981	1985	1988	1989	1990	1991
Greenland						2
Canada	207	265	388	429	481	436
Mexico	51	1,828	5,011	7,170	10,358	10,729
Guatemala	326	807	2,074	2,540	2,978	3,492
Honduras						2
Costa Rica		310	477	783	730	789
Panama		3		1		
Jamaica		37	115	35	37	41
Dominican Rep	139	205	461	307	283	210
Montserrat		7		9		
Dominica				1		
Neth Antilles		4				
Colombia	11,078	35,282	49,171	51,404	60,095	65,808
Venezuela	1	68	115	305	107	22
Ecuador		75	2,089	3,145	4,549	5,864
Peru		10				
Bolivia			63	130	202	528
Chile	1	29	44	33	45	25
Brazil	73	36		9		125
Denmark		2				
Norway			2			
Faroe Islands			2			
United Kingdom	13		1	42	2	
Netherlands	833	1,740	2,075	2,087	2,244	1,071
Monaco				4	5	
France		23	186	170	342	198
Germany			2			2
Switzerland		1				
Spain	26	133	35	23	44	11
Italy		19	28	8	5	3
Greece		4	4	13	2	8
Israel	320	963	115	94	64	89
Bangladesh					2	
Thailand		7	9	4	2	
Laos		1				
Malaysia			1			
Indonesia			1			
Philippines			1			
Korea				2		
Japan				3	2	
New Zealand	31			35	20	8
Vanuatu			2			
Kiribati		56	10	13	2	
New Caledonia		4			3	
Cocos Islands		1			9	
Egypt	0		2			
Morocco		9	24	31	35	6
Mali		3				5
Guinea Bissau					2	
Ivory Coast		5	4			
Niger		3				
Ethiopia						1
Kenya					2	
Zimbabwe		2			1	
South Africa						1
Mauritius				12		
Total	13,100	41,942	62,513	68,840	82,652	89,476

Source: U.S. Bureau of the Census

Table 16: U.S. Imports of Other Roses, 1980-1991, Customs Value, US$/Stem

	1981	1985	1988	1989	1990	1991
Greenland						0.18
Canada	0.35	0.39	0.73	0.69	0.94	0.96
Mexico	0.14	0.23	0.19	0.23	0.25	0.28
Guatemala	0.19	0.11	0.12	0.13	0.13	0.14
Honduras						0.18
Costa Rica		0.15	0.21	0.25	0.21	0.19
Panama		0.48		0.65		
Jamaica		0.30	0.15	0.17	0.17	0.83
Dominican Rep	0.08	0.11	0.18	0.12	0.11	0.10
Montserrat		0.44		0.13		
Dominica				0.23		
Neth Antilles		0.57				
Colombia	0.21	0.27	0.20	0.21	0.21	0.20
Venezuela	0.20	0.28	0.20	0.17	0.11	0.13
Ecuador		0.20	0.15	0.15	0.15	0.15
Peru		0.12				
Bolivia			0.08	0.11	0.13	0.19
Chile	0.16	0.16	0.71	0.38	0.47	0.18
Brazil	0.16	0.14		0.20		0.20
Denmark		0.23				
Norway			0.43			
Faroe Islands			0.18			
United Kingdom	0.12		0.20	0.17	179.40	
Netherlands	0.26	0.29	0.37	0.38	0.39	0.41
Monaco				0.20	8.27	
France		0.37	0.79	1.01	0.40	0.84
Germany			0.09			0.24
Switzerland		0.20				
Spain	0.12	0.26	0.15	0.27	0.40	0.65
Italy		0.70	0.23	0.18	2.40	0.88
Greece		0.35	0.30	0.11	0.40	0.10
Israel	0.05	0.17	0.14	0.14	0.19	0.17
Bangladesh					0.21	
Thailand		0.30	0.29	0.27	0.15	
Laos		0.12				
Malaysia			0.21			
Indonesia			0.14			
Philippines			0.21			
Korea				0.85		
Japan				0.18	0.21	
New Zealand	2.10			0.46	0.63	0.39
Vanuatu			0.05			
Kiribati		0.12	0.10	0.12	0.14	
New Caledonia		0.18			0.08	
Cocos Islands		0.24			0.22	
Egypt	0.05		0.09			
Morocco		0.23	0.71	0.23	0.68	0.48
Mali		0.26				0.96
Guinea Bissau					0.21	
Ivory Coast		0.90	0.07			
Niger		0.41				
Ethiopia						0.19
Kenya					0.44	
Zimbabwe		0.20			0.67	
South Africa						0.31
Mauritius				0.29		
Total	0.19	0.25	0.20	0.21	0.21	0.20

Source: U.S. Bureau of the Census

Table 17: U.S. Imports of Other Roses, 1991 by month, 1,000 Stems

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Greenland					11	0							11
Canada	7	119	16	5	69	26	25	58	20	65	20	27	456
Mexico	2,468	9,112	1,516	4,634	4,707	2,730	2,093	2,511	2,694	2,575	1,685	1,589	38,316
Guatemala	1,386	2,278	1,249	2,083	2,163	1,861	1,847	2,141	2,431	2,514	2,562	1,981	24,496
Honduras		11	0										11
Costa Rica	216	973	220	447	697	261	173	160	47	357	370	153	4,074
Jamaica		40	9	0					0				49
Dominican Rep	87	403	202	184	319	163	157	123	114	158	49	61	2,021
Colombia	36,088	48,067	17,575	36,957	38,412	21,792	22,564	21,887	19,237	27,745	22,183	18,857	331,365
Venezuela	14	158						2	(0)				174
Ecuador	4,557	5,379	2,559	3,987	5,141	2,691	2,502	2,330	1,959	2,859	3,249	2,601	39,814
Bolivia	525	577	286	290	216	176	16	0	46	270	210	146	2,758
Chile	9	26	14	17	0							72	137
Brazil	8	19	0	83	292	89	141	(0)					632
Netherlands	75	193	32	353	758	187	77	132	315	267	131	63	2,582
France	13	21	14	22	29	10	0		2	25	63	35	235
Germany				8	0								8
Spain		17	(0)										17
Italy						2	0		2	0			3
Greece	52	(0)		28	0								80
Israel	6	103	21	127	60	60	(0)			17	11	(0)	405
West Bank		15	54			36	0						105
New Zealand									10	8	3	(0)	21
Morocco		7	6	(0)									13
Mali												5	5
Ethiopia					5	(0)							5
South Africa											3	(0)	3
Total	45,511	67,518	23,771	49,223	52,880	30,085	29,596	29,344	26,878	36,861	30,539	25,590	447,797

Source: U.S. Bureau of the Census

Table 18: U.S. Imports of Other Roses, 1991 by month, US$000s Customs Value

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Greenland					2								2
Canada	7	191	10	5	56	20	18	44	14	43	15	13	436
Mexico	1,100	4,056	401	1,125	1,166	552	390	415	480	538	263	243	10,729
Guatemala	207	450	179	316	312	281	251	282	274	383	316	241	3,492
Honduras		2											2
Costa Rica	49	231	38	82	131	47	36	32	6	61	55	21	789
Jamaica		34	6						1				41
Dominican Rep	10	43	27	17	40	17	15	12	10	11	5	3	210
Colombia	7,691	10,283	3,663	7,757	8,147	4,583	4,809	4,283	2,945	5,096	3,439	3,112	65,808
Venezuela	1	20						1					22
Ecuador	700	807	383	635	783	437	434	382	215	408	385	295	5,864
Bolivia	97	120	57	58	44	38	3		6	49	34	22	528
Chile	2	6	2	5								10	25
Brazil	1	5		14	54	23	28						125
Netherlands	41	124	17	96	282	74	24	46	125	123	70	49	1,071
France	4	37	10	17	26	8			2	20	34	40	198
Germany				2									2
Spain		11											11
Italy						2			1				3
Greece	6			2									8
Israel	2	39	3	17	6	7				1	1		76
West Bank		3	5			5							13
New Zealand									3	3	2		8
Morocco		4	2										6
Mali												5	5
Ethiopia					1								1
South Africa											1		1
Total	9,918	16,466	4,803	10,148	11,050	6,094	6,008	5,497	4,082	6,736	4,620	4,054	89,476

Source: U.S. Bureau of the Census

Table 19: U.S. Imports of Other Roses, 1991 by month, US$ Customs Value per Stem

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Greenland					0.18								0.18
Canada	0.99	1.60	0.62	1.07	0.82	0.78	0.73	0.76	0.69	0.66	0.76	0.48	0.96
Mexico	0.45	0.45	0.26	0.24	0.25	0.20	0.19	0.17	0.18	0.21	0.16	0.15	0.28
Guatemala	0.15	0.20	0.14	0.15	0.14	0.15	0.14	0.13	0.11	0.15	0.12	0.12	0.14
Honduras		0.18											0.18
Costa Rica	0.23	0.24	0.17	0.18	0.19	0.18	0.21	0.20	0.13	0.17	0.15	0.14	0.19
Jamaica		0.85	0.66						111.11				0.83
Dominican Rep	0.12	0.11	0.13	0.09	0.13	0.10	0.10	0.10	0.09	0.07	0.10	0.05	0.10
Colombia	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.20	0.15	0.18	0.16	0.17	0.20
Venezuela	0.07	0.13						0.65					0.13
Ecuador	0.15	0.15	0.15	0.16	0.15	0.16	0.17	0.16	0.11	0.14	0.12	0.11	0.15
Bolivia	0.18	0.21	0.20	0.20	0.20	0.22	0.19		0.13	0.18	0.16	0.15	0.19
Chilo	0.23	0.23	0.14	0.30								0.14	0.18
Brazil	0.13	0.26		0.17	0.18	0.26	0.20						0.20
Netherlands	0.55	0.64	0.54	0.27	0.37	0.40	0.31	0.35	0.40	0.46	0.54	0.77	0.41
France	0.31	1.80	0.70	0.79	0.88	0.81			0.82	0.79	0.54	1.13	0.84
Germany				0.24									0.24
Spain		0.65											0.65
Italy						1.18			0.59				0.88
Greece	0.11			0.07									0.10
Israel	0.33	0.38	0.14	0.13	0.10	0.12				0.06	0.09		0.19
West Bank		0.20	0.09			0.14							0.12
New Zealand									0.30	0.38	0.76		0.39
Morocco		0.61	0.34										0.48
Mali												0.96	0.96
Ethiopia					0.19								0.19
South Africa											0.31		0.31
Total	0.22	0.24	0.20	0.21	0.21	0.20	0.20	0.19	0.15	0.18	0.15	0.16	0.20

Source: U.S. Bureau of the Census

Table 20: U.S. Imports of Sweetheart Roses, 1980-1991, 1,000 Stems

	1981	1985	1988	1989	1990	1991
Canada	n/a	123	252	357	298	390
Mexico	n/a	88		32	28	54
Costa Rica	n/a	347			137	16
Jamaica	n/a			10		
Colombia	n/a	516	246	23,197	14,737	9,109
Venzuela	n/a	32				
Ecuador	n/a		45	9,469	2,655	130
Brazil	n/a		7			
Denmark	n/a			0		
Netherlands	n/a	166	140	40	80	83
Iran	n/a	44				
Israel	n/a	970		8		
India	n/a	24				
Macao	n/a			6		
Cocos Islands	n/a			6		
Ivory Coast	n/a			2		
Total	n/a	2,311	690	33,128	17,934	9,784

Source: U.S. Bureau of the Census

Table 21: U.S. Imports of Sweetheart Roses, 1980-1991, Customs Value, US$000s

	1981	1985	1988	1989	1990	1991
Canada	n/a	65	156	218	225	390
Mexico	n/a	15		17	8	46
Costa Rica	n/a	52			22	3
Jamaica	n/a			1		
Colombia	n/a	102	40	5,011	2,865	1,735
Venzuela	n/a	10				
Ecuador	n/a		6	1,204	242	19
Brazil	n/a		1			
Denmark	n/a			3		
Netherlands	n/a	42	40	9	24	25
Iran	n/a	3				
Israel	n/a	141		5		
India	n/a	4				
Macao	n/a			1		
Cocos Islands	n/a			1		
Ivory Coast	n/a			1		
Total	n/a	433	243	6,472	3,386	2,218

Source: U.S. Bureau of the Census

Table 22: U.S. Imports of Sweetheart Roses, 1980-1991, Customs Value, US$/Stem

	1981	1985	1988	1989	1990	1991
Canada	n/a	0.53	0.62	0.61	0.76	1.00
Mexico	n/a	0.17		0.51	0.30	0.85
Costa Rica	n/a	0.15			0.16	0.19
Jamaica	n/a			0.15		
Colombia	n/a	0.20	0.16	0.22	0.19	0.19
Venzuela	n/a	0.30				
Ecuador	n/a		0.13	0.13	0.09	0.15
Brazil	n/a		0.18			
Denmark	n/a			170.13		
Netherlands	n/a	0.25	0.29	0.24	0.30	0.30
Iran	n/a	0.08				
Israel	n/a	0.15		0.57		
India	n/a	0.16				
Macao	n/a			0.20		
Cocos Islands	n/a			0.24		
Ivory Coast	n/a			0.57		
Total	n/a	0.19	0.35	0.20	0.19	0.23

Source: U.S. Bureau of the Census

Table 23: U.S. Imports of Sweetheart Roses, 1991 by month, 1,000 Stems

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada	2	127	2	3	80	29	30	56	5	46	11	(0)	390
Mexico	4	30	(0)		9	3						9	54
Costa Rica			8	8	(0)								16
Colombia	1,830	3,550	548	1,802	777	185	175	0	119	108	16		9,109
Ecuador	38	64	0		28	0							130
Netherlands		8	(0)		53	23	(0)						83
Total	1,874	3,778	558	1,813	947	240	205	56	124	154	27	9	9,784

Source: U.S. Bureau of the Census

Table 24: U.S. Imports of Sweetheart Roses, 1991 by month, US$000s Customs Value

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada	1	207	3	1	70	24	13	23	9	34	5		390
Mexico	2	14			10	17						3	46
Costa Rica			1	2									3
Colombia	354	684	121	360	127	31	30		14	12	2		1,735
Ecuador	4	7			8								19
Netherlands		5			16	4							25
Total	361	917	125	363	231	76	43	23	23	46	7	3	2,218

Source: U.S. Bureau of the Census

Table 25: U.S. Imports of Sweetheart Roses, 1991 by month, US$ Customs Value per Stem

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada	0.49	1.64	1.28	0.35	0.88	0.81	0.44	0.41	1.69	0.75	0.45		1.00
Mexico	0.49	0.47			1.14	5.76						0.34	0.85
Costa Rica			0.13	0.24									0.19
Colombia	0.19	0.19	0.22	0.20	0.16	0.17	0.17		0.12	0.11	0.13		0.19
Ecuador	0.11	0.11			0.28								0.15
Netherlands		0.63			0.30	0.18							0.30
Total	0.19	0.24	0.22	0.20	0.24	0.32	0.21	0.41	0.19	0.30	0.26	0.34	0.23

Source: U.S. Bureau of the Census

Table 26: 1991 Wholesale Market Prices for Std. Carnations: Chicago & Philadel
US$ per bloom, average of Tuesday/Wednesday High and Low

Month	Week	Select -- Philadelphia Calif.	Colombia		Select -- Chicago Calif	Colombia
Jan	1		0.19	¶	n/a	n/a
	2		0.19	¶		0.30
	3		0.16	¶		0.31
	4		0.15	¶		0.31
	5		0.15	¶		0.30
Feb	6		0.28	¶		0.44
	7		0.38	¶	0.59	0.45
	8		0.24	¶		0.28
	9		0.15	¶		0.28
Mar	10		0.15	¶		0.28
	11		0.23	¶	0.40	0.31
	12		0.25	¶	0.40	0.40
	13		0.33	¶		0.45
Apr	14		0.18	¶		0.45
	15		0.18	¶		
	16		0.15	¶		0.35
	17		0.17	¶		0.34
	18		0.35	¶	0.43	0.36
May	19	0.38	0.35	¶		0.35
	20		0.17	¶		0.29
	21		0.15	¶		0.29
	22		0.15	¶		0.29
Jun	23		0.13	¶		0.18
	24		0.15	¶		0.25
	25		0.17	¶		0.25
	26		0.32	¶		0.34
Jul	27		0.23	¶	0.36	0.33
	28	0.20	0.23	¶		0.35
	29	0.16	0.20	¶	0.34	0.34
	30	0.15	0.15	¶	0.34	0.34
	31	0.15	0.15	¶		
Aug	32	0.15	0.15	¶	0.35	0.33
	33		0.15	¶	0.34	0.35
	34		0.15	¶	0.34	0.35
	35		0.15	¶	0.34	0.35
Sep	36		0.16	¶	0.35	0.18
	37		0.23	¶		0.18
	38		0.28	¶		0.31
	39		0.27	¶		0.34
Oct	40		0.27	¶		0.34
	41		0.25	¶		0.30
	42		0.25	¶		0.30
	43		0.20	¶		0.30
	44		0.20	¶	0.35	0.29
Nov	45			¶	0.35	0.31
	46		0.25	¶		0.31
	47		0.25	¶		0.31
	48		0.20	¶		0.30
Dec	49		0.18	¶		0.30
	50		0.18	¶		0.25
	51		0.18	¶	0.50	0.32
	52		0.19	¶	0.50	0.32
	53		0.18	¶	0.50	0.32

Source: Federal-State Market News Service, Chicago and Philadelphia Branches

Table 27: 1991 Wholesale Market Prices for Min. Carnations: Chicago and Philad
US$ per bunch, average of Tuesday/Wednesday High and Low

Month	Week	Philadelphia Calif.	Philadelphia Colombia		Chicago Calif	Chicago Colombia
Jan	1		2.63	¶	n/a	n/a
	2		2.25	¶	5.50	3.50
	3		2.25	¶	5.50	3.50
	4		2.25	¶	5.50	3.50
	5		2.25	¶	5.45	
Feb	6		3.25	¶	5.50	
	7		3.50	¶	6.00	
	8		2.50	¶	5.50	4.50
	9		2.50	¶	5.50	4.50
Mar	10		2.50	¶	5.50	4.00
	11		2.25	¶	5.50	5.50
	12		2.25	¶	4.00	3.38
	13		3.25	¶	3.75	3.38
Apr	14		2.68	¶	3.75	3.38
	15		2.50	¶	4.50	4.00
	16		2.50	¶	3.88	4.00
	17		3.00	¶	3.63	
	18		3.00	¶	4.50	3.50
May	19		4.13	¶	5.00	5.00
	20	4.50	2.73	¶	3.75	4.25
	21	2.50	2.38	¶	3.75	4.25
	22	2.50	2.38	¶	3.75	4.13
Jun	23	2.50	2.38	¶	3.75	
	24	2.50	2.50	¶	3.75	
	25	2.50	2.50	¶	3.75	2.00
	26	2.50	2.25	¶	3.75	3.[illegible]0
Jul	27	3.00	2.50	¶	3.50	2.75
	28		2.50	¶	3.63	3.00
	29	2.50	2.50	¶	3.63	3.00
	30	2.50	2.50	¶	3.63	3.00
	31	2.50	2.50	¶	3.50	2.75
Aug	32	2.50	2.50	¶	3.50	2.50
	33	2.50	2.50	¶	3.50	3.00
	34	2.50	2.50	¶	3.50	2.25
	35	2.50	2.50	¶	3.50	
Sep	36	2.50	2.50	¶	3.50	2.50
	37	2.50	2.50	¶	3.50	
	38	2.25	2.75	¶	3.38	2.50
	39	3.00	2.63	¶	3.50	3.00
Oct	40	3.00	2.63	¶	3.50	3.00
	41	3.00	2.63	¶	3.75	3.50
	42	3.00	2.63	¶	3.75	2.50
	43	2.50	2.00	¶	3.75	
	44	2.50	2.25	¶	3.75	
Nov	45	2.50	2.25	¶	3.75	
	46	2.50	2.25	¶	3.75	
	47		2.25	¶	3.75	3.25
	48		2.25	¶	4.00	2.50
Dec	49		2.25	¶	4.00	2.50
	50		2.25	¶	4.00	2.50
	51		2.25	¶	4.50	3.50
	52		2.50	¶	4.50	3.50
	53		2.25	¶	4.25	3.50

Source: Federal-State Market News Service, Chicago and Philadelphia Branches

Table 28: 1991 Wholesale Market Prices for Roses: Chicago and Philadelphia
US$ per bloom, average of Tuesday/Wednesday High and Low

Month	Week	26" and Longer -- Philadelphia			26" and Longer -- Chicago	
		Penn.	Calif.	Colombia ¶	Calif/Ill	Colombia
Jan	1		0.93	0.70 ¶	n/a	n/a
	2		0.93	0.70 ¶	1.04	0.96
	3		0.95	0.70 ¶	1.14	1.05
	4		0.95	0.70 ¶	1.17	1.05
	5		0.95	0.60 ¶	1.18	1.05
Feb	6		1.08	0.63 ¶	1.20	1.05
	7	2.35	1.63	1.20 ¶	2.13	1.50
	8	1.75	0.90	0.60 ¶	1.13	0.87
	9	1.40	0.75	0.38 ¶	0.97	0.67
Mar	10	1.40	0.75	0.38 ¶	0.85	0.67
	11	1.40	0.73	0.38 ¶	0.85	0.70
	12	1.40	0.83	0.50 ¶	0.85	0.66
	13	1.40	0.88	0.60 ¶	0.85	0.66
Apr	14	1.20	0.83	0.48 ¶	0.85	0.66
	15	1.20	0.75	0.40 ¶	0.83	0.66
	16	1.20	0.73	0.40 ¶	0.80	0.63
	17	1.20	0.73	0.40 ¶	0.83	0.72
	18	1.20	0.73	0.40 ¶	0.83	0.72
May	19	1.20	0.95	0.50 ¶	0.85	0.70
	20	1.15	0.83	0.38 ¶	0.85	0.70
	21	1.15	0.80	0.38 ¶	0.88	0.70
	22	1.18	0.80	0.38 ¶	0.88	0.70
Jun	23	1.05	0.80	0.43 ¶	0.88	0.70
	24	1.05	0.80	0.45 ¶	0.83	0.63
	25	1.05	0.80	0.50 ¶	0.83	0.73
	26	1.00	0.80	0.48 ¶	0.83	0.73
Jul	27	1.00	0.80	0.40 ¶	0.83	0.73
	28	1.00	0.80	0.25 ¶	0.83	0.60
	29	1.00	0.80	0.25 ¶	0.83	0.46
	30	0.90	0.68	0.25 ¶	0.83	0.46
	31	0.90	0.68	0.25 ¶	0.85	0.46
Aug	32	0.90	0.68	0.25 ¶	0.83	0.50
	33	0.90	0.68	0.40 ¶	0.85	0.63
	34	0.90	0.68	0.35 ¶	0.85	0.63
	35	0.90	0.68	0.33 ¶	0.85	0.63
Sep	36	0.90	0.68	0.33 ¶	0.85	0.63
	37	0.90	0.68	0.40 ¶	0.85	0.63
	38	1.20	0.70	0.43 ¶	0.85	0.63
	39	1.20	0.70	0.43 ¶	0.84	0.63
Oct	40	1.20	0.70	0.43 ¶	0.85	0.63
	41	1.20	0.70	0.43 ¶	0.86	0.63
	42	1.10	0.70	0.43 ¶	0.86	0.63
	43	1.15	0.78	0.43 ¶	0.86	0.63
	44	1.15	0.78	0.43 ¶	0.86	0.63
Nov	45	1.15	0.78	0.43 ¶	0.86	0.63
	46	1.16	0.83	0.40 ¶	0.86	0.63
	47	1.20	0.83	0.30 ¶	0.85	0.63
	48	1.20	0.80	0.30 ¶	0.85	0.50
Dec	49	1.20	0.80	0.30 ¶	0.85	0.50
	50	1.20	0.75	0.50 ¶	0.86	0.50
	51	1.20	0.68	0.50 ¶	0.83	0.50
	52	1.20	0.73	0.45 ¶	0.83	0.50
	53	1.20	0.73	0.50 ¶	0.83	0.50

Source: Federal-State Market News Service, Chicago and Philadelphia Branches

Table 29: 1991 Wholesale Market Prices for Roses: Chicago and Philadelphia
US$ per bloom, average of Tuesday/Wednesday High and Low

10" and Longer Month	Week	Sweethearts -- Philadelphia Penn.	Calif.	Colombia	Sweethearts -- Chicago Calif	Colombia
Jan	1	0.60	0.50		n/a	n/a
	2	0.60	0.50		0.55	
	3	0.60	0.50		0.64	0.55
	4	0.60	0.50		0.64	0.58
	5	0.60	0.50		0.64	
Feb	6	0.60	0.60		0.64	
	7	0.98	1.00		1.38	
	8	0.50	0.50		0.60	
	9	0.60	0.45		0.55	
Mar	10	0.60	0.45		0.53	0.55
	11	0.60	0.43		0.53	
	12	0.60	0.45	0.50	0.53	
	13	0.60	0.50		0.53	
Apr	14	0.60	0.50		0.53	
	15	0.50	0.45		0.53	
	16	0.50	0.45		0.53	
	17	0.50	0.45		0.53	
	18	0.50	0.45		0.53	0.45
May	19	0.50	0.55		0.55	
	20	0.40	0.45	0.50	0.58	
	21	0.40	0.45	0.50	0.58	
	22	0.50	0.45	0.50	0.58	
Jun	23	0.60	0.45		0.58	
	24	0.60	0.45		0.53	
	25	0.60	0.45		0.53	
	26	0.50	0.45		0.53	
Jul	27	0.50	0.43		0.50	
	28	0.50	0.35		0.50	
	29	0.50	0.35		0.50	
	30	0.60	0.30		0.50	
	31	0.60	0.30		0.50	
Aug	32	0.45	0.30		0.48	
	33		0.30		0.53	
	34		0.30		0.53	
	35		0.28	0.28	0.53	
Sep	36	0.40	0.33	0.28	0.53	
	37	0.40	0.38	0.30	0.53	
	38	0.40	0.38		0.48	
	39	0.40	0.38		0.48	
Oct	40	0.40	0.38		0.48	
	41	0.40	0.38		0.48	
	42	0.40	0.38		0.48	
	43	0.40	0.35		0.48	
	44	0.40	0.35		0.48	
Nov	45	0.40	0.35		0.48	
	46	0.40	0.38		0.48	
	47	0.60	0.38	0.40	0.50	
	48	0.60	0.38	0.45	0.48	
Dec	49	0.60	0.38	0.45	0.48	
	50	0.60	0.38		0.48	
	51	0.60	0.38		0.53	
	52	0.60	0.38		0.53	0.50
	53	0.60	0.40		0.53	0.50

Source: Federal-State Market News Service, Chicago and Philadelphia Branches

Table 30: 1991 Wholesale Market Prices for Statice: Chicago
US$ per bunch, average of Tuesday/Wednesday High and Low

Month	Week	From California Sinuata	Seafoam	Latifolia	From Mexico Sinuata	Seafoam
Jan	1	5.50	4.25	8.00	4.5	4.5
	2	5.50	4.25		4.38	5.50
	3	5.50	4.25		4.38	5.50
	4	4.38	4.38			
Feb	5	4.38	4.25	8.00	3.50	3.50
	6	4.38	4.25	8.00	3.50	4.00
	7	4.00	4.25			
	8	3.25	4.25			
Mar	9	3.25	4.25		4.25	
	10	3.25	3.50		3.00	3.00
	11	3.25	3.88	6.50		
	12	3.63	4.50	8.00	4.85	3.85
Apr	13	3.63	4.50			
	14	3.63	4.50		3.75	
	15	3.88	4.50		3.75	
	16		3.75	4.50	3.00	2.50
	17		3.75			
May	18	3.13	4.38		3.00	
	19	3.13	4.38		3.75	
	20	3.13	4.38	7.00	3.75	4.25
	21	3.13	4.38	8.00		
Jun	22	3.13	4.38	8.00		
	23	3.13	4.38			
	24	3.13	4.38	8.00		
	25	3.13	4.38	8.00		
Jul	26	3.38	4.38	8.00		
	27	3.38	4.38	8.00		
	28	3.25	4.38	8.00		
	29	3.25	4.38	8.00		
	30	3.25	4.38	8.00		
Aug	31	3.25	4.13		3.88	3.50
	32	3.25	4.13			
	33	3.25	4.13			
	34	3.75	4.25			
Sep	35	3.75	4.25			
	36	3.75	4.25			3.00
	37	3.75	4.25			
	38	3.75	4.25		3.50	
	39	3.25	4.25		3.50	
Oct	40	3.25	4.25			
	41	3.25	3.88			
	42	3.25	3.88	8.00		
	43	3.25	3.88	8.00		
Nov	44	3.63	4.38	8.00		
	45	3.63	4.38	8.00		
	46	3.50	4.38	8.00		
	47	3.50	4.38	8.00		
Dec	48	3.50	4.38	8.00	3.50	
	49	3.50	4.38	8.00	3.50	
	50	3.63	4.38		3.50	
	51	3.63	4.38			
	52	3.63	4.13			3.50

Source: Federal-State Market News Service, Chicago Branch

SECTION II: ASPARAGUS (FRESH AND PROCESSED)

Ranking Overview

Product	Ranking	Notes
Fresh/Chilled Asparagus	1*	Sept 15-Nov 15 Window of Low Duty
Frozen Asparagus	0	High Duties
Canned/Other Processed	0	High Duties

Domestic Production

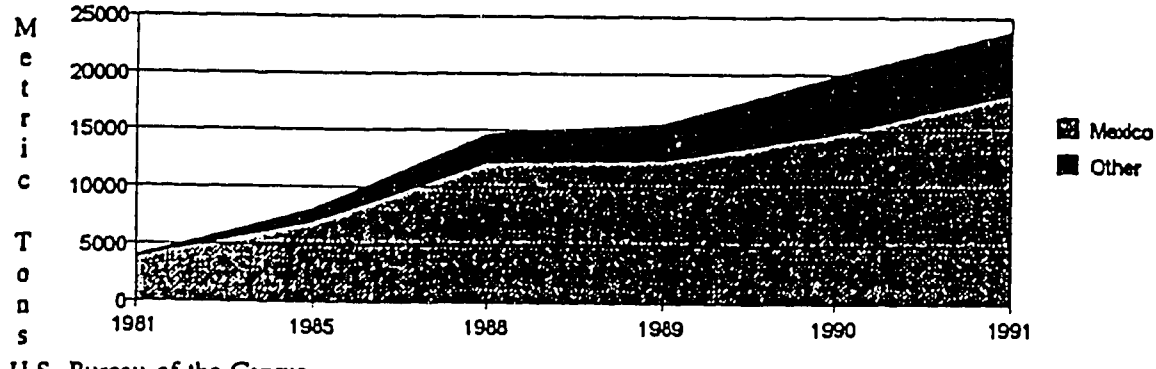
U.S. fresh asparagus production was estimated at 104 thousand metric tons in 1991, down slightly from 109 thousand metric tons in 1990 and 113 thousand metric tons in 1989. California, Washington, and Michigan account for 99 percent of U.S. production, with production shares of roughly 44 percent each for Washington and California, and about 11 percent for Michigan. Although production is up approximately 50 percent since 1980, there are signs (notice the slow downward trend in the yearly figures above) that production expansion may be leveling off. This is especially true of production in California, where after reaching a production high in 1986, production has leveled off by 10 percent.

As with fresh production, processed production has also seen a downward trend in the past three years. Canned asparagus production stood at 35.2 thousand MT in 1989, before falling to 34.8 thousand MT in 1990 and again to 32.1 thousand MT in 1991. 1990 domestic production of frozen asparagus was 11.1 thousand MT, up from 10.3 thousand MT in 1989. Frozen asparagus production fell to 7.6 thousand MT in 1991. Canning and freezing primarily occurs in Michigan and Washington. California only processed 5 percent of its total asparagus production, while Michigan and Washington process roughly 90 percent and 70 percent, respectively, of total production. .

Imports

U.S. imports of fresh or chilled asparagus have grown rapidly since 1981, when they stood at nearly 4 thousand MT ($5.2 million). In 1991, imports had grown to 23.8 thousand MT ($32.0 million).

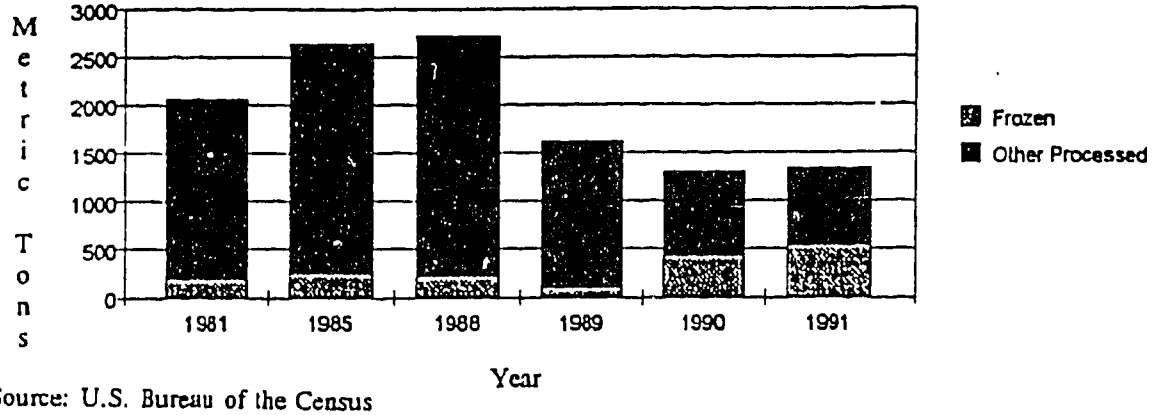
U.S. Imports of Fresh or Chilled Asparagus, 1981-1991



Source: U.S. Bureau of the Census

U.S. imports of frozen asparagus, while still at very low levels, has increased from 190 MTs ($257,000) in 1981 to 543 MTs ($803,000) in 1991. U.S. imports of other processed asparagus production, chiefly canned, decreased from 1.9 thousand MTs ($3.3 million) in 1981 to 0.8 thousand MTs ($1.5 million) in 1991.

U.S. Imports of Processed Asparagus, 1981-1991

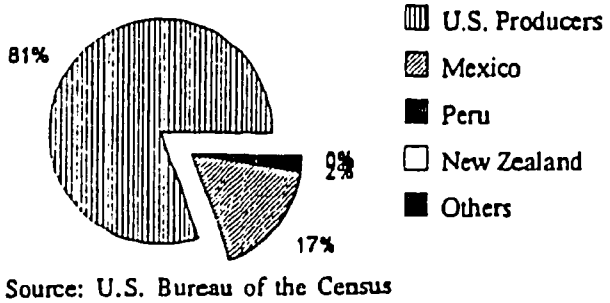


Source: U.S. Bureau of the Census

Market Share

U.S. apparent consumption of fresh asparagus stood at 111 thousand MTs in 1991.[1] U.S. production consumed on the domestic market (87 thousand MTs) accounted for over 78 percent of total U.S. apparent consumption. The import share of the market (22 percent) was chiefly supplied by Mexico (77 percent of all imports), with lesser amounts entering from Peru (12 percent of imports), Chile (8 percent), and New Zealand (2 percent). Nine other countries supplied the U.S. market in 1991, but only two of these, Guatemala and Argentina, supplied over 100 metric tons.

1991 U.S. Market Share - Fresh Asparagus



Source: U.S. Bureau of the Census

[1] U.S. apparent consumption is estimated by adding U.S. production (104 thousand MTs in 1991) to U.S. imports (24 thousand MTs) and subtracting U.S. exports (17 thousand MTs).

Peru, Chile and New Zealand have only been active in the U.S. market, in a substantial manner, since the mid-1980's . Since 1989 they have maintained a combined import market share of around 20 percent. Mexican import market share has decreased from over 99 percent in 1981 to its current level of 77 percent (although in quantity terms it has more than quadrupled its exports to the United States).

U.S. apparent consumption of frozen asparagus is estimated at 8.1 thousand metric tons in 1991. U.S. producers accounted for the vast majority of supplies on the market (94 percent). Foreign suppliers , which accounted for 6 percent of market supplies, included Canada (27 percent of imports), Mexico (27%), Chile (19 %), and Peru (18%). Four other countries supplied the U.S. market in 1991, although each supplied less than 20 metric tons.

U.S. apparent consumption of other processed asparagus products, assumed to be chiefly canned, was 30.9 thousand metric tons in 1991 (32.1 thousand MTs domestic production plus 0.8 thousand tons imports, less 2.0 thousand tons exports). Imports, which accounted for less than 3 percent of U.S. market supply, entered from China (42% of all imports), Peru (22%), Canada (14%), and nine other countries (22%).

Consumer Preference

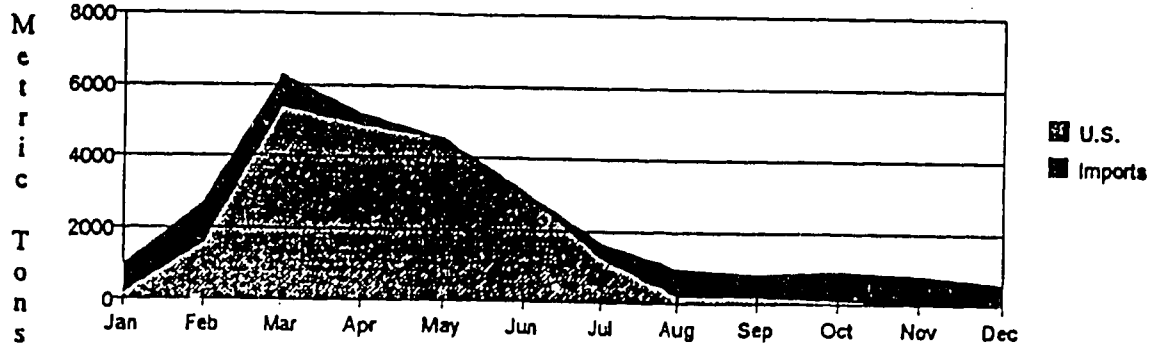
U.S. per capita consumption of all asparagus production (fresh, frozen and canned) has stood at 1 pound since 1986. However, there has been a marked change in preferences by U.S. consumers over the past decade. While in 1980, when per capita consumption for all asparagus products was 0.8 pounds, fresh consumption was 0.3 pounds per capita, this had doubled to 0.6 pounds by 1990. Canned per capita consumption has fallen from 0.6 pounds in 1971 to 0.4 pounds in 1980 and again to 0.3 pounds in 1990. Frozen per capita consumption, which stood at 0.3 pounds in 1970, has remained constant at 0.1 pounds since 1980.

Green asparagus is much more popular than white asparagus -- in fact the majority of white asparagus in Mexico is either processed or exported to the European market.

Seasonal Patterns of Demand

Using Federal-State Market News arrivals statistics for 22 of the largest U.S. city markets, one can see that the majority of U.S. domestic fresh market production is available during the

Fresh Asparagus Arrivals in Top 22 U.S. Markets, 1991

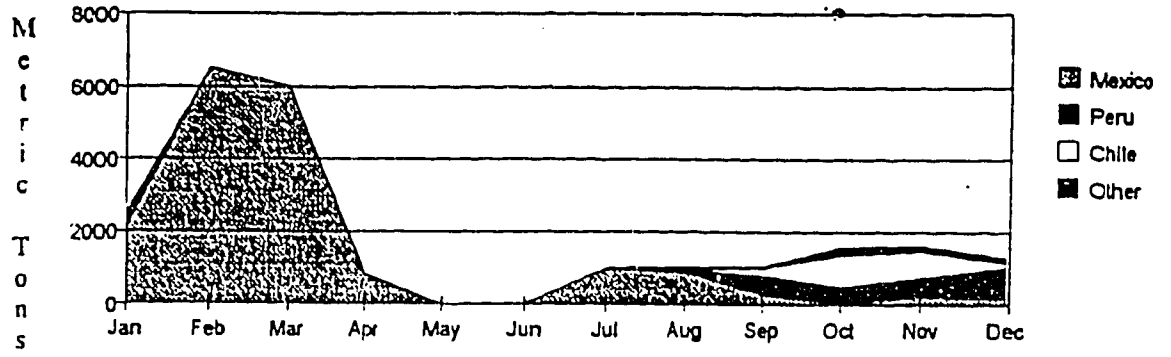


Source: USDA

Month

period March-May, with lesser amounts available in February, June and July. In fact during the period May-March, 56 percent of all U.S. and imports supply for the year is placed on the market. Imports supply the majority of the market in January and during the period August-December.

U.S. Imports of Fresh Asparagus, 1991 by Month



Source: U.S. Bureau of the Census

Using USDOC data (chart above), which presents a better estimate of total import supply, one can see that imports levels are also highest in February and March -- corresponding to the start of the U.S. season and comprised primarily of Mexican asparagus, which is produced during roughly the same season. The primary reason why U.S. producers do not face strong competition during their season is an unusually high import tariff (25%) placed on imports during this period. Even Mexican production with its lower labor costs (but also lower yields) cannot compete effectively during this period. From September 15 through November 15, when the duty is reduced to 5 percent for air-freighted asparagus, a number of distant suppliers enter the market place -- most notably Peru, Chile and New Zealand.

Prices

1991 wholesale fresh asparagus prices (for 11 to 12 pound crates or cartons, bunched 12s, large) were reviewed for 5 suppliers to the New York terminal market. Based on price reporting, geographically close suppliers (California and Mexico) supplied the market from January through September (with no significant supplies entering in May or June), with U.S. production available chiefly during the period late February to early March. Prices for California asparagus were generally in the $14 to $16 per carton range. Mexican asparagus prices ranged widely, from about $19 to $39 per carton.

Distant suppliers supplied the New York market from September through December. Chile and Peru supplied during this entire period, while New Zealand only supplied during a three week period in late November and early December. There were not any significant price differentials between the three distant suppliers, with prices ranging from $17 to $35 per carton over the

period.

Prices of Peruvian asparagus were compared in four difference markets (Miami, Baltimore, Boston, and New York) during 1991 to determine whether any markets offered significant price premiums over other markets. While at any one time prices may have been higher in one market vis-a-vis the other markets, the differences were not significant and no market or markets had consistently higher prices during all the reporting periods.

In summation, fresh asparagus prices: (1) seem to be higher when U.S. production is not significant (and even more so when U.S. and Mexican production is low); and (2) none of the east coast markets studied offered relative price advantages over each other.

Official statistics are not available for processed asparagus prices. Based on U.S. import statistics, unit customs values (approximates CIF value less transportation and insurance, and does not include duties) of frozen asparagus stood at $1.48/kg in 1991, down from $2.01/kg in 1990, but slightly higher than 1989 levels. Unit customs values of imported other processed asparagus, chiefly canned, stood at $1.88/kg in 1991, down from $2.17/kg in 1990 and from $1.99/kg in 1989.

Market Distribution

Large importers handle the majority of U.S. imports. The largest wholesale markets in 1991 were Los Angeles (which handled 17.1% of the volume of the 22 largest city markets), Chicago (11.5%), Boston (14.0%), San Francisco (11.2%), and New York (10.4%). While imports supplied 25 percent of the arrivals for all 22 markets studied, markets which had higher imports vis-a-vis the market average included New York (72.7% imported), Dallas (60%), Los Angeles (29.4%), and Buffalo (28.6%).

A representative listing of major U.S. importers is given in Annex A.

Grades and Standards

Full Code of Federal Regulations' (CFR) text of U.S. grades and standards for fresh asparagus, green asparagus for processing, canned asparagus, and frozen asparagus are given in Annex B.

Import Regulations and Duties

Imports of fresh and frozen asparagus are subject to approval and inspection by USDA's Animal and Plant Health Inspection Service. Asparagus should be free of insects, pests and disease.

Canned asparagus regulations come under the Food and Drug Administration's jurisdiction. See grades and standards information below for tolerances.

The following duty rates are charged on fresh and processed asparagus entering the U.S. (Kenya is included under the GSP category):

HS Number	Description	General	GSP	CBI/Israel	Canada
0709.20.10	Fresh, Not Reduced, by Air Entering 9/15-11/15	5%	Free	Free	3.5%
0709.20.90	Fresh, other	25%	25%	Free	17.5%
0710.80.9510	Frozen	17.5%	17.5%	Free	12.2%
2005.60.00	Prepared or preserved, not by vinegar/acetic acid, not frozen	17.5%	17.5%	Free	12.2%

No quantitative restrictions exist.

Market Opportunities for Kenyan Exporters

The U.S. market for fresh and processed asparagus is protected by high import duties.

Except for low cost and geographically close producers (mainly Mexico) there is little opportunity to export fresh product to this market during the period November 15 to September 15 -- when U.S. duties are at 25 percent.

During the window of September 15 to November 15, there is a window where U.S. and Mexican production is low, prices are higher and duties are lower (for air freighted produce). If this window matches the Kenyan production season, and if Kenyan producers are able to obtain airfreight space at comparable prices of other long distance suppliers (New Zealand, Peru, Chile), trial shipments may be warranted. The North American Free Trade Agreement, if ratified, would extend duty-free treatment to Mexican asparagus. This, along with Mexico's low transport costs, would all but preclude other countries from the market while Mexican produce is available. However, Mexican production,which mirrors the U.S. production season (large spring crop, smaller summer crop), is very low during the fall months when the GSP duty is only 5 percent.

The canned and frozen asparagus markets in the U.S. have been declining over a number of years, as more consumers demand fresh produce. Given, the relatively low level of imports, the relatively high duties for Kenyan producers (17.5%), and the level of U.S. production, the author does not believe that these products have enough potential in the U.S. market to warrant additional marketing studies or efforts.

References

1980-1989 Trade Statistics, Microfiche, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

1990-1991 Trade Statistics, CD-ROM, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

United States International Trade Commission, Harmonized Tariff Schedule of the United States, 1991.

Cook, Roberta et al, Implications of the North American Free Trade Agreement (NAFTA) for the U.S. Horticultural Sector. University of California/Davis and The American Farm Bureau Research Foundation, 1991.

U.S. Department of Agriculture, Foreign Agricultural Service, "Horticultural Products Review," various issues.

U.S. Department of Agriculture, Economic Research Service, "Vegetables and Specialties: Situation and Outlook Report," various issues.

U.S. Department of Agriculture, Agricultural Marketing Service, Fruit and Vegetable Division, Market News Branch, "Fresh Fruit and Vegetable Arrival Totals for 22 Cities," 1991.

Federal-State Market News Service (USDA & Maryland Department of Agriculture), "Baltimore Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Federal-State Market News Service (USDA & Massachusetts Department of Food & Agriculture), "Boston Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Federal-State Market News Service (USDA & California Department of Food & Agriculture), "Los Angeles Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Market News Service (USDA), "Chicago Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Federal-State Market News Service (USDA), "New York Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992 unpublished.

Federal-State Market News Service (USDA), "Miami Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Code of Federal Regulations, Chapter 7, Part 52, January 1992.

Code of Federal Regulations, Chapter 7, Parts 46-51, January 1992.

Table 1: U.S. Per Capita Consumption of Asparagus, 1971-1990
Pounds, farm-weight

	1971	1975	1980	1985	1990
Fresh	0.4	0.4	0.3	0.5	0.6
Canned	0.6	0.6	0.4	0.3	0.3
Frozen	0.3	0.2	0.1	0.1	0.1
Total	1.3	1.2	0.8	0.9	1.0

Source: Economic Research Service, USDA

Table 2: U.S. Fresh Asparagus Production, 1970-1991

	Acres	1,000 cwt	$1,000
1970	112,260	944	21,019
1975	102,570	874	29,695
1980	87,950	784	45,535
1985	91,450	1,152	91,343
1986	96,180	1,387	97,941
1987	99,840	1,388	91,102
1988	100,910	1,481	104,387
1989	98,510	1,492	101,760
1990	95,600	1,435	98,419

Source: National Agricultural Statistics Service, USDA

Table 3: U.S. Processed Asparagus Production, 1989-1991

		Tons	$1,000
Canned			
	1989	38,830	36,371
	1990	38,370	38,006
	1991	35,400	33,669
Frozen			
	1989	11,310	11,491
	1990	12,230	11,955
	1991	8,420	8,118

Source: National Agricultural Statistics Service, USDA

Table 4: Fresh Asparagus Arrivals for 22 U.S. Cities, 1991
Metric Tons, By City

	ATLA	BALT	BOST	BUFF	CHIC	CINC	COLU	DALL	DETR	LOSA	MIAM	NEWO	NYC	PHIL	PITT	STL	SANF	SEAT	Total
Domestic																			
Arizona														181					181
California	363	1180	2359	227	2223	408		91	1134	2722	91	181	499	862	272	499	2495	1225	16833
Illinois					45														45
Michigan					45														45
New Jersey		45																	45
Washington	181	318	907		408	45				771			318	363		45	181	862	4401
Imports																			
Chile	45	91	91		181				91	91			817				91		1497
Mexico	91	408	454	91	318	45		136	91	1225			1089	363			272	91	4673
Peru	45		227		91								272	181					817
New Zealand										136							181		318
TOTAL	726	2042	4038	318	3312	499		227	1316	4946	91	181	2995	1951	272	544	3221	2178	28857
Market Size	3%	7%	14%	1%	11%	2%		1%	5%	17%	0%	1%	10%	7%	1%	2%	11%	8%	100%
Import Share	25%	24%	19%	29%	18%	9%		60%	14%	29%			73%	28%			17%	4%	25%

Source: Agricultural Marketing Service, USDA

Table 5: Fresh Asparagus Arrivals for 22 U.S. Cities, 1991
Metric Tons, By Month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Domestic													
Arizona			136	45									181
California	181	1588	5263	4446	3085	1407	272	227	227	136	45		16878
Illinois					45								45
Michigan						45							45
New Jersey					45								45
Washington				408	1361	1633	998						4401
Imports													
Chile									45	499	590	363	1497
Mexico	363	1134	907	318			408	771	499	136	45	45	4628
Peru	408								91	91	91	136	817
New Zealand	45									91	91	91	318
Total	998	2722	6307	5218	4537	3085	1679	998	862	953	862	635	28857
Month Share	3%	9%	22%	18%	16%	11%	6%	3%	3%	3%	3%	2%	100%
Import Share	82%	42%	14%	6%			24%	77%	74%	86%	95%	100%	25%

Table 6: U.S. Imports of Fresh/Chilled Asparagus, 1980-1991, Metric Tons

	1981	1985	1988	1989	1990	1991
Canada	0	38	32	49	1	0
Mexico	3,928	7,000	12,156	12,357	14,765	18,308
Guatemala			7	60	71	133
Costa Rica					12	6
Panama				2	3	
Montserrat		31				
Colombia			25		4	10
Venezuela					2	2
Ecuador		1		1	22	42
Peru		8	435	798	1,901	2,800
Chile	2	856	1,579	1,867	2,321	1,864
Brazil		5	1			
Uruguay	3		1			
Argentina		16	44	78	101	113
Netherlands		7	0	3	2	17
Monaco			1		9	
France				0	1	
Italy					2	2
Spain		3	2			
Israel			2			
Malaysia			1			
Australia		66	5	15	1	
New Zealand	44	140	376	411	403	462
Fiji			1			
Morocco			12			
Ivory Coast		1				
Mozambique		13	10			
Mauritius					236	26
Namibia					2	
Total	3,977	8,186	14,690	15,642	19,858	23,785

Source: U.S. Bureau of the Census

Table 7: U.S. Imports of Fresh/Chilled Asparagus, 1980-1991, Customs Value, US$000s

	1981	1985	1988	1989	1990	1991
Canada	2	53	44	110	2	5
Mexico	5,035	8,561	15,153	14,278	21,130	25,763
Guatemala			10	50	66	121
Costa Rica					27	14
Panama				4	5	
Montserrat		42				
Colombia			45		6	8
Venezuela					2	2
Ecuador		1		4	35	37
Peru		25	726	1,471	2,539	2,997
Chile	5	1,078	2,345	2,476	2,806	2,342
Brazil		12	2			
Uruguay	3		3			
Argentina		17	47	94	120	105
Netherlands		23	1	5	12	21
Monaco			3		15	
France				1	9	
Italy					3	2
Spain		9	2			
Israel			1			
Malaysia			2			
Australia		189	17	20	2	
New Zealand	128	483	565	613	608	587
Fiji			1			
Morocco			14			
Ivory Coast		1				
Mozambique		19	18			
Mauritius					335	39
Namibia					2	
Total	5,173	10,514	19,001	19,125	27,726	32,043

Source: U.S. Bureau of the Census

Table 8: U.S. Imports of Fresh/Chilled Asparagus, 1980-1991, Customs Value, US$/kg

	1981	1985	1988	1989	1990	1991
Canada	7.16	1.41	1.36	2.22	1.33	100.00
Mexico	1.28	1.22	1.25	1.16	1.43	1.41
Guatemala			1.45	0.83	0.93	0.91
Costa Rica					2.36	2.49
Panama				1.67	2.19	
Montserrat		1.35				
Colombia			1.76		1.62	0.79
Venezuela					1.20	0.93
Ecuador		1.56		3.60	1.60	0.88
Peru		3.26	1.67	1.84	1.34	1.07
Chile	2.32	1.26	1.48	1.33	1.21	1.26
Brazil		2.19	2.47			
Uruguay	0.97		4.00			
Argentina		1.10	1.07	1.21	1.19	0.93
Netherlands		3.32	8.01	1.67	7.56	1.24
Monaco			3.37		1.64	
France				6.18	7.69	
Italy					1.76	1.04
Spain		2.61	1.08			
Israel			0.86			
Malaysia			1.50			
Australia		2.89	3.49	1.31	1.97	
New Zealand	2.90	3.45	1.50	1.49	1.51	1.27
Fiji			0.95			
Morocco			1.20			
Ivory Coast		1.00				
Mozambique		1.41	1.86			
Mauritius					1.42	1.52
Namibia					0.75	
Total	1.30	1.28	1.29	1.22	1.40	1.35

Source: U.S. Bureau of the Census

Table 9: U.S. Imports of Fresh or Chilled Asparagus, 1991, by Month, Metric Tons

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada					0								0
Mexico	2,123	6,517	6,023	853	4	52	1,016	903	296	73	236	212	18,308
Guatemala	15						16	61	20	6	2	12	133
Costa Rica	1							3				2	6
Colombia											2	8	10
Venezuela	2												2
Ecuador	31									2		10	42
Peru	358	7						102	518	434	530	852	2,800
Chile								2	209	845	708	101	1,864
Argentina									25	74	15		113
Netherlands						1			2	5	9		17
Italy										2			2
New Zealand	27									164	141	130	462
Mauritius		26											26
TOTAL	2,557	6,550	6,023	853	4	53	1,031	1,071	1,069	1,605	1,642	1,327	23,785

Source: U.S. Bureau of the Census

Table 10: U.S. Imports of Fresh or Chilled Asparagus, 1991, by Month, US$1,000

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada					5								5
Mexico	3,648	9,659	8,319	1,131	4	39	937	838	278	119	393	398	25,763
Guatemala	14						18	53	18	5	1	12	121
Costa Rica	2							9				3	14
Colombia											2	6	8
Venezuela	2												2
Ecuador	22									2		13	37
Peru	369	5						124	624	473	549	853	2,997
Chile								6	260	1,103	844	129	2,342
Argentina									26	65	14		105
Netherlands						3			2	6	10		21
Italy										2			2
New Zealand	29									215	180	163	587
Mauritius		39											39
TOTAL	4,086	9,703	8,319	1,131	9	42	955	1,030	1,208	1,990	1,993	1,577	32,043

Source: U.S. Bureau of the Census

Table 11: U.S. Imports of Fresh or Chilled Asparagus, 1991, by Month, US$/kg Customs Value

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada					100.00								100.00
Mexico	1.72	1.48	1.38	1.33	1.07	0.75	0.92	0.93	0.94	1.63	1.66	1.88	1.41
Guatemala	0.90						1.14	0.86	0.92	0.80	0.50	0.99	0.91
Costa Rica	3.48							2.67				1.80	2.49
Colombia											0.93	0.75	0.79
Venezuela	0.93												0.93
Ecuador	0.72									1.22		1.31	0.88
Peru	1.03	0.76						1.22	1.21	1.09	1.04	1.00	1.07
Chile								3.10	1.24	1.31	1.19	1.28	1.26
Argentina									1.06	0.88	0.96		0.93
Netherlands						2.64			1.33	1.19	1.08		1.24
Italy										1.04			1.04
New Zealand	1.06									1.31	1.28	1.25	1.27
Mauritius		1.52											1.52
TOTAL	1.60	1.48	1.38	1.33	2.37	0.79	0.93	0.96	1.13	1.24	1.21	1.19	1.35

Source: U.S. Bureau of the Census

Table 12: U.S. Imports of Frozen Asparagus, Reduced in Size, 1980-1991, MTs

	1981	1985	1988	1989	1990	1991
Canada	20		22	1	139	148
Mexico	160	195	206	49	69	144
Guatemala	0					6
Colombia		2				
Peru				7	104	97
Chile				44	121	104
Spain		56				
Israel				4		18
Thailand						16
Taiwan	11	1				
New Zealand	0	1				
Fiji				1		
Mauritius						9
Total	190	256	228	105	433	543

Source: U.S. Bureau of the Census

Table 13: U.S. Imports of Frozen Asparagus, Reduced in Size, 1980-1991, Customs Value, US$000s

	1981	1985	1988	1989	1990	1991
Canada	29		41	4	365	299
Mexico	208	231	157	37	78	79
Guatemala	1					11
Colombia		10				
Peru				12	172	146
Chile				83	256	195
Spain		134				
Israel				12		24
Thailand						44
Taiwan	19	2				
New Zealand	0	3				
Fiji				5		
Mauritius						5
Total	257	381	199	152	871	803

Source: U.S. Bureau of the Census

Table 14: U.S. Imports of Frozen Asparagus, Reduced in Size, 1980-1991, Customs Value, US$/kg

	1981	1985	1988	1989	1990	1991
Canada	1.47					
Mexico	1.30	1.18	0.76	0.76	1.13	0.55
Guatemala	2.11					1.85
Colombia		4.58				
Peru				1.83	1.65	1.50
Chile				1.90	2.12	1.87
Spain		2.38				
Israel				2.69		1.31
Thailand						2.67
Taiwan	1.76	1.78				
New Zealand	1.16	4.16				
Fiji				6.20		
Mauritius						0.53
Total	1.35	1.49	0.87	1.45	2.01	1.48

Source: U.S. Bureau of the Census

Table 15: U.S. Imports of Asparagus, Prepared or Preserved, Not Frozen, 1980-1991, Metric Tons

	1981	1985	1988	1989	1990	1991
Canada		66	74	37	1	115
Mexico	475	1,134	312	51	150	1
Guatemala	0					
Colombia			54	12		1
Peru	14	8	334	259	166	175
Chile			98	17	17	35
Denmark			0			
Netherlands	0		8	8	4	2
Belgium		19	25	45	23	13
France	3	2	2	0	1	
Germany	6			1		17
Switzerland			0			
Spain	22	75	125	112	45	22
Italy			1	1		
Greece	3					
Philippines			9			
China	0	47	691	756	282	334
Korea		15				
Hong Kong	1	41	188	88	94	51
Taiwan	1,344	973	573	119	78	37
Japan	3	1				
New Zealand		2	3		16	
New Caledonia				15		
Total	1,872	2,384	2,497	1,521	877	803

Source: U.S. Bureau of the Census

Table 16: U.S. Imports of Asparagus, Prepared or Preserved, Not Frozen 1980-1991, Customs Value, US$000s

	1981	1985	1988	1989	1990	1991
Canada		74	98	43	2	120
Mexico	635	2,184	311	151	515	1
Guatemala	1					
Colombia			91	21		2
Peru	22	18	806	566	299	451
Chile			243	27	27	64
Denmark			4			
Netherlands	1		19	44	32	9
Belgium		52	50	58	21	18
France	19	10	11	2	8	
Germany	29			4		28
Switzerland			1			
Spain	46	188	386	278	76	70
Italy			6	5		
Greece	4					
Philippines			18			
China	1	57	1,469	1,300	529	572
Korea		35				
Hong Kong	1	71	491	194	156	88
Taiwan	2,493	2,047	1,754	304	181	88
Japan	6	5				
New Zealand		8	11		52	
New Caledonia				32		
Total	3,256	4,749	5,770	3,029	1,899	1,511

Source: U.S. Bureau of the Census

Table 17: U.S. Imports of Asparagus, Prepared or Preserved, Not Frozen, 1980-1991, Customs Value, US$/kg

	1981	1985	1988	1989	1990	1991
Canada		1.11	1.33	1.17	2.41	1.04
Mexico	1.34	1.93	1.00	2.95	3.44	1.97
Guatemala	1.70					
Colombia			1.67	1.81		1.51
Peru	1.58	2.25	2.41	2.18	1.80	2.58
Chile			2.49	1.61	1.63	1.80
Denmark			9.64			
Netherlands	3.24		2.36	5.28	7.43	4.86
Belgium		2.79	2.02	1.29	0.91	1.40
France	7.18	3.85	4.80	6.77	7.05	
Germany	5.16			5.15		1.68
Switzerland			7.22			
Spain	2.10	2.52	3.10	2.47	1.69	3.11
Italy			6.33	7.41		
Greece	1.08					
Philippines			2.05			
China	1.92	1.20	2.13	1.72	1.88	1.71
Korea		2.36				
Hong Kong	1.94	1.76	2.62	2.20	1.65	1.71
Taiwan	1.85	2.10	3.06	2.56	2.33	2.40
Japan	1.85	3.11				
New Zealand		3.84	3.44		3.21	
New Caledonia				2.06		
Total	1.74	1.99	2.31	1.99	2.17	1.88

Source: U.S. Bureau of the Census

Table 18:1991 New York Wholesale Prices, Fresh Asparagus

11-12 Pound or 5 Kilogram Crate & Carton -- Bunched 12s, Large
Average of Monday or Tuesday High and Low Prices, Mostly Good some Fair

Month	Week	Calif*	Mexico	Chile	Peru	New Zlnd	Average
Jan	1					¶	
	2					¶	
	3					¶	
	4		35.00			¶	35.00
	5		25.00			¶	25.00
Feb	6					¶	
	7					¶	
	8		21.00			¶	21.00
	9	15.00	13.50			¶	14.25
Mar	10	13.00				¶	13.00
	11	16.00				¶	16.00
	12	16.50				¶	16.50
	13					¶	
Apr	14	46.50				¶	46.50
	15					¶	
	16	16.50				¶	16.50
	17					¶	
	18	20.00				¶	20.00
May	19	14.50				¶	14.50
	20					¶	
	21					¶	
	22					¶	
Jun	23					¶	
	24					¶	
	25					¶	
	26					¶	
Jul	27					¶	
	28		19.00			¶	19.00
	29		20.00			¶	20.00
	30					¶	
	31		37.00			¶	37.00
Aug	32		34.50			¶	34.50
	33		39.00			¶	39.00
	34		34.00			¶	34.00
	35		29.00			¶	29.00
Sept	36		28.00			¶	28.00
	37		23.00	23.50	24.00	¶	23.50
	38		19.00		23.50	¶	21.25
	39		20.00	24.50	23.50	¶	22.67
	40			21.00	21.50	¶	21.25
Oct	41			25.00	27.00	¶	26.00
	42			28.00	29.00	¶	28.50
	43			30.00	30.00	¶	30.00
	44			24.00		¶	24.00
Nov	45			17.00		¶	17.00
	46			19.00		¶	19.00
	47			25.00	23.00	¶	24.00
	48			30.00	30.00	30.00 ¶	30.00
Dec	49			29.00	30.00	29.00 ¶	29.33
	50			29.00	26.00	29.00 ¶	28.00
	51			26.50	28.00	¶	27.25
	52			33.00	35.00	¶	34.00
	53			35.00	34.00	¶	34.50

* 15 Pound Crate & Carton Loose
Source: Federal-State Market News Service, New York

Table 19: 1991 Peruvian Fresh Asparagus Wholesale Prices

11-12 Pound Crate & Carton -- Bunched 12s, Mostly Large or Extra Large
Average of Monday or Tuesday High and Low Prices, Mostly Good some Fair

Month	Week	Miami	Baltimore	Boston	New York		Average
Jan	1	30.00		32.50		¶	31.25
	2	30.00	32.00	30.00		¶	30.67
	3	35.00	33.50	34.00		¶	34.17
	4	36.00		30.00		¶	33.00
	5	25.00					25.00
Feb	6	25.00				¶	25.00
	7	21.50				¶	21.50
	8	21.50				¶	21.50
	9					¶	
Mar	10					¶	
	11					¶	
	12					¶	
	13					¶	
Apr	14					¶	
	15					¶	
	16					¶	
	17					¶	
	18					¶	
May	19					¶	
	20					¶	
	21					¶	
	22					¶	
Jun	23					¶	
	24					¶	
	25					¶	
	26					¶	
Jul	27					¶	
	28					¶	
	29					¶	
	30					¶	
	31	32.50				¶	32.50
Aug	32	33.25				¶	33.25
	33	33.50				¶	33.50
	34	31.50				¶	31.50
	35	34.00		32.50		¶	33.25
Sept	36	29.00		26.00		¶	27.50
	37	21.50	24.00	23.75	24.00	¶	23.31
	38	21.00	20.00	24.00	23.50	¶	22.13
	39	19.50	21.00	21.00	23.50	¶	21.25
	40	22.50	21.00	21.00	21.50	¶	21.50
Oct	41	24.00	22.50	24.00	27.00	¶	24.38
	42	25.00	23.50	29.00	29.00	¶	26.63
	43	24.00	27.50	27.50	30.00	¶	27.25
	44	20.50	25.00	22.00		¶	22.50
Nov	45	19.50	20.00	19.00		¶	19.50
	46	20.00	17.50	21.00		¶	19.50
	47			21.00	23.00	¶	22.00
	48	31.00	32.00	30.00	30.00	¶	30.75
Dec	49	27.00		27.50	30.00	¶	28.17
	50	25.50		29.50	26.00	¶	27.00
	51	24.50	28.50	32.00	28.00	¶	28.25
	52	31.00	28.50	33.00	35.00	¶	31.88
	53	34.50	33.00	34.50	34.00	¶	34.00

Source: Market News Service (New York, Baltimore, Boston, Miami)

SECTION III: CHILI PEPPERS (FRESH)

Ranking Overview

Product	Ranking	Notes
Fresh Chili Peppers	1*	Small opportunity for ethnic Asian varieties for ethnic markets

Domestic Production

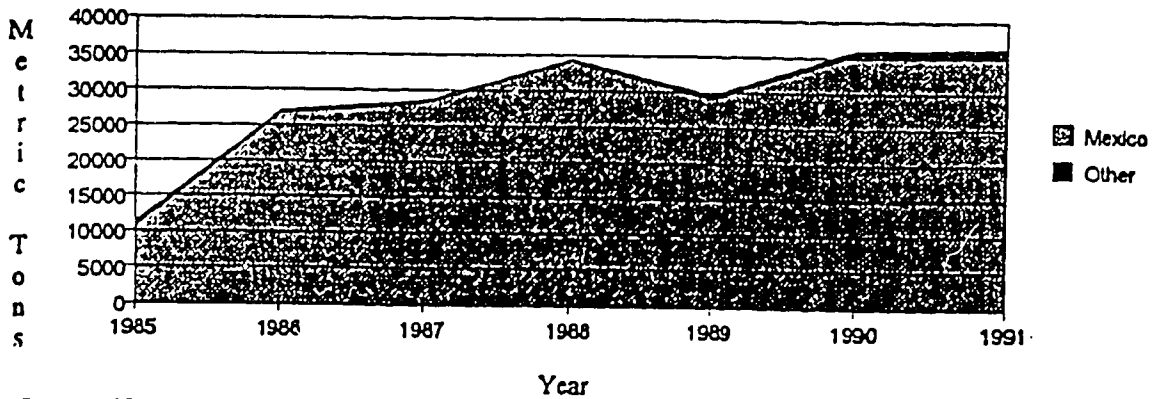
Total U.S. production statistics are not available, and partial statistics are not easily comparable. According to the Agricultural Marketing Service, shipments of domestic chili peppers reached nearly 20 thousand MTs in 1990, up from 18.4 thousand MTs in 1989 and more than eleven times 1980 levels. California and Florida are the major producers, but other states produce during the summer.

California, the only state which compiles official statistics, produced 24.9 thousand MTs (on 5,457 acres) in 1980 before witnessing a steady decline to 7.9 thousand MTs (on 1,873 acres) in 1987. Production has steadily increased since then, reaching 18.6 thousand metric tons (on 5,305 acres) in 1990.

Imports

U.S. imports have tripled in volume and more than sextupled in value since 1985, reaching 36.3 thousand MTs (US$41.8 million) in 1991. There, however, may be some reporting errors in official 1985 data since this was the first year chili peppers were broken out as a separate category from other peppers. Nevertheless, imports have still increased 33 percent by volume and 203 percent by value since 1986 and have increased steadily since then, except for a drop-off in 1989.

U.S. Imports of Fresh/Chilled Chili Peppers, 1985-1991



Source: U.S. Bureau of the Census

Market Share

Based on shipments recorded by USDA, domestic producers accounted for 30 percent of supplies in 1990. However, using Bureau of the Census data which reports significantly lower imports than USDA for the period, the import share of U.S. supply would be lower.[1] The author believes that domestic producers, chiefly California and Florida, may account for as much as 40 to 50 percent of total supplies.

In 1991, when imports stood at 36.3 thousand MTS, Mexico held a 97 percent import market share supplying 35.1 thousand MTs. Mexico's import share has remained in the 97 to 99 percent range over the past six years. No other country exported more than 1,000 MTs in 1991, or in any one year since chili peppers were broken down in official import statistics in 1985. Other suppliers in 1991 included the Netherlands (726 MTs -- an uncharacteristically large amount since this country had previously never exported more than 71 MTs), India (200 MTs), the Dominican Republic (161 MTs), and China (80 MTs). Nine other countries also supplied the U.S. during 1991, although in extremely negligible amounts ranging from under 1 MT to 38 MTs.

Consumer Preference

Very little market preference information has been published for chili peppers. Demand has increased with the increase in the Hispanic population and the rising popularity of Mexican and other Latin foods by the general populace. Given these two trends, jalapenos are assumed to be the most popular type of hot pepper.

Based on USDA price reporting (which generally is only done for those crops and crop varieties with higher levels of market volume), the following types of hot peppers were available in the larger wholesale markets: anaheim, yellow, serrano, pasilla, jalapeno, pablano, scotch bonnet, ajies, long hot, finger hot, and cubanelles.

Other chili-type peppers which may have smaller market niches (although a survey of specialist importers would need to confirm this) include varieties familiar to the expanding Asian-American population. Chili pepper imports from Asia (India, Pakistan, China) stood at 301 MTs ($377 thousand) in 1991. Kenya produces these types of peppers, already exports to the United Kingdom, and can conceivably compete with these producers on a price basis.

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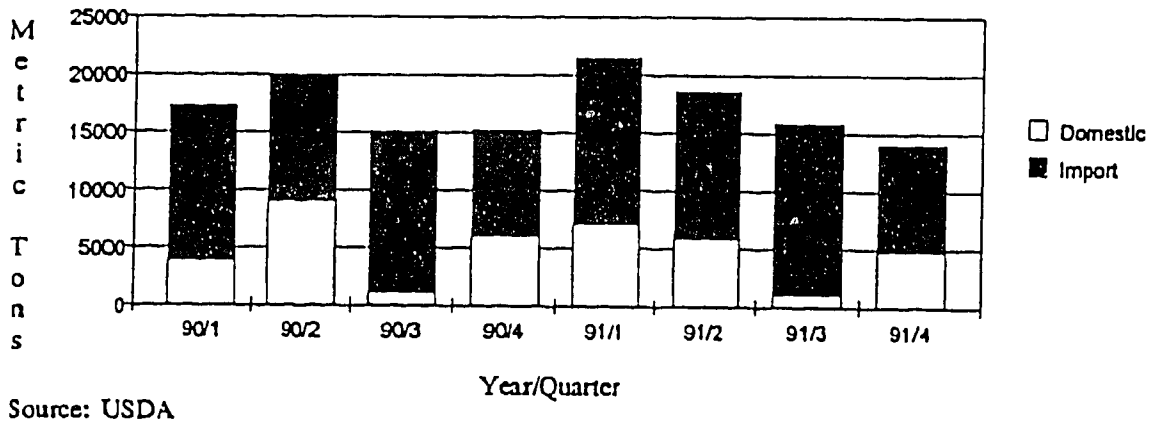
[1] Import data, as reported by the U.S. Bureau of the Census and USDA data, varies greatly. The author uses both sources of data in this report as it is not known which is most reliable. While the absolute quantity values rarely agree, both statistical sources used together give a fairly good picture of the U.S. market for chili peppers in terms of percentage shares and seasonality. This reporting variance is common for most specialty, relatively low volume, fruits and vegetables.

Seasonal Patterns of Demand

USDA shipment data reveals that highest supplies of chili peppers are available in the first and second quarters of the year, when quarterly shipments ranged from 17 thousand MTs to 21 thousand MTs over the past two years. Shipments for each of the last two quarters were approximately 15 thousand MTs. Domestic supplies were strongest in the first, second, and fourth quarters, but never supplied more than 45 percent of the market. For each of the last two years, domestic shipments dropped off sharply in the third quarter and imports supply the vast majority of the market.

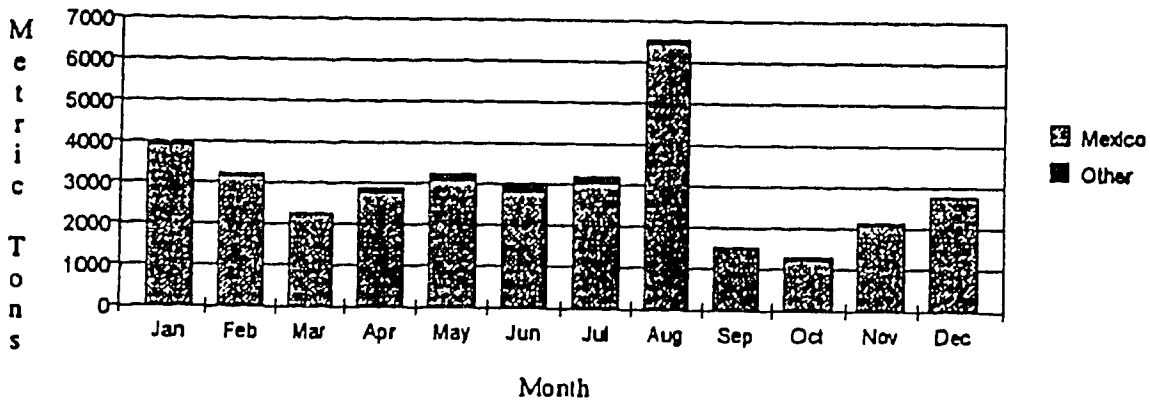
Domestic and Import Shipments of Chili Peppers, 1990-1991



Source: USDA

Bureau of the Census statistics reveal that 1991 imports were between 2-4 thousand MTs during the periods January-July and November-December. August imports surged to over 6.5 thousand MTs, before falling off to under 1.6 thousand MTs in September and October. Mexican supplies dominated total imports in each of these months. Distant suppliers (primarily Asia and Europe) exported most during the spring and summer months.

U.S. Imports of Fresh/Chilled Chili Peppers, 1991



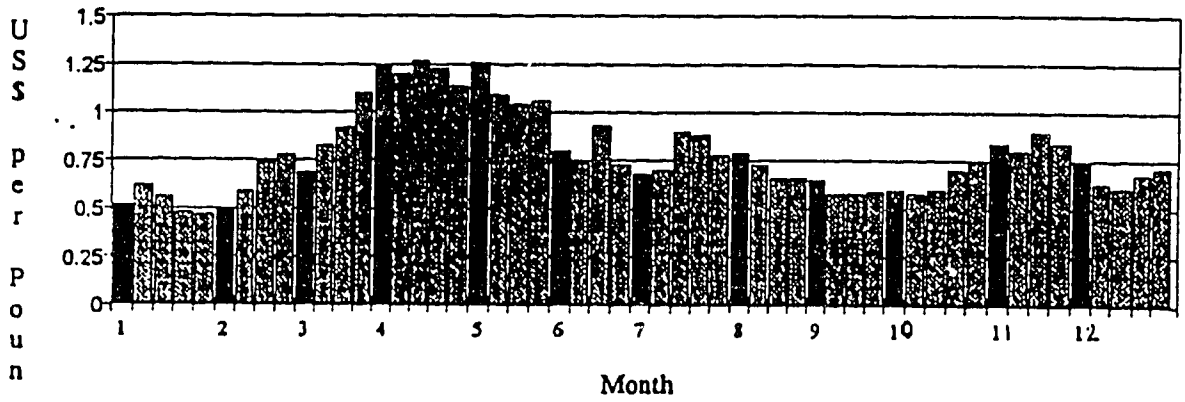
Source: U.S. Bureau of the Census

Prices

With the exception of jalapeno peppers, USDA reports no other chili type pepper for each of the major markets studied (Miami, Los Angeles, Baltimore/Washington). Therefore, in order to determine if price premiums exist between markets, it was necessary to look at this variety.

The average prices of all three markets reveal that 1991 prices were highest in April and May ($1.00 to $1.25 per pound). At all other times prices were under $1.00/lb, and neared or fell below $0.50/lb in January and September-early October.

Jalapeno Peppers Average Wholesale Prices, 1991 (Miami, L.A., Baltimore)



Source: USDA

Market Distribution

Truck arrival statistics from USDA reveal that the largest markets are Los Angeles, New York, San Francisco, Chicago, and Dallas.

If Kenyan exporters decide to attempt the U.S. market, it would most likely be through importers who trade lines of specialty vegetables and supply ethnic retail outlets. Ethnic varieties are commonly found in small groceries in urban neighborhoods with high concentrations of Latin and Asian immigrants. Larger supermarkets in these areas, along with supermarkets in wealthier upscale areas, are adding more varieties of hot peppers to their fresh produce selection. A representative listing of major U.S. importers is given in Annex A.

Grades and Standards

No official grades and standards have been adopted for chili peppers. Chili peppers sold on the wholesale markets are commonly packed in 1/2 or 5/9 bushel crates and cartons (generally 15 to 18 pounds each).

Import Regulations and Duties

Imports of fresh peppers are subject to approval and inspection by USDA's Animal and Plant Health Inspection Service. Kenyan, along with most developing nations (except, most notably, Mexico), face no duty on exports of chili peppers to the United States. The general rate of duty is $0.055 per kilogram.

No quantitative restrictions exist.

Market Opportunities for Kenyan Exporters

The market is dominated by Mexican and domestic producers for all of the most popular U.S. varieties. There may be some possibility of Kenya supplying to the relatively small Asian niche market -- but even a ten percent import share of this market would mean only US$50,000. Kenya could probably compete in this market given the presence of distant Asian suppliers (albeit currently at very low volume) who face equally high transport costs. An informal survey of specialty importers would be required to assess the acceptability of Kenyan varieties and supply.

References

1985-1989 Trade Statistics, Microfiche, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

1990-1991 Trade Statistics, CD-ROM, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

United States International Trade Commission, Harmonized Tariff Schedule of the United States, 1991.

U.S. Department of Agriculture, Economic Research Service, "Vegetables and Specialties: Situation and Outlook Report," various issues.

U.S. Department of Agriculture, Agricultural Marketing Service, Fruit and Vegetable Division, Market News Branch, "Fresh Fruit and Vegetable Arrival Totals for 22 Cities," 1991.

Federal-State Market News Service (USDA & Maryland Department of Agriculture), "Baltimore Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Federal-State Market News Service (USDA & California Department of Food & Agriculture), "Los Angeles Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Federal-State Market News Service (USDA), "Miami Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Table 1: U.S. Imports of Chili Peppers -- Fresh or Chilled, 1985-1991, Metric Tons

Country	1985*	1986*	1987*	1988*	1989	1990	1991
Canada			14	5	18		
Mexico	10,654	26,710	28,302	34,149	29,157	35,440	35,088
Guatemala			6				
Costa Rica				1	16		2
Jamaica	3	2	1	8	34	42	38
Dominican Rep.	711	260		9	28	28	161
Montserrat	16						
St. Vincent						14	2
Grenada							1
Barbados						1	1
Trinidad		0		2	1	4	3
Peru	0	1	0				
Norway					1		
Netherlands	6	26	49	54	23	71	726
Belgium		1		0		1	0
Spain				15			
France						2	
Italy			1			0	
Israel			3				
India				25	14	169	200
Pakistan		74	76	30	62	107	21
Thailand	1	1		3	29	42	
Philippines		1					
China		75	145	128	283	164	80
Hong Kong		19		57	1		
Taiwan				4	8		
Korea			2				
Japan				0			
Ghana							5
Mozambique	12		7	4			
Malawi			13				
TOTAL	11,402	27,170	28,620	34,496	29,674	36,085	36,329

Source: U.S. Bureau of the Census *-Includes Frozen

Table 2: Imports of Chili Peppers -- Fresh or Chilled, 1985-1991, Customs Value, US$000s

Country	1985*	1986*	1987*	1988*	1989	1990	1991
Canada			4	6	31		
Mexico	5,350		12,251	21,512	24,832	31,379	39,102
Guatemala			4				
Costa Rica				3	9		2
Jamaica	3		4	15	67	51	65
Dominican Rep.	226			5	29	18	74
Montserrat	5						
St. Vincent						24	9
Grenada							1
Barbados						2	3
Trinidad				3	1	15	6
Peru	2		2				
Norway					5		
Netherlands	5		169	97	83	196	2,118
Belgium				1		2	3
Spain				21			
France						5	
Italy			3			2	
Israel			6				
India				39	17	137	233
Pakistan			67	29	87	91	26
Thailand	3			3	65	68	
Philippines							
China			154	175	422	239	118
Hong Kong				71	3		
Taiwan				17	28		
Korea			4				
Japan				1			
Ghana							7
Mozambique	2		6	2			
Malawi			35				
TOTAL	5,596	13,762	12,708	21,999	25,679	32,229	41,767

Source: U.S. Bureau of the Census *-Includes Frozen

Table 3: U.S. Imports of Chili Peppers -- Fresh or Chilled, 1985-1991, Customs Value, US$/kg

Country	1985*	1986*	1987*	1988*	1989	1990	1991
Canada			0.31	1.09	1.73		
Mexico	0.50		0.43	0.63	0.85	0.89	1.11
Guatemala			0.59				
Costa Rica				3.78	0.57		1.25
Jamaica	1.01		2.94	1.90	1.98	1.22	1.70
Dominican Rep.	0.32			0.52	1.04	0.65	0.46
Montserrat	0.30						
St. Vincent						1.73	3.80
Grenada							1.19
Barbados						2.58	2.44
Trinidad				2.02	0.93	3.57	1.79
Peru	4.17		21.47				
Norway					5.49		
Netherlands	0.91		3.42	1.78	3.54	2.78	2.92
Belgium				4.75		4.00	7.41
Spain				1.38			
France						2.78	
Italy			1.87			5.80	
Israel			2.07				
India				1.56	1.22	0.81	1.16
Pakistan			0.88	0.97	1.41	0.85	1.23
Thailand	1.92			0.83	2.25	1.60	
Philippines							
China			1.07	1.36	1.49	1.46	1.47
Hong Kong				1.24	2.45		
Taiwan				3.80	3.67		
Korea			2.67				
Japan				3.74			
Ghana							1.46
Mozambique	0.19		0.76	0.56			
Malawi			2.70				
TOTAL	0.49	0.51	0.44	0.64	0.87	0.89	1.15

Source: U.S. Bureau of the Census *-Includes Frozen

Table 4: U.S. Imports of Chili, fresh or chilled, 1991, Kilograms

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mexico	3,913,632	3,133,546	2,255,227	2,762,857	3,082,087	2,820,326	3,052,558	6,440,094	1,502,267	1,247,589	2,088,688	2,768,751	35,087,622
Costa Rica										1,600			1,600
Jamaica	1,176	9,144	951	4,623	4,550				1,164	7,965	2,545	6,110	38,228
Dominican Rep	15,557	17,568	11,057	17,181	17,289	11,643	12,485	3,102		8,034	18,307	28,318	160,541
St Vincent	163	1,543			216	445							2,367
Grenada						840							840
Barbados												1,228	1,228
Trinidad				1,500			353		1,500				3,353
Netherlands				75,806	137,291	143,202	131,135	87,150	52,550	57,439	38,855	3,015	726,443
Belgium				105	300								405
India		25,000		25,000	25,000	62,499	25,000	37,800					200,299
Pakistan		15,000			6,127								21,127
China	10,000	12,650	18,468	20,000		12,650			6,700				80,468
Ghana											4,800		4,800
TOTAL	3,940,528	3,234,451	2,285,703	2,907,072	3,272,860	3,051,605	3,221,531	6,568,146	1,564,181	1,322,627	2,153,195	2,807,422	36,329,321

Source: U.S. Bureau of the Census

Table 5: U.S. Imports of Chili, fresh or chilled, 1991, Customs Value, US$000s

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mexico	2,580	2,398	1,971	5,763	6,657	3,993	2,228	3,200	1,154	1,174	2,846	5,138	39,102
Costa Rica										2			2
Jamaica	5	13	4	7	11				1	9	3	12	65
Dominican Rep	7	9	4	10	7	5	7	1		4	8	12	74
St Vincent	2	3			2	2							9
Grenada						1							1
Barbados												3	3
Trinidad				1			3		2				6
Netherlands				346	557	362	270	218	107	150	93	15	2,118
Belgium				1	2								3
India		29		26	32	62	32	52					233
Pakistan		17			9								26
China	14	19	27	22		20			16				118
Ghana											7		7
TOTAL	2,608	2,488	2,006	6,176	7,277	4,445	2,540	3,471	1,280	1,339	2,957	5,180	41,767

Source: U.S. Bureau of the Census

Table 6: U.S. Imports of Chili, fresh or chilled, 1991, CIF Value, US$000s

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mexico	2,866	2,622	2,122	6,002	6,915	4,207	2,372	3,444	1,201	1,228	3,011	5,372	41,362
Costa Rica										2			2
Jamaica	7	16	5	10	13				2	10	4	14	81
Dominican Rep	15	18	11	19	16	13	16	4		8	20	28	168
St Vincent	3	6			1	3							13
Grenada						2							2
Barbados												4	4
Trinidad				2			4		2				8
Netherlands				454	739	487	382	294	162	220	132	19	2,889
Belgium				2	3								5
India		34		31	38	72	37	60					272
Pakistan		20			9								29
China	16	23	31	29		24			16				139
Ghana											10		10
TOTAL	2,907	2,739	2,169	6,549	7,734	4,808	2,811	3,802	1,383	1,468	3,177	5,437	44,984

Source: U.S. Bureau of the Census

Table 7: U.S. Imports of Chili, fresh or chilled, 1991, Customs Value, US$/kg

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mexico	0.66	0.76	0.87	2.09	2.16	1.42	0.73	0.50	0.77	0.94	1.36	1.86	1.11
Costa Rica										1.25			1.25
Jamaica	4.25	1.42	4.21	1.51	2.42				0.86	1.13	1.18	1.96	1.70
Dominican Rep	0.45	0.51	0.36	0.58	0.40	0.43	0.56	0.32		0.50	0.44	0.42	0.46
St Vincent	12.27	1.94			9.26	4.49							3.80
Grenada						1.19							1.19
Barbados												2.44	2.44
Trinidad				0.67			8.50		1.33				1.79
Netherlands				4.56	4.06	2.53	2.06	2.50	2.04	2.61	2.39	4.98	2.92
Belgium				9.52	6.67								7.41
India		1.16		1.04	1.28	0.99	1.28	1.38					1.16
Pakistan		1.13			1.47								1.23
China	1.40	1.50	1.46	1.10		1.58			2.39				1.47
Ghana											1.46		1.46
TOTAL	0.66	0.77	0.88	2.12	2.22	1.46	0.79	0.53	0.82	1.01	1.37	1.85	1.15

Source: U.S. Bureau of the Census

Table 8: Jalapeno Peppers: Wholesale Market Prices, 1991
US$ per Pound (15 lb. 1/2 Bushel Crate)

Month	Week	-----MIAMI----- Florida	NC/NJ	---LOS ANGELES--- Mexico	Calif.	BALTIMORE Florida	AVERAGE
Jan	1	0.52		n/a			0.52
	2	0.63		0.60			0.62
	3	0.57		0.55			0.56
	4	0.57		0.40			0.48
	5	0.52		0.43			0.47
Feb	6	0.47		0.53			0.50
	7	0.53		0.65			0.59
	8	0.70		0.78			0.74
	9	0.97		0.60			0.78
Mar	10	0.80		0.58			0.69
	11	0.83		0.83			0.83
	12	0.93		0.90			0.92
	13	1.13		1.08			1.10
Apr	14	1.13		1.40		1.20	1.24
	15	1.02		1.45		1.13	1.20
	16	0.93		1.60			1.27
	17	0.93		1.45		1.30	1.23
	18	0.93		1.35			1.14
May	19	1.07		1.45			1.26
	20	1.03		1.15			1.09
	21	1.03		1.05			1.04
	22	1.03		0.95		1.20	1.06
Jun	23	0.73		0.88			0.80
	24	0.73		0.75			0.74
	25	0.73		1.13			0.93
	26	0.60		0.85			0.73
Jul	27	0.60			0.75		0.68
	28	0.60			0.80		0.70
	29		0.95		0.85		0.90
	30		0.95		0.80		0.88
	31		0.90		0.65		0.78
Aug	32		0.90		0.68		0.79
	33		0.76		0.70		0.73
	34		0.72		0.60		0.66
	35		0.70		0.63		0.66
Sep	36		0.70		0.60		0.65
	37		0.70		0.45		0.58
	38		0.70		0.45		0.58
	39		0.73		0.45		0.59
Oct	40		0.73		0.48		0.60
	41		0.60		0.55		0.58
	42		0.60		0.60		0.60
	43	0.75			0.65		0.70
	44	0.75			0.78	0.73	0.75
Nov	45	0.97			0.75	0.80	0.84
	46	0.93			0.70	0.77	0.80
	47	n/a			1.10	0.70	0.90
	48	0.73			0.93	0.87	0.84
Dec	49	0.70			0.75	0.80	0.75
	50	0.63			0.53	0.73	0.63
	51	0.57			0.65		0.61
	52	0.65			0.75	0.63	0.68
	53	0.62			0.75	0.77	0.71

Note: Averages of Mondays second highest and second lowest prices
Source: Federal-State Market News Service (Miami, Baltimore, L.A.)

Table 9: Domestic and Import Shipments of Chili Peppers, 1980-1990

	Metric Tons			Share		
Year	Domestic	Import	Total	Domestic	Import	Total
1980	1,724	14,474	16,198	11%	89%	100%
1981	1,452	16,243	17,695	8%	92%	100%
1982	2,586	21,597	24,183	11%	89%	100%
1983	1,724	23,775	25,499	7%	93%	100%
1984	3,221	26,996	30,218	11%	89%	100%
1985	6,942	29,083	36,025	19%	81%	100%
1986	18,693	31,080	49,773	38%	62%	100%
1987	14,927	35,299	50,227	30%	70%	100%
1988	15,064	39,973	55,036	27%	73%	100%
1989	18,421	40,064	58,485	31%	69%	100%
1990	19,964	47,641	67,604	30%	70%	100%

Source: AMS/USDA

Table 10: Chili Pepper Shipments by Quarter, 1990-1991, Metric Tons

Year	Quarter	Domestic	Imports	Total
1990	1	3,857	13,475	17,332
	2	8,984	10,935	19,918
	3	1,089	14,020	15,109
	4	6,034	9,211	15,245
1991*	1	7,078	14,428	21,506
	2	5,853	12,750	18,603
	3	1,044	14,791	15,835
	4	4,809	9,256	14,065

* Preliminary
Source: AMS/USDA

Table 11: California Production of Chili Peppers, 1980-1990

Year	Acres	MTs	US$000s
1980	5,457	24,877	11,685
1981	6,491	24,710	21,200
1982	4,711	23,803	23,713
1983	3,994	13,320	12,207
1984	3,483	11,502	12,338
1985	3,329	11,847	12,277
1986	1,684	7,408	5,918
1987	1,873	7,945	6,858
1988	3,665	12,051	14,003
1989	4,632	14,605	17,796
1990	5,305	18,606	27,187

Source: California Department of Food & Agriculture

SECTION IV: CHERRY TOMATOES (FRESH)

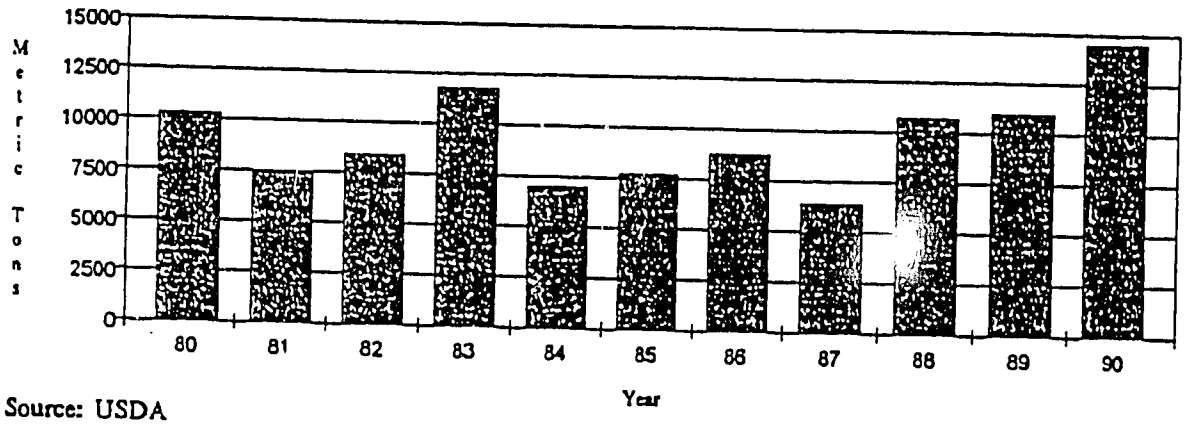
Ranking Overview

Product	Ranking	Notes
Fresh Cherry Tomatoes	0	Domestic and Mexican suppliers dominate market - small shipments from Israel to NY market reported in 1991

Domestic Production

No official country-wide production statistics are available. California production stood at 14,552 MTs in 1990, up from 10,992 MTs in 1989. California production has fluctuated widely over the past ten years.

California Cherry Tomato Production, 1980-1990



Source: USDA

In 1991, California accounts for 55 percent, by volume, of domestic arrivals in 22 of the largest U.S. city markets. Assuming that California also accounts for the same percentage of production, Fintrac estimates total U.S. production at around 26,000 MTs in 1990. Florida is the second largest producer (accounting for 37 percent of domestic arrivals at the 22 cities reporting). Seven other states accounted for the remaining 1,180 MTs (8 percent) of domestic arrivals: Alabama, Georgia, Massachusetts, Michigan, New Jersey, South Carolina, and Virginia. Many other states also produce cherry tomatoes, especially during the summer months, but did not have significant enough quantities (45 MTs or more) shipped to any of the 22 markets to show up in the statistics.

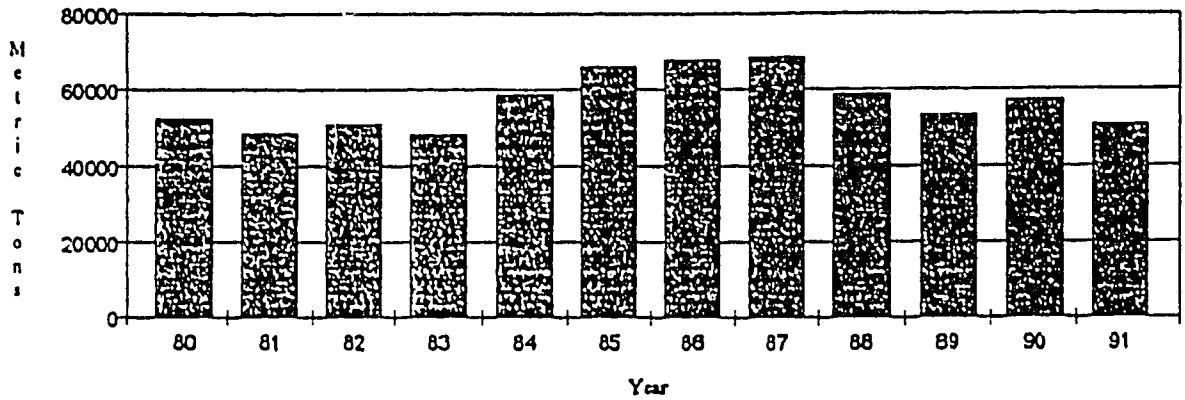
Imports

Import data is not available from the Bureau of the Census. Import arrivals in the top 22 markets reveal that Mexican supplies accounted for nearly all (99.7 percent or 14,156 MTS) of

import supplies in 1991. The only country with significant enough shipments to warrant statistical reporting was Canada, with 45 MTs shipped to Detroit. As these 22 markets do not cover all consumption, imports are most likely higher than 14,201 MTs; Fintrac estimates that actual imports could be 50 percent to 75 percent greater than this figure.

Total fresh market shipments, both domestic and imports, for the period 1980 to 1991 are given in the chart below. No source breakdown is available. Fresh market shipments have generally been in the 50 to 60 thousand metric ton range over the past ten years, except for a period of higher supply from 1985 to 1987. 1991 shipments are at there lowest levels since 1983.

U.S. Fresh Market Shipments of Cherry Tomatoes, 1980-1991

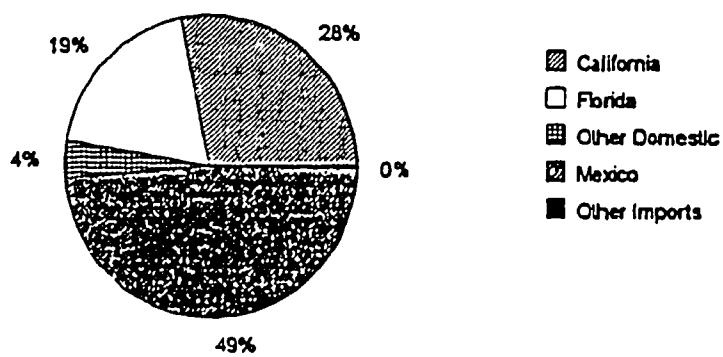


Source: USDA

Market Share

Based on 1991 arrivals in 22 large U.S. cities, domestic producers supplied 51 percent of U.S. demand. California held a 28 percent total (including imports and domestic production) market share, following by Florida with a 19 percent total market share. Other states had a 4 percent market share. Imports supplied 49 percent of U.S. demand in 1991, with Mexico accounting for all but a fraction of this amount.

1991 Market Share in Top 22 Cities



Source: USDA

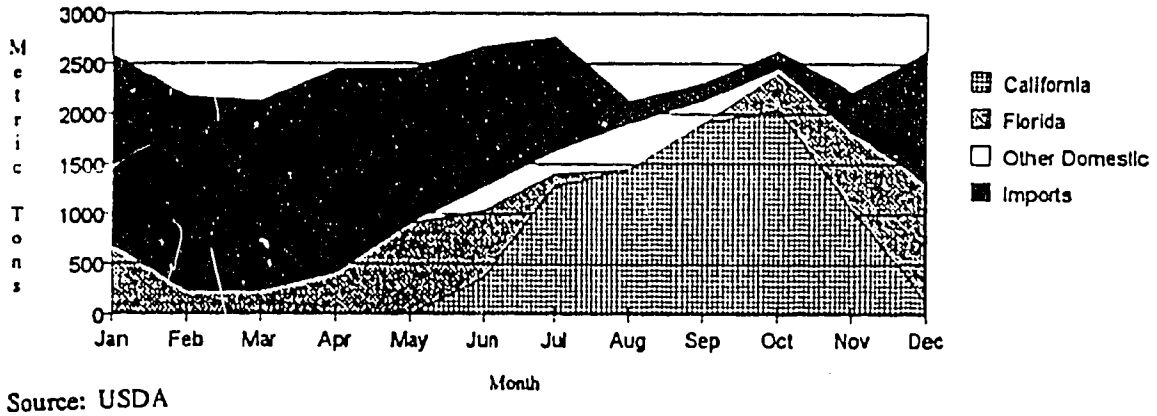
Consumer Preference

Very little market preference information has been published for cherry tomatoes. Further field research is needed to determine preferred varieties and sizes. USDA price reporting shows that wholesalers receive significantly lower prices for cherry tomatoes with high red color at time of sale.

Seasonal Patterns of Demand

Bureau of the Census monthly import data is not collected for cherry tomatoes. USDA arrivals in 22 cities show that supplies are consistent over the year -- with average monthly supplies of 2.4 thousand metric tons in these markets, but never falling below 2.0 thousand metric tons in any one month.

Monthly Cherry Tomato Arrivals at Top 22 Cities, 1991



Source: USDA

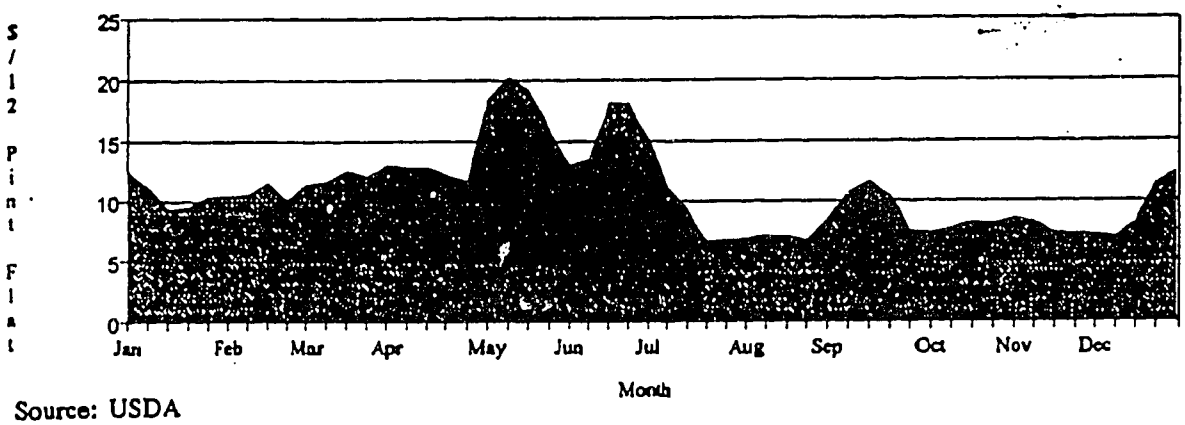
California produces primarily from July through November, with peak supplies occurring in September and October. Less amount were also received in June and December. Florida production arrives in the market during the months when California production is scarce, primarily during the periods January-June and November-December. Smaller amounts are also shipped in July and October. Other domestic suppliers, primarily cooler northern states, enter the market during the summer.

Imports level off significantly when California begins to supply the market. Import (primarily Mexico) supplies over 50 percent or more of market demand from January through June and in December, with monthly market shares ranging from 74-90 percent during January-April. In July, imports supplied 41 percent of market demand, before dropping off in August (11%), September (8%), October (7%), and November (18%).

Prices

1991 cherry tomato wholesale prices on the three markets survey (Boston, Chicago, and New York) were highest during periods of lower domestic supplies (January-June and late December). During these periods average prices on all markets ranged between $10 and $20 per 12-pint flat, with the highest prices occurring during May and June. During the summer and fall months, average prices ranged between $6 to $8 per flat. There was no significant variations in prices between the three different markets, which all followed similar price trends.

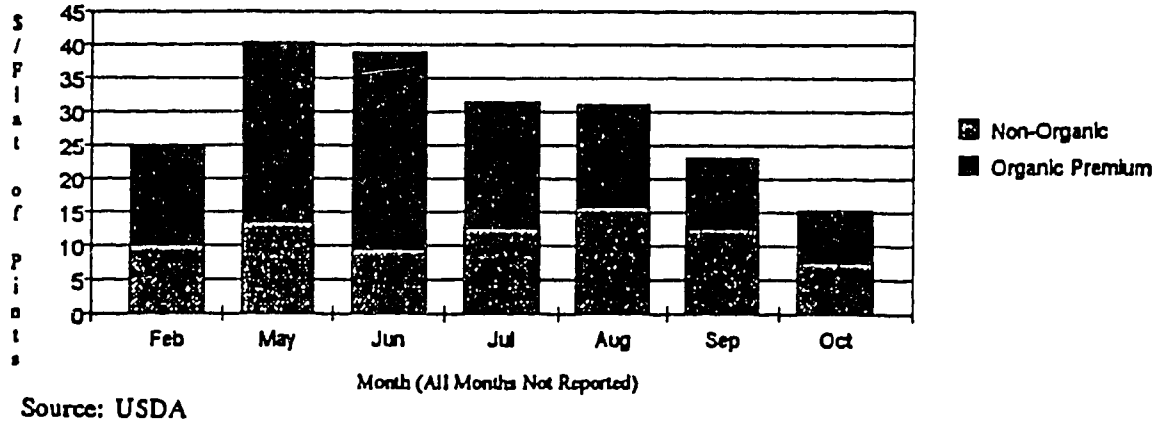
Average Cherry Tomato Prices in Chicago, Boston & NY Wholesale Markets, 1991



Source: USDA

USDA reported wholesale prices for organically grown cherry tomatoes in the Los Angeles area. Organic cherry tomatoes fetched a 100 to 200 percent price premium over non-organic product during the periods studied.

Wholesale Price Premiums on Organic Cherry Tomatoes, 1992, Los Angeles



Source: USDA

Market Distribution

Market distribution information is not readily available. Further field research is not warranted at this time given the current prospects for Kenyan product in the U.S. market.

Grades and Standards

No official grades and standards have been adopted for cherry tomatoes.

Cherry tomatoes sold on the wholesale markets are commonly packed in flats consisting of 12 one-pint containers.

Import Regulations and Duties

Imports of cherry tomatoes are subject to approval and inspection by USDA's Animal and Plant Health Inspection Service. Cherry tomatoes fall under the general tomato tariff classification and are subject to different duty rates depending on the time of importation.

Most GSP countries (of which Kenya is included), are not given preferential treatment over imports from industrialized counties. They are subject to the same duty rates of $0.046/kg (March 1 through July 14, and September 1 through November 14) and $0.033/kg (July 15 through August 31). There are several exceptions to this rule:

- All GSP countries, except for Mexico but including Kenya, are granted duty free treatment if entered during the period November 15 through February 28.
- Beneficiary countries of the Caribbean Basin Initiative are given duty free access at all times. This is the same case for Israel.
- Canada is given preferential duty rates of between $0.0023 and $0.0032 during the three entry periods.

If the North American Free Trade Agreement (NAFTA) is enacted in its current form, Mexican cherry tomato exports to the United States would see an immediate tariff rate reduction for those entering during the period December 1 through April 30, and a five-year phase-out for those entering during the remainder of the year.

No quantitative restrictions exist.

Market Opportunities for Kenyan Exporters

Mexico and U.S. producers dominate the market. The only cost advantage Kenya may hold now with Mexican production is a lower duty rate during the period November 15 - February 28 -- but this will likely be lost completely with the ratification of NAFTA, which will also lower

Mexico's duty rates vis-a-vis Kenya during other periods as well.

Because no customs data exists, it is impossible to tell without a more exhaustive survey of the major markets whether any other countries (specifically long distance suppliers) are active in the U.S. market. 1991 USDA price reporting shows small shipments by Israel (which enjoys duty free privileges year round) into New York during the period October-December. Transportation costs, and perishability concerns, would therefore seem to exclude Kenya from this market.

Prices of organically grown cherry tomatoes receive a large premium over non-organic production. However, to ascertain whether Kenya would be able to supply organically grown produce would entail additional field research – both of the markets and of Kenyan production facilities. The European Community has recently enacted stringent growing and reporting requirements, which must be followed in order to sell produce as organic. Under the EC legislation, the Kenyan Government would need to establish acceptable regulations and enforcement mechanisms in-country. The United States, playing catch-up, is currently drafting National Organic Standards for a wide range of products. A growing number of states, however, already have established their own standards which would need to be applied in Kenya for production to be sold as organic.

References

United States International Trade Commission, Harmonized Tariff Schedule of the United States, 1991.

U.S. Department of Agriculture, Economic Research Service, "Vegetables and Specialties: Situation and Outlook Report," various issues.

U.S. Department of Agriculture, Agricultural Marketing Service, Fruit and Vegetable Division, Market News Branch, "Fresh Fruit and Vegetable Arrival Totals for 22 Cities," 1991.

Federal-State Market News Service (USDA), "Boston Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Federal-State Market News Service (USDA), "New York Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Federal-State Market News Service (USDA), "Chicago Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Table 1: California Production of Cherry Tomatoes, 1980-1990

Year	Acres	MTs	$000s
1980	775	10,290	8,352
1981	691	7,437	5,707
1982	864	8,418	6,248
1983	1468	11,826	7,970
1984	694	7,034	6,478
1985	838	7,740	6,541
1986	1040	8,791	6,856
1987	792	6,414	4,318
1988	1206	10,749	8,986
1989	954	10,992	7,702
1990	1081	14,552	10,965

Source: California Department of Food and Agriculture

Table 2: U.S. Fresh Market Shipments of Tomatoes, Metric Tons

Year	Cherry Type	Other	% Cherry
1980	52,405	1,148,866	4%
1981	48,639	1,114,247	4%
1982	50,953	1,139,837	4%
1983	48,230	1,202,450	4%
1984	58,893	1,210,299	5%
1985	66,243	1,331,034	5%
1986	67,877	1,385,254	5%
1987	68,693	1,446,915	5%
1988	58,893	1,517,423	4%
1989	53,358	1,545,554	3%
1990	57,350	1,431,897	4%
1991	50,726	1,474,093	3%
1st Quarter	13,113	412,886	3%
2nd Quarter	14,791	375,363	4%
3rd Quarter	9,120	337,160	3%
4th Quarter	13,702	348,684	4%

Source: AMS/USDA

Table 3: Cherry Tomato Arrivals at 22 Large U.S. Cities, by Month, Metric Tons, 1991

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Domestic	681	227	227	408	907	1,270	1,633	1,906	2,132	2,450	1,815	1,316	14,973
Alabama							91	45	45				181
California						363	1,270	1,452	1,906	2,042	1,044	136	8,212
Florida	681	227	227	408	907	681	136			363	771	1,180	5,581
Georgia						45							45
Mass.								45	45	45			136
Michigan								272	91				363
New Jersey							45	45					91
S. Carolina						181	45						227
Virginia							45	45	45				136
Imports	1,906	1,951	1,906	2,042	1,543	1,407	1,134	227	181	181	408	1,316	14,201
Canada									45				45
Mexico	1,906	1,951	1,906	2,042	1,543	1,407	1,134	227	136	181	408	1,316	14,156
TOTAL	2,586	2,178	2,132	2,450	2,450	2,677	2,768	2,132	2,314	2,632	2,223	2,632	29,174
Import Share	74%	90%	89%	83%	63%	53%	41%	11%	8%	7%	16%	50%	49%

Source: AMS/USDA

Table 4: Cherry Tomato Arrivals at 22 Large U.S. Cities, by City, Metric Tons, 1991

	ATLA	BALT	BOST	BUFF	CHIC	CINC	COLU	DALL	DETR	LOSA	MIAM	NEWO	NYC	PHIL	PITT	STL	SANF	SEAT	Total
Domestic	998	1,180	2,178		590	1,180	181	363	907	2,223	272		1,815	953	227	318	998	590	14,973
Alabama	181																		181
California	136	181	998		408	499		227	454	2,223			1,044	272		181	998	590	8,212
Florida	590	817	907		181	635	181	136	318		272		635	635	136	136			5,581
Georgia	45																		45
Mass.			136																136
Michigan		45	45			45			136						91				363
New Jersey													91						91
S. Carolina	45		91										45	45					227
Virginia		136																	136
Imports	363	454	1,407		771	681		817	817	3,902	91	91	1,225	726	227	227	1,543	862	14,201
Canada									45										45
Mexico	363	454	1,407		771	681		817	771	3,902	91	91	1,225	726	227	227	1,543	862	14,156
TOTAL	1,361	1,633	3,584		1,361	1,860	181	1,180	1,724	6,125	363	91	3,040	1,679	454	544	2,541	1,452	29,174
Market Size	5%	6%	12%		5%	6%	1%	4%	6%	21%	1%	0%	10%	6%	2%	2%	9%	5%	100%
Import Share	27%	28%	39%		57%	37%		69%	47%	64%	25%	100%	40%	43%	50%	42%	61%	59%	49%

Source: AMS/USDA

Table 5: Cherry Tomato Wholesale Prices, 1991, US$ per 12 Pint Flats

Month	Week	BOSTON Calif	BOSTON Flor.	BOSTON Mexico	CHICAGO Calif	CHICAGO Flor.	CHICAGO Mexico	NEW YORK Calif	NEW YORK Flor.	NEW YORK Mexico	AVERAGE Boston	AVERAGE Chicago	AVERAGE NY	OVERALL AVERAGE
Jan	1		10.00	11.00					13.50	15.50	10.50		14.50	12.50
	2		8.50	10.00		12.00	12.50		13.00	11.00	9.25	12.25	12.00	11.17
	3		10.00	10.00			8.00		10.00	10.00	10.00	8.00	10.00	9.33
	4		9.00	10.00			9.00		10.00	10.00	9.50	9.00	10.00	9.50
	5		9.75	10.25			10.50		10.00	11.50	10.00	10.50	10.75	10.42
Feb	6		9.50	10.50			10.50			11.00	10.00	10.50	11.00	10.50
	7			10.75			10.50		11.00	10.00	10.75	10.50	10.50	10.58
	8			11.50			11.50		11.00	12.50	11.50	11.50	11.75	11.58
	9			10.50			10.00		9.50	10.00	10.50	10.00	9.75	10.08
Mar	10		11.50	11.50			10.50		11.50	13.00	11.50	10.50	12.25	11.42
	11		12.00	11.00			12.00		12.00	11.00	11.50	12.00	11.50	11.67
	12		13.00	16.00			12.00		11.50	11.00	14.50	12.00	11.25	12.58
	13		12.00	12.00			12.00		12.00	12.50	12.00	12.00	12.25	12.08
Apr	14		11.75	12.00			14.00		13.00	13.50	11.88	14.00	13.25	13.04
	15			12.00			13.00			13.50	12.00	13.00	13.50	12.83
	16		12.50	12.00			12.50		14.00	13.50	12.25	12.50	13.75	12.83
	17		12.00	11.50			12.50		12.00	12.50	11.75	12.50	12.25	12.17
	18		12.00	11.00		11.50	12.00		11.50	12.00	11.50	11.75	11.75	11.67
May	19		16.00	15.00			20.00		20.00	20.00	15.50	20.00	20.00	18.50
	20		19.50	20.00		20.00	20.00		21.00	21.00	19.75	20.00	21.00	20.25
	21		19.00	19.00		20.00	20.00		20.00	17.00	19.00	20.00	18.50	19.17
	22		17.00	16.50		15.50	15.50		15.00		16.75	15.50	15.00	15.75
Jun	23		12.00	13.50		14.00	13.50		13.00	12.00	12.75	13.75	12.50	13.00
	24		12.00	12.00			13.00		15.50		12.00	13.00	15.50	13.50
	25		18.50	16.50			19.00		18.00		17.50	19.00	18.00	18.17
	26		16.00	17.00	20.00		19.50	18.00	18.00		16.50	19.75	18.00	18.08
Jul	27	15.50	14.00	15.00	15.50		16.50		13.00	16.00	14.83	16.00	14.50	15.11
	28	11.00		11.00					12.00	11.00	11.00		11.50	11.25
	29	12.00		8.25	8.50			9.50	9.50	8.50	10.13	8.50	9.17	9.26
	30	6.50		6.00	6.75		7.00	8.00		5.50	6.25	6.88	6.75	6.63
	31	6.00		6.50	6.75			7.00		7.50	6.25	6.75	7.25	6.75
Aug	32	6.00			6.50			8.00			6.00	6.50	8.00	6.83
	33	7.00			6.50			8.00			7.00	6.50	8.00	7.17
	34	6.00			7.50			7.50			6.00	7.50	7.50	7.00
	35	6.25			6.50			7.50			6.25	6.50	7.50	6.75
Sep	36	8.50			7.50			9.50			8.50	7.50	9.50	8.50
	37	11.00			8.50			12.50			11.00	8.50	12.50	10.67
	38	12.00			10.50			12.50			12.00	10.50	12.50	11.67
	39	9.50	9.75		11.50			10.00		10.00	9.63	11.50	10.00	10.38
	40	6.50						8.00		9.00	6.50		8.50	7.50
Oct	41	7.00			7.50			7.50		7.50	7.00	7.50	7.50	7.33
	42	7.75	7.50	8.00	7.50			7.50	8.50	7.50	7.75	7.50	7.83	7.69
	43	8.25	8.25		7.50	8.25	8.00	9.00	8.00	8.50	8.25	7.92	8.50	8.22
	44	8.25	8.50	8.00	8.50		8.50	8.50		6.50	8.25	8.50	7.50	8.08
Nov	45	8.50	8.00	8.00	8.50	8.00		9.25	9.00	9.50	8.17	8.25	9.25	8.56
	46	9.00	7.50	8.00	8.50	7.50		9.50	9.00	6.50	8.17	8.00	8.33	8.17
	47	8.00	6.00		8.00	7.50		8.00	7.50	6.00	7.00	7.75	7.17	7.31
	48	7.50	6.50			7.50	8.00		7.50	6.50	7.00	7.75	7.00	7.25
Dec	49	6.75	6.00	6.50	9.00	7.50	8.00		7.50	6.50	6.42	8.17	7.00	7.19
	50		5.75	6.50		7.25			7.50	7.50	6.13	7.25	7.50	6.96
	51		7.50	7.25	8.50	6.75			9.50		7.38	7.63	9.50	8.17
	52		11.00	11.00	10.00	9.50	10.00		15.50	11.00	11.00	9.83	13.25	11.36
	53		12.50	11.75		11.50	11.50		13.50	13.50	12.13	11.50	13.50	12.38

Note: Prices are unweighted averages of highs and lows for Mon/Tues transactions
Source: Market News Service (Boston, Chicago, New York Branches)

SECTION V: OKRA (FRESH AND FROZEN)

Ranking Overview

Product	Ranking	Notes
Fresh Okra	1	Mexico dominates import market
Frozen Okra	0	17.5% duty, Strong Regional Competition

Domestic Production

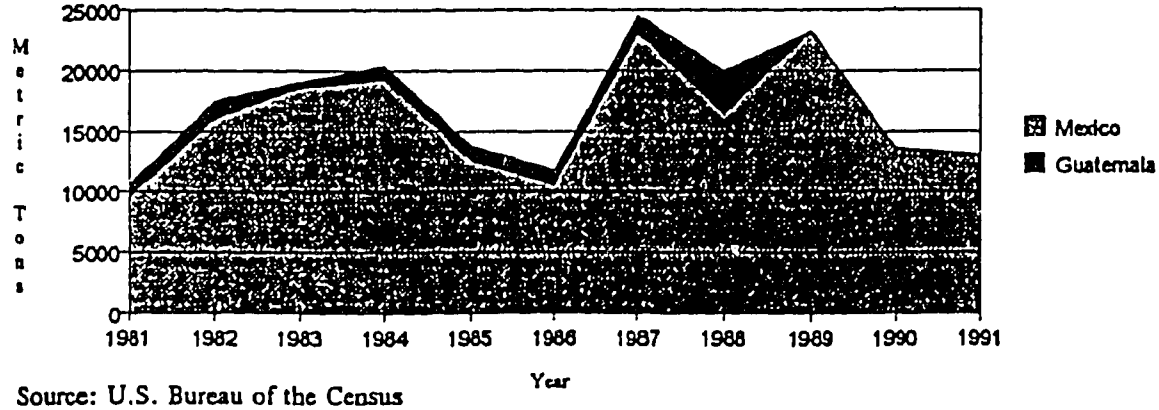
No current official statistics exist for U.S. domestic production of okra for the fresh market. Fintrac has based its production estimates on extrapolations from domestic arrivals as reported by the Federal-State Market News Service. Total domestic arrivals at terminal markets for 1991 were 5,173 metric tons. Fintrac estimates that actual U.S. production is greater than this amount, probably at or above 6,000 metric tons. The largest producers are California and Florida, followed by Georgia, New Jersey, Texas and Tennessee. A number of other states also produce small quantities of okra, but do not show up in any market arrival reporting. U.S. production is estimated to have remained in the 5,000 to 7,000 metric ton range since the mid-1980s.

In 1987, USDA estimated that 32,000 metric tons of frozen okra was packed in the United States, of which Florida accounted for 90 percent.

Imports

In 1991, the U.S. imported 13,042 metric tons (US$5.0 million customs value plus duty) of fresh okra. The volume level is down slightly and the value level is up slightly from 1990, however both are down significantly from 1989 levels of 23,313 metric tons (US$6.6 million). Imports are up significantly from 1980 levels of 8,955 metric tons (US$2.0 million), even though pre-1989 import statistics combined reporting categories for fresh and frozen okra.

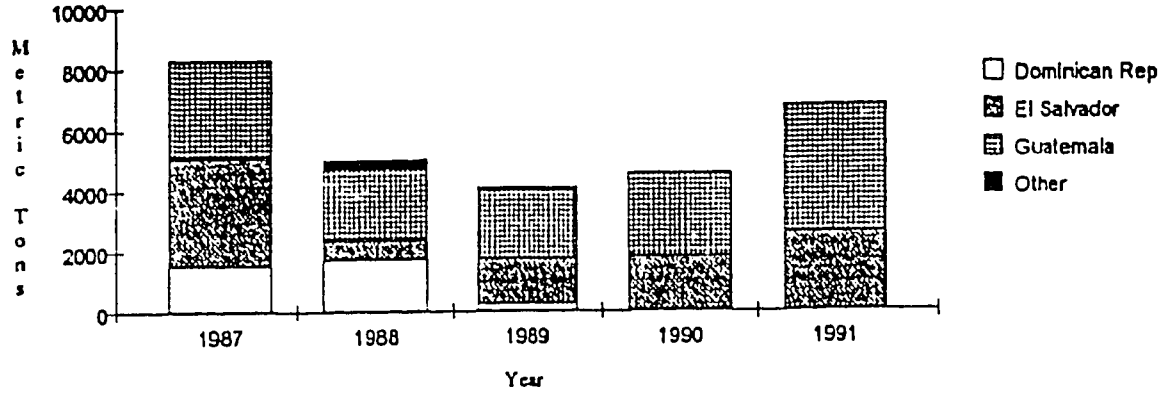
U.S. Imports of Fresh Okra, 1981-1991



Source: U.S. Bureau of the Census

Since the U.S. Customs service began reporting fresh and frozen okra import levels separately in 1989, U.S. imports of frozen okra have increased from 4,125 metric tons (US$2.2 million) in 1989 to 6,796 metric tons (US$3.9 million in 1991. These levels, however, are down from the 1987 USDA import estimate of 8,315 metric tons ($4.89 million) in 1987.

U.S. Imports of Frozen Okra, 1987-1991



Source: U.S. Bureau of the Census

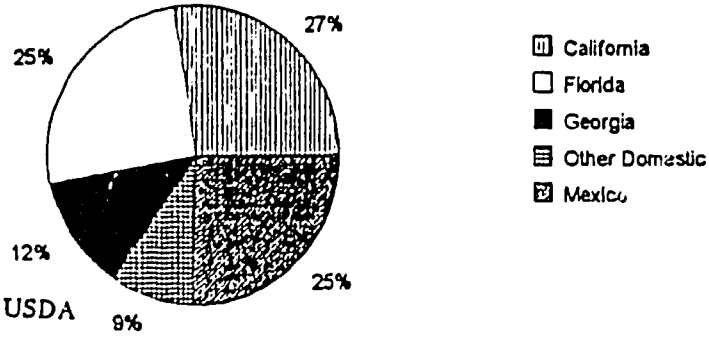
Market Share

Fintrac estimates that domestic production supplies less than 30 percent of the total market demand for fresh product. The key producer states are Florida, California, Texas and Georgia, although a number of other states also produce small quantities.

Mexico supplied nearly all the import requirements of fresh okra in 1991 with a 99.65 percent market share (or 12,997 metric tons). Smaller amounts also entered from Guatemala (30.8 metric tons), Egypt (6.0 metric tons), Costa Rica (5.8 metric tons), and the Dominican Republic (3.0 metric tons). Mexican import share since 1980 has averaged in the 90 percent range, even during years when U.S. Customs lumped fresh and frozen okra in one category.

The chart below gives market shares for the largest suppliers to 22 U.S. city markets as reported by USDA. Fintrac believes that Mexico's market share is significantly understated using this data, as it is thought that the majority of arrivals enter through Texas border towns which are not included in this city sampling.

1991 Okra Market Share in Largest 22 Cities



Source: USDA

In 1987, U.S. frozen okra production accounted for nearly 80 percent of total U.S. supplies, with Florida accounting for 90 percent of U.S. domestic supplies. Fintrac estimates that imports currently comprise roughly 20 percent of total market supply. In 1991, Guatemala and El Salvador accounted for the vast majority of shipments to the United States with import shares of 61 and 38 percent, respectively. Small shipments (10 metric tons each) also entered from Mexico and Egypt. The Dominican Republic, which had a 34 percent import share in 1988, has shipped no frozen okra to the U.S. since 1989. The average per pound import value of okra sourced from Guatemala and El Salvador in 1991 was $0.24 and $0.30, respectively. Both per pound values are at a five-year high.

Consumer Preference

Apparent U.S. consumption of fresh okra has increased from approximately 7,500 metric tons in 1975 to over 18,600 metric tons in 1991, with a high of an estimated 32,000 metric tons in 1987. Per capita consumption over the same period has increased from .04 kg per year to .07 kilograms per year (1987 apparent per capita consumption stood at 0.13 kilograms per year).

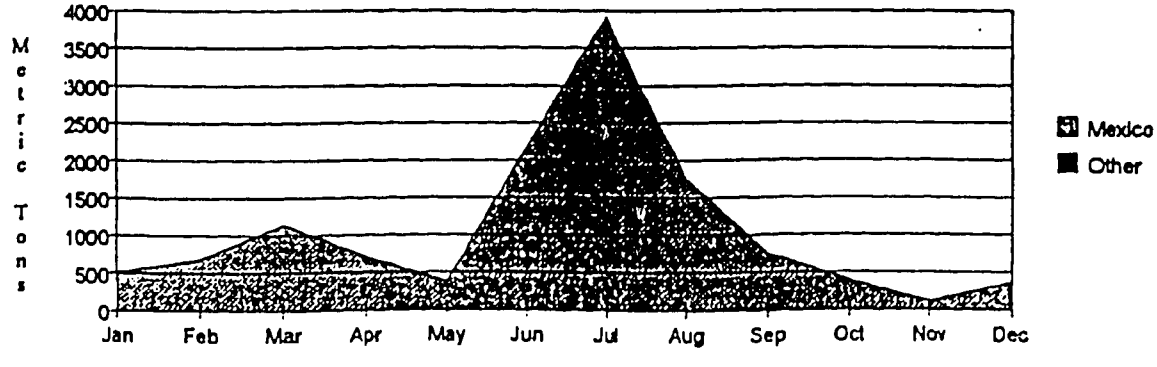
Green okra has the highest popularity, with a smaller, specialty demand for red and burgundy okra. The most popular varieties on the market include Lee, emerald, Annie Oakley, Burgundy, Perkins Spineless, Dwarf Green Long Pod, Clemson Spineless and French Market. Small to medium sized okra are preferred.

Seasonal Patterns of Demand

According to USDA production estimates (based on arrivals at terminal markets) for the period 1981-1985, 45 percent (a 1981-1985 average of 1,887 metric tons) of U.S. production enters the market in May and June. Thirty-seven percent of U.S. production is shipped in April, July, October and November (average of 300 to 500 metric tons per month). The periods January-March, August-September, and December historically have been those marked by low U.S. supply, with 200 metric tons or less supplied in each month. Terminal market arrival data for 1991 are in general agreement with these historical trends.

In 1991, U.S. imports peaked during the period June-August with average monthly imports ranging from 1,767 to 3,923 metric tons. During the periods January-May and September-December monthly imports levels ranged from a low of 124 metric tons in November to a high of 1,085 metric tons in March. Mexico supplied the market in every month of 1991. Guatemala supplied its 31 metric tons in February and March, with Dominican, Egyptian and Costa Rican okra shipping their full supplies during one month of the year: January, June and October, respectively.

U.S. Imports of Fresh Okra by Month, 1991

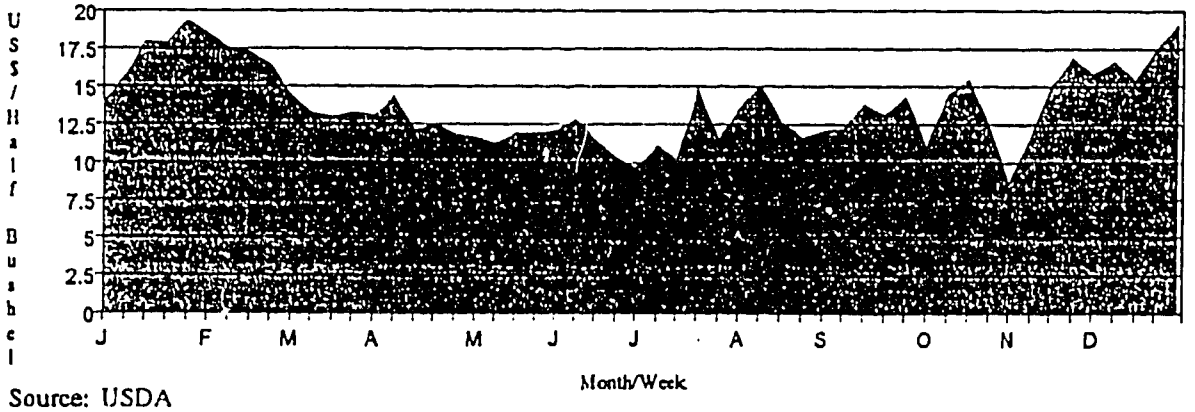


Prices

In 1991, per pound import unit values (using CIF value plus applicable duty, if any) averaged $0.18/lb. Mexican per unit values for the vast majority of its okra exports to the U.S. (those that entered through Laredo, Texas) averaged $0.13/lb to $0.14/lb from May through October. Declared values during the periods January-April and November-December ranged between $0.27/lb to $0.35/lb, corresponding to periods of low supply. These values are landed values at the port of entry and do not include inland transportation to final markets. Over the last 12 years, per pound unit values (base is customs value plus applicable duties) ranged from a low of US$0.10/lb in 1980 to highs of $0.17/lb in 1986 and 1991. 1989 and 1990 average unit values were $0.13/lb and $0.15/lb respectively.

Wholesale market prices for four major terminal markets (Boston, Chicago, Miami, and New York) were analyzed for calendar year 1991. Average monthly per pound prices tended to be highest in the northeastern markets of Boston and New York. For the twelve month period, Miami recorded the lowest monthly average price for nine months, while Chicago recorded the lowest price for three months. The following chart displays unweighted averages for all four markets surveyed. The chart shows that prices, on average, are highest in January-February ($15-$20 per half bushel crate). During the rest of the year prices range between $10 to $15 per half bushel crate.

1991 Average U.S. Wholesale Prices for Fresh Okra (Boston, Chicago, NY, Miami



Source: USDA

Based on price reporting, Florida supplied okra to Boston during the periods April-July and October-January at average prices of $0.67 to $1.33 per pound. New Jersey supplied okra to Boston from July-September at average prices of $1.00 to $1.53 per pound. While New Jersey supplied to this market, very little was supplied by either Florida or Mexico. Mexico supplied the Boston market primarily from January-March and the latter two weeks of December. Average prices for Mexican okra ranged from $0.97 to $1.20 per pound.

Florida supplied roughly half the Chicago market requirements of the Chicago market in 1991, with Mexico accounting for 40 percent of total supplies. Lesser amounts were sourced from

Tennessee and Georgia. Florida shipments occurred primarily during the periods May-June and October-December at average prices of $0.63 to $1.00 per pound. Shipments from Georgia entered the market from May through July with average prices of $0.43 to $1.00 per pound. Mexican imports supplied the Chicago market during February-May and November-December at average prices ranging between $0.67 and $1.10 per pound.

Florida suppliers accounted for the vast majority of arrivals at the Miami terminal market, with lesser amounts entering from Mexico, Guatemala, Costa Rica, Georgia and North Carolina. Floridian supply was primarily during the periods January, April-June, and October-December at average prices ranging between $0.43 and $1.20 per pound. Mexican sales on the Miami market occurred primarily between January and March at average prices ranging from $0.90 to $1.17 per pound. Georgia and North Carolina okra was also sold at this market between June and September at prices ranging from $0.43 to $0.55 per pound.

Florida supplied the New York market between April and December with average prices ranging between $0.47 to $1.67 per pound. New Jersey okra was present from July-September at prices ranging from $0.80 to $1.40 per pound. Mexican okra supplied the market from January-April and November-December at prices ranging from $0.67 to $1.67 per pound.

Market price data for frozen okra is not readily available. Average import unit values have ranged between $0.52/kg to $0.59/kg between 1987 and 1991. 1991's import unit value stood at $0.58/kg.

Market Distribution

The largest wholesale markets in 1991 were New York (which handled 33% of the volume of the 22 largest city markets), Los Angeles (29%), Atlanta (14%), Chicago (7%), Dallas (7%), Miami (4%), and San Francisco (4%).

According to 1991 import statistics, the majority of imports entered the United States through Laredo, Texas -- not unexpected given the dominance of Mexican product in the market. Much smaller amounts of Mexican okra also entered through Nogales, Los Angeles, and New York City. Imports from Central America entered through Miami, while imports from the Dominican Republic and Egypt arrived through New York City.

A representative listing of major U.S. importers is given in Annex A.

Grades and Standards

Full Code of Federal Regulations' (CFR) text of U.S. grades and standards for fresh okra, fresh okra for processing, frozen okra, and canned okra are given in Annex B.

Import Regulations and Duties

Imports of fresh and frozen okra are subject to approval and inspection by USDA's Animal and Plant Health Inspection Service. Okra should be free of insects, pests and disease.

The following duty rates are charged on fresh and frozen okra entering the U.S. (Kenya is included under the GSP category -- as is Mexico):

HS Number	Description	General	GSP	CBI/Israel	Canada
0709.90.13	Fresh, Entering 7/1-10/15	25%	Free	Free	17.5%
0709.90.16	Fresh, Entering Other times	25%	Free	Free	17.5%
0710.80.9540	Frozen	17.5%	17.5%	Free	12.2%

With the enactment of the North American Free Trade Agreement, Mexican frozen okra exports to the United States will see an immediate reduction in duty from 17.5% to zero.

No quantitative restrictions exist.

Market Opportunities for Kenyan Exporters

The U.S. import market for fresh and frozen okra is dominated by Mexico and Central America, respectively.

Although wholesale prices for fresh okra are slightly higher during the late fall and winter, production is still available from Florida and Mexico (which produce year round - albeit at reduced levels during these times). Given the transport costs which Kenya would face to the United States, it is not thought that Kenya would be able to compete with Mexico.

Frozen okra imports arrive chiefly from Central America, which receives duty free treatment under the Caribbean Basin Initiative. Since Mexican supplies of frozen okra are only a small fraction of overall supplies, it is thought that the 17.5% tariff rate for Mexico (and other non-CBI GSP countries) provides Central American producers with a competitive advantage. With the anticipated reduction of Mexico's rate to zero under NAFTA, Mexican exports to the United States may increase. Kenya, which will still face a 17.5% rate, is unlikely to be able to compete effectively.

References

1980-1989 Trade Statistics, Microfiche, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

1990-1991 Trade Statistics, CD-ROM, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

United States International Trade Commission, Harmonized Tariff Schedule of the United States, 1991.

U.S. Department of Agriculture, Economic Research Service, "Vegetables and Specialties: Situation and Outlook Report," various issues.

U.S. Department of Agriculture, Agricultural Marketing Service, Fruit and Vegetable Division, Market News Branch, "Fresh Fruit and Vegetable Arrival Totals for 22 Cities," 1991.

Federal-State Market News Service (USDA), "New York Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Federal-State Market News Service (USDA), "Boston Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Federal-State Market News Service (USDA), "Chicago Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Federal-Market News Service (USDA), "Miami Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Code of Federal Regulations, Chapter 7, Part 52, January 1992.

Code of Federal Regulations, Chapter 7, Parts 46-51, January 1992.

Myers, Claudia (University of California Small Farm Center), "Specialty and Minor Crops Handbook," 1991.

Klotzbach, Thomas, "Okra: U.S. Market Survey," *Tropical Produce Marketing News*, Summer 1992.

Table 1: U.S. Imports of Fresh/Chilled Okra, 1980-1991, Kilograms

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Canada			9,870	12,322	188	17,951		24,080		12,168		
Mexico	8,140,010	9,514,836	16,039,729	18,601,590	19,284,603	12,597,592	10,525,871	23,029,582	16,486,553	23,194,498	13,550,582	12,997,008
Guatemala	622,566	645,521	804,557	400,224	655,526	675,268	559,809	830,416	1,386,169	82,408	86,713	30,798
Belize			4,974	1,301			3,202	34,620				
El Salvador		280,490	378,100	29,964	218,093	296,939	148,711	98,402	1,952,708			
Nicaragua	113,533	219,313	163,605	46,551								
Costa Rica	9,473				20,194							
Panama					97,659							5,679
Honduras			12,359						3,543	2,558		
Jamaica			3,055		28,565		27,950					
Barbados								1,702				
Bahamas	10,985											
Haiti	27,106		1,647	3,814	51,204							
Dominican Rep	31,018		207,191	18,353	2,326	201,869	529,279	523,777	152,668			3,000
Montserrat								27,013				
Brazil			874		1,501							
Ecuador						26,696		872				
Chile										9		
United Kingdom							363	9,071				
Spain					60,535							
Greece			477		3,371	5,682	829					
Turkey							1,167	3,266	10,713			
Egypt					547	18,624	20,018	53,967	59,528	20,988	17,212	6,000
Morocco				272								
Mozambique							5,353					
TOTAL	8,954,691	10,660,161	17,626,439	19,114,391	20,424,312	13,840,621	11,822,550	24,636,767	20,051,881	23,312,629	13,654,507	13,042,485

Note: 1980-1988 Figures Include Frozen
Source: U.S. Bureau of the Census

Table 2: U.S. Imports of Fresh/Chilled Okra, 1980-1991, Customs Value + Applicable Duty, US$

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Canada			2,552	4,001	750	5,744		6,600		6,075		
Mexico	1,579,699	2,433,240	4,351,542	4,816,465	4,668,877	3,739,079	3,023,092	6,560,065	4,714,962	6,506,804	4,495,854	4,930,319
Guatemala	274,178	444,085	601,546	261,604	484,262	404,931	302,745	90,889	878,044	54,028	75,286	29,610
Belize			6,687	647			4,792	38,383				
El Salvador		161,668	238,712	19,810	190,192	249,064	127,418	69,243	1,135,438			
Nicaragua	95,469	242,595	112,836	27,538								
Costa Rica	10,692				6,539							2,000
Panama					128,856							
Honduras			11,991						3,200	3,750		
Jamaica			2,679		46,302		31,960					
Barbados								4,500				
Bahamas	7,476											
Haiti	12,151		2,204	840	11,912							
Dominican Rep	19,673		180,639	12,800	718	128,591	875,442	660,298	85,471			1,743
Montserrat								7,470				
Brazil			925		750							
Ecuador						12,329		1,021				
Chile										2,161		
United Kingdom							1,636	7,993				
Spain					33,006							
Greece			1,141		3,999	3,254	1,461					
Turkey							2,040	9,845	7,363			
Egypt					949	7,350	35,450	10,462	47,050	36,750	32,703	11,400
Morocco				750								
Mozambique							1,415					
TOTAL	1,999,338	3,281,588	5,513,454	5,144,455	5,577,112	4,550,342	4,407,451	7,486,769	6,871,528	6,609,568	4,603,843	4,975,872

Note: 1980-1988 Figures Include Frozen
Source: U.S. Bureau of the Census

Table 3: U.S. Imports of Fresh/Chilled Okra, 1980-1991, Customs Value + Applicable Duty, US$/kilogram

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Canada			0.26	0.32	4.00	0.32		0.27		0.50		
Mexico	0.19	0.26	0.27	0.26	0.24	0.30	0.29	0.28	0.29	0.28	0.33	0.38
Guatemala	0.44	0.69	0.75	0.65	0.74	0.60	0.54	0.11	0.63	0.66	0.87	0.96
Belize			1.34	0.50			1.50	1.11				
El Salvador		0.58	0.63	0.66	0.87	0.84	0.86	0.91	0.58			
Nicaragua	0.84	1.11	0.69	0.59								
Costa Rica	1.13				0.32							
Panama					1.32							0.49
Honduras			0.97									
Jamaica			0.88		1.62		1.14		0.90	1.47		
Barbados								2.64				
Bahamas	0.68											
Haiti	0.45		1.34	0.22	0.23							
Dominican Republi	0.63		0.87	0.70	0.31	0.64	1.65	1.26	0.56			0.58
Montserrat								0.28				
Brazil			1.06		0.50							
Ecuador						0.46		1.17				
Chile										240.11		
United Kingdom							4.50	0.88				
Spain					0.55							
Greece			2.39		1.19	0.57	1.76					
Turkey							1.75	3.01	0.69			
Egypt					1.73	0.39	1.77	0.19	0.79	1.75	1.90	1.90
Morocco				2.75								
Mozambique							0.26					
TOTAL	0.22	0.31	0.31	0.27	0.27	0.33	0.37	0.30	0.34	0.28	0.34	0.38

Note: 1980-1988 Figures Include Frozen
Source: U.S. Bureau of the Census

Table 4: U.S. Imports of Fresh Okra by Month, 1991

Kilograms	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
TOTAL	521,494	702,317	1,155,795	719,149	389,137	2,192,205	3,923,150	1,767,277	760,367	412,858	124,440	374,296	13,042,485
Mexico	518,494	678,885	1,148,429	719,149	389,137	2,186,205	3,923,150	1,767,277	760,367	407,179	124,440	374,296	12,997,008
Los Angeles	17,674	40,496	61,452	12,745	0	0	0	0	0	0	0	0	132,367
Nogales	1,310	0	0	0	0	0	0	0	0	0	0	0	1,310
Laredo-Dutiable	24,217	14,616	0	7,920	4,899	94,328	0	11,975	7,348	0	0	24,031	189,334
Laredo	475,293	617,379	1,085,277	697,469	384,238	2,091,877	3,923,150	1,755,302	753,019	407,179	124,440	350,265	12,664,888
New York City	0	6,394	1,700	1,015	0	0	0	0	0	0	0	0	9,109
Dominican Rep - NYC	3,000	0	0	0	0	0	0	0	0	0	0	0	3,000
Guatemala - Miami	0	23,432	7,366	0	0	0	0	0	0	0	0	0	30,798
Egypt - NYC	0	0	0	0	0	6,000	0	0	0	0	0	0	6,000
Costa Rica - Miami	0	0	0	0	0	0	0	0	0	5,679	0	0	5,679

CIF Value - US$	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
TOTAL	338,523	490,551	813,647	475,956	122,455	653,305	1,152,497	521,735	227,119	126,295	88,091	284,744	5,294,921
Mexico	336,629	452,657	801,615	475,956	122,455	639,951	1,152,497	521,735	227,119	122,616	88,091	284,744	5,226,065
Los Angeles	26,168	71,700	104,469	23,400	0								225,737
Nogales	2,596	0	0	0	0								2,596
Laredo-Dutiable	9,879	5,217	0	6,107	1,440	28,402		3,528	2,178			18,531	75,282
Laredo	297,986	364,462	694,316	443,695	121,015	611,549	1,152,497	518,207	224,941	122,616	88,091	266,213	4,905,588
New York City		11,278	2,830	2,754	0								16,862
Dominican Rep - NYC	1,894	0	0	0	0								1,894
Guatemala - Miami	0	37,894	12,032	0	0								49,926
Egypt - NYC						13,354							13,354
Costa Rica - Miami										3,682			3,682

Duty Charged	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
TOTAL	2,761	1,009	0	1,497	351	6,865	0	858	527	0	0	4,542	18,410
Mexico	2,412	1,009	0	1,497	351	6,865	0	858	527	0	0	4,542	18,061
Los Angeles	0	0	0	0	0								0
Nogales	0	0	0	0	0								0
Laredo-Dutiable	2,412	1,009	0	1,497	351	6,865		858	527			4,542	18,061
Laredo	0	0	0	0	0	0							0
New York City		0	0	0	0								0
Dominican Rep - NYC	349	0	0	0	0								349
Guatemala - Miami	0	0	0	0	0								0
Egypt - NYC													0
Costa Rica - Miami													0

US$/kg of CIF+Duty	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
TOTAL	0.65	0.70	0.70	0.66	0.32	0.30	0.29	0.30	0.30	0.31	0.71	0.77	0.41
Mexico	0.65	0.67	0.70	0.66	0.32	0.30	0.29	0.30	0.30	0.30	0.71	0.77	0.40
Los Angeles	1.48	1.77	1.70	1.84									1.71
Nogales	1.98												1.98
Laredo-Dutiable	0.51	0.43		0.96	0.37	0.37		0.37	0.37			0.96	0.49
Laredo	0.63	0.59	0.64	0.64	0.31	0.29	0.29	0.30	0.30	0.30	0.71	0.76	0.39
New York City		1.76	1.66	2.71									1.85
Dominican Rep - NYC	0.75												0.75
Guatemala - Miami		1.62	1.63										1.62
Egypt - NYC													2.23
Costa Rica - Miami										0.65			0.65

Notes: Broken down by port of entry

Table 5: U.S. Imports of Frozen Okra, 1987-1991

MTs	1987	1988	1989	1990	1991
Canada			8		
Mexico	76	285	128	20	10
Dominican Rep.	1,530	1,709	239		
El Salvador	3,592	650	1,525	1,826	2,605
Guatemala	3,117	2,395	2,226	2,743	4,171
Egypt		17	-		10
TOTAL	8,315	5,056	4,126	4,589	6,796
VALUE $000s	**1987**	**1988**	**1989**	**1990**	**1991**
Canada			7		
Mexico	29	134	59	14	6
Dominican Rep.	965	1,195	153		
El Salvador	2,236	387	885	1,116	1,731
Guatemala	1,648	1,236	1,110	1,264	2,168
Egypt		14	3		12
TOTAL	4,878	2,966	2,217	2,394	3,917
$/kg	**1987**	**1988**	**1989**	**1990**	**1991**
Canada			0.88		
Mexico	0.38	0.47	0.46	0.70	0.60
Dominican Rep.	0.63	0.70	0.64		
El Salvador	0.62	0.60	0.58	0.61	0.66
Guatemala	0.53	0.52	0.50	0.46	0.52
Egypt		0.82			1.20
TOTAI	0.59	0.59	0.54	0.52	0.58

Source: U.S. Bureau of the Census

Table 6: U.S. Wholesale Prices for Fresh Okra, US$ per 1/2 Bushell Crate, 1991

Month	Boston FL	Boston NJ	Boston Mex	Chicago FL	Chicago GA	Chicago Mex	Miami FL	Miami Mex	Miami GA/NC	New York FL	New York NJ	New York Mex	AVERAGE
Jan 1			16.00				12.00						14.00
2	12.00		18.00				13.75					19.00	15.69
3			18.00									18.00	18.00
4	16.00						15.50	15.50				24.50	17.88
5			18.00				17.00	17.00				25.50	19.38
Feb 6			17.50				18.00					20.00	18.50
7			16.00									19.00	17.50
8			16.00			15.50		17.50				20.00	17.25
9			15.50			13.50		17.00				19.50	16.38
Mar10			16.00			13.50		15.50				12.50	14.38
11			14.00			12.50		14.50				12.00	13.25
12			13.00			12.50		13.50				13.00	13.00
13			14.00			12.00		14.00		13.00		13.50	13.30
Apr14	12.00		13.00			12.00		14.00				14.50	13.10
15	18.00					11.50		13.50		16.00		13.00	14.40
16	15.00					11.00	10.50			13.00		11.00	12.10
17	14.50					11.00	11.50			14.50		11.00	12.50
18	13.50					10.00	11.50			13.50		11.00	11.90
May19	13.00					10.50	11.50			12.50		11.00	11.70
20	14.00				10.00	11.00	10.50			12.00		10.00	11.25
21	14.00				12.00	11.50	10.50			12.00			12.00
22	15.00			12.00	12.00		9.00			12.00			12.00
Jun23	15.00			12.00	12.00		7.50			14.00			12.10
24	14.00				15.00		8.00			14.50			12.88
25	15.00				11.50	12.00	8.25		8.25	14.00			11.50
26	15.00			10.50	11.50		6.50		6.50	12.00			10.33
Jul27	13.00				13.50		6.50		6.50	9.00			9.70
28	12.50				13.50				7.50	11.00			11.13
29					12.50				7.00	11.00			10.17
30	13.50	18.00							7.50		20.50		14.88
31		17.00			6.50				8.00		14.50		11.50
Aug32		18.00			8.00				7.50		21.00		13.63
33		20.00							7.25	13.00	20.00		15.06
34		19.50							7.00	9.00	15.50		12.75
35		16.00							7.50	10.50	12.50		11.63
Sep36		15.00							7.50	10.00	16.00		12.13
37		17.50							7.50	9.00	15.00		12.25
38		20.00							7.50	9.00	19.00		13.88
39		17.50							8.00	11.00	16.00		13.13
40		23.00							8.00		12.00		14.33
Oct41				14.00					8.00				11.00
42	16.00			14.50						13.00			14.50
43	20.00			15.00			11.50						15.50
44	15.00			12.50			10.50			11.50			12.38
Nov45	10.00			9.50			8.00			7.00			8.63
46	13.00			12.50			7.50			14.00			11.75
47	18.00						11.50			17.50		13.00	15.00
48	17.50					16.50	13.50			18.00		19.00	16.90
Dec49	18.00					13.50	13.50			17.00		17.00	15.80
50	18.00					15.50	13.50			20.00		16.50	16.70
51				15.00		16.00	13.50					17.00	15.38
52			18.00	15.00		15.50	13.50			25.00			17.40
53	20.00		16.00			15.50	13.50			24.50		25.00	19.08

Note: Small-Medium, Generally Good Condition and Appearance
Source: USDA Market News Service (Boston, Chicago, Miami, New York Branches)

ıble 7: Fresh Okra Arrivals for 22 U.S. Cities, 1991 -- Metric Tons, By City

	ATLA	BALT	BOST	BUFF	CHIC	CINC	COLU	DALL	DETR	LOSA	MIAM	NEWO	NYC	PHIL	PITT	STL	SANF	SEAT	Total
ıtifornia										1679							227		1,906
orida	544				227		45				272		681						1,770
rogia	318												544						862
Jersey													318						318
nnessee					45														45
xas								272											272
xico	136				181			181	91	363		45	726				45		1,770
TAL	998				454		45	454	91	2,042	272	45	2,269				272		6,942
arket Size	14%				7%		1%	7%	1%	29%	4%	1%	33%				4%		100%
mport Share	14%				40%			40%	100%	18%		100%	32%				17%		25%

urce: Agricultural Marketing Service, USDA

ole 8: Fresh Okra Arrivals for 22 U.S. Cities, 1991 -- Metric Tons, By Month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
)ifornia	91				91	272	499	363	272	227	91		1,906
orida			91	181	408	318	272	45		136	181	136	1,770
rogia						45	499	91	45	91	91		862
Jersey							45	91	91	91			318
nnessee							45						45
xas					45	45	91	45	45				272
ico	227	363	408	499	227							45	1,770
ltal	318	363	499	681	771	681	1,452	635	454	544	363	181	6,942
nth Share	5%	5%	7%	10%	11%	10%	21%	9%	7%	8%	5%	3%	100%
port Share	71%	100%	82%	73%	29%							25%	25%

rce: Agricultural Marketing Service, USDA

SECTION VI: SNOW PEAS (FRESH AND FROZEN)

Note: With the exception of price statistics, very few data sources provide separate information for snow peas. Much of the trade statistics quoted in the section include all green peas, including snow peas. However, since the common green peas are primarily consumed canned or frozen, a large portion of fresh arrivals at wholesale markets and at ports of entry can be assumed to be snow peas (this is also likely because of the presence of Guatemala, a known large snow pea producer, in these statistical data bases). Although without additional field research, this should not be taken as gospel. Frozen pea import statistics are highly variable, and differ amongst data sources. This is the same situation for statistics on frozen domestic production. Therefore, detail of the U.S. frozen snow pea market is not given here. Further field research is needed to obtain a clearer picture of U.S. market opportunities. Given the relatively low U.S. market opportunities these products represent for Kenya (as ascertained by the little information available), the author does not believe this research to be urgent.

Ranking Overview

Product	Ranking	Notes
Fresh Snow Peas	1	Strong seasonal domestic and year-round regional competition, Kenya not geographically competitive
Frozen Snow Peas	2*	Price competitiveness needs to be assessed vis-a-vis expected strong domestic and regional competition -- field research needed as very little published data is available

Domestic Production

Complete U.S. production statistics are not available for either fresh or frozen snow peas. California production stood at 10,434 MTs in 1990, down from 13,463 MTs in 1989, but up substantially from the 1980 production level of 1,067 MTs. The decline in production from 1989 to 1990 was not due to a reduction in the number of harvested acreage in California, as this actually increased from 4,950 acres to 6,220 acres (in 1980, only 950 acres were harvested). California production value has increased from $1.6 million in 1980 to $29.4 million in 1989 and $30.1 million in 1990.

U.S. domestic arrivals in 22 large cities of fresh green peas totaled 4,628 MTs in 1991, of which 4,356 MTs was sourced from California. Separate USDA data reports that domestic shipments of southern/snow peas was 1,180 MTs in 1990, down from 1,270 MTs in 1989, but nearly double 1979 figures.

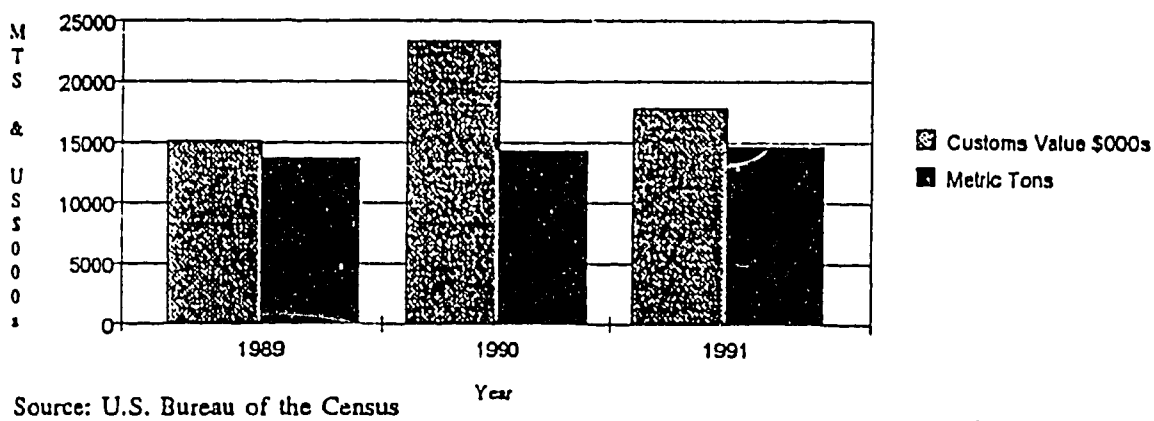
Based on green pea arrival statistics in 22 large U.S. cities, where California held a 94 percent share of domestic arrivals, it would seem that California is, by far, the largest domestic producer. Other states which showed up in the arrival statistics included New York, Oregon, South Carolina, and Washington -- although none of these states supplied more than 100 metric tons in 1991 to the 22 markets studied.

Imports

U.S. imports of fresh peas (*pisum sativum*) reached 14,723 MTs ($17.8 million customs value) in 1991. 1989 and 1990 import levels were 13,729 MTs ($15.1 million) and 14,419 MTs ($23.4 million), respectively.

USDA reported 1990 import market shipments at 15,381 MTs for souther/snow peas, down from 17,015 MTs in 1989, but up substantially over early and mid-1980 levels. Green pea import arrivals in the 22 largest U.S. city wholesale markets stood at 5,173 MTs in 1991, according to separate USDA statistics. (As stated in the note to this section, official data on snow peas, when available, is highly contradictory. All statistics should be used with a healthy dose of cynicism.)

U.S. Fresh Pea Imports, 1989-1991



Source: U.S. Bureau of the Census

Market Share

Based on market shipment statistics from USDA, foreign suppliers have steadily increased their market share in the United States. These statistics show that imports of southern/snow peas accounted for 92 percent of market shipments, up from 50% in 1980. Domestic producers have steadily lost market share since 1980, and now only supply 8 percent of the market.

1991 arrivals in the top 22 wholesale markets of fresh green peas gives a different story -- with imports accounting for 53 percent (37% from Guatemala, 16% from Mexico) of all arrivals. California accounts for 44 percent of arrivals, with other states holding the remaining 3 percent market share.

Bureau of the Census import statistics reveal that Guatemala was the largest supplier of green peas to the United States in 1991 (11,119 MTs or 76% of total imports). Mexico was the only other major supplier in 1991 (3,110 MTs or 21% of total imports). The remaining three percent of imports came from 14 other countries, in amounts all less than 125 MTs.

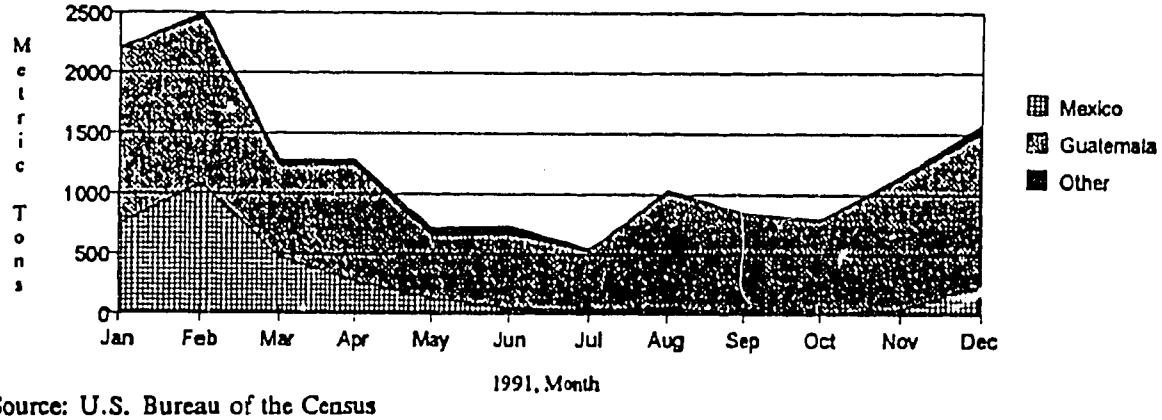
Consumer Preference

Further field research required on both fresh and frozen product.

Seasonal Patterns of Demand

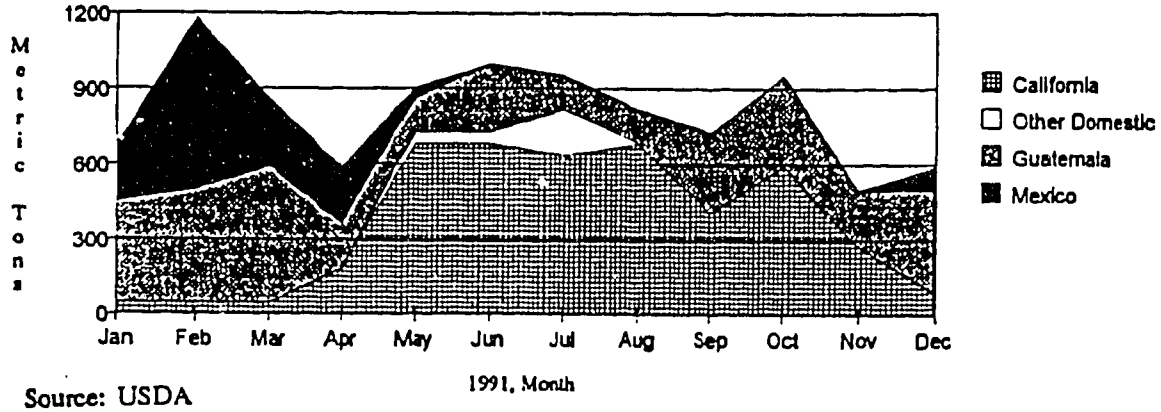
The following two charts give imports and wholesale market arrivals by month in 1991. The data reveals that significant domestic supplies are on the market from May through October. Imports, which are on the market year-round, are strongest in January through April and later in the year. As far as imports are concerned, Mexican supplies arrive chiefly in the beginning of the year (peaking in February), while Guatemalan exports to the U.S. are strong throughout the year, but particularly so during the domestic industry's off-season.

U.S. Imports of Fresh Peas, 1991, MTs per Month



Source: U.S. Bureau of the Census

U.S. Arrivals of Fresh Peas in 22 Major Markets, 1991, MTs



Source: USDA

Based on price reporting (which tells us that significant quantities are on the market to warrant data collection) the following is a summary of which suppliers deliver to which wholesale markets and during what periods:

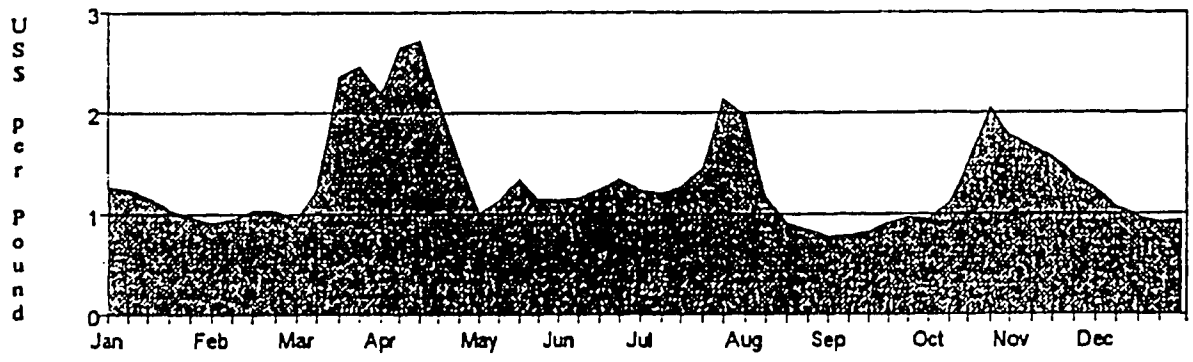
Baltimore/Washington:	Guatemala (Jan-Jun, Sep-Dec)
	Mexico (April-May)
	California (May-Oct)
Boston:	Guatemala (year-round)
	Mexico (Jan-May)
	California (Apr-Aug)
Chicago:	Guatemala (year-round)
	Mexico (sporadic throughout)
	California (Apr-Oct)
Miami:	Guatemala (year-round)
New York:	Guatemala (year-round)
	California (Apr-Nov)

Based on the above analysis, and the monthly import statistics, Guatemala is the dominant supplier on the market place, although Mexican supplies significant quantities to the market early in the year, and California supplies large quantities from May through November (lesser amounts in other months).

Prices

Wholesale prices for fresh snow peas were analyzed in five key markets: Miami, Baltimore, Boston, New York, and Chicago. The chart below shows unweighted average prices for Guatemalan product in these markets. No definite trend is evident -- through most of the year the wholesale price hovered around $1.00 per pound, although there are three periods where prices reached or surpassed the $2.00/lb mark: March-April, late July, and late October. The first period corresponds to the period when imports drop substantially, but domestic production is not yet at its peak. The other two peaks occurred only briefly and may have been to a short term supply problem. Therefore, if there is a window of higher prices (and this would need to be further established), it would appear from preliminary analysis to occur in March/April.

Unweighted Average Snow Pea Wholesale Prices, 1991



Source: USDA

1991, Week - Source: Guatemala, Markets: Mia, Balt, Bost, Chic, NY

Market Distribution

Additional field research required as very little published market research is available for this item.

A representative listing of major U.S. importers is given in Annex A.

Grades and Standards

No federal grades of standards exist. Standards do exist for fresh peas, which Fintrac can make available on request.

Import Regulations and Duties

Imports of fresh and frozen snow peas are subject to approval and inspection by USDA's Animal and Plant Health Inspection Service.

The following duty rates are charged on fresh and frozen snow peas entering the U.S. (Kenya is included under the GSP category):

HS Number	Description	General	GSP	CBI/Israel	Canada
0708.10.20	Pisum sativum, fresh, entered July 1 through September 1	$0.011/kg	Free	Free	$0.007/kg
0708.10.40	Pisum sativum, fresh, entering at other times	$0.044/kg	Free*	Free	$0.03/kg
0710.21.20	Pisum sativum, frozen, entered July 1 through September 1	$0.022/kg	Free	Free	$0.015/kg
0709.21.40	Pisum sativum, frozen, entering at other times	$0.044/kg	Free	Free	$0.03/kg

Note: "*" signifies that Mexico not eligible for GSP status, but faces general duty rates. With the enactment of the North American Free Trade Agreement (NAFTA), Mexico would benefit from immediate tariff removal on this product.

No quantitative restrictions exist.

Market Opportunities for Kenyan Exporters

The U.S. market for fresh and frozen snow peas appears to have grown rapidly in the 1980s. Some statistics have shown that imports have taken over a large share of (50 to 90 percent depending on the source), at least, the fresh market. California production has also increased dramatically over the decade. It is, however, difficult to make a definitive statement on Kenya's market prospects given the sparse and often contradictory information available.

However, with the information available -- along with the findings of other products in this

market survey -- it can probably be safely said that Kenya will face strong competition from both domestic (especially California) and foreign suppliers (primarily Guatemala, and to a lesser extent Mexico). It would seem more logical to focus on expanding exports to the European markets, then trying to compete in the United States. If Kenyan producers are interested in attacking the U.S. market (especially for frozen product) additional field research and site visits will be needed to clearly assess their likely success.

References

1980-1989 Trade Statistics, Microfiche, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

1990-1991 Trade Statistics, CD-ROM, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

United States International Trade Commission, Harmonized Tariff Schedule of the United States, 1991.

U.S. Department of Agriculture, Economic Research Service, "Vegetables and Specialties: Situation and Outlook Report," various issues.

U.S. Department of Agriculture, Agricultural Marketing Service, Fruit and Vegetable Division, Market News Branch, "Fresh Fruit and Vegetable Arrival Totals for 22 Cities," 1991.

Federal-State Market News Service, "Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," various wholesale market editions, 1992.

Table 1: Fresh Green Pea Arrivals for 22 U.S. Cities, 1991 -- Metric Tons, By City

	ATLA	BALT	BOST	BUFF	CHIC	CINC	COLU	DALL	DETR	LOSA	MIAM	NEWO	NYC	PHIL	PITT	STL	SANF	SEAT	Total
California		227	272		318	227			45	1270			771	45			907	272	4,356
New York													91						91
Oregon																		91	91
South Carolina							45												45
Washington																		45	45
Guatemala	91	318	590		408	91			136	91	272		1225	272	136				3,630
Mexico					227					318			272				590	136	1,543
TOTAL	91	544	862		953	318	45		181	1,679	272		2,359	318	136		1,497	544	9,800
Mkt Share	1%	6%	9%		10%	3%	0%		2%	17%	3%		24%	3%	1%		15%	6%	100%
Imp Share	100%	58%	68%		67%	29%			75%	24%	100%		63%	86%	100%		39%	25%	53%

Source: Agricultural Marketing Service, USDA

Table 2: Fresh Green Pea Arrivals for 22 U.S. Cities, 1991 -- Metric Tons, By Month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
California	45	45	45	181	681	681	635	681	408	590	272	91	4,356
New York							91						91
Oregon						45	45						91
South Carolina					45								45
Washington							45						45
Guatemala	408	454	544	181	136	272	136	136	318	363	227	408	3,584
Mexico	227	681	272	227	45							91	1,543
Total	681	1,180	862	590	907	998	953	817	726	953	499	590	9,755
Mo Share	7%	12%	9%	6%	9%	10%	10%	8%	7%	10%	5%	6%	100%
Imp Share	93%	96%	95%	69%	20%	27%	14%	17%	44%	38%	45%	85%	25%

Source: Agricultural Marketing Service, USDA

Table 3: Fresh Market Shipments of Southern/Snow Peas, MTs

	Domesti	%	Imports	%	Total
1979	635	100%			635
1980	1,225	50%	1,225	50%	2,450
1981	635	35%	1,180	65%	1,815
1982	907	34%	1,724	66%	2,632
1983	1,407	21%	5,354	79%	6,760
1984	1,815	22%	6,352	78%	8,167
1985	1,815	21%	6,715	79%	8,530
1986	1,906	22%	6,670	78%	8,575
1987	1,543	12%	10,844	88%	12,387
1988	1,089	8%	13,203	92%	14,292
1989	1,270	7%	15,744	93%	17,015
1990	1,180	8%	14,201	92%	15,381

Source: AMS/USDA

Table 4: U.S. Imports of Fresh/Chilled Peas, 1989-1991

	Customs Value $000s			C.I.F. Value $000s			Metric Tons			US$/Kg Customs Value		
	1991	1990	1989	1991	1990	1989	1991	1990	1989	1991	1990	1989
Canada	52	223	136	61	234	137	123	516	360	0.42	0.43	0.38
Mexico	8,416	15,401	7,029	8,842	16,153	7,145	3,119	4,763	4,112	2.70	3.23	1.71
Guatemala	8,863	7,253	5,875	12,179	10,485	9,045	11,119	8,771	7,162	0.80	0.83	0.82
El Salvador	37			40			41			0.91		
Honduras	4	37	63	5	45	90	4	78	44	0.94	0.47	1.42
Costa Rica	11			13			15			0.73		
Dominican Rep	36	51	192	51	67	279	57	62	260	0.63	0.83	0.74
Colombia		2	4		3	7		1	2		2.34	1.98
Venezuela	2			3			1			2.21		
Guyana	8			11			12			0.68		
Ecuador	110	37		122	41		94	35		1.17	1.07	
Peru	16			18			19			0.86		
Netherlands	27			38			6			4.82		
United Kingdom		2	65		3	74		3	75		0.80	0.87
Monaco			6			6			3			2.10
France		5	17		6	44		4	31		1.14	0.54
Hungary			10			12			19			0.53
Italy			51			71			78			0.65
Yugoslavia			31			31			55			0.56
Thailand			656			787			1,132			0.58
China	214			242			88			2.42		
Taiwan	36	362	981	38	387	1,070	16	165	390	2.28	2.20	2.52
Japan			1			2			1			0.97
Australia		10			12			22			0.47	
Kiribati	8		2	10		3	10		3	0.84		0.75
Mauritius			5			5			2			3.02
Total	17,840	23,383	15,124	21,673	27,436	18,808	14,723	14,419	13,729	1.21	1.62	1.10

Source: U.S. Bureau of the Census

Table 5: U.S. Imports of Fresh/Chilled Peas, 1991 by Month, MTs

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Canada		20	21			20		20			20	20	123
Mexico	744	1,079	474	272	131	51	29	54		3	44	237	3,119
Guatemala	1,465	1,375	755	965	528	616	499	952	843	780	1,081	1,259	11,119
El Salvador					41								41
Honduras	2	2											4
Costa Rica					1							14	15
Dominican Rep			4			20					18	16	57
Venezuela				1									1
Guyana										12			12
Ecuador		31	16	16	16	16							94
Peru				16						2			19
Netherlands					6								6
China			16	18		19		17				18	88
Taiwan							16						16
Kiribati												10	10
Total	2,212	2,507	1,286	1,289	722	741	543	1,043	843	798	1,163	1,575	14,723

Source: U.S. Bureau of the Census

Table 6: U.S. Imports of Fresh/Chilled Peas, 1991 by Month, US$000s

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Canada		6	8			7		11			9	11	52
Mexico	2,436	3,273	1,181	713	194	59	34	88		9	76	353	8,416
Guatemala	1,225	958	737	850	435	511	421	817	681	579	780	869	8,863
El Salvador					37								37
Honduras	2	2											4
Costa Rica					2							9	11
Dominican Rep			1			23					7	5	36
Venezuela				2									2
Guyana										8			8
Ecuador		37	18	18	19	18							110
Peru				14						2			16
Netherlands					27								27
China			40	45		43		41				45	214
Taiwan							36						36
Kiribati												8	8
Total	3,663	4,276	1,985	1,642	714	661	491	957	681	598	872	1,300	17,840

Source: U.S. Bureau of the Census

Table 7: U.S. Imports of Fresh/Chilled Peas, 1991 by Month, US$/kg

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Canada		0.29	0.38			0.34		0.54			0.44	0.54	0.42
Mexico	3.27	3.03	2.49	2.62	1.48	1.16	1.19	1.62		2.60	1.72	1.49	2.70
Guatemala	0.84	0.70	0.98	0.88	0.82	0.83	0.84	0.86	0.81	0.74	0.72	0.69	0.80
El Salvador					0.91								0.91
Honduras	1.00	1.10											1.04
Costa Rica					2.15							0.64	0.73
Dominican Rep			0.28			1.17					0.40	0.31	0.63
Venezuela				2.21									2.21
Guyana										0.68			0.68
Ecuador		1.18	1.15	1.15	1.21	1.15							1.17
Peru				0.86						0.89			0.86
Netherlands					4.82								4.82
China			2.44	2.45		2.31		2.45				2.45	2.42
Taiwan							2.28						2.28
Kiribati												0.84	0.84
Total	1.66	1.71	1.54	1.27	0.99	0.89	0.90	0.92	0.81	0.75	0.75	0.83	1.21

Source: U.S. Bureau of the Census

Table 8: 1991 Guatemalan Snow Pea Wholesale Prices

US$ per Pound, Packed in 10 Pound Cartons
Average of Monday or Tuesday High and Low Prices, Mostly Good Condition

Month	Week	Miami	Baltimore	Boston	New York	Chicago	Average
Jan	1	1.10		1.40	1.30	¶	1.27
	2	1.10	1.25	1.25	1.30	1.28 ¶	1.24
	3	1.10	1.05	1.20	1.20	1.28 ¶	1.17
	4	1.10	0.90	1.10	1.10	1.00 ¶	1.04
	5	1.10	1.00	0.90	1.10	0.75	0.97
Feb	6	1.10	0.88	0.90	0.90	0.75 ¶	0.91
	7	1.00	0.93	1.05	1.00	0.75 ¶	0.95
	8	1.00	1.00	1.10	1.10	1.00 ¶	1.04
	9	1.05	1.00	1.05	1.10	0.95 ¶	1.03
Mar	10	1.00	0.93	0.95	1.00	0.90 ¶	0.96
	11	1.25	1.25	1.30	1.30	1.18 ¶	1.26
	12	2.30	2.40	2.40	2.30	2.38 ¶	2.36
	13	2.70	2.35	2.35	2.45	2.50 ¶	2.47
Apr	14	2.15	2.30	2.30	2.05	2.20 ¶	2.20
	15	2.50	2.55	2.80	3.00	2.43 ¶	2.66
	16	2.70	2.50	2.80	2.90	2.70 ¶	2.72
	17	2.25	2.10	2.00	2.10	2.25 ¶	2.14
	18	1.70	1.40	1.50	1.55	1.50 ¶	1.53
May	19	0.95		1.00	1.15	0.95 ¶	1.01
	20	1.25		1.20	1.10	1.00 ¶	1.14
	21	1.65	1.20	1.30	1.40	1.18 ¶	1.35
	22	1.10	1.20	1.20	1.25	1.00 ¶	1.15
Jun	23	1.10	1.20	1.15	1.35	0.88 ¶	1.14
	24	1.10	1.10	1.20	1.40	1.00 ¶	1.16
	25	1.25		1.40	1.25	1.10 ¶	1.25
	26	1.30	1.33	1.40	1.25	1.45 ¶	1.35
Jul	27	1.30	1.20	1.20	1.20	1.30 ¶	1.24
	28	1.13		1.20	1.20	1.30 ¶	1.21
	29	1.15		1.20	1.50	¶	1.28
	30	1.29		1.10	2.00	¶	1.46
	31	2.03		2.20	2.24	¶	2.15
Aug	32	1.85		2.05	2.00	¶	1.97
	33	1.25	1.20	1.15	1.10	1.13 ¶	1.17
	34	0.90		0.85	0.90	1.00 ¶	0.91
	35	0.83		0.80	0.95	0.80 ¶	0.84
Sept	36	0.75	0.80	0.80	0.90	0.65 ¶	0.78
	37	0.78		0.80	0.75	0.85 ¶	0.79
	38	0.83	0.80	0.85	0.80	0.85 ¶	0.83
	39	0.88	0.90	0.88	0.90	1.05 ¶	0.92
	40	0.88	1.00	1.00	0.90	1.05 ¶	0.97
Oct	41	0.85	0.93	1.00	0.95	1.00 ¶	0.95
	42	0.95	1.15	1.25	1.20	1.05 ¶	1.12
	43	1.65	1.50	1.70	1.40	1.25 ¶	1.50
	44	1.90	1.95	2.10	2.10	2.18 ¶	2.05
Nov	45	1.60	1.55	1.80	1.70	2.18 ¶	1.77
	46	1.45	1.80	1.70	1.60	1.75 ¶	1.66
	47		1.65	1.60	1.55	1.45 ¶	1.56
	48	1.25	1.40	1.48	1.45	1.35 ¶	1.39
Dec	49	1.23	1.10	1.25	1.40	1.25 ¶	1.25
	50	1.20	1.00	1.00	1.10	1.10 ¶	1.08
	51	1.10	0.95	0.95	0.90	0.95 ¶	0.97
	52	1.01	0.90	0.90	0.90	0.90 ¶	0.92
	53	1.00	0.98	0.90	0.90	0.90 ¶	0.94

Source: Market News Service (New York, Baltimore, Boston, Miami)

SECTION VII: GREEN/SNAP BEANS (FRESH AND PROCESSED)

Note: U.S. statistical sources do not provide separate information for french and bobby beans. Instead, all beans are lumped either in the green or snap bean categories. This report will therefore present data on these alternate, but inclusive, categories and draw an overall picture of the fresh and processed green bean market in the United States. Further market research for specific varieties will require additional time and field research, neither of which is possible under this exercise.

Ranking Overview

Product	Ranking	Notes
Fresh Snap Beans	0	Strong domestic and Mexican competition
Frozen Snap Beans	0	Domestic competition very strong
Canned Snap Beans	0	Domestic competition very strong

Domestic Production

Statistics for fresh snap bean production destined for the fresh market are not readily available. 1991 arrivals in 22 city wholesale markets were 47,785 MTs for domestically produced fresh beans. Actual production levels are probably much larger if one takes into account the arrivals at other wholesale markets and for production which is purchased directly by the large retailers. For those 22 markets, Florida accounted for 42 percent of supplies, followed by California (17%), Georgia (12%), New York (7%), New Jersey (5%), North Carolina (3%), Virginia (3%), and Tennessee (2%). Twelve other states also supplied these markets during 1991, although none supplied more than 1,000 MTs. USDA reports that snap bean production fell 10 percent in 1992, due mostly to reduced harvested acreage.

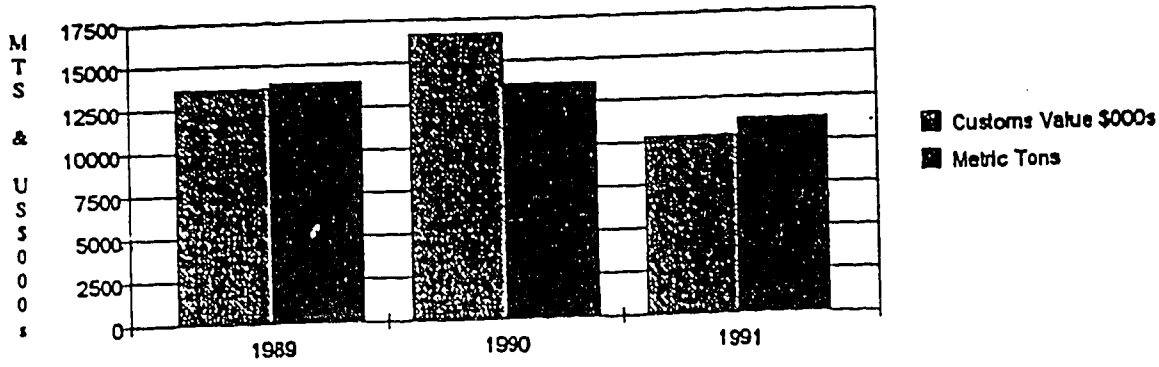
U.S. fresh snap bean production, for product specifically destined for processing, increased from around 650 thousand MTs in the late 1970s to just under 670 thousand MTs in 1990. It however fell substantially in 1992 to 602 thousand MTs, primarily due to a reduction in contract acreage. The largest producing states in 1990 were Wisconsin (34% of total), Oregon (19%), New York (9%), and Michigan (9%). In 1990, production for canning accounted for 66 percent of total fresh production for processing -- the remaining 34 percent used by the freezing industry.

In 1991/92, the U.S. frozen snap bean industry packed 120.6 thousand MTs, down from the previous two year levels of about 144 thousand MTS, but up from 1987/88 levels of 104.7 thousand MTs. Canned pack was at 62.2 million cases (24/303's) in 1990/91, down from 65.4 million cases in 1989/90, but up from the 1984/85 level of 56.8 million cases.

Imports

U.S. fresh bean imports stood at 11,291 MTs ($10.3 million) in 1991, down from 13,636 MTs ($16.6 million in 1990) and from 13,977 MTs ($13.6 million) in 1989.

U.S. Fresh Bean Imports, 1989-1991



Source: U.S. Bureau of the Census

U.S. raw import statistics, obtained from the Bureau of the Census, for processed green bean products are highly variable and there is a strong possibility that many processed snap bean products entering are misclassified and/or the categories in which they are included also include other processed bean products. USDA statistics, which are derived from Census figures, likewise have seeming irregularities. Therefore, processed bean trade statistics presented in this report should be taken with a bit of skepticism.

Having said that, Census trade statistics reveal that U.S. imports of canned beans fell from 5,031 MTs in 1990 to 4,174 MTs in 1991. Import value remained the same at about US$5 million. Both years represent a decrease from the 1989 import level of 5,849 MTs (US$5.6 million).

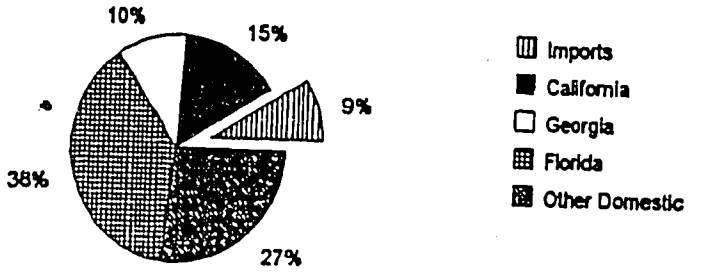
U.S. imports of frozen beans, if the statistics are to be believed, have fallen dramatically over the last three years. In 1989, the U.S. imported 11,630 MTs ($8.9 million) , before falling to 2,901 MTs ($3.5 million) in 1990, and falling further to 1,361 MTs ($1.6 million) in 1991.

Market Share

In the top 22 wholesale markets, imports accounted for just 9 percent of all fresh arrivals. Import statistics reveal that Mexican beans accounted for 93 percent of all imports in 1991, with Canada making up most of the difference. Florida held a 38 percent share of arrivals in the 22 wholesale markets, followed by California (15%), Georgia (10%), and other states (27%).

U.S. pack and imports of frozen beans stood at 122,005 MTs in 1991, with domestic pack accounting for almost 99 percent of this total. In 1991, the U.S. imported frozen beans from 22 countries, although only three (Canada, Mexico, and Taiwan) exported more than 100 MTs to the U.S. during this period.

U.S. Market Shares in 22 Leading City Wholesale Markets, 1991



Source: USDA

Market shares for canned product are more difficult to determine as imports are reported in MTs while domestic production is reported in cases. Domestic producers, however, are expected to maintain a high market share, possibly at the same percentage level as for frozen product. With regard to imports, 29 countries exported to the U.S. in 1991. Of these the primary suppliers, with import market shares in parentheses, were: Canada (34%), Guatemala (14%), China (10%), Taiwan (8%), Thailand (6%), and Japan (5%). No other country supplied more than 100 MTs to the U.S. in 1991.

Consumer Preference

U.S. per capita consumption of all processed snap beans has dropped from 6.0 pounds (farm weight) in 1971 to 5.6 pounds in 1990. Per capita consumption of canned product has decreased from 4.6 pounds to 3.7 pounds, while per capita consumption of frozen product has increased from 1.4 pounds to 1.9 pounds over the same period.

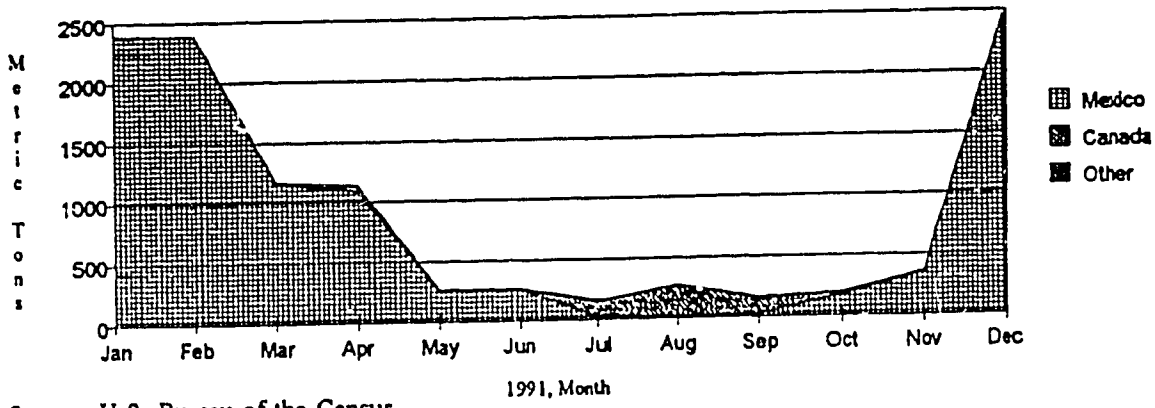
There has been a marked trend in frozen production towards bulk packaging, including individually quick frozen (IQF).

Seasonal Patterns of Demand

Arrivals at wholesale markets are strongest when domestic producers, other than Florida, enter the market (May though November). During this time, arrivals ranged from 4,400 MTs to 5,300 MTs per month. Imports were negligible during this period, and Florida supplies were slight or non-existent except during the beginning and end of the period. When California and other states' production decreases (December through April), Florida supplies the majority of the market, with lesser amounts arriving from Mexico. In 1991, imports for the entire United States (not just the 22 wholesale markets in the USDA survey) were over 2,000 MTs per month

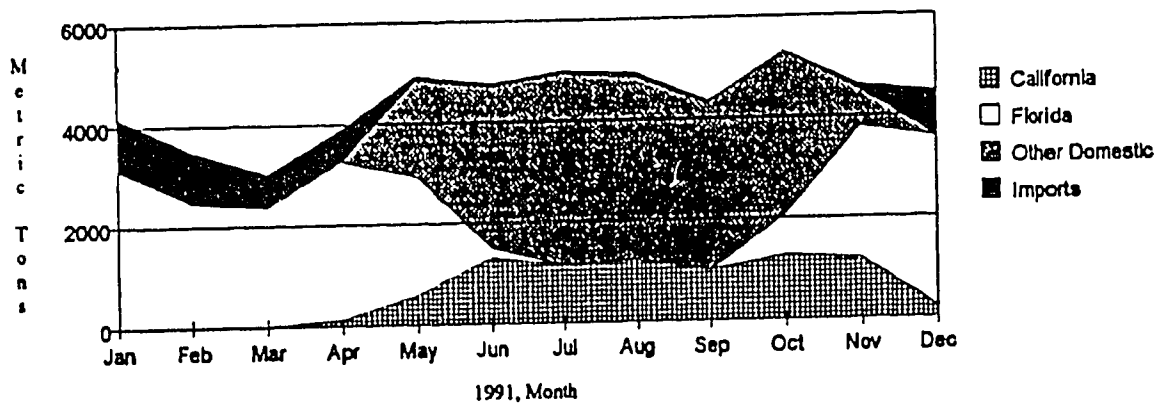
in January and February, dropping off to just over 1,000 MTs per month in March and April, and falling well below 500 MTs per month for the period May through November. In December, imports recovered, approaching 2,500 MTs.

U.S. Imports of Fresh Beans, 1991, MTs per Month



Source: U.S. Bureau of the Census

U.S. Arrivals of Fresh Beans in 22 Major Markets, 1991, MTs



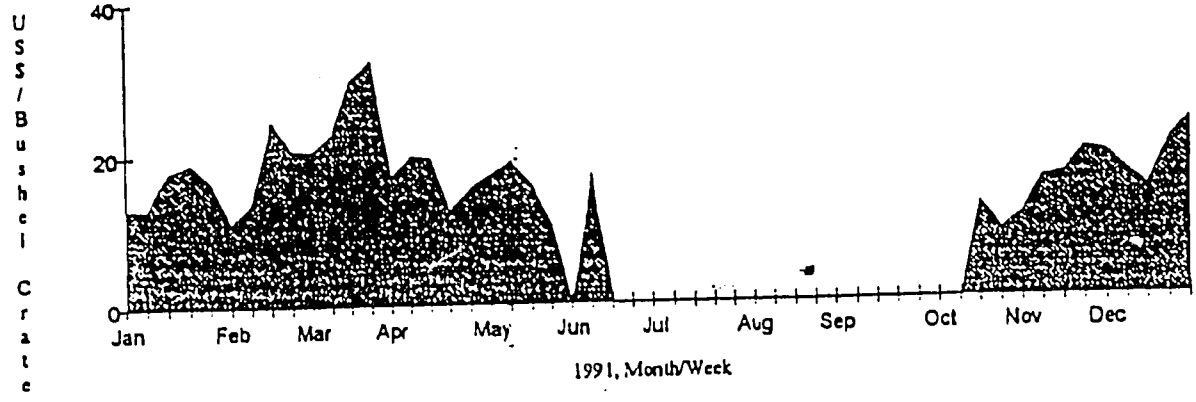
Source: USDA

Prices

Wholesale prices for fresh round green beans, sourced from Florida, were analyzed for four key East Coast markets (New York, Chicago, Baltimore/Washington, and Boston). Florida was chosen as it produces during the rest of the country's off-season (January-May, October-December) and prices are higher during the Florida production season. Wholesale price reporting of foreign suppliers was scant and, therefore, not suitable for determining price trends. Prices of Florida production typically ranged from $10 to $30 per bushel crate -- prices however fluctuated widely week to week. During the summer months, the in-season for the rest of the country, prices were generally below $10 per bushel crate. The reporting, therefore, shows a

large window of higher prices during January-May and November-December – although during this period itself there were wide fluctuations, with no recognizable pattern to ascertain if there is a "window within the window" where prices are at the higher end of the range.

Unweighted Average Green Bean Wholesale Prices, 1991



Source: USDA

1991 frozen snap bean wholesale prices recovered slightly for retail size (24 10-ounce or 9-ounce packages) containers, at $9.56 to $9.70 per unit, compared to $8.50 per unit in 1990. 1991 retail size wholesale prices are now at the 1989 levels. Foodservice size containers (12/2,5 and 12/2 pound packages) have decreased slightly, going from $0.50-$0.55 in 1991 to $0.50-$0.53 in 1992. Both are down from 1989 average wholesale prices of $0.53-$0.57 per unit.

Wholesale prices for canned snap beans averaged $6.71 per case (24/303) for the first three quarters of 1992, down from $7.05/case in 1991. Wholesale prices have dropped 22 percent from 1989 average price levels.

Market Distribution

A representative listing of major U.S. importers is given in Annex A.

Grades and Standards

Complete Code of Federal Regulation's (CFR) grades and standards for fresh snap beans, fresh snap beans for processing, frozen green and wax beans, and canned green beans are given in Annex B.

Typical types of packaging and package sizes for processed product are given below:

Type	Market Sector	Packaging	Percent of Total
Canned	Retail/Consumer	8-ounce or 16 ounce cans (24 per case)	70%
	Foodservice	6.3 pound cans (6 per case)	30%
Frozen	Retail	Carton and poly bag	32%
	Food Service	Carton, poly bag, and 15 or 30-pound	20%
	Bulk	31 to 60 pound, tote, and bin	37%

About 30 percent of beans packed during 1988-1990 were in foodservice sizes.

Import Regulations and Duties

Imports of fresh and frozen snap beans are subject to approval and inspection by USDA's Animal and Plant Health Inspection Service.

For canned snap beans, imported product must meet the regulations enforced by the Food and Drug Administration (FDA). Standards and tolerances are given in Annex B.

The following duty rates are charged on fresh and processed snap beans entering the U.S. (Kenya is included under the GSP category):

HS Number	Description	General	GSP	CBI/Israel	Canada
0708.90.40	Other Beans of Vigna spp., Phaseolus spp., Fresh	¢7.7/kg	¢7.7/kg	Free	¢5.3/kg
0710.22.25	String (snap) Beans of Vigna spp., Phaseolus, Frozen, Not Reduced in Size	¢7.7/kg	Free	Free	¢5.3/kg
0710.22.37	Other Beans of Vigna spp., Phaseolus spp., Frozen, Not Reduced in Size	¢7.7/kg	¢7.7/kg	Free	¢5.3/kg
0710.22.4010	Green and Wax Beans (of Vigna spp., Phaseolus spp.), Frozen, Reduced in Size	17.5%	17.5%	Free	12.2%
0710.22.4090	Other Beans of Vigna spp., Phaseolus spp., Frozen, Reduced in Size	17.5%	17.5%	Free	12.2%
2001.90.30	Beans, prepared or preserved by vinegar or acetic acid	9%	Free	Free	6.3%
2004.90.80	Beans, prepared or preserved otherwise than by vinegar or acetic acid, frozen	¢3.3/kg*	Free	Free	¢2.3/kg*
2005.59.00	Other Beans of Vigna spp., Phaseolus spp., prepared/preserved other than by vinegar or acetic acid, not frozen	¢3.3/kg*	Free	Free	¢2.3/kg*

(* - on entire contents of container)

Mexico, which currently is included with Kenya under the GSP category, will see its tariffs of fresh and frozen beans phase-out over a period of five years once the North American Free Trade Agreement (NAFTA) is enacted.

No quantitative restrictions are known to exist.

Market Opportunities for Kenyan Exporters

As is the case for many of the products studied in this U.S. survey, Kenya would face stiff domestic and foreign competition for fresh and processed bean exports to the United States.

Fresh supplies are imported primarily from Mexico during the winter months, although imports have decreased over the past 3 years. No significant supplies have ever entered the United States from countries other than Mexico and Canada. Also, while domestic supplies are lower

during these months, Florida production is still quite high and supplies the majority of market requirements. Prices tend to be higher during this period (occasionally surpassing US$20 per bushel crate, although there is no clear trend which could be used to ascertain during which periods prices will reach this level). Therefore, although a window does exist of higher prices and slightly smaller U.S. production, distant suppliers (such as Kenya) would find it hard to compete with Florida and Mexico.

Processed snap bean products from Kenya would face a similar market -- where prices are decreasing and consumers appear to prefer domestically produced supplies. Canned per capita snap bean consumption, although still greater than that of frozen snap beans, has witnessed a steady decline. More consumer research needs to be done, but based on the statistics presented in this report the author believes that there may be a consumer bias against purchasing foreign supplied "mainstream" processed produce such as snap beans. It would be of interest to determine who are the primary consumers of processed imports from distant suppliers, specifically those from Asia. There, however, appears to be little market opportunity for Kenyan production at present. Kenya may wish to explore joint ventures with U.S. processing firms, many of which are quite large, to acquire new technologies for producing for regional or European markets. This may also be a way to eventually enter the competitive U.S. marketplace.

References

1980-1989 Trade Statistics, Microfiche, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

1990-1991 Trade Statistics, CD-ROM, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

United States International Trade Commission, Harmonized Tariff Schedule of the United States, 1991.

U.S. Department of Agriculture, Economic Research Service, "Vegetables and Specialties: Situation and Outlook Report," various issues.

U.S. Department of Agriculture, Agricultural Marketing Service, Fruit and Vegetable Division, Market News Branch, "Fresh Fruit and Vegetable Arrival Totals for 22 Cities," 1991.

Federal-State Market News Service, "Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," various wholesale market editions, 1992.

Table 1: Fresh Bean Arrivals for 22 U.S. Cities, 1991 -- Metric Tons, 000s, By City

	ATLA	BALT	BOST	BUFF	CHIC	CINC	COLU	DALL	DETR	LOSA	MIAM	NEWO	NYC	PHIL	PITT	STL	SANF	SEAT	Total
California					14			45		436			9				272	32	808
Connecticut			14																14
Delaware		5	9																14
Florida	113	236	245	27	240	86	50	32	123	14	18	27	549	127	59	73	18	5	2,042
Georgia	104	36	86		68	32	18	18	36		23	5	91	23	9	5			554
Illinois					50											18			68
Maryland		41																	41
Massachusetts			14																14
Michigan					9				64						9	9			91
New Jersey		14	27	5							5		132	41					222
New York		41	77	14									191						322
North Carolina	32	18	9				9		5			9	36	18					136
Ohio					5	27													32
Pennsylvania		41												18	14				73
South Carolina			5				64						18	14					100
Tennessee	18	5			23	41		9	5				5			9			113
Texas								14											14
Virginia		59	9										32	32					132
Washington																		32	32
Wisconsin					5											9			14
Canada														18					18
Mexico			5		32			27	5	159			18			5	177	27	454
TOTAL	268	495	499	45	445	186	141	145	236	608	45	41	1,080	290	91	127	467	95	5,304
Market Size	5%	9%	9%	1%	8%	4%	3%	3%	4%	11%	1%	1%	20%	5%	2%	2%	9%	2%	100%
Import Share			1%		7%			19%	2%	26%			2%	6%		4%	38%	29%	9%

Source: Agricultural Marketing Service, USDA

Table 2: Fresh Bean Arrivals for 22 U.S. Cities, 1991 -- Metric Tons, By Month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
California				136	590	1,316	1,134	1,225	998	1,270	1,180	227	8,076
Connecticut							45	45	45				136
Delaware							91			45			136
Florida	3,131	2,450	2,359	3,131	2,359	181				817	2,632	3,358	20,417
Georgia					1,497	1,452	408	91	136	1,407	544		5,535
Illinois						45	227	181	227				681
Maryland							136	91	91	91			408
Massachusetts							45	45	45				136
Michigan							318	318	272				907
New Jersey						91	544	726	454	408			2,223
New York							681	1,134	1,089	318			3,221
North Carolina					45	590	227	181	136	181			1,361
Ohio							136	91	91				318
Pennsylvania							181	318	181	45			726
South Carolina					318	408	91			91	91		998
Tennessee						181	272	227	272	181			1,134
Texas					45	45				45			136
Virginia						408	227	45	181	363	91		1,316
Washington							136	91	45	45			318
Wisconsin							45	45	45				136
Canada							45	91	45				181
Mexico	1,044	1,044	681	635	91	45					91	907	4,537
Total	4,174	3,494	3,040	3,902	4,946	4,764	4,991	4,946	4,356	5,309	4,628	4,492	53,040
Month Share	8%	7%	6%	7%	9%	9%	9%	9%	8%	10%	9%	8%	100%
Import Share	25%	30%	22%	16%	2%	1%	1%	2%	1%		2%	20%	9%

Source: Agricultural Marketing Service, USDA

Table 3: U.S. Imports of Fresh Beans (vigna spp., phaseolus spp.) NESOI, 1989-1991

	Customs Value $000s			C.I.F. Value $000s			Metric Tons			US$/Kg Customs Value		
	1991	1990	1989	1991	1990	1989	1991	1990	1989	1991	1990	1989
Canada	475	215	484	480	219	494	629	370	760	0.76	0.58	0.64
Mexico	9,679	16,189	12,731	10,587	17,490	12,959	10,533	13,076	12,743	0.92	1.24	1.00
Guatemala	72	77	100	129	120	152	78	72	108	0.93	1.07	0.92
El Salvador	5			6			3			1.52		
Jamaica	6			7			2			3.04		
Dominican Rep			2			3			2			0.98
Guyana		7			8			1			11.90	
Ecuador			11			12			3			3.47
Peru			8			14			17			0.46
Chile			17			20			21			0.81
Argentina			21			32			35			0.60
United Kingdom		13	36		13	41		19	42		0.70	0.87
Netherlands		26	11		31	12		15	9		1.78	1.29
Monaco			1			1			1			0.91
France		16	66		17	77		3	19		4.92	3.40
Hungary			11			12			17			0.64
Portugal	21			23			12			1.74		
Italy		12			14			17			0.71	
Greece	11	9	18	12	10	20	3	4	7	3.70	2.55	2.42
Thailand	8	4	25	10	6	30	18	9	44.887	0.44	0.44	0.56
China	12	10	11	14	10	14	13.075	7	16.986	0.92	1.43	0.65
Taiwan	2		15	3		16	0.102		8.15	19.61		1.84
Japan	2		49	3		54	0		70	5.01		0.70
Australia		11	30		14	37		21	49		0.52	0.61
Morocco			7			10			2.131			3.28
Senegal		13			22			7			1.76	
Kenya		18			19			8			2.40	
Total	10,293	16,620	13,654	11,274	17,993	14,010	11,291	13,626	13,977	0.91	1.22	0.98

Source: U.S. Bureau of the Census

Table 4: U.S. Imports of Fresh Beans (vigna spp., phaseolus spp.) NESOI, 1991 by Month, MTs

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Canada	9			46	11		124	268	131	20		20	629
Mexico	2,381	2,389	1,154	1,087	248	257	28	9	29	173	343	2,435	10,533
Guatemala	5		3	10	10	12	9	3	3	3	4	14	78
El Salvador										3			3
Jamaica										1	1		2
Portugal						1	5		3			3	12
Greece						1		1			1	1	3
Thailand			18										18
Taiwan												0	0
China											13		13
Japan				0									0
Total	2,395	2,389	1,176	1,142	269	271	166	281	166	201	362	2,473	11,290

Source: U.S. Bureau of the Census

Table 5: U.S. Imports of Fresh Beans (vigna spp., phaseolus spp.) NESOI, 1991 by Month, US$000s

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Canada	7			15	3		91	230	107	16		6	475
Mexico	2,236	1,775	1,543	1,427	195	184	31	18	24	106	274	1,866	9,679
Guatemala	5		3	11	10	12	9	3	3	3	2	11	72
El Salvador										5			5
Jamaica										4	2		6
Portugal						2	7		5			6	20
Greece						3		3			2	3	11
Thailand			8										8
Taiwan													
China											12		12
Japan				2									2
Total	2,248	1,775	1,554	1,455	208	201	138	254	139	134	292	1,892	10,290

U.S. Bureau of the Census

Table 6: U.S. Imports of Fresh Beans (vigna spp., phaseolus spp.) NESOI, 1991 by Month, US$/kg

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Canada	0.77			0.33	0.28		0.73	0.86	0.82	0.82		0.29	0.76
Mexico	0.94	0.74	1.34	1.31	0.79	0.72	1.11	1.98	0.83	0.61	0.80	0.77	0.92
Guatemala	0.97		0.90	1.11	0.97	1.00	1.04	0.92	0.88	0.89	0.50	0.78	0.93
El Salvador										1.52			1.52
Jamaica										2.85	3.51		3.04
Portugal						1.35	1.38		1.82			2.19	1.66
Greece						4.00		4.00			2.67	4.16	3.70
Thailand			0.44										0.44
Taiwan													
China											0.92		0.92
Japan				51.28									51.28
Total	0.94	0.74	1.32	1.27	0.77	0.74	0.83	0.90	0.84	0.67	0.81	0.77	0.91

U.S. Bureau of the Census

Table 7: 1991 Florida Round Green Bean Wholesale Prices

US$ per Bushel Hamper Crate & Carton
Average of Monday/Tuesday High & Low Prices, Mostly Good Condition

Month	Week	New York	Chicago	Baltimore	Boston	Average
Jan	1	14.00			12.00 ¶	13.00
	2	14.00	12.50	10.00	15.00 ¶	12.88
	3	18.50	17.50	16.00	19.00 ¶	17.75
	4	21.00	19.50	17.00	18.50 ¶	19.00
	5	16.50	15.50	16.00	18.00	16.50
Feb	6	13.00	11.50	8.50	11.00 ¶	11.00
	7	13.50	14.50	12.50	14.00 ¶	13.63
	8	24.50	25.00		23.50 ¶	24.33
	9	16.50	22.50	19.00	24.00 ¶	20.50
Mar	10	22.00	20.00	17.75	22.00 ¶	20.44
	11	26.50	22.00	18.50	24.00 ¶	22.75
	12	30.00	30.00	26.50	32.00 ¶	29.63
	13	34.00	34.50	28.50	32.00 ¶	32.25
Apr	14	18.00	19.00	15.00	16.00 ¶	17.00
	15	21.00	20.00	18.00	20.00 ¶	19.75
	16	21.00	20.00	15.50	21.00 ¶	19.38
	17	13.00	12.50	10.00	14.00 ¶	12.38
	18	17.00	16.00	12.50	16.00 ¶	15.38
May	19	19.00		14.50	18.00 ¶	17.17
	20	21.00	18.50	16.00	20.00 ¶	18.88
	21	17.00	14.50		¶	15.75
	22	9.00	11.50	11.00	¶	10.50
Jun	23				¶	
	24	17.00			¶	17.00
	25				¶	
	26				¶	
Jul	27				¶	
	28				¶	
	29				¶	
	30				¶	
	31				¶	
Aug	32	Summer months supplies are mostly			¶	
	33	from neighboring or regional states.			¶	
	34	Prices are generally lower than			¶	
	35	during other times of the year.			¶	
Sept	36	No comprehensive price information			¶	
	37	available for foreign suppliers.			¶	
	38				¶	
	39				¶	
	40				¶	
Oct	41				¶	
	42				¶	
	43		12.50		¶	12.50
	44	8.50	9.50	8.00	¶	8.67
Nov	45	11.00	12.50	10.00	10.25 ¶	10.94
	46	16.00	15.50	15.00	16.25 ¶	15.69
	47	15.50	17.50	15.50	16.50 ¶	16.25
	48	19.50	20.50	18.00	20.00 ¶	19.50
Dec	49	18.00	19.50	18.00	20.00 ¶	18.88
	50	16.50	18.00	14.50	17.00 ¶	16.50
	51	14.00	14.50	12.50	16.00 ¶	14.25
	52	22.50	20.00	20.00	20.00 ¶	20.63
	53	27.50	20.00	21.00	24.00 ¶	23.13

Source: Market News Service (New York, Baltimore, Boston, Chicago)

Table 8: Frozen and Canned Snap Beans, Domestic Statistics

Season	Carryover*	Pack	Seasonal Supply	Total Shipments
Frozen		MTs		
1987/88	33,666	104,673	138,339	111,207
1988/89	27,132	97,913	125,045	107,713
1989/90	17,332	144,828	162,160	123,276
1990/91	38,884	143,875	182,759	131,261
1991/92	51,497	120,644	172,142	119,328
1992/93	52,813			
Canned		1,000 cases 24/303's		
1984/85	8,448	56,789	65,237	54,163
1985/86	11,074	55,729	66,803	57,553
1986/87	9,250	55,090	64,340	57,825
1987/88	6,515	59,177	65,692	60,129
1988/89	5,563	50,831	56,394	51,704
1989/90	4,690	65,437	70,127	58,891
1990/91	11,236	62,216	73,452	--

Notes: Carryover dates - Canned (June 1), Frozen (July 1)
Frozen includes regular and french-cut green and wax beans
Source: NASS/USDA, American Food Inst., Natl. Food Processors Assoc.

Table 9: U.S. Imports of Canned Green Beans, 1989-1991

	US$000s Customs Value			US$000s CIF Value			Metric Tons		
	1991	1990	1989	1991	1990	1989	1991	1990	1989
Canada	779	1,142	1,423	801	1,175	1,447	1,411	1,929	2,151
Mexico	9	58	75	11	62	78	9	58	73
Guatemala	746	487	444	827	542	495	582	438	419
Honduras			238			261			199
Dom Rep		33			35			39	
Jamaica		3	12		4	13		2	13
Colombia	24	12	709	28	14	775	20	8	687
Venezuela			141			150			105
Peru			39			47			72
Brazil	240	210		252	221		60	50	
U.K.	73	82	32	78	91	35	62	69	26
Ireland	26	16	4	28	18	5	8	6	2
Netherlands	35	60	66	38	65	77	35	51	70
Belgium	9	45	69	10	54	81	10	77	123
France	51	63	121	55	73	144	36	107	250
Germany	6	56	13	7	64	14	2	22	5
Portugal	5	3	5	5	4	6	5	4	8
Italy	25	97	19	27	103	21	20	130	20
Yugoslavia		4			5			7	
Greece	68	100	32	74	110	36	28	49	21
Turkey	58	29	16	62	30	17	33	17	13
Lebanon	39	54	14	43	67	16	46	71	20
Israel	6	3	63	7	3	74	6	3	29
India	75	170	28	85	195	31	110	207	26
Thailand	174	201	152	198	231	169	242	306	183
Malaysia	96	37	15	111	42	17	172	67	28
Singapore	56	29	12	62	32	14	40	22	10
Philippines	37	37	5	40	41	6	22	22	4
China	662	429	199	716	472	224	438	399	203
South Korea	127	265	264	144	292	279	67	173	165
Hong Kong	278	69	134	293	74	145	140	56	93
Taiwan	588	494	538	628	531	570	342	329	347
Japan	718	707	722	767	751	756	200	250	426
Australia	17	24	28	20	31	35	23	50	53
Egypt	8	5	2	10	7	2	14	12	3
TOTAL	5,035	5,024	5,634	5,427	5,439	6,040	4,174	5,031	5,849

Source: U.S. Bureau of the Census

Table 10: U.S. Imports of Frozen Beans, 1989-1991

	US$000s Customs Value			US$000s CIF Value			Metric Tons		
	1991	1990	1989	1991	1990	1989	1991	1990	1989
Canada	373	276	3,299	385	279	3,319	485	313	3,780
Mexico	113	137	377	121	146	399	172	136	760
Guatemala	53	95	121	65	119	151	74	116	175
El Salvador	15	329	224	19	413	284	15	396	321
Colombia		18	9		18	10		3	4
Peru	34		12	45		17	34		18
Argentina			44			65			69
Sweden	4	80	40	5	97	48	1	73	41
Denmark			3			4			5
United Kingdom	10	165	530	11	187	628	8	167	705
Ireland	15	3	15	17	3	16	10	2	10
Netherlands	34	55	138	36	68	157	29	66	177
Belgium	3	288	1,650	4	355	2,055	8	395	2,414
France	104	297	68	117	363	77	57	310	53
Germany			14			17			19
Hungary	8	88	261	12	103	356	13	97	393
Poland	7	15	414	13	18	639	19	20	980
Portugal	94	142	186	104	165	210	58	108	160
Spain		2	11		2	13		1	23
Italy	21	23		25	27		31	33	
Yugoslavia			429			559			731
Greece			1			2			2
Turkey			2			2			1
Kuwait		411			411			47	
Philippines		1	19		1	21		0	6
Thailand	2	27	6	2	30	7	2	18	8
Malaysia		8			10			13	
China	29	41	32	35	53	36	28	58	21
South Korea	2	6	8	3	6	9	1	1	3
Hong Kong	5	96	29	6	107	31	2	80	12
Taiwan	440	748	380	478	810	405	252	397	189
Japan	202	180	268	212	193	288	44	42	70
Australia			2			3			4
New Zealand			337			476			460
Egypt	13	6	12	17	8	16	19	9	17
TOTAL	1,581	3,537	8,941	1,732	3,992	10,320	1,361	2,901	11,630

Source: U.S. Department of Commerce

SECTION VIII: AVOCADO (FRESH)

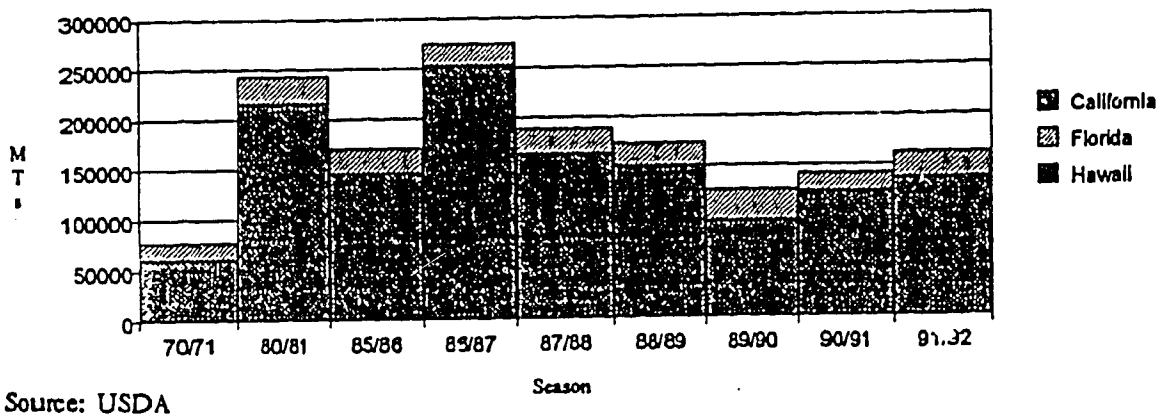
Ranking Overview

Product	Ranking	Notes
Fresh Avocado	0	Strong domestic competition, stringent phytosanitary controls

Domestic Production

The United States is a major world producer of avocados, second only to Mexico. The United States produced 162,178 metric tons of avocados during the 1991/92 season, up from 141,606 MTs for the previous season. California produced 84 percent of this amount, with Florida accounting for most other remainder (Hawaii produces very small amounts, totaling only 381 MTs in 1991/92). Production has fluctuated widely over the past 20 years -- since 1980/81 it has ranged between a low of 126,180 MTs in 1989/90 to a high of 274,682 MTs in 1986/87. Yearly production changes are common and very often drastic. These fluctuations are more often caused by climatic conditions (freezes, heavy rains, high heat, etc.) than by acreage which has remained fairly steady (82-86 thousand acre range) over the past 9 years.

U.S. Avocado Production, 70/71 - 91/92 Seasons, MTs



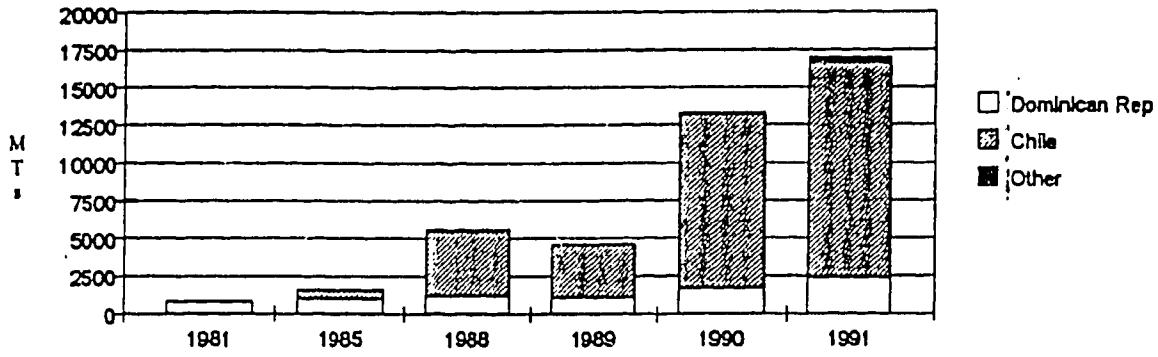
Source: USDA

Not all domestic production is sold on the domestic market as fresh product. In 1990/91, roughly 8 percent was processed (mostly in California) and in 1991 the U.S. exported 4,571 MTs (3 percent of 1990/91 production). Canada took 68 percent of U.S. exports, followed by Japan (24 percent) and the United Kingdom (4 percent). U.S. exports are down significantly since the mid-1980s when production levels were higher.

Imports

U.S. imports have grown tremendously since 1981, from 876 MTs (US$188 thousand) in 1981 to 17,050 metric tons (US$17.7 million) in 1991. Imports in 1990 stood at 13,377 MTs (US$18.9 million), up substantially from the 1989 level of 4,693 MTs (US$4.4 million).

U.S. Avocado Imports, 1981-1991, MTs

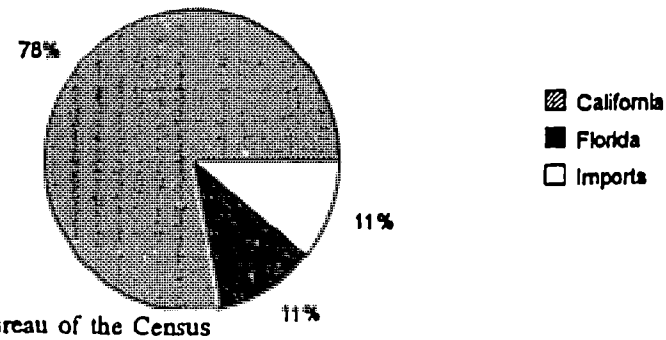


Source: U.S. Bureau of the Census

Market Share

Based on 1991 arrivals at 22 major wholesale markets, California held a 78 percent market share. The only two other suppliers which were reported in the statistics were Florida (11 percent share of arrivals) and Chile (11 percent).

U.S. Fresh Avocado Market Share, 1991



Source: U.S. Bureau of the Census

Import statistics reveal that Chile is by far the dominant foreign supplier to the U.S. market with 14,197 MTs in 1991 (or 83 percent of total imports). Other countries appearing in the import statistics include: the Dominican Republic (14 percent of imports), Mexico (2 percent), and minute amounts from the Bahamas, New Zealand, and Mauritius. These statistics do include some processed (at least dried according to the category description) as Mexico is unable to ship fresh avocados to the U.S. due to phytosanitary restrictions.

Consumer Preference

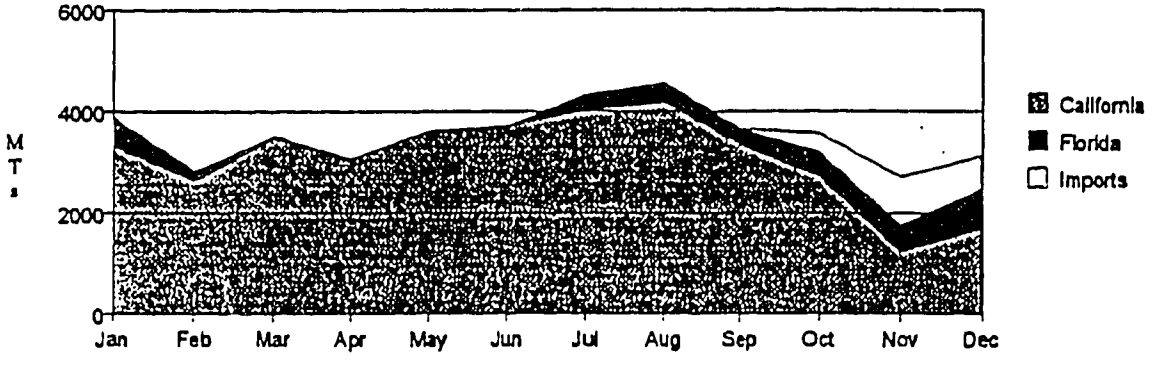
The most popular varieties are the Hass (which accounts for 85 percent of California plantings) and the green-skinned Fuerte (most common in Florida which is unable to produce the Hass). Other green-skinned varieties are also on the market, including Zutano, Bacon and Susan. The dark-skinned Hass commands a price premium over the green-skinned varieties

Fluctuations in domestic supply over the last several years, due to extreme weather conditions, have pushed prices up and lowered per capita consumption to its lowest level in 10 years (1.23 pounds in 1990). As supplies have increased in 1991, so has per capita consumption. The U.S. industry sees no climatic reason why yields, and by extension supplies, cannot increase to previous levels. If this is the case, consumption can be expected to increase to previous levels (and prices would go lower).

Seasonal Patterns of Demand

In 1991, U.S. arrivals at the 22 largest wholesale markets exceeded 4,000 MTs in July and August. During the other months, supplies rarely went below 3,000 MTs in any one month. California supplies year-round, although the Hass varieties are generally shipped from January-October (in November and December, Fuerte and other green-skinned varieties are primarily shipped). Although Florida makes some shipments year-round, arrivals in the 22 markets were highest during the periods January-February and July-December.

Fresh Avocado Arrivals in 22 Wholesale Markets, 1991 by Month, MTs

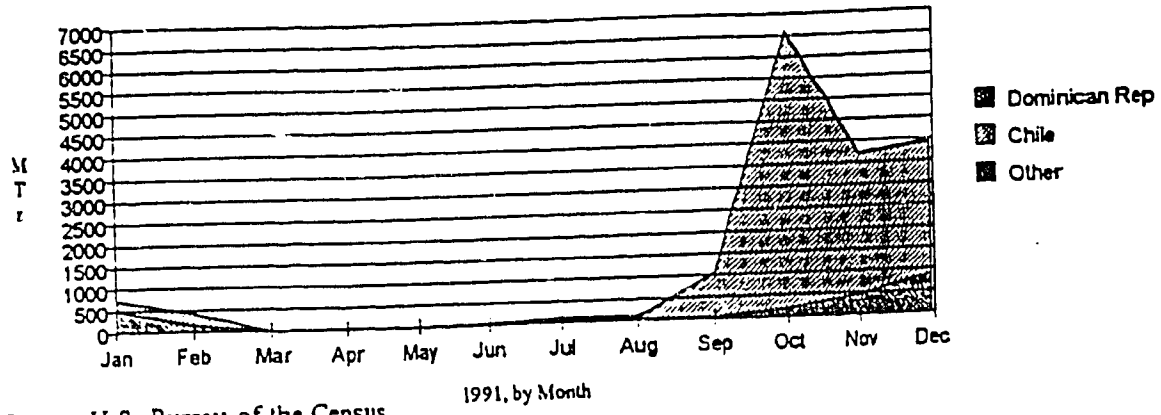


Source: USDA

1991, by Month

Ninety-two percent of all imports arrive from September-December, primarily from Chile. Major Chilean shipments to the U.S. in 1991 began in September (1,123 MTs) and peaked at 7,488 MTs in October, before declining to 3,649 MTs and 3,184 MTs in November and December, respectively.

U.S. Avocado Imports, 1991 by Month, MTs



Source: U.S. Bureau of the Census

Prices

Avocado prices for California Hass and Florida green-skinned avocados were studied for four major eastern markets: Baltimore, Boston, Chicago and New York. Weekly average prices are given in Tables 10 and 11.

Prices for 2-Layer cartons (40s-48s) of California Hass were highest during November and December. Prices during this time ranged from $40-$60 per carton. As California shipments of Hass picked up during the year, prices dropped from $40/carton to around $23/carton. Baltimore had the highest prices during most weeks.

Florida green-skinned varieties were not present in any of the four markets during the period March-May. From June on, when Florida shipments were highest, prices were typically in the $6-$8 range for 1-Layer cartons (6s-18s). Prices were highest at the Baltimore-Washington market. New York had the lowest prices.

Market Distribution

A representative listing of major U.S. importers is given in Annex A.

Grades and Standards

Federal standards exist only for Florida avocados. These are given in Annex B. California quality standards, drawn up by the Avocado Inspection Committee, are enforced by the California Department of Food and Agriculture.

Avocados are accepted by wholesalers in both 1-Layer and 2-Layer cartons.

Import Regulations and Duties

Imports of fresh avocados are subject to approval and inspection by USDA's Animal and Plant Health Inspection Service. Avocado imports are banned from most of the world due to phytosanitary concerns (Mexico is trying to change this for avocados destined for colder, non-producing markets).

Avocados face a duty of $0.132/kg for most countries, including Kenya. Avocados from Caribbean Basin beneficiary nations are given duty free treatment, while Israel and Canada are charged duties of $0.04/kg and $0.092/kg, respectively.

No quantitative restrictions are known to exist, other than complete bans enforced because of phytosanitary concerns.

Market Opportunities for Kenyan Exporters

Kenyan export prospects to the United States are bleak at best. Fresh avocado imports into the United States face stringent phytosanitary regulations. Kenya is currently not authorized to export avocados to the United States by the Animal & Plant Health Inspection Service (APHIS) of USDA. An approval would take a great deal of time, involving certified field tests to determine that pests harmful to the U.S. avocado industry are not present in Kenya.

If a favorable APHIS determination is obtained, there is a window of higher prices for the Hass variety from November through December. This is the time at which California production is lowest (yet, also when Chilean exports to the U.S. are highest). There seems little opportunity for the green-skinned varieties, which receive lower prices and are not preferred by most U.S. consumers.

References

1980-1989 Trade Statistics, Microfiche, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

1990-1991 Trade Statistics, CD-ROM, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

United States International Trade Commission, Harmonized Tariff Schedule of the United States, 1991.

U.S. Department of Agriculture, Economic Research Service, "Fruits and Tree Nuts: Situation and Outlook Report," various issues.

U.S. Department of Agriculture, Agricultural Marketing Service, Fruit and Vegetable Division, Market News Branch, "Fresh Fruit and Vegetable Arrival Totals for 22 Cities," 1991.

Federal-State Market News Service, "Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," various wholesale market editions, 1992.

Cook, Roberta et al, Implications of the North American Free Trade Agreement (NAFTA) for the U.S. Horticultural Sector. University of California/Davis and The American Farm Bureau Research Foundation, 1991.

Code of Federal Regulations, Chapter 7, Part 52, January 1991.

Table 1: U.S. Imports of Avocados, Fresh/Dried, 1981-1991, Metric Tons

Country	1981*	1985*	1988*	1989	1990	1991
Mexico		12	106		21	333
Guatemala		3	1			
Bahamas	38	91		53	69	92
Dominican Rep	838	996	1,215	1,091	1,659	2,418
Grenada					4	
Colombia					2	
Chile	0	594	4,327	3,550	11,590	14,197
Switzerland					32	
Germany			6			
Ivory Coast		3				
New Zealand						5
Mauritius						4
TOTAL	876	1,699	5,654	4,693	13,377	17,050

*-Includes Other Prepared and Preserved
Source: U.S. Bureau of the Census

Table 2: U.S. Imports of Avocados, Fresh/Dried, 1981-1991, US$000s

Country	1981*	1985*	1988*	1989	1990	1991
Mexico		2	31		46	676
Guatemala		4	1			
Bahamas	3	11		9	16	84
Dominican Rep	184	277	420	414	822	955
Grenada					2	
Colombia					3	
Chile	2	531	4,305	3,966	17,969	15,974
Switzerland					20	
Germany			1			
Ivory Coast		3				
New Zealand						11
Mauritius						5
TOTAL	188	828	4,758	4,389	18,878	17,705

*-Includes Other Prepared and Preserved
Source: U.S. Bureau of the Census

Table 3: U.S. Imports of Avocados, Fresh/Dried, 1981-1991, US$/Kg

Country	1981*	1985*	1988*	1989	1990	1991
Mexico		0.16	0.29		2.15	2.03
Guatemala		1.63	1.80			
Bahamas	0.08	0.12		0.17	0.23	0.91
Dominican Rep	0.22	0.28	0.35	0.38	0.50	0.39
Grenada					0.51	
Colombia					1.64	
Chile	11.75	0.89	1.00	1.12	1.55	1.13
Switzerland					0.62	
Germany			0.17			
Ivory Coast		1.06				
New Zealand						2.05
Mauritius						1.15
TOTAL	0.22	0.49	0.84	0.94	1.41	1.04

*-Includes Other Prepared and Preserved
Source: U.S. Bureau of the Census

Table 4: U.S. Imports of Fresh or Dried Avocado, 1991 by Month, Customs Value, US$000s

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mexico	12			60	6	71	93	76	89	132	79	58	676
Bahamas							24	52	8				84
Dominican Rep	258	75	4	7	8	10	31	27	27	74	141	293	955
Chile	246	237		3		14	19	11	1,123	7,488	3,649	3,184	15,974
New Zealand									8	1	2		11
Mauritius												5	5
TOTAL	516	312	4	70	14	95	167	166	1,255	7,695	3,871	3,540	17,705

Source: U.S. Bureau of the Census

Table 5: U.S. Imports of Fresh or Dried Avocado, 1991 by Month, Kilograms

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mexico	5,772			24,657	2,658	34,288	38,347	31,121	39,460	54,446	46,936	55,443	333,128
Bahamas							27,842	54,531	9,684				92,057
Dominican Rep	505,969	156,107	3,150	3,800	9,465	6,950	65,355	44,119	41,151	196,041	473,981	911,844	2,417,932
Chile	245,705	284,559		5,395		6,219	23,357	18,446	999,425	6,379,774	3,227,596	3,006,697	14,197,173
New Zealand									2,828	1,440	1,094		5,362
Mauritius												4,341	4,341
TOTAL	757,446	440,666	3,150	33,852	12,123	47,457	154,901	148,217	1,092,548	6,631,701	3,749,607	3,978,325	17,049,993

Source: U.S. Bureau of the Census

Table 6: U.S. Imports of Fresh or Dried Avocado, 1991 by Month, Customs Value, US$/kg

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mexico	2.08			2.43	2.26	2.07	2.43	2.44	2.26	2.42	1.68	1.05	2.03
Bahamas							0.86	0.95	0.83				0.91
Dominican Rep	0.51	0.48	1.27	1.84	0.85	1.44	0.47	0.61	0.66	0.38	0.30	0.32	0.39
Chile	1.00	0.83		0.56		2.25	0.81	0.60	1.12	1.17	1.13	1.06	1.13
New Zealand									2.83	0.69	1.83		2.05
Mauritius												1.15	1.15
TOTAL	0.68	0.71	1.27	2.07	1.15	2.00	1.08	1.12	1.15	1.16	1.03	0.89	1.04

Source: U.S. Bureau of the Census

Table 7: Fresh Avocado Arrivals for 22 U.S. Cities, 1991, Metric Tons by City

	ATLA	BALT	BOST	BUFF	CHIC	CINC	COLU	DALL	DETR	LOSA	MIAM	NEWO	NYC	PHIL	PITT	STL	SANF	SEAT	Total
California	907	998	1,180		2,178	544		1,770	408	8,893	181	454	4,764	408		272	9,120	4,991	37,069
Florida		181	544		91					227	181	227	1,860				454		3,766
Chile			91		227			91		817							454	272	1,951
Total	907	1,180	1,815		2,495	544		1,860	408	9,936	363	681	6,624	408		272	10,027	5,263	42,786
Market Size	2.1%	2.8%	4.2%		5.8%	1.3%		4.3%	1.0%	23.2%	0.8%	1.6%	15.5%	1.0%		0.6%	23.4%	12.3%	100.0%
Import Share			5.0%		9.1%			4.9%		8.2%							4.5%	5.2%	4.6%

Source: Agricultural Marketing Service, USDA

Table 8: Fresh Avocado Arrivals for 22 U.S. Cities, 1991, Metric Tons by Month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
California	3,312	2,632	3,494	3,085	3,630	3,721	4,038	4,174	3,358	2,722	1,225	1,679	37,069
Florida	590	227	45				318	408	318	499	544	817	3,766
Chile										363	953	635	1,951
Total	3,902	2,858	3,539	3,085	3,630	3,721	4,356	4,583	3,675	3,584	2,722	3,131	42,786
Month Share	9.1%	6.7%	8.3%	7.2%	8.5%	8.7%	10.2%	10.7%	8.6%	8.4%	6.4%	7.3%	100.0%
Import Share										10.1%	35.0%	20.3%	4.6%

Source: Agricultural Marketing Service, USDA

Table 9: U.S. Avocado Production, 1970-1992, Metric Tons & US$000s

Season	Metric Tons California	Metric Tons Florida	Metric Tons Total	US$000s California	US$000s Florida	US$000s Total
1970/71	60,799	17,060	77,858	25,192	5,452	30,644
1971/72	23,684	17,514	41,198	24,847	6,523	31,370
1972/73	63,975	17,060	81,034	38,493	6,035	44,528
1973/74	48,457	18,421	66,878	42,346	7,207	49,553
1974/75	95,735	19,873	115,608	50,113	7,161	57,274
1975/76	52,995	26,316	79,310	60,561	11,600	72,161
1976/77	108,893	19,147	128,040	71,160	8,651	79,811
1977/78	97,096	9,710	106,806	79,180	7,383	86,563
1978/79	111,615	20,962	132,577	84,993	9,240	94,233
1979/80	68,058	24,773	92,831	112,200	16,298	128,498
1980/81	215,971	27,949	243,920	84,966	16,293	101,259
1981/82	142,468	23,412	165,880	108,173	12,926	121,099
1982/83	183,303	31,488	214,791	92,920	16,658	109,578
1983/84	224,138	24,501	248,639	91,390	12,409	103,799
1984/85	181,488	26,770	208,258	116,400	11,496	127,896
1985/86	145,191	25,862	171,053	163,200	16,415	179,615
1986/87	252,269	22,414	274,682	93,964	10,176	104,140
1987/88	163,339	26,316	189,655	205,200	9,048	214,248
1988/89	149,728	24,501	174,229	207,900	11,772	220,110
1989/90	95,281	30,399	126,180	239,400	11,122	250,940
1990/91	123,412	17,786	141,606	191,760	13,406	205,571
1991/92	136,116	25,681	162,178	165,000	13,471	178,866

Season 11/1-11/30 (following year) for California, 6/20-2/28 for Florida
Total includes Hawaii beginning 1988/89
Source: NASS/USDA

Table 10: California Hass Avocado Wholesale Prices, 1991
US$ per 2-Layer Carton, 40s-48s

Month	Week	Baltimore	Boston	Chicago	New York	AVERAGE
Jan	1		39.00		39.00	39.00
	2	43.50	40.00	39.00	41.00	40.88
	3	43.00	40.00	38.50	42.00	40.88
	4	40.00	38.00	34.00	37.00	37.25
	5	35.50	36.00	32.50	34.00	34.50
Feb	6	35.00	32.00	35.00	36.50	34.63
	7	36.50	36.00	33.50	35.50	35.38
	8	36.00	33.00	31.25	34.00	33.56
	9	34.00	32.50	31.25	33.50	32.81
Mar	10	33.00	33.00	31.50	31.50	32.25
	11	33.00	34.50	32.00	31.50	32.75
	12	35.50	33.50	32.25	31.50	33.19
	13	35.00	33.50	32.25	32.00	33.19
Apr	14	35.00	34.00	32.50	32.00	33.38
	15	33.50	32.50	30.50	30.50	31.75
	16	30.50	31.50	30.00	29.00	30.25
	17	29.50	30.00	29.00	29.00	29.38
	18	30.50	29.00	28.00	28.50	29.00
May	19	30.50	29.00	27.00	27.50	28.50
	20	29.50	27.50	27.00	27.50	27.88
	21	28.00	25.50	25.25	26.00	26.19
	22	29.00	25.00	24.00	26.50	26.13
Jun	23	29.50	26.00	28.00	30.00	28.38
	24	32.50	30.00	29.50	30.00	30.50
	25	31.50	30.00	30.50	28.00	30.00
	26	32.50	29.50	28.00	27.00	29.25
Jul	27	32.00	28.00	27.25	25.00	28.06
	28	31.50	27.50	27.25	26.00	28.06
	29	30.00	27.50	25.75	27.00	27.56
	30	30.00	25.00	27.00	26.50	27.13
	31	30.00	27.50	26.00	25.00	27.13
Aug	32	28.00	26.00	24.00	20.50	24.63
	33	27.00	24.50	25.50	21.00	24.50
	34	26.00	24.00	23.00		24.33
	35	24.50	24.50	22.75	22.50	23.56
Sep	36	28.50	27.00	26.50	25.50	26.88
	37	36.50	33.50	34.25	33.50	34.44
	38	45.00	40.00	42.50	41.00	42.13
	39	44.00	41.50	40.50	39.50	41.38
	40	43.00	41.50	39.50	34.00	39.50
Oct	41	42.00	41.00	37.50	35.50	39.00
	42	40.00	41.00	37.25	36.50	38.69
	43	39.50	41.50	38.25	40.00	39.81
	44	44.00	42.00	40.00	40.00	41.50
Nov	45	44.00		39.75	42.00	41.92
	46	48.00	48.00		47.00	47.67
	47	54.00	60.00	47.50	51.00	53.13
	48		52.00			52.00
Dec	49	60.00				60.00
	50		60.00		60.00	60.00
	51	64.00	55.00	48.50	55.00	55.63
	52	55.50	42.00		40.00	45.83
	53	53.00	34.00	33.50	35.50	39.00

Unweighted averages of high and low Monday/Tuesday prices
Source: USDA Market News Service

Table 11: Florida Green Skin Avocado Wholesale Prices, 1991
US$ per 1-Layer Carton, various counts

Month	Week	Baltimore (10s-18s)	Boston (12s-16s)	Chicago (6s-12s)	New York (8s-14s)	AVERAGE
Jan	1		13.00		11.00	12.00
	2				13.00	13.00
	3		17.00			17.00
	4		18.00		10.50	14.25
	5		18.00			18.00
Feb	6		18.00			18.00
	7		18.00			18.00
	8		18.00		11.00	14.50
	9		15.00	12.50		13.75
Mar	10					
	11					
	12					
	13					
Apr	14					
	15					
	16					
	17					
	18					
May	19					
	20					
	21					
	22					
Jun	23					
	24					
	25		18.00			18.00
	26		12.00		13.00	12.50
Jul	27	15.00	9.50	10.00	9.00	10.88
	28	12.00	9.00	8.63	7.50	9.28
	29		8.75	7.75	8.00	8.17
	30	10.00	7.00	7.50	8.50	8.25
	31	10.00	7.00	6.50	5.75	7.31
Aug	32	10.00	7.50	6.00	6.50	7.50
	33		7.00	7.50	5.50	6.67
	34		6.00	5.50	5.50	5.67
	35	10.00	6.50	5.50	7.00	7.25
Sep	36		7.00	5.75	6.25	6.33
	37		7.00	6.25	6.75	6.67
	38	9.00	6.50	6.00	7.25	7.19
	39		7.00	7.00	6.25	6.75
	40		7.00	7.25	5.75	6.67
Oct	41	8.25	7.50	7.25	6.00	7.25
	42		7.25	7.25	6.50	7.00
	43		7.00	6.50	6.00	6.50
	44		7.25	6.00	5.50	6.25
Nov	45		7.00	6.50	5.50	6.33
	46		7.00	6.50	5.50	6.33
	47	8.50			6.00	7.25
	48		7.00	5.75	5.75	6.17
Dec	49	8.00	7.25	6.00	6.00	6.81
	50		6.50		5.25	5.88
	51	10.00	7.00	6.00	5.50	7.13
	52	11.00	7.00	6.00	5.50	7.38
	53	10.00	7.00		6.25	7.75

Unweighted averages of high and low Monday/Tuesday prices
Source: USDA Market News Service

SECTION IX: MANGO (FRESH AND PROCESSED)

Ranking Overview

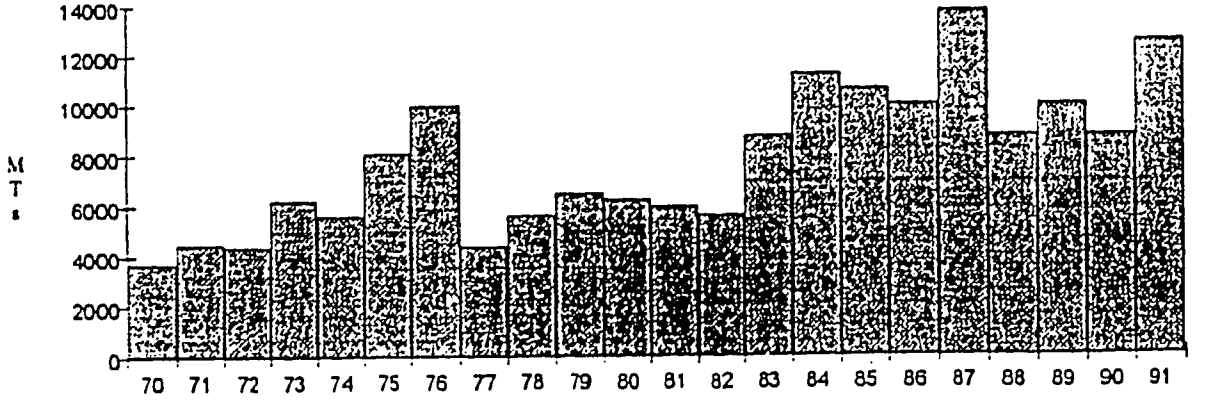
Product	Ranking	Notes
Fresh Mango	0	Mexican competition strong, sea freighting would be required for competitiveness
Dried Mango	2*	Dried fruit consumption increasing rapidly, production for fruit mixes, mueslix, additional research recommended depending on Kenyan production capability
Canned Mango	2*	Import market may approach $2+ million per annum, Asian countries chief suppliers
Pickled Mango	2*	Small market, primarily for East Indian communities, Kenya may wish to explore
Mango Paste/Puree	2*	Import market has expanded rapidly since 1989 and is now approaching $10 million per year, distant suppliers (Philippines and Brazil) are primary suppliers

Note: U.S. acceptance of Kenyan varieties will need to be assessed for of the above.

Domestic Production

U.S. production is concentrated in Florida and has fluctuated widely over the past 20 years, although there has been a trend of increasing production as acreage has been expanded. In 1991, production stood at 12,477 MTs, up significantly from 8,734 MTs in 1990. Increased yield accounted for increased production, as acreage remained constant. Acreage should remain relatively constant over the short to medium term, as nonbearing acreage (trees under 5 years old) has decreased steadily since the early 1980s.

Florida Mango Producion, 1970-1991, MTs



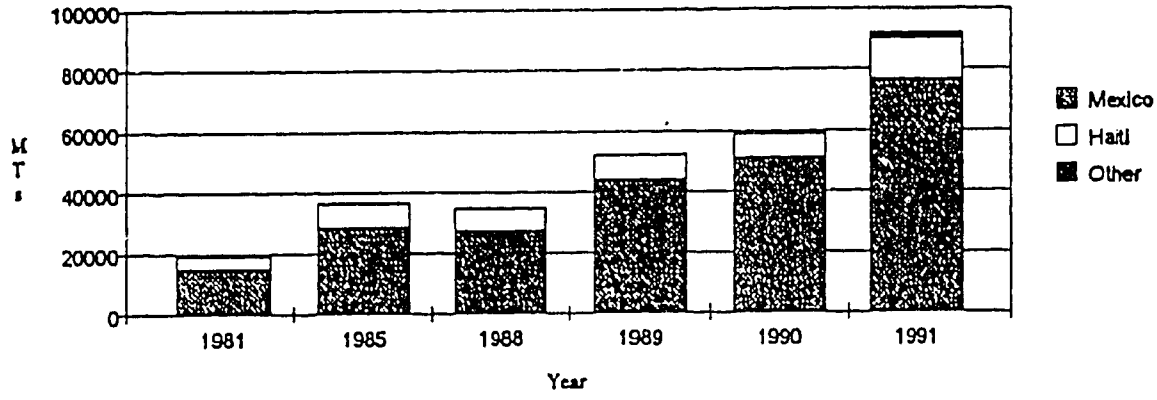
Source: USDA

No production figures are available for processed mango products.

Imports

U.S. fresh mango imports have nearly quintupled over the last 10 years, from 19,278 MTs (US$14.8 million) in 1981 to 92,122 MTs (US$63.8 million) in 1991. 1991 volume levels are up significantly over the 1990 level of 59,007 MTs, although in value terms imports have only increased from US$58.1 million.

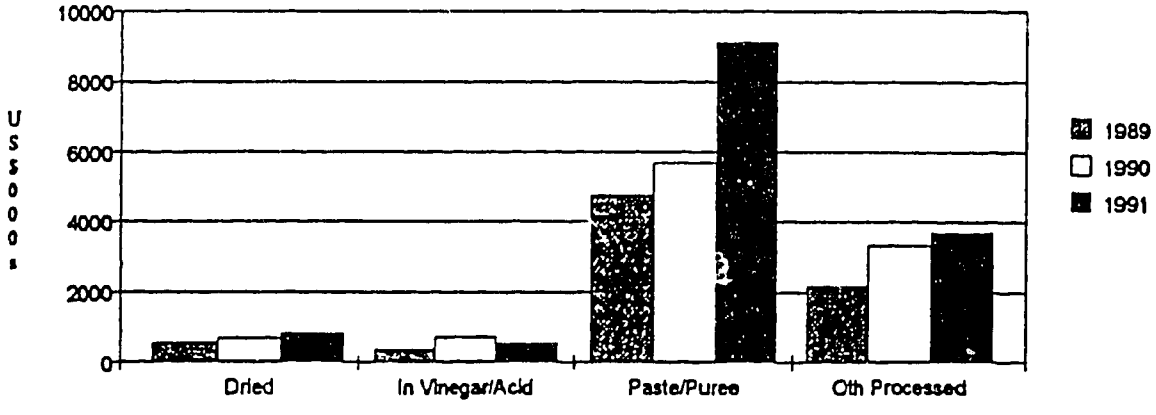
U.S. Mango Imports, 1981-1991, Metric Tons



Source: U.S. Bureau of the Census

U.S. imports of processed mango products has increased from US$7.8 million in 1989 to US$14.2 million in 1991. Imports of dried mangos have increased from $569 thousand to $831 thousand over the period. Mangos which have been prepared or preserved by vinegar or acetic witnessed an increase from $358 thousand in 1989 to $563 thousand in 1991, although 1990 levels stood at $720 thousand. Mango pastes and purees accounted for the majority of processed mango imports, with $9.1 million imported in 1991, nearly double 1989 imports of $4.7 million. Imports of other types of processed mangoes (which may include canned and frozen) increased from $2.2 million in 1989 to just over $3.7 million in 1991.

U.S. Processed Mango Imports, 1989-1991, US$000s



Source: U.S. Bureau of the Census

Market Share

In 1991, U.S. apparent consumption of fresh mangos was 97,705 MTs (U.S. production + U.S. imports - U.S. exports). Imports held a 94 percent share of the domestic market. Mexico accounted for 83 percent of all U.S. imports, followed by Haiti with 15 percent. A variety of other small suppliers (chiefly Brazil and Venezuela) accounted for the remaining 2 percent of imports. Total import share would have been lower if Florida had sold all of its production on the domestic market -- however, in 1991, it exported slightly more than half of its production (mostly to the Netherlands, Canada, and the United Kingdom). U.S. exports have increased dramatically since the mid-1980s, when export levels were near zero.

Since U.S. production statistics are not available for processed mango products, it is impossible to determine the domestic share of the market. The following table represents 1991 import shares (based on value) for the four processed products reported by the U.S. Census Bureau.

Product	#1 Supplier	#2 Supplier	#3 Supplier	Other
Dried	Thailand (53%)	Philippines (32%)	Taiwan (6%)	9%
Prep/Pres by Vinegar/Acetic Acid	U.K. (48%)	India (33%)	Spain (7%)	12%
Pastes & Purees	Philippines (32%)	Brazil (26%)	Mexico (14%)	29%
Other Processed	Mexico (36%)	India (14%)	Thailand (13%)	36%

Consumer Preference

Popular mango varieties include Tommy Atkins, Haden, Kent, Keitt, and Francis. Other varieties have smaller markets, primarily amongst the ethnic communities in the larger cities.

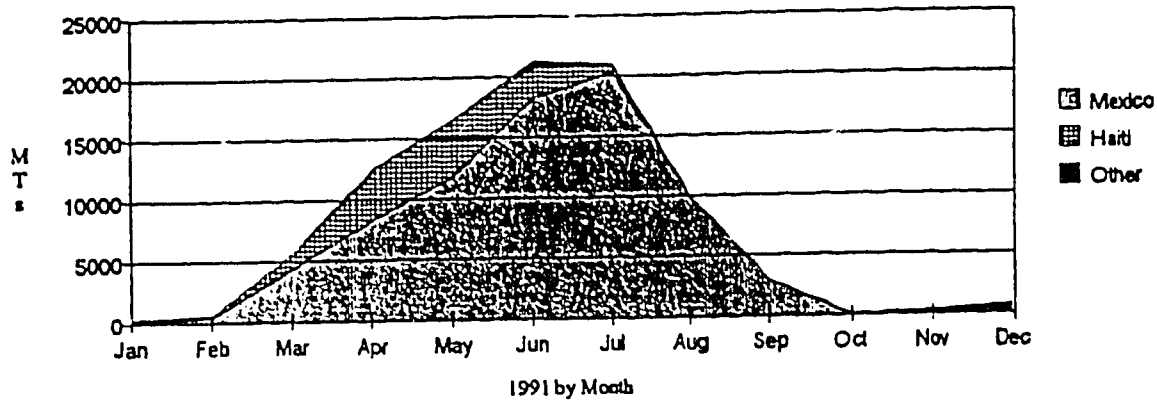
Pickled mangoes are also popular with ethnic communities, especially East Indians. India supplies one third of this market.

Other consumer preferences need to be determined through field research.

Seasonal Patterns of Demand

The bulk of supplies are on the market from the period April through August. Lesser amounts are also available in March and September, with only very small amounts present in January and October-December. Brazil, and several other smaller suppliers, export small quantities to the U.S. during this period when supplies from Mexico, Florida and Haiti are nearly non-existent. A substantial price premium is paid at this time.

U.S. Mango Imports, 1991 by Month, Metric Tons

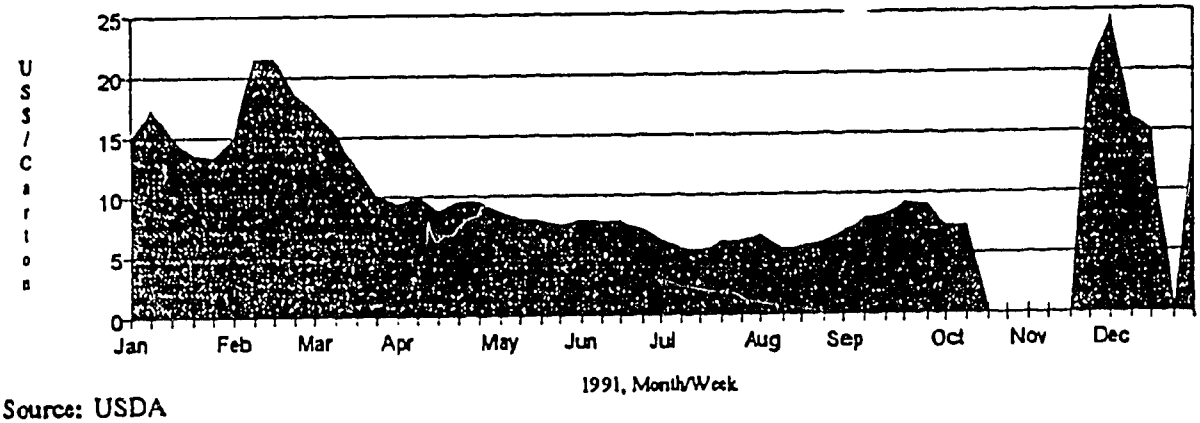


Source: U.S. Bureau of the Census

Prices

1991 wholesale prices for Mexican, Floridian and Haitian mangos were assessed for three major eastern markets: Baltimore, Boston, and Chicago. When supplies were greatest (May through September) average prices ranged from roughly $5.50-$8.00 per carton. Prices during January-March and December, when supplies were mostly from Brazil (and some from Haiti in the first period), prices ranged were generally over $10 per carton, and often between $15 and $20 per carton.

Unweighted Average Mango Wholesale Prices, 1991



Source: USDA

Prices for processed product are not readily available and would require additional field research. However, 1991 import unit values for processed product are given below:

Dried Mango	$3.70/kg
Mangos in Vinegar	$1.61/kg

Mango Paste/Puree	$0.86/kg
Other Processed	$1.36/kg

Market Distribution

A representative listing of major U.S. importers is given in Annex A.

Grades and Standards

No federal grades and standards exist for either fresh or processed mangoes. Exporter to the United States should work closely with importers/wholesalers in meeting generally accepted industry norms.

Fresh mangos are typically sold in flat cartons on the wholesale markets, in counts ranging from eight to twenty.

Import Regulations and Duties

Imports of fresh mangos subject to approval and inspection by USDA's Animal and Plant Health Inspection Service. Exports to the United States, without approval and acceptable treatments to destroy harmful pests, may face destruction upon arrival.

For processed mango products, imports must meet the regulations enforced by the Food and Drug Administration (FDA).

The following duty rates are charged on fresh and processed mangos entering the U.S. (Kenya is included under the GSP category):

HS Number	Description	General	GSP	CBI/Israel	Canada
0804.50.40	Fresh mangos, entering 9/1-5/31	$0.0827/kg	Free*	Free	$0.057/kg
0804.50.60	Fresh mangos, entering 6/1-8/31	$0.0827/kg	Free*	Free	$0.057/kg
0804.50.80	Dried	$0.033/kg	Free	Free	$0.013/kg
2001.90.45	In Vinegar or Acetic Acid	$0.033/kg	Free	Free	$0.023/kg
2007.99.50	Paste/Puree	2.8%	Free*	Free	1.9%
2008.99.40	Other Processed	$0.033/kg	Free	Free	$0.023/kg

Note: "*" signifies that for these products Mexico is not eligible for GSP status and must pay the general duty rate.

No quantitative restrictions are known to exist, except for prohibitions due to the presence of harmful pests.

Market Opportunities for Kenyan Exporters

Kenyan export opportunities for fresh mangos to the United States are extremely limited. Mexico (and to a lesser extent Haiti, which is currently facing trade sanctions by the United

States) dominate the market. The fact that Florida exports more than half of its production shows the strength of the Mexican hold on the market, and also the higher prices Florida is able to obtain in European markets. There is a window of opportunity November-January, however, when Mexican, Floridian, and Haitian supplies are low or non-existent. Brazil supplies air freighted produce at this time, and commands prices two or three times that received during season. However, Kenyan producers would need to determine whether: (1) their mango varieties would meet with acceptance on the U.S. market; (2) they can secure reliable and cost effective transport to the United States; and (3) APHIS regulations would permit them to export to the United States (and, if not, determine required treatments and secure APHIS approval). Based on these questions, the author suggests that Kenya not focus on the fresh market in the U.S., but rather on the processed market.

The market for processed mango products has greatly expanded over the past several years, specifically for paste/puree. Other processed mango products (canned, etc.) witnessed imports exceeding $3 million in 1991. Dried mango, as with many dried tropical fruits, is a small but growing market as health consciousness grows in the United States. Supplies of dried product can be sold in bulk (health food stores), packaged (individually or with other fruits), or to producers of muesli. Pickled mangos are chiefly for the ethnic specialty market and imports are under $1 million per year. However, given the presence of India in the U.S. market, Kenya may also wish to look more closely at this small niche market. Consumer and industry statistics for processed mangos are not readily available – the KEDS project may wish to perform additional field research.

References

1980-1989 Trade Statistics, Microfiche, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

1990-1991 Trade Statistics, CD-ROM, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

United States International Trade Commission, Harmonized Tariff Schedule of the United States, 1991.

U.S. Department of Agriculture, Economic Research Service, "Fruit and Tree Nuts: Situation and Outlook Report," various issues.

U.S. Department of Agriculture, Agricultural Marketing Service, Fruit and Vegetable Division, Market News Branch, "Fresh Fruit and Vegetable Arrival Totals for 22 Cities," 1991.

Federal-State Market News Service, "Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," various wholesale market editions, 1992.

Table 1: U.S. Imports of Fresh Mangoes, 1981-1991, Metric Tons

Country	1981	1985	1988	1989*	1990*	1991*
Canada		16	34			
Mexico	14,847	28,538	27,225	43,923	50,922	76,402
Guatemala		261	10	3		13
Costa Rica	6		4			2
Bahamas		7			7	16
Haiti	4,312	7,869	7,314	8,340	7,809	13,438
D.R.	78		27		40	74
Jamaica	1		46			
Grenada			7		20	11
Colombia				1	1	1
Venezuela		6				728
Ecuador						124
Peru						218
Chile	0					3
Brazil	30	219			168	992
U.K.			1			
France		16				
Malta					15	
India	1	7	3	2		
Thailand	0	3	18	4	3	
Phil.	1	0	31		5	
Malaysia					5	
Taiwan	1				2	100
Hong Kong		0			10	
TOTAL	19,278	36,942	34,718	52,273	59,007	92,122

*-Includes Guavas and Mangosteens
Source: U.S. Bureau of the Census

Table 2: U.S. Imports of Fresh Mangoes, 1981-1991, US$000s

Country	1981	1985	1988	1989*	1990*	1991*
Canada		6	30			
Mexico	12,602	18,414	24,746	37,042	52,354	54,419
Guatemala		156	9	4		13
Costa Rica	3		5			3
Bahamas		5			4	10
Haiti	2,143	3,855	3,974	5,157	5,370	6,814
D.R.	20		16		40	58
Jamaica	2		36			
Grenada			10		11	9
Colombia				3	1	2
Venezuela		8				764
Ecuador						119
Peru						308
Chile	1					2
Brazil	30	127			333	1,260
U.K.			1			
France		15				
Malta					18	
India	2	8	5	5		
Thailand	0	7	16	8	6	
Phil.	4	2	28		8	
Malaysia					2	
Taiwan	2				1	54
Hong Kong		1			10	
TOTAL	14,808	22,603	28,877	42,219	58,158	63,835

*-Includes Guavas and Mangosteens
Source: U.S. Bureau of the Census

Table 3: U.S. Imports of Fresh Mangoes, 1981-1991, US$ per Kilogram

Country	1981	1985	1988	1989*	1990*	1991*
Canada		0.41	0.88			
Mexico	0.85	0.65	0.91	0.84	1.03	0.71
Guatemala		0.60	0.90	1.28		1.02
Costa Rica	0.47		1.22			1.24
Bahamas		0.73			0.60	0.63
Haiti	0.50	0.49	0.54	0.62	0.69	0.51
D.R.	0.25		0.60		1.00	0.79
Jamaica	1.93		0.79			
Grenada			1.49		0.56	0.82
Colombia				2.31	1.24	1.57
Venezuela		1.34				1.05
Ecuador						0.96
Peru						1.41
Chile	2.27					0.79
Brazil	0.99	0.58			1.98	1.27
U.K.			1.71			
France		0.93				
Malta					1.16	
India	2.35	1.19	1.77	2.59		
Thailand	2.56	2.38	0.93	2.00	2.30	
Phil.	3.07	7.04	0.92		1.65	
Malaysia					0.37	
Taiwan	3.46				0.48	0.54
Hong Kong		2.98			1.02	
TOTAL	0.77	0.61	0.83	0.81	0.99	0.69

*-Includes Guavas and Mangosteens
Source: U.S. Bureau of the Census

Table 4: U.S. Imports of Fresh Guava, Mangoes, and Mangosteens, 1991 by Month, MTs

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Mexico	23	451	4,319	8,271	11,836	18,154	20,320	9,965	2,938	125			76,402
Guatemala					12								12
Costa Rica				2									2
Bahamas				16									16
Haiti	120	96	1,259	4,083	4,675	2,547	654		4				13,438
Dominican Rep	5		2	9	7	13	5	1	5	24		3	74
Grenada				2				9					11
Colombia				1									1
Venezuela				138		590							728
Ecuador											31	93	124
Peru	30	41										147	218
Chile												3	3
Brazil	152										343	497	992
Taiwan												100	100
Total	331	588	5,580	12,523	16,531	21,304	20,979	9,975	2,946	149	375	841	92,121

Source: U.S. Bureau of the Census

Table 5: U.S. Imports of Fresh Guava, Mangoes, and Mangosteens, 1991 by Month, US$000s

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
lexico	5	453	4,787	7,922	10,264	12,453	11,665	5,321	1,457	92			54,419
uatemala					13								13
osta Rica				3									3
ahamas				10									10
aiti	231	80	815	1,790	2,188	1,269	430		11				6,814
ominican Rep	3		3	8	11	5	3	3	5	15		2	58
renada				1				8					9
olombia				2									2
enezuela				119		645							764
cuador											34	85	119
eru	32	48										228	308
hile												2	2
razil	300										413	547	1,260
aiwan												54	54
otal	571	581	5,605	9,855	12,476	14,372	12,098	5,332	1,473	107	447	918	63,835

.S. Bureau of the Census

able 6: U.S. Imports of Fresh Guava, Mangoes, and Mangosteens, 1991 by Month, US$000s

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
xico	0.21	1.01	1.11	0.96	0.87	0.69	0.57	0.53	0.50	0.73			0.71
atemala					1.05								1.05
sta Rica				1.24									1.24
hamas				0.63									0.63
iti	1.93	0.83	0.65	0.44	0.47	0.50	0.66		3.07				0.51
minican Rep	0.63		1.70	0.87	1.60	0.37	0.61	2.74	0.94	0.63		0.80	0.79
enada				0.55				0.87					0.82
lombia				1.57									1.57
nezuela				0.26		1.09							1.05
uador											1.09	0.92	0.96
ru	1.05	1.17										1.55	1.41
ile												0.79	0.79
azil	1.97										1.20	1.10	1.27
iwan												0.54	0.54
tal	1.73	0.99	1.00	0.79	0.75	0.67	0.58	0.53	0.50	0.72	1.19	1.09	0.69

S. Bureau of the Census

Table 7: U.S. Imports of Dried Guavas, Mangoes, and Mangosteens

	Customs Value $000s			Kilograms		
	1991	1990	1989	1991	1990	1989
Mexico	4			400		
Guatemala	1			300		
Belize	13	4		2,638	653	
Haiti			16			31,094
Colombia			7			2,264
United Kingdom			1			290
India	28	25	34	9,178	20,390	26,326
Thailand	439	222	125	126,210	48,930	31,490
Singapore	12	30	65	1,780	7,158	14,359
Philippines	269	390	312	71,100	89,045	60,326
China	4			520		
Korea, South		6			1,088	
Hong Kong			4			1,200
China (Taiwan)	52	8	5	6,854	1,660	1,553
Egypt	9			5,760		
Total	831	685	569	224,740	168,924	158,902

Source: U.S. Bureau of the Census

Table 8: U.S. Imports of Mangoes, Prep/Pres by Vinegar or Acetic Acid

	Customs Value $000s			Kilograms		
	1991	1990	1989	1991	1990	1989
Canada	10			3,729		
Mexico		10	16		8,323	18,576
Guatemala	20	16	12	24,385	13,674	11,797
Trinidad and To	18		1	14,613		522
United Kingdom	271	327	46	66,909	97,952	14,205
Spain	37	3		57,000	1,595	
Israel	2	2	7	720	720	2,858
India	185	351	216	167,345	343,551	218,028
Pakistan	10	3	23	5,704	1,132	14,366
Thailand	10	8	35	8,495	7,646	25,291
Philippines			2			655
Total	563	720	358	348,900	474,593	306,298

Source: U.S. Bureau of the Census

Table 9: U.S. Imports of Guava and Mango Pastes and Puree, Cooked w/n Sweete

	Customs Value $000s			Kilograms		
	1991	1990	1989	1991	1990	1989
Canada	14			7,961		
Mexico	1,256	657	822	1,410,993	693,344	1,072,239
Guatemala	36		15	30,732		19,050
Belize	127	11		322,540	22,861	
Costa Rica		9			17,783	
Haiti	14	14	14	18,098	18,098	18,098
Dominican Repub	157	133	231	477,337	480,840	517,458
Colombia	106	117	98	68,259	118,791	86,581
Venezuela	10	3	32	23,400	5,400	67,866
Ecuador			3			6,950
Peru	930	14	61	872,888	18,720	80,348
Brazil	2,374	1,379	1,271	3,102,762	1,877,072	2,166,344
Uruguay	155	91		191,182	110,880	
United Kingdom		7			4,729	
Netherlands	3	9	4	2,275	6,606	4,012
France	133	86	67	31,373	29,968	34,979
Poland		5			13,064	
Spain	2			436		
Israel	3			1,429		
India	558	926	533	452,007	667,612	354,754
Pakistan	2	2		1,440	995	
Thailand	5	3		1,431	954	
Philippines	2,900	1,712	1,037	2,945,644	1,784,372	1,123,694
Japan			36			35,200
Australia	268	432	442	491,820	925,752	906,060
Fiji	73	67	69	140,300	131,966	145,587
Egypt			6			5,443
Swaziland	8	17		13,600	27,700	
Total	9,134	5,694	4,741	10,607,907	6,957,507	6,644,663

Source: U.S. Bureau of the Census

Table 10: U.S. Imports of Mangoes, Prepared or Preserved, Not Elsewhere Spec

	Customs Value $000s			Kilograms		
	1991	1990	1989	1991	1990	1989
Canada			1			600
Mexico	1,339	1,571	833	868,795	950,017	694,474
Guatemala	71		21	73,547		18,354
Honduras			1			1,409
Costa Rica	21			15,497		
Jamaica	108	49	22	133,332	66,124	32,650
Haiti		8	2		17,786	8,618
Dominican Repub	312	178	188	587,443	348,084	421,293
Trinidad and To	4		18	1,616		9,795
Colombia	28		22	30,417		59,200
Venezuela	1	13		6,000	14,418	
Peru	14	16		14,288	21,010	
United Kingdom	147	151	118	52,334	46,068	35,931
France	58	9		16,725	1,911	
Federal Republi			4			3,593
Italy		1			523	
Israel	10	16		7,887	8,545	
United Arab Emi		3			2,215	
India	527	450	366	439,302	360,211	247,177
Pakistan	79	47	55	46,126	23,405	26,488
Thailand	497	435	400	280,683	255,355	317,965
Malaysia	27	3	18	7,068	934	8,404
Singapore	174	124	13	42,725	29,619	2,988
Philippines	254	228	33	83,006	109,516	11,715
China		4	6		805	1,934
Hong Kong	8	2	5	2,699	597	1,998
China (Taiwan)	24	25	37	7,113	5,905	14,973
Australia	4			52		
Total	3,707	3,333	2,163	2,716,655	2,263,048	1,919,559

Source: U.S. Bureau of the Census

Table 11: Fresh Mango Arrivals in 22 U.S. Cities, 1991 by City, Metric Tons

	ATLA	BALT	BOST	BUFF	CHIC	CINC	COLU	DALL	DETR	LOSA	MIAM	NEWO	NYC	PHIL	PITT	STL	SANF	SEAT	Total
Florida			272	91	45						181	91	181						8
Brazil										136							45		1
Haiti		91	318		136					45	318		1,044						1,9
Peru										45									
Venezuela													408						4
Mexico		590	726		2,087	45		227	227	14,156		91	1,724	181	91		8,348	544	40 29,0
Total		681	1,316	91	2,269	45		227	227	14,383	499	181	3,358	181	91		8,394	544	32,4
Market Size		2%	4%	0%	7%	0%		1%	1%	44%	2%	1%	10%	1%	0%		26%	2%	1
Import Share		100%	79%		98%	100%		100%	100%	100%	64%	50%	95%	100%	100%		100%	100%	9

Source: Agricultural Marketing Service, USDA

Table 12: Fresh Mango Arrivals in 22 U.S. Cities, 1991 by Month, Metric Tons

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Florida					136	136	408	181					862
Brazil	45										45	91	181
Haiti	45	363	181	454	454	318	136						1,951
Peru												45	45
Venezuela					181	181	45						408
Mexico		272	1,180	2,949	4,265	5,762	8,076	4,855	1,588	91			29,038
Total	91	635	1,361	3,403	5,036	6,397	8,666	5,036	1,588	91	45	136	32,486
Month Share	0%	2%	4%	10%	16%	20%	27%	16%	5%	0%	0%	0%	100%
Import Share	100%	100%	100%	100%	97%	98%	95%	96%	100%	100%	100%	100%	97%

Source: Agricultural Marketing Service, USDA

Table 13: 1991 Mango Wholesale Prices, Baltimore, Boston, Chicago
US$ per Carton, 8s-20s, various varieties

Month	Week	Mexican Baltimore (10-12)	Mexican Boston (10-14)	Mexican Chicago (8-20)	Floridian Baltimore (10-12)	Floridian Boston (10-14)	Floridian Chicago (8-14)	Haitian Baltimore (10-12)	Haitian Boston (10-14)	Haitian Chicago (10-14)	AVERAGE
Jan	1				Brazil				15.00		15.00
	2				21.50				15.00	15.50	17.33
	3							15.00	15.00		15.00
	4				12.00				15.00		13.50
	5							15.50	11.00		13.25
Feb	6								15.00		15.00
	7		21.50								21.50
	8		21.50								21.50
	9		21.00						16.00		18.50
Mar	10	17.50	19.00						15.00		17.17
	11		15.00	15.50				17.50	13.00		15.25
	12		14.00	12.00				15.50	10.00	10.50	12.40
	13	10.50	12.00	11.00				8.50	8.75	9.50	10.04
Apr	14		11.50	9.00				9.50	8.00	8.50	9.30
	15	14.00	11.00	9.25				9.50	7.50	8.50	9.96
	16		10.75	9.75				7.50	7.50	8.50	8.80
	17	9.50	11.00	9.75		12.00		8.75	7.50	8.50	9.57
	18	10.00	11.00	9.75	Venezuela	12.00		7.50	8.00	8.50	9.54
May	19	9.00	11.00	9.75	8.00	10.00	8.00	7.50	7.50	7.25	8.67
	20	8.50	9.00	9.00	8.00	8.50	7.75	7.50	7.50	7.25	8.11
	21	8.25	8.00	7.75	Florida	7.50	9.00	7.25	7.50		7.89
	22	8.50	7.25	6.75	7.50	7.50	8.00		7.50		7.57
Jun	23	8.50	7.50	7.63		7.75	9.00		7.25		7.94
	24		8.50	7.63	Venezuela			7.75	7.50		7.84
	25	8.25	8.00	7.63	8.00			7.50	7.50		7.81
	26	8.00	7.00	6.00	Florida			7.50	7.00		7.10
Jul	27	6.50	5.50	5.50	10.00		5.00	5.00	6.50		6.29
	28	6.25	5.00	5.50		5.00	5.00		6.50		5.54
	29	6.00	5.25	5.00		4.50	4.50		6.50		5.29
	30	8.00	5.50	5.50		6.00	4.75		7.00		6.13
	31	7.00	5.50	5.75		5.00	5.25	7.00	7.50		6.14
Aug	32	7.25	6.00	6.25		7.00					6.63
	33	7.00	6.00	4.75		5.00	4.00				5.35
	34	7.00	6.00	5.00		5.00	5.50				5.70
	35	7.00	5.50	6.00		5.50					6.00
Sep	36	7.00	7.50			6.00					6.83
	37	9.00	7.00								8.00
	38	9.50	7.00								8.25
	39	11.00	7.50								9.25
	40	10.00	8.00								9.00
Oct	41		7.75								7.75
	42		7.25								7.25
	43										
	44										
Nov	45										
	46										
	47				Brazil						
	48				20.00						20.00
Dec	49				24.50						24.50
	50				16.00						16.00
	51				15.00						15.00
	52										
	53				13.50						13.50

Unweighted averages of high and low Monday/Tuesday prices
Source: USDA Market News Service

Table 14: Florida Production of Mangos, 1970-1991

Year	Acreage Bearing	Nonbearing	Total	Production 1,000 MTs	Yield MT/Acre
1970	1,400	50	1,450	3,693	2.64
1971	1,400	50	1,450	4,492	3.21
1972	1,400	50	1,450	4,367	3.12
1973	1,400	50	1,450	6,239	4.46
1974	1,350	50	1,400	5,615	4.16
1975	1,650	150	1,800	8,110	4.92
1976	1,700	200	1,900	9,982	5.87
1977	1,650	150	1,800	4,367	2.65
1978	1,650	100	1,750	5,615	3.40
1979	1,450	300	1,750	6,488	4.47
1980	1,450	350	1,800	6,239	4.30
1981	1,450	450	1,900	5,989	4.13
1982	1,500	700	2,200	5,615	3.74
1983	1,500	900	2,400	8,734	5.82
1984	1,700	900	2,600	11,230	6.61
1985	1,800	900	2,700	10,606	5.89
1986	2,100	600	2,700	9,982	4.75
1987	2,200	600	2,800	13,725	6.24
1988	2,400	500	2,900	8,734	3.64
1989	2,500	400	2,900	9,982	3.99
1990	2,500	300	2,800	8,734	3.49
1991	2,500	200	2,700	12,477	4.99

Source: Florida Agricultural Statistics Service

SECTION X: STRAWBERRIES (FRESH AND PROCESSED)

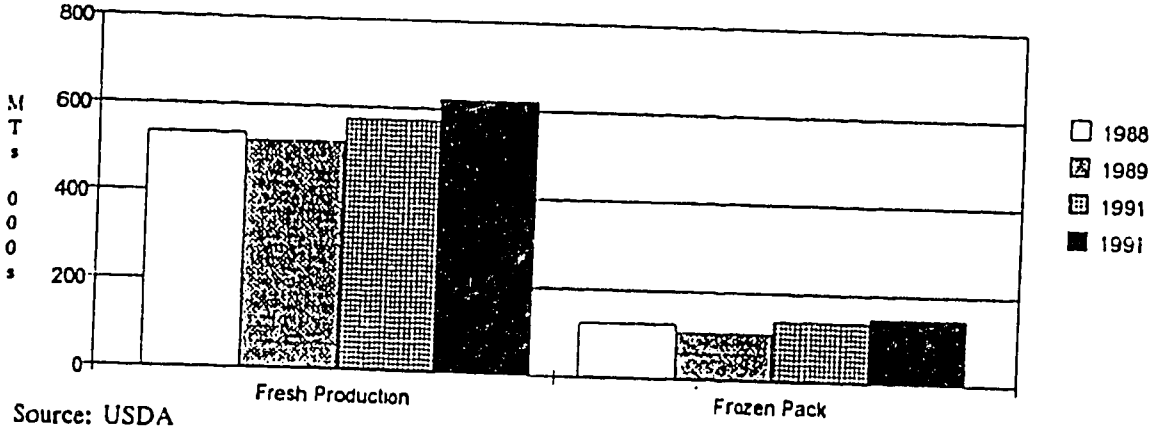
Ranking Overview

Product	Ranking	Notes
Fresh	0	Strong domestic competition
Frozen	0	Strong domestic competition
Jams	1	Declining imports, field research needed depending on Kenyan interest
Paste/Puree	0	Minimal imports, high duty, field research needed depending on Kenyan interest
Other Preparations	0	Minimal imports, high duty

Domestic Production

U.S. production of fresh strawberries stood at 621 thousand MTs in 1991, up from 572 thousand MTs in 1990 and 518 thousand MTs in 1989. U.S. commercial pack of frozen strawberries stood at 150 thousand MTs in 1991, up from 139 thousand MTs in 1990 and from 91 thousand MTs in 1970.

U.S. Fresh and Frozen Strawberry Production, 1988-1991



Source: USDA

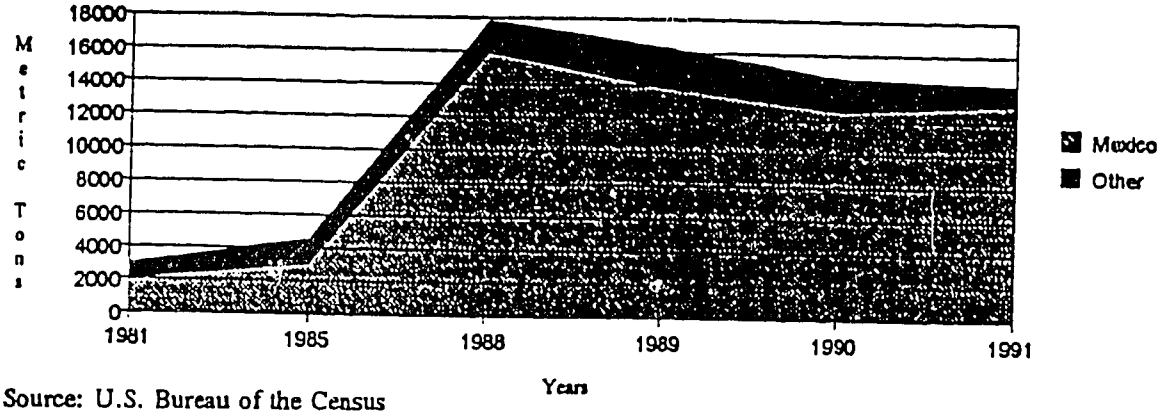
Imports

U.S. imports of fresh strawberries have more than tripled since 1981, reaching 14 thousand MTs in 1991. However, 1991 volume imports were lower than the three previous years and are indicative of a gradual decline starting in the late 1980s. In value terms, imports have increased from $4.2 million in 1981 to $18.5 million in 1991. 1991 value levels are at an all time high.

U.S. imports of frozen strawberries have generally remained in the 25-32 thousand metric ton range over the past ten years. In 1981, the U.S. imported 27 thousand MTs ($25.2 million). Imports increased to just under 33 thousand MTs ($27.9 million) in 1990, before decreasing

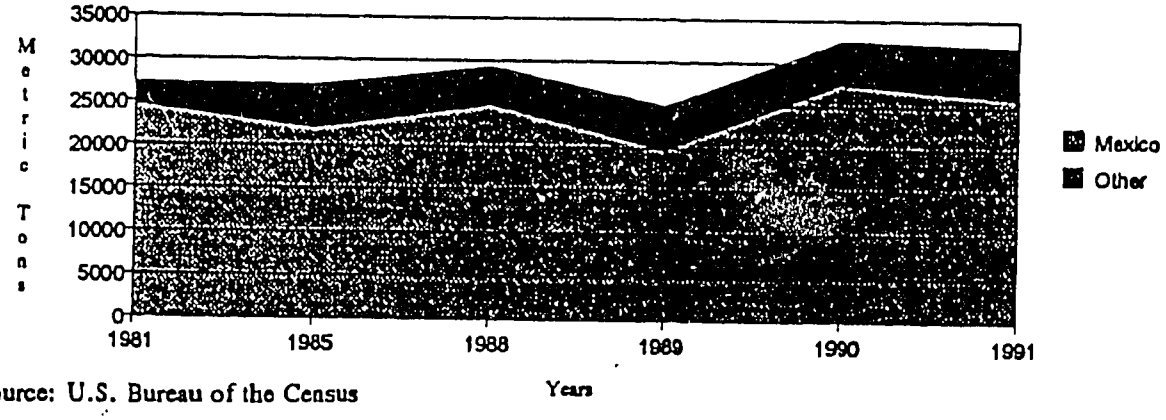
slightly to 32 thousand MTs ($27.6 million) in 1991.

U.S. Imports of Fresh Strawberries, 1980-1991, MTs



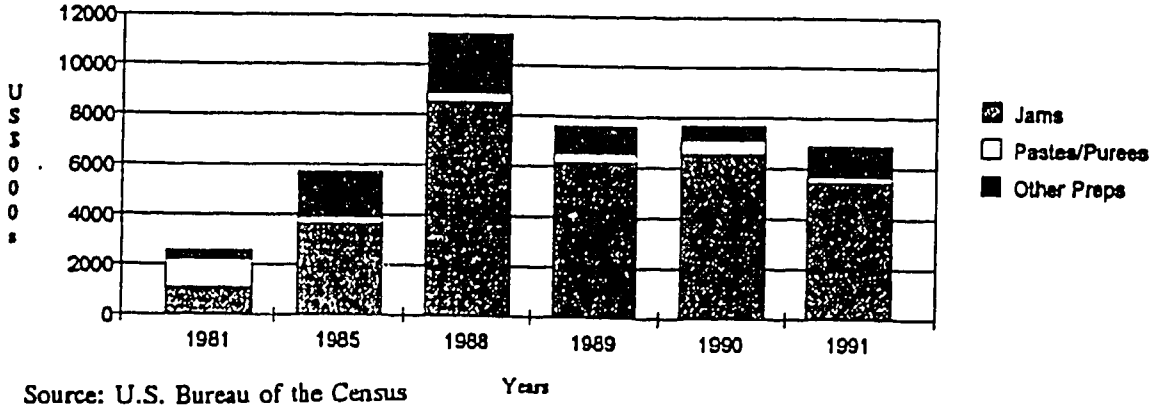
Source: U.S. Bureau of the Census

U.S. Imports of Frozen Strawberries, 1980-1991, MTs



Source: U.S. Bureau of the Census

U.S. Imports of Other Processed Strawberries, 1980-1991, US$000s



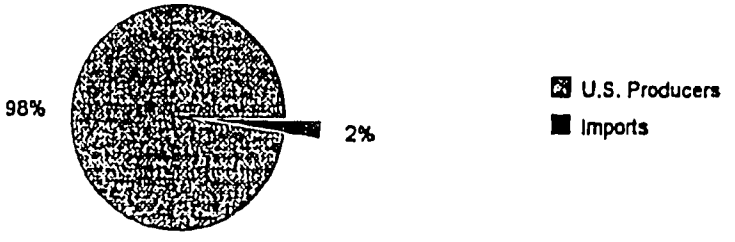
Source: U.S. Bureau of the Census

The Bureau of the Census reports a number of other processed strawberry product imports, including jams, purees, pastes, and other preparations. Jam imports stood at $5.4 million in 1991, a reduction from 1990 levels of $6.5 million and a 1988 ten-year high of $8.5 million. U.S. imports of pastes and purees has dropped sharply from already low 1980 levels of $1.1 million (1,962 metric tons) to $246 thousand (474 metric tons). U.S. imports of other strawberry preparations has ranged widely over the past ten years ($380 thousand in 1980 to $2.4 million in 1988). 1991 imports stood at $1.2 million.

Market Share

Domestic production of fresh strawberries stood at 621,098 MTs in 1991, of which 43,189 MTs was exported. Therefore, the U.S. producers had a 98 percent share of the market in 1991 as imports totaled only 14,266 MTs. California was by far the largest U.S. producing state, accounting for over 80 percent of total U.S. production in 1991. Other large producing states included Florida (9.6%), Oregon (4.5%) and New York (1.4%). California's share has been growing steadily over the years, increasing from 73.3 percent in 1988. Mexico accounted for 91 percent of all imports, with smaller supplies entering from Colombia (2.7%), Honduras (2.6%), the Dominican Republic (1.9%), and New Zealand (1.2%). Mexican import share has continued to rise over the past decade.

1991 U.S. Market Share, Fresh Strawberries

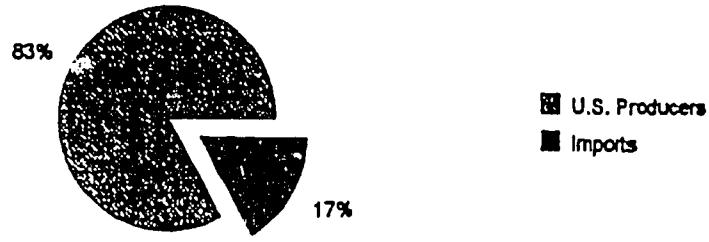


Source: USDA

Frozen commercial pack of strawberries was 149,829 MTs in 1991. With 11,839 MTs of exports, this gave U.S. producers an 83 percent share of the domestic market. California had a 67.6 share of frozen production in 1990, with Oregon and Washington accounting for most of the remaining domestically produced supplies. Mexico holds a 81 percent import share, with lesser supplies entering from Guatemala (6%), Venezuela (5%), Poland (4%), and twelve other countries (5%).

Domestic production of other processed strawberry products is not available, but it is probable that domestic producers hold a high market share for jams, purees, pulps, and other

1991 U.S. Market Share, Frozen Strawberries



Source: USDA

preparations. For Jams, the largest suppliers (with 1991 import value market shares in parentheses) include the United Kingdom (19%), Yugoslavia (18%), France (15%), Germany (11%), Ireland (12%), and Poland (10%). Another 14 countries supplied jams to the United States in 1991. Mexico supplied 94 percent of the imports of pastes and purees in 1991, with very small amounts entering from France, Germany, Switzerland and Israel. U.S. imports of other preparations are supplied chiefly by Mexico (46%), Canada (26%), the Netherlands (13%), and France (10%) in 1991.

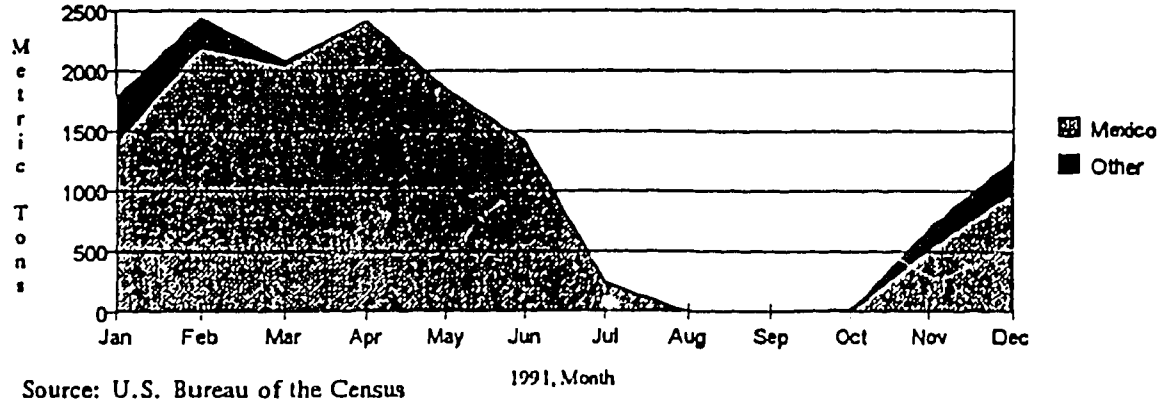
Consumer Preference

Based on requirements for meeting U.S. No. 1 Grade, it would seem that U.S. consumers prefer large strawberries of at least 3/4 inch in diameter. To achieve the highest grade, the strawberries should have at least 3/4 of its surface showing pink or red color. Californian varieties are preferred (most common varieties are Douglas, Chandler, Selva, Pajaro, and Driscoll).

Seasonal Patterns of Demand

U.S. imports of fresh strawberries, primarily from Mexico, are strongest from January through May (from 1,780 MTs to 2,449 MTs per month in 1991). Imports taper off to near nothing from July through October (when Californian production is strongest), before recovering somewhat in November and December. Mexico dominates the import market in all months.

U.S. Imports of Fresh Strawberries by Month, 1991, MTs



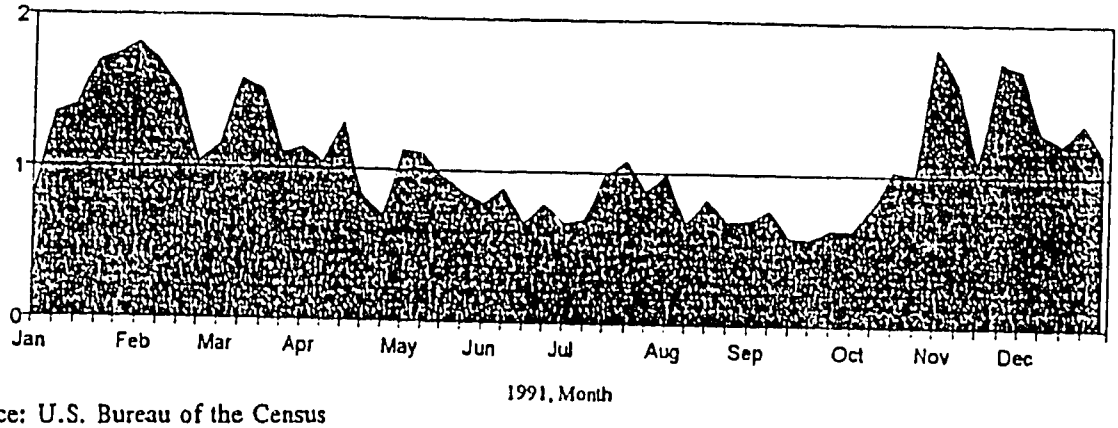
Source: U.S. Bureau of the Census

The majority of Californian production occurs from April through September, with peaks during the period April-June. California ships throughout the rest of the year, but at much lower levels. Florida produces primarily during California's off-season (between November to April). The vast majority of other states' production occurs during the summer months.

Prices

The Boston, Chicago and New York wholesale markets were studied to determine seasonal price trends. Prices were highest during California's off-season (early and late year), with unweighted average wholesale prices ranging from $1.00-$1.84 per pint. During the period May through mid-October, prices were generally under $1.00 per pint, and many times under $0.75 per pint.

Average Wholesale Market Price, Fresh Strawberries, 1991



Source: U.S. Bureau of the Census

Market Distribution

The market is chiefly supplied by domestic producers. Arrivals in the top 22 wholesale markets accounted for only 21 percent of total U.S. apparent consumption in 1991, which seems to show that there may be significant quantities purchased directly from the grower by large retail outlets. Imports from Mexico primarily enter the U.S. through Laredo and San Diego.

A representative listing of major U.S. importers is given in Annex A.

Grades and Standards

Full Code of Federal Regulations' (CFR) text of U.S. grades and standards for fresh strawberries, growers' stock strawberries for manufacture, washed and sorted strawberries for freezing, and frozen strawberries are given in Annex B.

Import Regulations and Duties

Imports of fresh and frozen strawberries are subject to approval and inspection by USDA's Animal and Plant Health Inspection Service. Strawberries should be free of insects, pests and disease.

Other processed strawberry products come under the Food and Drug Administration's jurisdiction. See grades and standards information below for tolerances.

The following duty rates are charged on fresh and processed strawberries entering the U.S. (Kenya is included under the GSP category):

HS Number	Description	General	Mexico	GSP/CBI	Canada
0810.10.20	Fresh, Entering 6/15-9/15	$0.004/kg	Free	Free	$0.002/Kg
0810.10.20	Fresh, Other times	$0.017/kg	$0.017/kg	Free	$0.011/kg
0811.10.00	Frozen	14%	14%	Free	9.8%
0812.20.00	Provisionally Preserved	$0.017/kg	$0.017/kg	$0.017/Free	$0.011/kg
2007.99.10	Jam	4.9%	4.9%	4.9%/Free	3.4%
2007.99.60	Paste/Puree	15%	15%	15%/Free	10.5%
2008.80.00	Other Preparations	14%	14%	14%/Free	9.8%

No quantitative restrictions exist.

Market Opportunities for Kenyan Exporters

The fresh and frozen strawberry market is dominated by the domestic producers (primarily California), with only a small percentage of market demand met by foreign suppliers. The U.S. exports a significant amount of fresh and frozen production (including large quantities to distant customers such as Japan). Given this, it would seem that U.S. producers are highly competitive with foreign suppliers -- even those close to home. A primary reason for this is the extremely high yields of California strawberry producers vis-a-vis both domestic and international suppliers (California yields are twice those of Mexico).

Kenyan opportunities for other processed products would seem to be limited to jams, which have a lower import duty relative to purees, pastes, and other preparations. If Kenyan strawberry processors are currently producing jams (or are able to produce jams) and are interested in pursuing this market, further field research will be needed to determine consumer preferences and willingness to purchase Kenyan product. Much of the lower-end jam market is supplied by domestic industry, with the $5 million plus import market primarily consisting of specialty or gourmet jams from European nations.

References

1980-1989 Trade Statistics, Microfiche, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

1990-1991 Trade Statistics, CD-ROM, U.S. Bureau of the Census, U.S. Department of Commerce, Washington, D.C.

United States International Trade Commission, Harmonized Tariff Schedule of the United States, 1991.

Cook, Roberta et al, Implications of the North American Free Trade Agreement (NAFTA) for the U.S. Horticultural Sector. University of California/Davis and The American Farm Bureau Research Foundation, 1991.

U.S. Department of Agriculture, Foreign Agricultural Service, "Horticultural Products Review," various issues.

U.S. Department of Agriculture, Economic Research Service, "Fruit and Tree Nuts: Situation and Outlook Report," various issues.

U.S. Department of Agriculture, Agricultural Marketing Service, Fruit and Vegetable Division, Market News Branch, "Fresh Fruit and Vegetable Arrival Totals for 22 Cities," 1991.

Federal-State Market News Service (USDA & Massachusetts Department of Food & Agriculture), "Boston Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Market News Service (USDA), "Chicago Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992.

Federal-State Market News Service (USDA), "New York Fresh Fruit and Vegetable Wholesale Market Prices & Arrivals 1991," 1992 unpublished.

Code of Federal Regulations, Chapter 7, Part 52, January 1992.

Code of Federal Regulations, Chapter 7, Parts 46-51, January 1992.

le 1: U.S. Strawberry Production, 1988-1990, 1,000 Metric Tons

te	1988	%	1989	%	1990	%	1991	%
ifornia	392	73.27%	393	75.92%	449	78.58%	498	80.15%
rida	57	10.60%	63	12.07%	53	9.26%	60	9.64%
York	5	1.02%	6	1.17%	8	1.35%	9	1.39%
gon	46	8.60%	30	5.71%	30	5.21%	28	4.50%
er	35	6.51%	27	5.13%	32	5.60%	27	4.32%
al	535	100.00%	518	100.00%	572	100.00%	621	100.00%

rce: NASS/USDA

ble 2: U.S. Per Capita Consumption of Strawberries, Pounds

ar	Fresh	Frozen
70	1.73	1.19
75	1.80	1.40
80	2.01	1.39
85	3.10	1.22
86	3.02	1.27
87	3.25	1.29
88	3.53	1.33
89	3.46	1.51
90	3.26	1.38

ource: ERS/USDA

able 3: U.S. Commercial Pack, Frozen Strawberries

ear	MTs
970	91,457
975	83,437
980	114,824
985	103,971
986	107,806
987	151,727
988	124,596
1989	108,054
1990	138,804
1991	149,829

Source: American Frozen Food Institute

Table 4: U.S. Strawberry Exports, Metric Tons, 1987-1991

	1987	1988	1989	1990	1991
Fresh	25,908	35,483	39,920	38,887	43,189
Frozen	6,139	8,673	10,689	14,868	11,839

Source: U.S. Bureau of the Census

Table 5: U.S. Imports of Fresh Strawberries, 1980-1991, Metric Tons

	1981	1985	1988	1989	1990	1991
Canada	583	357	259	54	93	35
Mexico	2,094	3,049	15,947	13,888	12,601	13,041
Guatemala	24	18	527	1,148	547	365
Honduras			4	71		
Costa Rica		5	591	572	366	268
Dominican Rep					2	
Jamaica			1			
Colombia		1	30	118	801	381
Peru		1				
Chile		17	7	33	1	0
Ecuador		313		1	2	1
Argentina		1	1	4		
France	0					0
Monaco			19			
Germany			2			
Spain		2				
Turkey			1			
Israel	1	26	56			
Thailand		4	2			
Philippines			1			
Australia		10	12			2
New Zealand	324	790	433	452	185	172
Kiribati				4		
Mozambique		2				
Namibia		1				
Total	3,027	4,596	17,891	16,346	14,598	14,266

Source: U.S. Bureau of the Census

Table 6: U.S. Imports of Fresh Strawberries, 1980-1991, Customs Value, US$000s

	1981	1985	1988	1989	1990	1991
Canada	624	335	289	85	154	66
Mexico	2,057	2,757	14,694	13,548	13,074	15,844
Guatemala	31	7	547	1,177	533	322
Honduras			5	42		
Costa Rica		14	1,111	1,027	563	466
Dominican Rep					9	
Jamaica			4			
Colombia		2	65	333	1,975	1,184
Peru		3				
Chile		29	13	46	3	1
Ecuador		355		4	2	2
Argentina		3	1	4		
France	1					3
Monaco			16			
Germany			1			
Spain		28				
Turkey			2			
Israel	2	45	55			
Thailand		16	2			
Philippines			2			
Australia		33	56			7
New Zealand	1,486	3,634	1,501	1,618	538	557
Kiribati				4		
Mozambique		2				
Namibia		3				
Total	4,201	7,264	18,363	17,887	16,851	18,452

Source: U.S. Bureau of the Census

Table 7: U.S. Imports of Fresh Strawberries, 1980-1991, Customs Value, US$/kg

	1981	1985	1988	1989	1990	1991
Canada	1.07	0.94	1.12	1.58	1.66	1.89
Mexico	0.98	0.90	0.92	0.98	1.04	1.21
Guatemala	1.29	0.37	1.04	1.02	0.97	0.88
Honduras			1.24	0.59		
Costa Rica		2.65	1.88	1.79	1.54	1.74
Dominican Rep					3.75	
Jamaica			2.83			
Colombia		2.50	2.17	2.82	2.47	3.10
Peru		3.60				
Chile		1.70	1.96	1.37	5.21	2.84
Ecuador		1.13		2.89	0.93	3.40
Argentina		2.82	1.20	1.00		
France	40.65					37.50
Monaco			0.88			
Germany			0.59			
Spain		15.16				
Turkey			1.58			
Israel	1.33	1.74	0.99			
Thailand		3.99	1.03			
Philippines			1.93			
Australia		3.42	4.62			3.93
New Zealand	4.58	4.60	3.46	3.58	2.91	3.24
Kiribati				1.00		
Mozambique		0.73				
Namibia		3.90				
Total	1.39	1.58	1.03	1.09	1.15	1.29

Source: U.S. Bureau of the Census

Table 8: Total U.S. Imports of Frozen Strawberries, 1980-1991, Metric Tons

	1981	1985	1988	1989	1990	1991
Canada	36	210	823	885	319	7
Mexico	24,620	22,025	24,851	19,814	27,625	25,892
Guatemala			482	851	2,214	1,808
Costa Rica			16	66	43	60
Honduras			745	33		
Dominican Rep						63
Montserrat		18				
Colombia						148
Venezuela					123	1,515
Chile		414	411	64	40	18
Ecuador		230	625	528	523	963
Argentina					129	40
Brazil		63	20			
Netherlands				100		
France	10			2	5	
Andorra						20
Monaco						20
Switzerland	1					
Italy				0	0	
Spain			2	0	17	
Hungary					19	19
Poland	2,609	4,072	1,299	2,114	1,419	1,261
Yugoslavia	19	10		493	219	134
Malaysia		22	20		2	
Philippines					3	
Hong Kong			34			
Japan						27
New Zealand		15				
Ivory Coast		20				
TOTAL	27,296	27,099	29,328	24,949	32,700	31,996

Source: U.S. Bureau of the Census

Table 9: Total U.S. Imports of Frozen Strawberries, 1980-1991, US$000s

	1981	1985	1988	1989	1990	1991
Canada	48	210	683	907	294	19
Mexico	22,961	13,079	14,034	12,535	23,689	21,390
Guatemala			197	379	1,283	1,232
Costa Rica			18	125	33	192
Honduras			354	18		
Dominican Rep						12
Montserrat		12				
Colombia						178
Venezuela					88	2,153
Chile		306	301	49	31	41
Ecuador		141	542	448	505	909
Argentina					120	29
Brazil		36	16			
Netherlands				100		
France	17			6	8	
Andorra						19
Monaco						16
Switzerland	2					
Italy				1	2	
Spain			1	1	25	
Hungary					22	21
Poland	2,181	2,553	1,007	1,955	1,478	1,175
Yugoslavia	16	7		561	264	151
Malaysia		12	11		9	
Philippines					2	
Hong Kong			19			
Japan						21
New Zealand		11				
Ivory Coast		6				
TOTAL	25,225	16,373	17,182	17,084	27,853	27,558

Source: U.S. Bureau of the Census

Table 10: Total U.S. Imports of Frozen Strawberries, 1980-1991, US$/Kgs

	1981	1985	1988	1989	1990	1991
Canada	1.32	1.00	0.83	1.02	0.92	2.88
Mexico	0.93	0.59	0.56	0.63	0.86	0.83
Guatemala			0.41	0.44	0.58	0.68
Costa Rica			1.16	1.90	0.76	3.18
Honduras			0.47	0.56		
Dominican Rep						0.19
Montserrat		0.70				
Colombia						1.20
Venezuela					0.71	1.42
Chile		0.74	0.73	0.76	0.78	2.22
Ecuador		0.61	0.87	0.85	0.97	0.94
Argentina					0.93	0.72
Brazil		0.56	0.79			
Netherlands				1.00		
France	1.72			2.95	1.86	
Andorra						0.93
Monaco						0.78
Switzerland	1.53					
Italy				8.17	8.17	
Spain			0.70	6.50	1.47	
Hungary					1.20	1.08
Poland	0.84	0.63	0.78	0.92	1.04	0.93
Yugoslavia	0.86	0.72		1.14	1.20	1.13
Malaysia		0.55	0.53		5.53	
Philippines					0.87	
Hong Kong			0.56			
Japan						0.77
New Zealand		0.75				
Ivory Coast		0.31				
TOTAL	0.92	0.60	0.59	0.68	0.85	0.86

Source: U.S. Bureau of the Census

Table 1.: U.S. Imports of Strawberry Jams, 1980-1991, Metric Tons

	1981	1985	1988	1989	1990	1991
Canada	262	218	123	67	62	97
Mexico		2		10	1	
Costa Rica		8	9			
Jamaica		13	1	2	4	3
Dominican Rep		1				
Venezuela			9			
Chile		4				
Brazil					1	
Sweden			2	13	0	2
Denmark		34	859	713	1,040	866
United Kingdom	68	132	162	215	242	168
Ireland	7	2	24	75	75	6
Netherlands		109	45	31	4	
Belgium	2	40	6	2	1	2
France	46	251	211	218	251	254
Germany	2	884	1,890	1,036	262	334
Austria		1	10	3	47	65
Czechloslovakia					10	5
Hungary	11	637	410	377	788	240
Switzerland	62	96	107	95	132	82
Poland	9	17	3,952	1,411	2,740	1,039
USSR	25	4	63			
Spain		3		1		
Italy	1	6	1	0	0	1
Yugoslavia		71	739	601	1,700	2,186
Romania		40		4		
Greece			8			
Bulgaria			3			
Turkey			4			
Lebanon				17	1	
Israel	11	371	238	189	18	1
Pakistan		6	11			
Indonesia			0			
Philippines						0
China			8			
Taiwan			0			5
Japan	0					0
Australia		4	1			
Niue		21				
Total	505	2,972	8,896	5,081	7,381	5,357

Source: U.S. Bureau of the Census

Table 12: U.S. Imports of Strawberry Jams, 1980-1991, Customs Value, US$000s

	1981	1985	1988	1989	1990	1991
Canada	534	274	187	135	120	192
Mexico		16		12	1	
Costa Rica		7	19			
Jamaica		19	2	4	9	5
Dominican Rep		2				
Venezuela			12			
Chile		7				
Brazil					2	
Sweden			2	19	2	3
Denmark		35	1,100	887	1,326	1,038
United Kingdom	227	340	596	761	856	644
Ireland	15	3	35	107	109	16
Netherlands		99	72	42	11	
Belgium	1	48	16	7	5	6
France	107	488	530	617	838	806
Germany	3	1,263	3,041	1,768	433	619
Austria		2	31	14	85	50
Czechloslovakia					8	5
Hungary	8	292	302	306	659	210
Switzerland	130	208	379	304	489	300
Poland	10	15	1,463	634	850	533
USSR	19	2	12			
Spain		4		2		
Italy	2	15	6	1	2	6
Yugoslavia		49	379	292	689	977
Romania		36		2		
Greece			13			
Bulgaria			2			
Turkey			6			
Lebanon				22	1	
Israel	14	376	276	236	34	2
Pakistan		15	5			
Indonesia			1			
Philippines						2
China			12			
Taiwan			2			6
Japan	0					1
Australia		14	5			
Niue		10				
Total	1,070	3,638	8,506	6,172	6,528	5,421

Source: U.S. Bureau of the Census

Table 13: U.S. Imports of Strawberry Jams, 1980-1991, Customs Value, US$/kg

	1981	1985	1988	1989	1990	1991
Canada	2.04	1.26	1.51	2.01	1.94	1.98
Mexico		6.91		1.18	2.41	
Costa Rica		0.94	2.08			
Jamaica		1.50	2.78	1.66	2.05	1.64
Dominican Rep		1.65				
Venezuela			1.30			
Chile		1.79				
Brazil					3.00	
Sweden			1.29	1.39	4.70	1.50
Denmark		1.05	1.28	1.24	1.27	1.20
United Kingdom	3.32	2.58	3.68	3.54	3.53	3.82
Ireland	2.09	1.38	1.43	1.42	1.45	2.51
Netherlands		0.91	1.61	1.37	2.65	
Belgium	0.65	1.19	2.85	2.64	3.32	3.49
France	2.32	1.94	2.51	2.84	3.34	3.17
Germany	2.10	1.43	1.61	1.71	1.65	1.85
Austria		2.94	3.16	4.57	1.81	0.77
Czechloslovakia					0.76	0.92
Hungary	0.72	0.46	0.74	0.81	0.84	0.87
Switzerland	2.10	2.17	3.53	3.19	3.69	3.64
Poland	1.09	0.90	0.37	0.45	0.31	0.51
USSR	0.78	0.54	0.20			
Spain		1.34		3.76		
Italy	1.52	2.45	5.32	5.26	7.17	7.94
Yugoslavia		0.69	0.51	0.49	0.41	0.45
Romania		0.90		0.48		
Greece			1.70			
Bulgaria			0.64			
Turkey			1.44			
Lebanon				1.30	1.55	
Israel	1.25	1.01	1.16	1.25	1.90	1.63
Pakistan		2.45	0.48			
Indonesia			3.08			
Philippines						10.20
China			1.45			
Taiwan			8.30			1.32
Japan	2.67					3.33
Australia		3.84	4.81			
Niue		0.50				
Total	2.12	1.22	0.96	1.21	0.88	1.01

Source: U.S. Bureau of the Census

Table 14: U.S. Imports of Strawberry Pastes and Purees, Cooked, 1980-1991, Kgs

	1980	1985	1988	1989	1990	1991
Canada			2,148			
Mexico	1,962,454	664,585	797,913	639,612	707,761	468,982
Jamaica			1,588			
Sweden			799			
United Kingdom				528		
Netherlands				3,312	14,769	
Belgium				898	750	
France			3,651	2,495	4,038	587
Germany			401		420	610
Switzerland			977		2,612	1,306
Italy		326				
Turkey					1,200	
Israel				12,819	14,765	2,449
Japan					491	
Total	1,962,454	664,910	807,477	659,664	746,806	473,934

Source: U.S. Bureau of the Census

Table 15: U.S. Imports of Strawberry Pastes/Purees, Cooked, 1980-1991, Customs US$000s

	1980	1985	1988	1989	1990	1991
Canada			1			
Mexico	1,151	285	362	327	493	232
Jamaica			3			
Sweden			3			
United Kingdom				1		
Netherlands				8	11	
Belgium				10	4	
France			10	3	11	2
Germany			5		4	5
Switzerland			4		4	2
Italy		1				
Turkey					2	
Israel				7	27	5
Japan					4	
Total	1,151	287	387	355	561	246

Source: U.S. Bureau of the Census

Table 16: U.S. Imports of Strawberry Pastes and Purees, Cooked, 1980-1991, US$/kg

	1980	1985	1988	1989	1990	1991
Canada			0.65			
Mexico	0.59	0.43	0.45	0.51	0.70	0.49
Jamaica			1.86			
Sweden			3.14			
United Kingdom				2.48		
Netherlands				2.52	0.77	
Belgium				10.86	5.55	
France			2.61	1.02	2.62	3.41
Germany			11.73		9.32	8.20
Switzerland			4.25		1.55	1.53
Italy		3.93				
Turkey					1.83	
Israel				0.51	1.86	2.04
Japan					8.72	
Total	0.59	0.43	0.48	0.54	0.75	0.52

Source: U.S. Bureau of the Census

Table 17: U.S. Imports of Strawberries, Oth Preparations, 1980-1991, Kgs

	1980	1985	1988	1989	1990	1991
Canada	163,903	1,000,056	272,085	146,960	1,551	170,448
Mexico		588,496	317,467	48,401	57,153	571,149
Guatemala				11,812		
Jamaica					15,596	19,645
Argentina			14,696			
Sweden	370		273			
Denmark			4,251	294,911	62,203	3,948
United Kingdom	12,404	104,811	70,369		810	997
Ireland	110					
Netherlands	168	53,310			265,842	191,997
Belgium					44,307	
France	7,393	65,005	104,655	49,299	39,696	44,487
Germany	27,671	50,378	551,871	62,490		2,000
Austria		1,857	8,190	2,294	1,152	2,155
Switzerland	1,837	5,226		5,550	3,600	
Poland	20,839	2,046	3,008	118,398	17,289	12,650
Soviet Union						18,000
Spain				13,180		
Italy		1,184	715	1,582	2,827	1,651
Romania					1,516	
Greece		2,367				
Turkey			2,270		580	
Israel	98,133	6,306	151,162	73,954	11,500	
New Zealand		2,294		33,368		
China	436					
Total	333,264	1,883,336	1,501,012	862,199	525,622	1,039,127

Source: U.S. Bureau of the Census

Table 18: U.S. Imports of Strawberries, Oth Preps, 1980-1991, Customs US$000s

	1980	1985	1988	1989	1990	1991
Canada	177	985	336	250	4	326
Mexico		289	257	27	51	570
Guatemala				16		
Jamaica					13	16
Argentina			13			
Sweden	1		1			
Denmark			9	319	93	8
United Kingdom	31	268	285		3	6
Ireland	0					
Netherlands	0	42			216	156
Belgium					37	
France	20	104	393	135	114	118
Germany	33	79	898	102		6
Austria		4	16	5	3	4
Switzerland	5	11		10	7	
Poland	18	2	2	114	11	10
Soviet Union						7
Spain				15		
Italy		7	1	8	19	14
Romania					3	
Greece		6				
Turkey			1		2	
Israel	96	11	167	92	18	
New Zealand		9		25		
China	0					
Total	380	1,815	2,380	1,117	594	1,241

Source: U.S. Bureau of the Census

Table 19: U.S. Imports of Strawberries, Oth Preparations, 1980-1991, US$/kg

	1980	1985	1988	1989	1990	1991
Canada	1.08	0.99	1.23	1.70	2.89	1.91
Mexico		0.49	0.81	0.55	0.89	1.00
Guatemala				1.32		
Jamaica					0.85	0.81
Argentina			0.87			
Sweden	2.57		4.89			
Denmark			2.05	1.08	1.49	2.03
United Kingdom	2.48	2.55	4.05		4.10	6.02
Ireland	3.36					
Netherlands	2.42	0.79			0.81	0.81
Belgium					0.84	
France	2.64	1.60	3.75	2.74	2.87	2.65
Germany	1.19	1.56	1.63	1.63		3.00
Austria		1.92	1.98	2.04	2.72	1.86
Switzerland	2.60	2.04		1.71	1.81	
Poland	0.85	0.89	0.82	0.96	0.63	0.79
Soviet Union						0.39
Spain				1.16		
Italy		6.09	2.04	5.31	6.82	8.48
Romania					1.90	
Greece		2.63				
Turkey			0.59		3.35	
Israel	0.98	1.69	1.10	1.24	1.59	
New Zealand		3.87		0.75		
China	1.04					
Total	1.14	0.96	1.59	1.29	1.13	1.19

Source: U.S. Bureau of the Census

Table 20: U.S. Imports of Fresh Strawberries, 1991, by Month, Metric Tons

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada						24	10		0				35
Mexico	1,391	2,190	2,043	2,417	1,858	1,400	237			9	520	977	13,041
Guatemala	139	35	19							12	59	102	365
Costa Rica	123	145					0						268
Colombia	115	79	26	7			3			4	67	80	381
Ecuador												1	1
Chile											0		0
France					0								0
Australia											2		2
New Zealand	13									1	59	99	172
TOTAL	1,780	2,449	2,087	2,424	1,858	1,424	251		0	26	707	1,259	14,265

Source: U.S. Bureau of the Census

Table 21: U.S. Imports of Fresh Strawberries, 1991, by Month, Customs Value, US$000s

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada						43	22		1				66
Mexico	1,638	3,074	4,212	2,936	1,468	785	129			13	641	948	15,844
Guatemala	131	35	19							8	42	87	322
Costa Rica	208	257					1						466
Colombia	310	243	92	20			9			13	227	268	1,182
Ecuador												2	2
Chile											1		1
France					3								3
Australia											7		7
New Zealand	27									6	219	305	557
TOTAL	2,314	3,609	4,323	2,956	1,471	828	161		1	40	1,137	1,610	18,450

Source: U.S. Bureau of the Census

Table 22: U.S. Imports of Fresh Strawberries, 1991, by Month, Customs Value, US$/kg

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Canada						1.77	2.14		4.18				1.89
Mexico	1.18	1.40	2.06	1.21	0.79	0.56	0.54			1.49	1.23	0.97	1.21
Guatemala	0.95	1.01	1.03							0.67	0.71	0.85	0.88
Costa Rica	1.69	1.77					2.79						1.74
Colombia	2.71	3.08	3.52	3.04			3.03			3.04	3.40	3.33	3.11
Ecuador												3.40	3.40
Chile											2.84		2.84
France					37.50								37.50
Australia											3.93		3.93
New Zealand	2.16									4.95	3.69	3.09	3.24
TOTAL	1.39	1.47	2.07	1.22	0.79	0.58	0.64		4.18	1.53	1.61	1.28	1.29

Source: U.S. Bureau of the Census

Table 23: 1991 Fresh Strawberry Wholesale Prices

Flat of 12 One Pint Cups, US$ per Pint
Average of Monday or Tuesday High and Low Prices, Mostly Good some Fair

Month	Week	New York Calif	New York Florida	Boston Calif	Boston Florida	Chicago Calif	Chicago Florida	UNWEIGHTED AVERAGE
Jan	1		0.88		0.75			0.81
	2		1.18	2.38	0.85		1.00	1.35
	3		1.13	2.00	1.25		1.21	1.40
	4	2.13	1.33	2.13	1.50		1.38	1.69
	5	2.25	1.38	2.18	1.50		1.38	1.74
Feb	6	2.38	1.38	2.25	1.63		1.46	1.82
	7	2.13	1.38	2.25	1.25	2.00	1.17	1.69
	8	1.75		1.50	1.13	1.83	1.25	1.49
	9	1.13		1.18	0.83	1.29	0.79	1.04
Mar	10	1.25		1.23	1.18	1.25	0.83	1.15
	11	1.88		1.50			1.38	1.58
	12	1.88		1.75	1.13		1.29	1.51
	13	1.13		1.20	1.25		0.83	1.10
Apr	14	1.38		1.18		0.88		1.14
	15	1.23		0.95		0.96		1.04
	16	1.50		1.10				1.30
	17	0.88		0.78				0.83
	18	0.70		0.70				0.70
May	19	1.13		1.13				1.13
	20	1.13		1.10				1.11
	21	1.03		0.95		0.92		0.96
	22	0.80		0.83		0.96		0.86
Jun	23	0.78		0.80				0.79
	24	0.68		0.83		1.17		0.89
	25	0.63		0.70				0.66
	26	0.78		0.78		0.83		0.79
Jul	27	0.73		0.63		0.63		0.66
	28	0.75		0.70		0.63		0.69
	29	0.95		1.00		1.00		0.98
	30	0.95		1.13		1.17		1.08
	31	0.93		0.73		1.00		0.88
Aug	32	1.88		0.55		0.58		1.00
	33	0.70		0.68		0.63		0.67
	34	1.13		0.70		0.67		0.83
	35	0.80		0.60		0.63		0.68
Sept	36	0.73		0.68		0.67		0.69
	37	0.83		0.80		0.67		0.76
	38	0.63		0.50		0.63		0.58
	39	0.58		0.50		0.63		0.57
	40	0.58		0.73		0.63		0.64
Oct	41	0.63		0.65		0.63		0.63
	42	0.88		0.75		0.75		0.79
	43	1.08		0.90		1.13		1.03
	44	1.00		0.90		1.13		1.01
Nov	45	1.95		1.50		2.08		1.84
	46	1.75		1.50		1.58		1.61
	47	1.38		1.38		0.92	0.67	1.08
	48	2.00	1.50	1.50	1.75	2.08	1.67	1.75
Dec	49	2.13	2.00	1.50		1.29	1.58	1.70
	50	1.00	1.50	1.00	1.70	1.25		1.29
	51	1.13	1.25	1.25	1.25	1.17		1.21
	52	1.13	1.63	1.38	1.30		1.33	1.35
	53		1.13	1.13	1.00		1.29	1.14

Source: Market News Service (New York, Boston, Chicago)

Annex A: Representative List of U.S. Importers

The following list is taken from the 1992 Directory of United States Importers, published by Journal of Commerce Inc. Lists are in harmonized tariff system classification order. Not all products are listed -- in this case the exporter should look at a more general category ('dried fruits', etc.). Additional contact information is available on request.

0603108000 Flowers, Fresh Cut
Bell Flowers, Inc., (MD)
Continental Farms, Inc., (FL)
Eldorado Trading Co., Inc., (FL)
First Flower Corp., (FL)
Iveys, Inc., (CN)
North Pacific Trading, (OR)
Pacific International Export-Import, Inc., (FL)
Shemin Nurseries, Inc., (CT)

0603900000 Flowers, NES
Agrexco USA, Ltd., (NY)
Angray Merchandising, Inc., (CA)
Apex-Neidinger, Inc., (PA)
Aphrodisia Products, Inc., (NY)
Bell Flowers, Inc., (MD)
Bethany Sales Co., (IL)
Bonkenburg & Co., Inc., J., (NY)
Caffco Imports Co., (AL)
Caspian Trading Co., Inc., (AZ)
Condor Farms, Inc., (FL)
Craft House Corp., (OH)
DMR Distributors, Inc., (FL)
DWF Wholesale of Cincinnati, (OH)
Do Do Sales, Inc., (FL)
Floral Sales Corp., (FL)
Floral, Inc., (IL)
Fmali Herb Co., Inc., (CA)
Frylink & Sons, Inc., A., (VA)
Gallup & Stribling Orchids, Inc., (CA)
General Brokerage Co., (CA)
Holland-America Floral, Ltd., (CO)
Horticultural Sales Co., (FL)
International Floral Fashions, Inc., (CA)
Kerr Drugs, (NC)
L & S Imports Co., (IN)
Lebermuth Co., The, (IN)
Lilypons Water Gardens, Inc., (MD)
Lindskoog-Latham Flowers, (MN)
Louisville Seed Co., (KY)
Max Van Pels, Inc., (NY)
McCrory Corp., McCrory Stores Div., (PA)
Nielsen Co., Inc., Knud, (AL)
Nordlie, Inc., (MI)
Nouvette Trading Co., Inc., (NY)
OFE International, Inc., (FL)
Pioneer Imports, (MA)
Pouliot Designs, Inc., (MN)
Reliance Trading Corp. of America, (NJ)
San Francisco Herb & Natural Foods Co., Inc., (CA)
Schiff Food Products Co., Inc., (NY)
Tapscott's, Inc., (KY)
Thomas & Co., Inc., P. L., (NJ)
United Bulb Co., Inc., (MI)
Van Zyverden Brothers, Inc., (MS)
Willert Home Products Co., Inc., (MO)
Zuellig Botanicals Co., Botanicals International Div., (CA)

0702000000 Tomatoes, Fresh Or Chilled
Accardi & Sons, Inc., John, (MA)
Atlantic Food Distributors, Inc., (NJ)
Amer-Ital Foods, Ltd., (NY)
Caragol, Inc., Joseph, (NY)
Chiquita Brands International, Inc., (OH)
Coluccio & Son, D., (NY)
Creative Food Import, Ltd., (MD)
Culinar Foods, Inc., Unico Div., (CN)
Daniele Imports, Inc., (MA)
Della Cella Co., Inc., L., (NY)
Directus International, (CA)
Diversi Foods, Inc., (CT)
Esposito Associates, Neil, (NY)
F & M Importing Co., Inc., (CA)
Floras Distributors, Inc., (FL)
Formusa Co., Inc., V., (IL)
Giorgio Foods, Inc., (PA)
Gitto Sons, Inc., Joseph, (NY)
Gondola Foods Corp., (MA)
Horn International Co., E. T., (CA)
Kouri Foods, Inc., (CN)
Massave Produce, Inc., (FL)
Metafora Co., Inc., Louis, (MA)
Pastene Companies, Ltd., (MA)
Pastore, Inc., (MD)
Racconto, Inc., (IL)
Roma Food Enterprises, Inc., (NJ)
Russo Imports, Albert A., (MA)
Salvati Foods, Inc., (NY)
Sanderson Farms, Inc., Foods Div., (MS)
Scally Imperial Importing Co., Inc., (NY)
Squisita Food Corp., (NY)
Tama Trading Co., (CA)
Tosi Trading Co., (MA)
Trans-Oceanic Sales Co., Inc., (NY)
Truscello & Sons Wholesalers, Inc., (FL)
Valley Cheese, Wine & Food Imports, (CA)

0704904040 Vegetables, Fresh Or Chilled
Advance Producr, Inc., (NY)
Agriculture Export/Import (USA) Co., (CA)
Atlapac Trading Co., Inc., (CA)
Auster Co., Inc., The, (IL)
Battaglia Processing Co., Inc., August, (IL)
Bedessee Imports, Inc., (NY)
Burns Foods, Ltd., Scott National Div., (CN)
Burns Philp Co. of San Francisco, (CA)
Carben, Inc., (FL)
Chestnut Hill Farms Co., (FL)
Chiquita Brands, Inc., (LA)
Coexport International, Inc., (IL)
Cosmopolitan Importers, Ltd., (CN)
Dorchester Bay Trading Corp., (MA)
Draper King Cole, (DE)
Dunbar, Inc., Moody, (TN)
Essene Natural Foods Store, Inc., (PA)
First Asian Foods Corp., (CA)
First Oriental Food, Inc., (CA)
Foodpro International, Inc., (CA)
Fruit Jobbers, Inc., (MS)
General Brokerage Co., (CA)
Global Marketing Associates, Inc., (GA)
Golden Country Oriental Foods, Inc., (IL)
Great Pacific, (TX)
Hanini, Inc., (MD)
Haram-Christensen Corp., (NJ)
Hong Won Trading, Inc., (NY)
IMEX Trade Corp., (FL)
IPC Trading Co., (NJ)
Ingredient Resources, Inc., (NY)
JR Butcher Shoppe, Inc., (MA)
Jones & Co., Inc., R. A., (KY)
Kanematsu USA, Inc., Div. of Kanematsu Corp., (CA)
Kopke, Inc., William H., Jr., (NY)
Kouri Foods, Inc., (CN)
Lamex International, Inc., (MN)
Leonard & MacDonald, Ltd., (CN)
Lincoln Diversified Systems, Inc., (FL)
Made In France, Inc., (CA)
Marubeni America Corp., San Francisco Branch, (CA)
Mega Marketing & Brokerage, Inc., (FL)
Mercado Latino, Inc., (CA)
Mezzetta, Inc., G. L., (CA)
Millbrook Distributors, Inc., (MA)
Mings Import, Inc., (MA)
Monterrey Food Products, (CA)
Mulsen Trading Co., Ltd., (WA)
Noon International, Inc., (CA)
North Pacific Trading, (OR)
Ontario International, Inc., (FL)
Organic Farms, Inc., (MD)
PTC International, Inc., (MD)
Piccadilly Imports, Inc., (CA)
Port Royal Sales, Ltd., (NY)
Prevor/Marketing International, Inc., (NY)
Princeton International, Inc., (CA)
Recamier, Inc., (VA)
Riverdale International, Inc., (MD)
Rosa Food Products Co., (PA)
S & M Produce, Inc., (IL)
Schnell & Co., Inc., H., (NY)
Seven Brothers Trading, Inc., (CA)
Slaughter Co., Randolph, (TX)
Spada Enterprises, Ltd., (OR)
Spice King Corp., (CA)
Starwest Botanical, (CA)
Steinfelds Products Co., (OR)
Sun Fat Trading Co., (CA)

Sunset Produce Co., Inc., (CA)
Sunshine Produce Exchange, Inc., (FL)
Syrex, Inc., (NY)
Taormina Sales, (NJ)
Thong Thai Corp., (NJ)
Tradexim International Co., (CA)
Transmed Foods, Inc., (MD)
Tri-Marine International, (CA)
Tripper, Inc., Jack, (SC)
Vandenberg, Inc., Jac, (NY)
Vasinee Food, (NY)
Viet Wah Trading Corp., (WA)
W-East Trading Corp., (FL)
Western Overseas Trade & Development Corp., (CA)
Wheatley & Son, R. L. (MD)
Whole Herb Co., Inc., (CA)

0708104000 Peas, Fresh Or Chilled
Auerbach, Maurice A., Inc., (NY)
Connell Rice & Sugar Co., Inc., Connell Foods Div., (NJ)
Inmark International, Inc., (WA)
Kellogg, Inc., Seeds & Supplies, (WI)
Parker Trading Corp., (NY)
Southeastern Food Supply, Inc., (FL)

0708209000 Beans, Fresh Or Chilled
American Trading Co., (CA)
Bakker Brothers of Idaho, Inc., (ID)
Bedessee Imports, Inc., (NY)
Caudill Seed & Warehouse Co., Inc., (KY)
Chiquita Brands International, Inc., (OH)
Great Lakes International Trading, Inc., (MI)
Indian Groceries, & Spices, Inc., (IL)
Parker Trading Corp., (NY)
Pastore, Inc., (MD)
Patel Brothers Co., (IL)
Rodriguez & Co., Inc., J. M., (NJ)
Scally Imperial Importing Co., Inc., (NY)
Squisita Food Corp., (NY)
Summit International Co., (CA)
Vacca, Inc., Salvatore, (NY)
Rubinelli, Inc., (IL)
S & W Fine Foods, Inc., (CA)
Scally Imperial Importing Co., Inc., (NY)
Specialty Food Packing & Importing Co., (IL)
Trans-Oceanic Sales Co., Inc., (NY)
Tripper, Inc., Jack, (SC)
Unifrutti of America, Inc., (PA)
Vigo Importing Co., (FL)

0709209000 Asparagus, Fresh Or Chilled
Auerbach, Maurice A., Inc., (NY)
Connell Rice & Sugar Co., Inc., Connell Foods Div., (NJ)
IPC Trading Co., (NJ)
Made In France, Inc., (CA)
NT Gargiulo, Inc., (FL)
Napoleon Co., The, (WA)
New Zealand Gourmet, Inc., (CA)
Primarque Products Co., Inc., (MA)
Speciality Food Distributors, Inc., (FL)
Syrex, Inc., (NY)
Variety Import Co., (FL)

0709600020 Chili Peppers, Fresh Or Chilled
Bentley & Bentley, Inc., (CA)
Horn International Co., E. T., (CA)
KPM Corp., (NJ)
Kiwi Trading Co., Div. of Arguimbau & Co., Inc., (CT)
Liauno Foods Importing, Inc., (NJ)
Steengrafe & Co., Inc., D., (NY)

0709901600 Okra, Fresh Or Chilled
Del Puerto International, Inc., (CA)

0710809540 Okra, Frozen
United Foods Co., (TN)

0710809550 Vegetables, Frozen
Bank Co., The, (MI)
Beaver Street Fisheries, Inc., (FL)
Beebe Co., A. M., (CA)
Berelson & Co., D. B., (CA)
Dennis Sales, Ltd., (MD)
Dorchester Bay Trading Corp., (MA)
Gulf Marine & Industrial Supplies, Inc., (LA)
Hartog Trading Corp., (NY)
Interamerican Quality Foods, Inc., (TX)
Kanematsu USA, Inc., Div. of Kanematsu Corp., (CA)
Kendall Frozen Fruits, Inc., (CA)
Kotake Shokai, Ltd., (HI)
Landsman International, Inc., (FL)
Landsman Packing Co., Inc., (FL)
Mayflower International, Ltd., (MA)
Mitsui Foods, Inc., (NJ)
Northwest Cold Pack Co., Div. of Kelley Clark Co., (WA)
Pacmarine Products, Inc., (NY)
Pan American Frozen Foods, Inc., (FL)
Rema Foods, Inc., (NJ)
Slaughter Co., Randolph, (TX)
Steibel Industries, Inc., (FL)
United Pacific Packers, (WA)

0710901000 Pea Pods Or Water Chestnut Mixtures, Frozen
Beatrice/Hunt-Wesson, Inc., La Choy Food Products Div., (OH)
Kubla Khan Food Co., (OR)
Pacmarine Products, Inc., (NY)

0804400000 Avocados, Fresh Or Dried
Calavo Growers of California, (CA)
Chestnut Hill Farms Co., (FL)
Syrex, Inc., (NY)

0804500000 Guavas, Mangoes, Or Mangosteens, Fresh Or Dried
Ayengar Associates, Inc., (WA)
Chestnut Hill Farms Co., (FL)
ConAgra Dried Fruit & Nut Co., (CA)
Hershey Import Co., Inc., (NJ)
Lincoln Diversified Systems, Inc., (FL)
Timber Crest Farms Co., (CA)

0810104000 Strawberries, Fresh
Chestnut Hill Farms Co., (FL)
Chiquita Brands International, Inc., (OH)
Smucker Co., J. M., (OH)
Syrex, Inc., (NY)

0810904000 Fruit, Fresh
Advance Produce, Inc., (NY)
Agriculture Export/Import (USA) Co., (CA)
Auster Co., Inc., The, (IL)
Battaglia Processing Co., Inc., August, (IL)
Bee International, Inc., (CA)
Bee Natural Honey Co., Inc., (FL)
Burns Foods, Ltd., Scott National Div., (CN)
Burns Philp Co. of San Francisco, (CA)
Carben, Inc., (FL)
Chiquita Brands, Inc., (LA)
Coexport International, Inc., (IL)
DeVries Imports, (CA)
Del Puerto International, Inc., (CA)
Frupac International Corp., (PA)
Gourmet Club Corp., (NJ)
Goya Foods, Inc., (NJ)
H.C. Foods Co., (CA)
Hillcrest Sales Co., Inc., (PA)
Homa Co., (NJ)
IPC Trading Co., (NJ)
Jones & Klink Corp., (CA)
Kanematsu USA, Inc., Div. of Kanematsu Corp., (CA)
Kopke, Inc., William H., Jr., (NY)
Kouri Foods, Inc., (CN)
Kraft Rosenblum, (NJ)
LA Group, Inc., (CA)
Leonard & MacDonald, Ltd., (CN)
Lindemann Produce, Inc., (CA)
Malagasy Agencies, Inc., (NJ)
Mega Marketing & Brokerage, Inc., (FL)
Millbrook Distributors, Inc., (MA)
Mulsen Trading Co., Ltd., (WA)
New West Foods, (CA)
Ontario International, Inc., (FL)
Organic Farms, Inc., (MD)
Pandol Brothers, Inc., (CA)
Perry International Corp., (CA)
Perry International Corp., Perry Farms Div., (CA)
Pisciotta Fruit & Vegetable Co., (MO)
Port Royal Sales, Ltd., (NY)
Prevor/Marketing International, Inc., (NY)
Ronstadt Co., Inc., R. J., Vrymeer Commodities Div., (IL)
S & M Produce, Inc., (IL)
Scally Imperial Importing Co., Inc., (NY)

Schreiber Foods International, Inc., (NJ)
Socodis Bocchi Trading, Inc., (PA)
Spada Enterprises, Ltd., (OR)
Sun Pac Foods, Inc., (CN)
Sun-Diamond Growers of California, (IL)
Sunset Produce Co., Inc., (CA)
Sunshine Produce Exchange, Inc., (FL)
Tan Duc Trading Corp., (NY)
Thong Thai Corp., (NJ)
Tradexim International Co., (CA)
Trugman-Nash, Inc., (NY)
Unifrutti of America, Inc., (PA)
Vandenberg, Inc., Jac, (NY)
Viet Wah Trading Corp., (WA)
Wheatley & Son, R. L. (MD)

0811908080 Fruit Or Nuts, Frozen
Bank Co., The, (MI)
Beebe Co., A. M., (CA)
Berelson & Co., D. B., (CA)
Dennis Sales, Ltd., (MD)
Foodpro International, Inc., (CA)
GB International, Inc., (NJ)
Globe Products Co., Inc., (NJ)
Hartog Foods International, Inc., (NY)
Hartog Trading Corp., (NY)
Illes Co., The, (TX)
Interamerican Quality Foods, Inc., (TX)
Kanematsu USA, Inc., Div. of Kanematsu Corp., (CA)
Kotake Shokai, Ltd., (HI)
Lamex International, Inc., (MN)
Mayflower International, Ltd., (MA)
Mitsui Foods, Inc., (NJ)
Northwest Cold Pack Co., Div. of Kelley Clark Co., (WA)
Sanofi Bio-Industries, Inc., (PA)
Triangulo Carribe, Inc., (FL)
United Pacific Packers, (WA)

0813409000 Fruit, Dried, NES
Agriculture Export/Import (USA) Co., (CA)
American Importing Co., Inc., (MN)
Balcorp, Ltd., (CN)
Barkey Importing Co., Inc., (NY)
Beck Co., Inc., Mitchel, (NY)
Beebe Co., A. M., (CA)
Berdex International, Inc., (CA)
Braun & Sons, Inc., J. F., Div. of S & W Berisford, Ltd., (NY)
Braun Cocoa Corp., Sub. of J. F. Braun & Sons, Inc., (NY)
Cade-Grayson Co., (CA)
Caspian Trading Co., Inc., (AZ)
Chisholm, Ltd., Ronald A., (CN)
Dae-Julie, Inc., (IL)
Derco Associates, (CA)
Durey Libby Edible Nuts, Inc., (NJ)
Eclipse Food Products Corp., Div. of Globe Extracts, Inc., (RI)
Fiesta Nut Corp., (NY)
Finck-Jones-Libby Co., Inc., (NY)
Franklin Trading Co., Inc., (NY)
Freeman Industries, Inc., (NY)
Gel Spice Co., Inc., (NJ)
Globe Products Co., Inc., (NJ)
Great Lakes International Trading, Inc., (MI)
H & T International Food Brokers, Inc., (CN)
HTC Commodity Corp., (NY)
Hartog Foods International, Inc., (NY)
Hartog Trading Corp., (NY)
Homa Co., (NJ)
Jade Food Products, Inc., (HI)
Khazzam, Inc., J. S., (CN)
Kotake Shokai, Ltd., (HI)
Lawton Co., Ltd., H., (CN)
Loretta Foods, Ltd., (CN)
MacKelvies, Ltd., (CN)
Mandalay Food Products Corp., (CA)
Mercantum (US) Corp., (NY)
Mueller Co., Inc., Ludwig, (NY)
Nouvette Trading Co., Inc., (NY)
Organic Farms, Inc., (MD)
Perry International Corp., Perry Farms Div., (CA)
Pretsco Foods, Ltd., (CN)
Purcell & Associates, Inc., (CA)
Ryan Trading Corp., (NY)
Seawind International, Inc., (CA)
Setton International Foods, Inc., (NY)
Spice King Corp., (CA)
Stanford Seed Co., Inc., (PA)
Sun-Diamond Growers of California, (CA)
Thong Thai Corp., (NJ)
Tree of Life, Inc., (FL)
Trucco, Inc., A. J., (NY)
Vega Trading Co., Inc., (NY)
Virginia & Spanish Peanut Co., Inc., (RI)

2001903900 Vegetables, Prepared Or Preserved In Vinegar
Ancona Brothers Co., (NE)
Cates & Sons, Inc., Charles F., (NC)
Del Rio Products, Inc., (FL)
Giuriani USA, (CA)
Hunter Co., H. B., (VA)
Kreiner Imports, (IL)
Lipitz Co., Inc., Benjamin, (PA)
Mezzetta, Inc., G. L., (CA)
Mid America Sales Co., (IL)
Mooney International, Inc., (NJ)
Pope Food Sales, Inc., (NJ)

2004908000 Beans, Frozen, Prepared Or Preserved
Beatrice/Hunt-Wesson, Inc., La Choy Food Products Div., (OH)
Beaverton Foods, Inc., (OR)
Bee Natural Honey Co., Inc., (FL)
Casera Foods, Inc., Div. of Campbell Soup Co., (PR)
Dumont Co., L. W., (NY)
Gitto Sons, Inc., Joseph, (NY)
International Multifoods Corp., (MN)
Mega Marketing & Brokerage, Inc., (FL)
Miranda Imports, John, (MA)
Orlando Food Corp., (NJ)
Regina Nut Products Corp., The, (NY)
Viet Wah Trading Corp., (WA)
Winner Trading Co., Inc., The, (NY)

2004909000 Vegetables, Frozen, Prepared Or Preserved, NES
GB International, Inc., (NJ)
Malgor & Co., Inc., (PR)
Sanderson Farms, Inc., Foods Div., (MS)
Vega Trading Co., Inc., (NY)

2004909020 Carrots, Frozen, Prepared Or Preserved
Diamond Food Products Co., (PA)
Reese Finer Foods, Inc., (NJ)

2004909060 Peas, Frozen, Prepared Or Preserved
La Cena Fine Foods, Ltd., (NJ)
Northwest Cold Pack Co., Div. of Kelley Clark Co., (WA)
Vitarroz Corp., (NJ)

2004909080 Vegetables, Mixed, Frozen, Prepared Or Preserved, NES
Adamba Imports International, (NY)
Allemagnia Imports, Inc., (CA)
Amazon Coffee Co., Inc., De Choix Speciality Foods Co., (NY)
American Roland Food Corp., (NY)
Atalanta Corp., (CA)
BMT Commodity Corp., (NY)
Bank Co., The, (MI)
Bee Natural Honey Co., Inc., (FL)
Beebe Co., A. M., (CA)
Cade-Grayson Co., (CA)
Creative Food Import, Ltd., (MD)
Daybreak International, (CA)
Diana Foods, Inc., Div. of Goya Foods, (FL)
French Imports Co., (CA)
Globe Products Co., Inc., (NJ)
Graham International, Inc., Ray, (CA)
Greco Roman Importers, Inc., (FL)
H & T International Food Brokers, Inc., (CN)
Hanover Foods-Lancaster Div., (PA)
Hogan Associates, Inc., (CA)
IAC, Inc., (NY)
Knight Seed Co., (MN)
La Cena Fine Foods, Ltd., (NJ)
Lamex International, Inc., (MN)
Mitsui Foods, Inc., (NJ)
New England Food Supply Co., (MA)

New York Food Specialties Co., (NJ)
Northwest Cold Pack Co., Div. of Kelley Clark Co., (WA)
Puig Import, Vicente, (NJ)
Reese Finer Foods, Inc., (NJ)
Rema Foods, Inc., (NJ)
Rodriguez & Co., Inc., J. M., (NJ)
Sentai America Corp., (WA)
Sexton & Co., John, (IL)
Spada Enterprises, Ltd., (OR)
Spice King Corp., (CA)
Squisita Food Corp., (NY)
Vero Industries, Inc., (KY)

2005514040 Beans, Prepared Or Preserved
D'Angiola Domenico, Inc., (NY)

2005600000 Asparagus, Prepared Or Preserved
Diamond Food Products Co., (PA)
Food Distributors, (CA)
Natures Farm Products, Inc., (CA)
S & W Fine Foods, Inc., (CA)
World Impex Corp., (FL)

2005909500 Vegetables, Prepared Or Preserved, NES
APA Management & Development Corp., (NJ)
Berelson & Co., D. B., (CA)
Calderon, Inc., V. M., (FL)
Camencan International, Inc., (NJ)
Cosmopolitan Importers, Ltd., (CN
Dee-Julie, Inc., (IL)
Della Cella Co., Inc., L., (NY)
Europa Foods, Ltd., (NY)
Freeman Industries, Inc., (NY)
GB International, Inc., (NJ)
Gourmet Award Foods, (MN)
Gourmet France, Inc., (CA)
H.C. Foods Co., (CA)
Haddon House Food Products, Inc. (NJ)
Hartog Trading Corp., (NY)
Hernandez, Eduardo, (FL)
Horn Co., John Stanley, (CA)
Kanematsu USA, Inc., Div. of Kanematsu Corp., (CA)
Kotake Shokai, Ltd.; (HI)
Liberty Richter, Inc., (NJ)
Lisanti Foods Importing, Inc., (NJ)
Loretta Foods, Ltd., (CN)
Martin & Sons Co., Inc., William E., (NY)
Milky Way International Corp., (CA)
Mira International Foods, Inc., (NJ)
Mondial Trading U.S.A., Ltd., (NJ)
Mulsen Trading Co., Ltd., (WA)
Pan Asia (U.S.A.) Co., (CA)
Pica Trading Co., (CA)
Pope Food Sales, Inc., (NJ)
Preisco Foods, Ltd., (CN)
Princeton International, Inc., (CA)
Recamier, Inc., (VA)
Ronstadt Co., Inc., R. J., Vrymeer Commodities Div., (IL)
Sands African Imports, (NJ)
Schaffer Food Service Co., (NY)
Seawind International, Inc., (CA)
Socodis Bocchi Trading, Inc., (PA)
Stanford Seed Co., Inc., (PA)
Taormina Sales, (NJ)
Transmed Foods, Inc., (MD)
Tripper, Inc., Jack, (SC)
Vaunee Food, (NY)
W-East Trading Corp., (FL)
Westdale Foods Co., Vander Vliet's Holland Imports Div., (IL)

2006007000 Fruit Or Nuts, Preserved
Adamba Imports International, (NY)
American Roland Food Corp., (NY)
Ancel Products, Inc., (FL)
Bank Co., The, (MI)
Bernstein Co., Inc., William, (NY)
Calderon, Inc., V. M., (FL)
Camerican International, Inc., (NJ)
Caragol, Inc., Joseph, (NY)
Della Cella Co., Inc., L., (NY)
First Asian Foods Corp., (CA)
First Oriental Food, Inc., (CA)
Globe Products Co., Inc., (NJ)
Hartog Trading Corp., (NY)
Hirt Co., R., Jr., (MI)
Hogan Associates, Inc., (CA)
Horn Co., John Stanley, (CA)
IAC, Inc., (NY)
KPM Corp., (NJ)
Kanematsu USA, Inc., Div. of Kanematsu Corp., (CA)
Los Angeles Nut House Brands, International Div., (CA)
Mars Fudge & Fruit Co., Inc., (NY)
Milky Way International Corp., (CA)
Mings Import, Inc., (MA)
Mitsui Foods, Inc., (NJ)
Morris National, Inc., (CN)
Pica Trading Co., (CA)
Purcell & Associates, Inc., (CA)
Regina Nut Products Corp., The, (NY)
Sahlin Imports, Inc., W. G., (OR)
Sandoz Nutrition, Inc., (MN)
Schaffer Food Service Co., (NY)
Schreiber Foods International, Inc., (NJ)
Sentai America Corp., (WA)
Vega Trading Co., Inc., (NY)

2007100000 Jams, Fruit Jellies, Marmalades, Fruit Or Nut Puree Or Pastes, Cooked Or Homogenized
Allied International Corp., (VA)
Bargain Wholesale, (CA)
Barkey Importing Co., Inc., (NY)
Bri Al, Inc., (IL)
Culinar Foods, Inc., Unico Div., (CN)
European Continental Imports, (MI)
Gilway Co., Ltd., (NJ)
Haram-Christensen Corp., (NJ)
Hirt Co., R., Jr., (MI)
IAC, Inc., (NY)
Irish Tea Sales Corp., (NY)
JSL Foods, Inc., (CA)
Kraft Rosenblum, (NJ)
Mutual Wholesale Liquor, Inc., (CA)
New West Foods, (CA)
New York Food Specialties Co., (NJ)
Pan American Trade Development Corp., Chew International Div., (NY)
Prima Foods International, Inc., (FL)
Primerica, Inc., (WI)
Richter Brothers, Inc., Div. of A & A Food Products Cresca Co., (NJ)
S & J Importing Co., Inc., (CA)
Spicero, (NJ)
Stockmeyer, Inc., (NJ)
Tradexim International Co., (CA)
Willson, Inc., R. B., (NY)
Wincorp International, Inc., (FL)
World Candies, Inc., (NY)

2007994500 Jams, NES
Allemagnia Imports, Inc., (CA)
Alma Leo, Inc., (IL)
Ancel Products, Inc., (FL)
Bee International, Inc., (CA)
Cosmopolitan Importers, Ltd., (CN)
Dansk Biscuit Co., (NY)
DeVries Imports, (CA)
Elki Corp., (WA)
General Brokerage Co., (CA)
JSL Foods, Inc., (CA)
Jacquin Etcie, Inc., Charles, (PA)
Liberty Richter, Inc., (NJ)
Made In France, Inc., (CA)
Mira International Foods, Inc., (NJ)
Mutual Wholesale Liquor, Inc., (CA)
Napoleon Co., The, (WA)
Peterson Co., The, (WA)
Pica Trading Co., (CA)
Pioneer Products, Inc., (FL)
Pokka, Inc., (CA)
Shaffer, Clarke & Co., Inc., (CT)
Sun Fat Trading Co., (CA)
Tosi & Sons Co., Inc., E. A., (MA)
Washburn Candy Corp., F. B., (MA)
West Indian Imports, (MD)
Westdale Foods Co., Vander Vliet's Holland Imports Div., (IL)
World Candies, Inc., (NY)

2007995000 Guava Or Mango Pastes Or Puree
Able Sales Co., Inc., (PR)
Ayengar Associates, Inc., (WA)
Prima Foods International, Inc., (FL)

2007997500 Fruit Jellies, NES
Alma Leo, Inc., (IL)
Ancel Products, Inc., (FL)
Bee International, Inc., (CA)
DeVries Imports, (CA)
Emali Herb Co., Inc., (CA)
General Brokerage Co., (CA)
Giant Food, Inc., (DC)
Ingoglia Salami & Cheese Co., Inc., Tony, (CA)
Jacquin Etcie, Inc., Charles, (PA)
Liberty Richter, Inc., (NJ)
Made In France, Inc., (CA)
Millbrook Distributors, Inc., (MA)
Mira International Foods, Inc., (NJ)
Pica Trading Co., (CA)
Piccadilly Imports, Inc., (CA)
Pokka, Inc., (CA)
Speciality Food Distributors, Inc., (FL)
Sun Fat Trading Co., (CA)
Tosi & Sons Co., Inc., E. A., (MA)
Variety Import Co., (FL)
Washburn Candy Corp., F. B., (MA)
West Indian Imports, (MD)
2008800000 Strawberries, Prepared Or Preserved
Bowes Co., Ltd., (CN)
Fantasy Flavors, Inc., (IL)
Garner Food Co., Inc., T. W., (NC)
Intersmerican Quality Foods, Inc., (TX)
Kendall Frozen Fruits, Inc., (CA)
Mars Fudge & Fruit Co., Inc., (NY)
New West Foods, (CA)
Northwest Cold Pack Co., Div. of Kelley Clark Co., (WA)
Richardson Foods Corp., (NY)
Sanofi Bio-Industries, Inc., (PA)
2008994000 Mango Mixtures, Prepared Or Preserved
Lamex International, Inc., (MN)
2008998000 Fruit Pulp Or Nuts, Prepared Or Preserved, NES
Able Sales Co., Inc., (PR)
Freeman Industries, Inc., (NY)
Hartog Foods International, Inc., (NY)
La Cena Fine Foods, Ltd., (NJ)
Mooney International, Inc., (NJ)
Purcell & Associates, Inc., (CA)
Ronstadt Co., Inc., R. J., Vrymeer Commodities Div., (IL)
Steibel Industries, Inc., (FL)
Tripper, Inc., Jack, (SC)
2008999000 Fruit Or Nuts, Prepared, NES
Adamba Imports International, (NY)
Alexandria International Tradin Co., (NY)
Allemagnia Imports, Inc., (CA)
Beebe Co., A. M., (CA)
Berelson & Co., D. B., (CA)
Boel, Inc., Paul, (MI)
Cosmopolitan Importers, Ltd., (CN)
French Imports Co., (CA)
Gairy Packing, Inc., (CA)
Great Eastern Trading Co., Inc., (CT)
Hunter Co., H. B., (VA)
Illes Co., The, (TX)
Kotake Shokai, Ltd., (HI)
Loretta Foods, Ltd., (CN)
Mercantum (US) Corp., (NY)
Mondial Trading U.S.A., Ltd., (NJ)
NTC Foods Corp., (NY)
National Food Trading Corp., (NJ)
Preisco Foods, Ltd., (CN)
Sands African Imports, (NJ)
Scott-Bathgate, Ltd., (CN)
Spada Enterprises, Ltd., (OR)
Trans-Oceanic Sales Co., Inc., (NY)
Viking International, (NC)
2009806090 Fruit Juice, NES
Adamba Imports International, (NY)
Alexandria International Trading Co., (NY)
Barretto Products, Inc., (NY)
Beck Co., Inc., Michel, (NY)
Bowes Co., Ltd., (CN)
California Beverage Corp., Div. of The Richard Adlai Corp., (CA)
Caspian Trading Co., Inc., (AZ)
Coca-Cola Co., Coca-Cola Foods Div., (FL)
Colon Brothers, Inc., (PR)
Cosmopolitan Importers, Ltd., (CN)
Della Cella Co., Inc., L., (NY)
Dole Package Food Co., Sub. of Castle & Cooke, Inc., (CA)
European Continental Imports, (MI)
H & T International Food Brokers, Inc., (CN)
Hanmi, Inc., (MD)
Hartog Foods International, Inc., (NY)
Hartog Trading Corp., (NY)
Marsh, Inc., Paul, (NY)
New York Food Specialties Co., (NJ)
Pokka, Inc., (CA)
Puig Import, Vicente, (NJ)
Purcell & Associates, Inc., (CA)
Ronstadt Co., Inc., R. J., Vrymeer Commodities Div., (IL)
Ryan Trading Corp., (NY)
San Miguel USA, Inc., (CA)
Spada Enterprises, Ltd., (OR)
Steibel Industries, Inc., (FL)
Sun Pac Foods, Inc., (CN)
Sunbase U.S.A., Inc., (FL)
Vinos Argentinos Imports U.S.A., Inc., (NY)
2009808031 Juice Concentrates, NES
Ayengar Associates, Inc., (WA)
BMT Commodity Corp., (NY)
Beebe Co., A. M., (CA)
Borden, Inc., MCP Industrial Foods Products Div., (CA)
Camerican International, Inc., (NJ)
Coca-Cola Co., Coca-Cola Foods Div., (FL)
Daystar International, Inc., (NY)
Friel, S. E. W., (MD)
Fries & Fries, Inc., (OH)
GB International, Inc., (NJ)
Garner Food Co., Inc., T. W., (NC)
Green Spot Co., (CA)
Home Juice Co., Inc., (IL)
Inexamer Commercial Corp., (CA)
Juice Bowl Products, Inc., Sub. of ABA Holding, Inc., (FL)
Kendall Frozen Fruits, Inc., (CA)
National Food Trading Corp., (NJ)
Nicholson Co., H. R., (MD)
Purcell & Associates, Inc., (CA)
Smucker Co., J. M., (OH)
Sunbase U.S.A., Inc., (FL)
United States Cold Storage of California, Inc., (CA)
Wolfstein International, Inc., (CA)
2009904000 Fruit Juice Mixtures
Eclipse Food Products Corp., Div. of Globe Extracts, Inc., (RI)
Hawaiian Sun Products, Inc., (HI)
Mitsui Foods, Inc., (NJ)
Scott & Co., Inc., E. L., (NY)

Annex B: U.S. Grades and Standards

Asparagus - Fresh B-2

Asparagus - Green for Processing B-4

Asparagus - Frozen B-6

Asparagus - Frozen B-11

Okra - Fresh B-17

Okra - for Processing B-19

Okra - Canned B-21

Okra - Frozen B-24

Snap Beans - Fresh B-27

Snap Beans - for Processing B-29

Green/Wax Beans - Canned B-31

Green/Wax Beans - Frozen B-36

Avocados - Florida Fresh B-40

Strawberries - Fresh B-43

Strawberries - Growers' Stock for Manufacture B-45

Strawberries - Washed and Sorted for Freezing B-46

Strawberries - Frozen B-47

Fruit Preserves/Jams (Including Strawberry) B-51

means. Ground color shall not be greener than yellowish-green.

§ 51.3697 U.S. No. 3.

"U.S. No. 3" consists of fresh freestone peaches which meet the requirements of the U.S. No. 2 grade except that there is no requirement for shape and peaches may be hard.

CULLS

§ 51.3698 Culls.

"Culls" consist of peaches which fail to meet the requirements of U.S. No. 3 grade.

APPLICATION OF STANDARDS

§ 51.3699 Application of standards.

It is presumed that sellers usually will not sort peaches into separate grade lots before delivery to the buyer. Under these circumstances no tolerances are provided for defective or undersize peaches, as it is contemplated that processors will pay for the exact percentage of U.S. No. 1, U.S. No. 2, and U.S. No. 3 peaches in the lot as determined by inspection. However, if the contract between buyer and seller calls for delivery of lots consisting of only one grade, then, unless otherwise specified, a 10 percent tolerance shall be allowed for peaches which fail to meet the requirements, other than size, of the one grade upon which the contract is based, including not more than 2 percent affected by decay, and not more than 1 percent affected by worms. In addition, a 5 percent tolerance shall be allowed for peaches smaller than the specified minimum size and a 10 percent tolerance for peaches larger than the specified maximum size.

CALCULATION OF PERCENTAGES

§ 51.3700 Calculation of percentages.

Calculation of percentages shall be on the basis of weight.

MINIMUM SIZES

§ 51.3701 Minimum sizes.

Minimum sizes for U.S. No. 1, U.S. No. 2, and U.S. No. 3 grades may be fixed by agreement between buyer and seller, and shall be stated in terms of diameter in inches, or inches and not less than eighth-inch fractions thereof.

DEFINITIONS

§ 51.3702 Mature.

"Mature" means the peach has reached a stage of growth which will insure satisfactory completion of the ripening process.

§ 51.3703 Fairly well formed.

"Fairly well formed" means that the peach will yield two reasonably well shaped halves.

§ 51.3704 Hard.

"Hard" means that the peach is solid and does not yield to moderate pressure.

§ 51.3705 Firm.

"Firm" means that the peach is fairly solid but yields very slightly to moderate pressure.

§ 51.3706 Firm ripe.

"Firm ripe" means that the peach is relatively firm but yields moderately to moderate pressure.

§ 51.3707 Ripe.

"Ripe" means that the peach yields readily to moderate pressure.

§ 51.3708 Soft.

"Soft" means that the peach is overripe, has little resistance to slight pressure, and is too near deterioration to be desirable for processing. Such softness is a result of advanced maturity and is not to be confused with bruising.

§ 51.3709 Damage.

"Damage" means any specific defect described in this section; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which will prevent removal of the skin of the peach by efficient commercial peeling operations; or will cause waste to the extent that the fruit, after trimming, will not yield two reasonably well formed halves; or which will materially detract from the processing quality

of the peach or materially impede preparation of the peach for processing. The following specific defects shall be considered as damage:

(a) Scattered scab which exceeds an aggregate area of three-eighths inch in diameter, or scab which is sunken below the skin surface into the flesh of the peach to the extent that it cannot be removed by two shallow cuts;

(b) Bacterial spot which exceeds an aggregate area of three-eighths inch in diameter, or which has cracked the flesh of the peach to the extent that the injured flesh cannot be removed by two shallow cuts.

§ 51.3710 Not badly misshapen.

"Not badly misshapen" means that the peach will yield one reasonably well shaped half.

§ 51.3711 Serious damage.

"Serious damage" means any specific defect described in this section; or any equally objectionable variation of any one of these defects, any other defect, or any combination of defects which will prevent removal of the skin by efficient commercial peeling operations without excessive hand trimming; or which will cause waste of more than 20 percent, by weight, of the flesh of the peach or will seriously detract from the processing quality of the peach or seriously impede preparation of the peach for processing. The following specific defects shall be considered as serious damage:

(a) Scab when sunken into the flesh of both halves of the peach to the extent that removal would require excessive hand trimming; and,

(b) Bacterial spot which has cracked the flesh of both halves of the peach to the extent that removal would require excessive hand trimming.

§ 51.3712 Diameter.

"Diameter" means the shortest distance measured through the center of the peach at right angles to a line running from the stem to the blossom end.

Subpart—United States Standards for Grades of Fresh Asparagus

SOURCE: 31 FR 3185, Feb. 26, 1966, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.3720 U.S. No. 1.

"U.S. No. 1" consists of stalks of asparagus which are fresh, well trimmed, and fairly straight; which are free from decay and free from damage caused by spreading or broken tips, dirt, disease, insects, or other means.

(a) *Size.* Unless otherwise specified, the diameter of each stalk is not less than one-half inch.

(b) *Color.* Unless otherwise specified, not less than two-thirds of the stalk length is of a green color.

(c) *Tolerances.* In order to allow for variations incident to proper grading and handling, the following tolerances, by count, are provided as specified:

(1) *For defects.* 10 percent for stalks in any lot which fail to meet the requirements of this grade other than for trimming, including therein not more than 5 percent for defects causing serious damage: *Provided,* That not more than one-fifth of this latter amount, or 1 percent, shall be allowed for stalks affected by decay. In addition, not more than 10 percent of the stalks in any lot may fail to meet the trimming requirement.

(2) *For off-size.* 10 percent for stalks in any lot which fail to meet the specified diameter or length requirements.

§ 51.3721 U.S. No. 2.

"U.S. No. 2" consists of stalks of asparagus which are fresh, fairly well trimmed, and not badly misshapen; which are free from decay and free from serious damage caused by spreading or broken tips, dirt, disease, insects or other means.

(a) *Size.* Unless otherwise specified, the diameter of each stalk is not less than five-sixteenths inch.

(b) *Color.* Unless otherwise specified, not less than one-half of the stalk length is of a green color.

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(c) *Tolerances.* In order to allow for variations incident to proper grading and handling, the following tolerances, by count, are provided as specified:

(1) *For defects.* 10 percent for stalks in any lot which fail to meet the requirements of this grade other than for trimming, including therein not more than one-tenth of this tolerance, or 1 percent, shall be allowed for stalks affected by decay. In addition, not more than 10 percent of the stalks in any lot may fail to meet the trimming requirement.

(2) *For off-size.* 10 percent for stalks in any lot which fail to meet the specified diameter or length requirements.

Unclassified

§ 51.3722 Unclassified.

"Unclassified" consists of stalks of asparagus which have not been classified in accordance with any of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards but is provided as a designation to show that no grade has been applied to the lot.

Application of Tolerances

§ 51.3723 Application of tolerances.

The contents of individual packages in the lot are subject to the following limitations:

(a) Packages which contain more than 50 stalks shall have not more than 1½ times a specified tolerance of 10 percent or more, or not more than double a specified tolerance of less than 10 percent: *Provided,* That the averages for the entire lot are within the tolerances specified for the grade.

(b) Packages which contain 50 stalks or less shall have not more than 4 times the tolerance specified, except that at least 2 defective and 2 off-size stalks may be permitted in any package: *Provided,* That not more than 1 stalk which is affected by decay may be permitted in any package: *And provided further,* That the averages for the entire lot are within the tolerances specified for the grade.

Diameter Classification

§ 51.3724 Diameter classification.

The following terms are provided for describing the diameters of any lot:

Very Small	Less than 5/16 inch.
Small	5/16 inch to less than 9/16 inch.
Medium	9/16 inch to less than 1 13/16 inch.
Large	1 13/16 inch to less than 1 15/16 inch.
Very Large	1 15/16 inch and up.

Amount of Green Color

§ 51.3725 Amount of green color.

When the asparagus in a lot has less or more green color than is specified in the grade it may be described as ¼ stalk length green, ¾ stalk length green, etc., in accordance with the facts.

Stalk Length

§ 51.3726 Stalk length.

There is no minimum stalk length specified in the grades but the minimum stalk length may be stated in terms of whole inches or whole and half inches in connection with the grade designation as "U.S. No. 1, 8½-inch minimum", "U.S. No. 1 Large, 7-inch minimum", "U.S. No. 1 Large, 10½-inch minimum", etc., in accordance with the facts.

Definitions

§ 51.3727 Fresh.

"Fresh" means that the stalk is not limp or flabby.

§ 51.3728 Well trimmed.

"Well trimmed" means that at least two-thirds of the butt of the stalk is smoothly trimmed in a plane approximately parallel to the bottom of the container and that the butt is not stringy or frayed.

§ 51.3729 Damage.

"Damage" means any defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the stalk.

§ 51.3730 Diameter.

"Diameter" means the greatest thickness of the stalk measured at a point approximately 1 inch from the butt.

§ 51.3731 Fairly well trimmed.

"Fairly well trimmed" means that at least one-third of the butt of the stalk is smoothly trimmed in a plane approximately parallel to the bottom of the container and that the butt is not badly stringy or frayed.

§ 51.3732 Badly misshapen.

"Badly misshapen" means that the stalk is so badly flattened, crooked or otherwise so badly deformed that its appearance is seriously affected.

§ 51.3733 Serious damage.

"Serious damage" means any defect, or any combination of defects, which seriously detracts from the appearance, or the edible or marketing quality of the stalk.

Metric Conversion Table

§ 51.3734 Metric conversion table.

Inches	Millimeters (mm)
¼ equals	3.2
⅜ equals	6.4
5/16 equals	7.9
½ equals	9.5
½ equals	12.7
⅝ equals	15.9
11/16 equals	17.5
¾ equals	19.1
⅞ equals	22.2
1 equals	25.4
1¼ equals	31.8
1½ equals	38.1
1¾ equals	44.5
2 equals	50.8
3 equals	76.2
4 equals	101.6
5 equals	127.0
6 equals	152.4
7 equals	177.8
8 equals	203.2
9 equals	228.7
10 equals	254.1

Subpart—United States Standards for Grades of Honey Dew and Honey Ball Type Melons

Source: 32 FR 3213, Feb. 24, 1967, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

Grades

§ 51.3740 U.S. No. 1.

"U.S. No. 1" consists of honey dew or honey ball type melons which are mature, firm, well formed, which are free from decay, and free from damage caused by dirt, aphis stain, rust spots, bruises, cracks, broken skin, sunscald, sunburn, hail, moisture, insects, disease, or other means. (See § 51.3744.)

§ 51.3741 U.S. Commercial.

"U.S. Commercial" consists of honey dew or honey ball type melons which meet the requirements of U.S. No. 1 grade except for the increased tolerances for defects. (See § 51.3744.)

§ 51.3742 U.S. No. 2.

"U.S. No. 2" consists of honey dew or honey ball type melons which are mature, firm, fairly well formed, free from decay and free from serious damage by any cause. (See § 51.3744.)

Unclassified

§ 51.3743 Unclassified.

"Unclassified" consists of melons which have not been classified in accordance with any of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards but is provided as a designation to show that no grade has been applied to the lot.

Tolerances

§ 51.3744 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by count, are provided as specified:

(a) *U.S. No. 1.* 10 percent for melons in any lot which fail to meet the requirements of the grade: *Provided,* That not more than one-half of this

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§ 51.4061 Diameter.

"Diameter" means the greatest dimension of the squash measured at right angles to a line running from the stem to the blossom end.

§ 51.4062 Length.

"Length" means the greatest dimension of the squash measured from the blossom end to the stem end, or in the case of crooknecks, to the curved surface farthest from the blossom end.

Subpart—United States Standards for Grades of Green Asparagus for Processing [1]

SOURCE: 37 FR 6829, Apr. 5, 1972, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.4075 U.S. No. 1.

"U.S. No. 1" consists of spears of asparagus which meet the following requirements:

(a) Basic requirements:
(1) Fresh; and,
(2) Fairly well formed.
(b) Free from:
(1) Decay; and,
(2) Broken tips.
(c) Free from damage caused by:
(1) Doubles;
(2) Spreading tips;
(3) Knife cuts;
(4) Broken butts;
(5) Hail;
(6) Freezing;
(7) Dirt;
(8) Disease;
(9) Beetles or other insects; or,
(10) Mechanical, or other means.

(d) *Size.* Unless otherwise specified, each spear shall meet the following requirements:

(1) *For diameter.* Not less than one-fourth inch.

(2) *For length.* Not more than 7½ inches.

(e) *Color* Unless otherwise specified, the spear shall have green color extending at least 4½ inches below the tip. There shall be no restrictions regarding the amount of white color permitted on a spear unless agreed upon by the processor and grower. (See § 51.4078.)

(f) For tolerances see "Application of Standards" § 51.4079.

§ 51.4076 U.S. No. 2.

"U.S. No. 2" consists of spears of asparagus which meet the following requirements:

(a) Basic requirements:
(1) Fresh.
(b) Free from:
(1) Decay.
(c) Free from damage caused by:
(1) Dirt.
(d) Free from serious damage caused by:
(1) Disease;
(2) Beetles or other insects; or,
(3) Mechanical, or other means.

(e) *Size.* Unless otherwise specified, each spear shall be not more than 7½ inches in length.

(f) *Color.* Unless otherwise specified, the spear shall have green color extending at least 3 inches below the tip. There shall be no restrictions regarding the amount of white color permitted on a spear unless agreed upon by the processor and grower. (See § 51.4078.)

(g) For tolerances see "Application of Standards" § 51.4079.

CULLS

§ 51.4077 Culls.

"Culls" are spears of asparagus which do not meet the requirements of either of the foregoing grades. Length of spear in excess of that specified in the lowest grade upon which a contract is based and any amount of white in excess of that which may be specified for that grade shall be considered as a "Butt."

BUTT

§ 51.4078 Butt.

That part of a spear that is in excess of the maximum length specified shall be classed as a butt; and if a contract between canner and grower restricts the amount of white on a spear, the white in excess of the amount specified shall also be classified as a butt; and in either case the remaining portion of the spear shall be considered as meeting the grade requirements in regard to these factors.

APPLICATION OF STANDARDS

§ 51.4079 Application of standards.

In the application of these standards to determine the percentage of U.S. No. 1 and U.S. No. 2 quality, culls, butts, and off-size in a lot, tolerances shall not apply.

(a) *Tolerances.* When lot of asparagus is required to meet a specified grade, the following tolerances, by weight, shall apply:

(1) *For defects.* 10 percent for spears in any lot which fail to meet the requirements of the grade other than for butts and off-size: *Provided,* That not more than one-tenth of this amount, or 1 percent, shall be allowed for spear as affected by decay.

(2) *For butts.* 5 percent.

(3) *For off-size.* 10 percent, including not more than 5 percent for spears smaller than any specified minimum diameter.

DIAMETER CLASSIFICATION

§ 51.4080 Diameter classification.

(a) The following terms are provided for describing the diameter of the spears:

(1) *Small.* One-fourth inch to less than three-eighths inch in diameter.

(2) *Medium.* Three-eighths inch to less than five-eighths inch in diameter.

(3) *Large.* Five-eighths inch or larger in diameter.

(b) The diameter shall be the greatest thickness of the spear measured at a point 5 inches from the tip, except that spears which are less than 5 inches in length shall be measured at the base of the spear.

DEFINITIONS

§ 51.4081 Fresh.

"Fresh" means not wilted, limp or flabby.

§ 51.4082 Fairly well formed.

"Fairly well formed" means the spear is not badly flattened, crooked, or otherwise so badly deformed that its processing quality is materially affected.

§ 51.4083 Damage.

"Damage" means any defect which detracts from the processing quality of the portion of the spear that extends a distance of 4½ inches from the tip, or which materially detracts from the canning or freezing quality of the remaining portion of the spear exclusive of the butt. Any one of the following defects, or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as damage:

(a) Doubles which detract from the appearance of that portion of the spear that extends a distance of 4½ inches from the tip. Doubles which occur on the remaining portion of the spear shall not be regarded as damage.

(b) Spreading tips, when the tips are so spread or branched that the appearance is appreciably injured. Tips which have a "seedy" appearance shall be considered damaged.

(c) Dirt or sand which is so imbedded in the tip that it cannot be removed in the ordinary process of washing.

(d) Beetle eggs or holes which affect the portion of the spear that extends a distance of 4½ inches from the tips, or which materially detract from the processing quality of the remaining portion of the spear exclusive of the butt.

§ 51.4084 Green color.

"Green color" means any shade or tinge of green color or purple color which will blanch green. The amount of green color shall be determined by measuring the distance from the extreme tip to the lowest point at which any shade of green color completely encircles the spear.

§ 51.4085 Serious damage.

"Serious damage" means any defect which seriously detracts from the processing quality of that part of the spear not classed as a butt. Any one of

[1] Packing of the product in conformity with the requirements of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act or with applicable State laws and regulations.

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the following defects, or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as serious damage:

(a) Broken tips when three or more segments are missing from the tip or when the extreme tip is missing and the broken end is not at least fairly well concealed by lower scales.

(b) Spreading tips when the tip branches are more than three-quarter inch in length or when extending out from the spear.

(c) Beetle eggs when more than six eggs are present on the spear providing that not more than three eggs are present within a distance of 4½ inches below the tip.

Metric Conversion Table

§ 51.4086 Metric conversion table.

Inches	Millimeters (mm)
¼ equals	3.2
½ equals	6.4
⅝ equals	9.5
½ equals	12.7
¾ equals	15.9
¾ equals	19.1
1 equals	25.4
2 equals	50.8
3 equals	76.2
4 equals	101.6
4½ equals	114.3
5 equals	127.0
7½ equals	190.5
10 equals	254.0

Subpart—United States Standards for Grades of Beets for Processing

Source: 32 FR 8869, June 22, 1967, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

General

§ 51.4095 General.

(a) The accompanying grades for beets are intended to facilitate transactions between growers and processors who may wish to use a purchasing system based upon the quality of beets delivered. These grades are an outgrowth of the widely accepted principle that price should be directly proportional to quality. The grower who delivers high quality beets deserves a premium price because such beets enable the processor to pack a better quality finished product.

(b) In the application of these standards it is assumed that in most instances sellers will not sort their beets into separate lots of U.S. No. 1 and U.S. No. 2 grades before delivery to the buyer, and that the buyer will pay a certain price for the percentage of each grade and size classification in the lot as determined by inspection. Upon delivery, the inspector will simply sort representative samples taken from each lot, and determine the percentage of each grade and size classification. Final settlement would then be made by applying the percentage of each grade and size classification to the total weight of the lot, and then applying the contract prices established for each grade and size classification. Under such a procedure, there is no need for tolerances.

(c) It will be noted, however, that the standards provide tolerances but these apply only when a grower or shipper has actually sorted his beets in to separate lots of U.S. No. 1 or U.S. No. 2 grades before delivery to the buyer.

Grades

§ 51.4096 U.S. No. 1.

"U.S. No. 1" consists of beets of similar varietal characteristics, which are firm, tender, fairly well formed; free from soft rot, cull material, and free from damage caused by growth cracks, internal discoloration, white zoning, rodents, freezing, dry rot, other disease, insects, mechanical or other means. (See § 51.4099 and § 51.4100.)

(a) Unless otherwise specified, beets shall be not less than 1 inch in diameter. Other size or sizes may be specified, subject to agreement between buyer and seller. When such agreements are made, the sizes shall be specified in terms of diameter in inches or by means of one or more of the following size classifications:

(1) *Small.* One inch to not over 2 inches in diameter.

(2) *Medium.* Over 2 inches to not over 2 inches in diameter.

(3) *Large.* Over 3 inches in diameter.

§ 51.4097 U.S. No. 2.

"U.S. No. 2" consists of beets of similar varietal characteristics which are firm, tender, not badly misshapen; free from soft rot, cull material, and free from damage caused by internal discoloration and white zoning and free from serious damage by any cause. (See § 51.4099 and § 51.4100.)

(a) Unless otherwise specified, beets shall be not less than 1 inch in diameter.

Culls

§ 51.4098 Culls.

"Culls" consist of beets which fail to meet the requirements of either of the foregoing grades.

Topping Requirements

§ 51.4099 Topping requirements.

Unless otherwise specified, tops shall be cut or torn off to within 1 inch of the crown of the root. In making grade determinations, all portions of leaves or leafstems over 1 inch in length, or any other specified length, shall be removed from the roots and scored as "cull material." (See § 51.4105.)

Tolerances

§ 51.4100 Tolerances.

(a) For the purpose of determining compliance with one of the foregoing grades the following tolerances, by weight, are provided in order to allow for variations incident to proper grading and handling:

(1) *For defects.* Ten percent for beets in any lot which fail to meet the requirements of the specified grade, including therein not more than 1 percent for beets which are affected by soft rot.

(2) *For cull material.* Two percent in any lot.

(3) *For size.* Fifteen percent for beets in any lot which fail to meet the specified size requirements, including therein not more than 5 percent for beets which fail to meet the specified minimum diameter.

(b) In the application of these standards to determine the percentages of beets in any lot which meet the requirements of the respective grades or size categories no tolerances apply.

Definitions

§ 51.4101 Firm.

"Firm" means that the beet is not appreciably wilted or flabby.

§ 51.4102 Tender.

"Tender" means that the edible portion of the beet is not fibrous, woody, or tough.

§ 51.4103 Fairly well formed.

"Fairly well formed" means that the beet may be somewhat flattened, three-sided or otherwise slightly misshapen, but not sufficiently so as to materially interfere with the normal process of peeling.

§ 51.4104 Soft rot.

"Soft rot" means any soft, mushy or leaky condition of the tissue.

§ 51.4105 Cull material.

"Cull material" means pieces of beets, loose tops, and portions of attached tops and sprouts in excess of the specified length, loose dirt, adhering caked dirt, weeds, or other foreign matter. Beets with adhering caked dirt, and tops or sprouts which are longer than the specified length, shall not be scored against U.S. No. 1 or U.S. No. 2 grades, but such dirt and such portions of tops and sprouts, which are longer than the specified length, shall be removed from the roots and scored as "cull material."

§ 51.4106 Damage.

"Damage" means any specific defect described in this section; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially detracts from the processing quality of the beet; or when occurring on a beet not over 2 inches in diameter, cannot be removed in the ordinary process of peeling; or when occurring on a beet more than 2 inches in diameter, cannot be removed without a loss of more than 10 percent, by weight, in excess of that which would occur if the beet were perfect, the following

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for the product (this is a limiting rule).

§ 52.368 Defects.

(a) *General.* The factor of defects refers to the degree of freedom from harmless extraneous matter, from damaged or seriously damaged units, and from carpel tissue.

(1) "Harmless extraneous matter" means any vegetable substance (including, but not being limited to, a leaf, stem, or portions thereof, cores and portions of cores, and seeds), that is harmless.

(2) "Damaged unit" means any unit possessing green peel that exceeds in the aggregate an area of a circle ⅛ inch in diameter, or red peel that exceeds in the aggregate an area of a circle ¼ inch in diameter, light brown bruise that exceeds the area of a circle ⅛ inch in diameter or which is more than 1/16 inch deep, and any unit in which the appearance or eating quality is materially affected by blossom end material, dark brown bruise, or other internal or external discoloration, or by any other means.

(3) "Seriously damaged unit" means any unit damaged to such an extent that the appearance or eating quality is seriously affected.

(4) "Practically free from carpel tissue" means that for each 16 ounces of the product, the carpel tissue present does not exceed in the aggregate an area equal to ¾ square inch.

(5) "Fairly free from carpel tissue" means that for each 16 ounces of the product the carpel tissue present does not exceed an area equal to 1½ square inches.

(b) (*A*) *classification.* Frozen apples that are practically free from defects may be given a score of 17 to 20 points. "Practically free from defects" means that extraneous matter may be present that does not materially affect the appearance or eating quality of the product; that the product is practically free from carpel tissue; and that not more than a total of 5 percent, by weight, of the units may be damaged, of which not more than 1 percent, by weight, of all the units may be seriously damaged: *Provided,* That extraneous matter, damaged and seriously damaged units, singly or in combination, do not materially affect the appearance or eating quality of the product.

(c) (*C*) *classification.* Frozen apples that are fairly free from defects may be given a score of 14 to 16 points. Frozen apples that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly free from defects" means that extraneous matter may be present that does not seriously affect the appearance or eating quality of the product; that the product is fairly free from carpel tissue; and that not more than a total of 15 percent, by weight, of the units may be damaged, of which not more than 3 percent, by weight, of all the units may be seriously damaged: *Provided,* That extraneous matter, damaged and seriously damaged units, singly or in combination, do not seriously affect the appearance or eating quality of the product.

(d) (*SStd*) *classification.* Frozen apples that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 13 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.369 Character.

(a) *General.* The factor of character refers to the texture of the units and to the tendency to retain their conformation without material softening or disintegration.

(1) "Mushy apples" means slices or units or portions thereof that are a pulpy mass and of a consistency approximating applesauce.

(b) (*A*) *classification.* Frozen apples that possess a good character may be given a score of 34 to 40 points. "Good character" means that the units possess a reasonably uniform texture, are firm but not hard, with not more than 3 percent of the weight of the product consisting of mushy apples.

(c) (*C*) *classification.* Frozen apples that possess a fairly good character may be given a score of 28 to 33 points. Frozen apples that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly good character" means that the slices may be variable in texture, with not more than 12 percent of the weight of the product consisting of units that are markedly hard, markedly soft, or mushy.

(d) (*SStd*) *classification.* Frozen apples that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 27 points and shall not be graded above substandard, regardless of the total score for the product (this is a limiting rule).

LOT INSPECTION AND CERTIFICATION

§ 52.370 Ascertaining the grade of a lot.

The grade of a lot of the processed product covered by these standards is determined by the procedures set forth in the regulations governing inspection and certification of processed fruits and vegetables, processed products thereof, and certain other processed food products (§§ 52.1 to 52.87).

[22 FR 3547, May 22, 1957. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

SCORE SHEET

§ 52.371 Score sheet for frozen apples.

Size and kind of container ....
Container mark or identification ....
Label ....
Net weight (ounces) ....
Style ....
Ratio of fruit sugar ....
Style of pack (sugar or syrup) ....
Syrup density (degrees Brix) ....

Factors			Score points
Color	20	(A)	17-20
		(C)	[1] 14-16
		(SStd)	[1] 0-13
Size	20	(A)	17-20
		(C)	14-16
		(SStd)	[1] 0-13
Defects	20	(A)	17-20
		(C)	[1] 14-16
		(SStd)	[1] 0-13
Character	40	(A)	34-40
		(C)	[1] 28-33
		(SStd)	[1] 0-27
Total score	100		

Factors	Score points
Good flavor	-
Fairly good flavor	-
Grade	-

[1] Indicates limiting rule.

Subpart—United States Standards for Grades of Frozen Asparagus

SOURCE: 34 FR 5152, Mar. 13, 1969, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981.

PRODUCT DESCRIPTION, TYPE, AND STYLES

§ 52.381 Product description.

Frozen asparagus consists of sound and succulent fresh shoots of the asparagus plant (asparagus officianalis). The product is prepared by sorting, trimming, washing, and blanching as necessary to assure a clean and wholesome product. It is then frozen and stored at temperatures necessary for preservation.

§ 52.382 Types.

(a) "Green" or "all-green" consists of units of frozen asparagus which are typical green, light green, or purplish green in color.

(b) "Green-white" consists of frozen asparagus spears and tips which have typical green, light green, or purplish green color to some extent but which are white in the lower portions of the stalk.

§ 52.383 Styles.

(a) "Spears" (or "stalks") style consists of units composed of the head and adjoining portion of the shoot that are 3 inches or more in length.

(b) "Tips" style consists of units composed of the head and adjoining portion of the shoot that are less than 3 inches in length.

(c) "Cut spears" or "cuts and tips" style consists of the head and portions of the shoot cut transversely into units 2 inches or less but not less than one-half inch in length. To be considered of this style, head material shall

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be present in these amounts for the respective lengths of cuts:

(1) *1¼ inches or less.* Not less than 18 percent (average) by count, of all cuts, are head material.

(2) *Longer than 1¼ inches.* Not less than 25 percent (average) by count, of all cuts are head material.

(d) "Center cuts" or "cuts" style consists of portions of shoots (with or without head material) that are cut transversely into units not less than one-half inch in length and that fail to meet the definition for "cut spears" or "cuts and tips" style.

Definitions of Terms

§ 52.384 Definitions of terms.

(a) *Absolute limit (AL).* Limit for maximum number of defects permitted in a sample unit.

(b) *Defects.* Any specifically defined variation from a particular requirement. Defects are classified as to "minor," "major," "severe," and "critical."

(c) *Head.* In "cut spears" or "cuts and tips" style means:

(1) A tip end which is three-eighths inch or more in length; or

(2) An upper portion of a shoot which possesses a substantial amount of compact head material.

(d) *Sample.* The number of sample units to be used for inspection of the lot.

(e) *Sample unit.* The amount of product specified to be used for inspection. It may be:

(1) The entire contents of a container, or

(2) A portion of the contents of a container,

(3) A combination of the contents of two or more containers, or

(4) A portion of unpackaged product.

(f) *Unit.* The term "unit", not otherwise qualified, means any individual portion of an asparagus shoot three-eighths inch of more in length.

(g) *Loose material.* "Loose material" means any loose or shattered asparagus material and cut or broken pieces that are less than three-eighths inch in length.

[34 FR 5152, Mar. 13, 1969, as amended at 35 FR 5662, Apr. 8, 1970. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

Sample Unit Size

§ 52.385 Sample unit size.

Compliance with requirements for factors of quality is based on the following sample unit size for the respective style of pack:

(a) Spears; tips—50 spears or 50 tips.

(b) Cut spears; cuts and tips; center cuts and cuts—100 pieces.

Sizes

§ 52.386 Size of frozen asparagus.

The size of frozen asparagus in spears or tips style is determined by measuring the longest dimension at right angles to the longitudinal axis of the unit at the largest dimension of the unit. The word and number designations of the various sizes of frozen asparagus are shown in Table I.

TABLE I—SIZES OF FROZEN ASPARAGUS SPEARS AND TIPS

Word designation	Number designation	Diameter in inches
Small	1	Less than ⅝ inch
Medium	2	⅝ inch or larger but less than ⅞ inch
Large (Jumbo)	3	⅞ inch or larger but less than 1¼ inch
Extra Large (Colossal)	4	1¼ inch or larger.
Blend of sizes	(1)	(1).
Mixture of sizes	(2)	(2).

[1] A blend of not more than three adjacent sizes which does not meet the acceptance criteria for a single size but meets the criteria for blend of sizes (Tables II and III).

[2] Fails to meet the requirements of a single size or blend of sizes.

[34 FR 5152, Mar. 13, 1969, as amended at 35 FR 5662, Apr. 8, 1970. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

§ 52.387 Size classification and compliance.

Frozen asparagus in "spears" and "tips" styles are considered as meeting the designated single size or blend of sizes, if they meet the criteria specified in Tables II and III. Defects are classified as to minor, major, and severe. Each "X" mark in Table II represents "one (1) defect."

TABLE II

Size classification	Defects	Classification: Minor	Major	Severe
Single sizes:				
Small	Medium size	X		
	Large size		X	
	Extra-Large size			X
Medium	Small size		X	
	Large size	X		
	Extra-Large size			X
Large	Small size			X
	Medium size		X	
	Extra-Large size	X		
Extra-Large	Small size			X
	Medium size		X	
	Large size	X		
Blends of sizes:				
Small/Medium blend	Large size	X		
	Extra-Large size	X		
Medium/Large blend	Small size	X		
	Extra-Large size	X		
Large/Extra-Large blend	Small size	X		
	Medium size	X		
Small/Medium/Large blend	Extra-Large size	X		
Medium/Large/Extra-Large blend	Small size	X		

TABLE III

Number of sample units	Number of spears or tips	Tolerances for size compliance: Single sizes: Severe	Single sizes: Major	Blends of sizes: Total [2]	Blends of sizes: Minor in total [3]
Maximum defects permitted in any sample unit (AL) [1]		5	10	15	10
		In the total sample			
1	50	3	7	12	7
2	100	5	13	21	13
3	150	7	18	30	18
4	200	9	22	39	22
5	250	10	27	47	27
6	300	12	32	55	32
7	350	14	36	63	36
8	400	15	41	72	41
9	450	17	45	80	45
10	500	18	50	90	50
11	550	20	54	96	54
12	600	21	59	104	59
13	650	23	63	112	63
14	700	24	68	121	68
15	750	26	72	129	72
16	800	27	76	140	76
17	850	29	81	145	81
18	900	30	85	153	85
19	950	32	90	161	90
20	1,000	33	94	169	94
21	1,050	35	98	177	98

[1] In any sample unit, except the first one of 50 spears or tips.

[2] "Total"—the sum of "Severe", "Major", and "Minor" defects as applicable.

[3] In "Blends of Sizes", "Minor" and "Total" defects are the same.

[34 FR 5152, Mar. 13, 1969, as amended at 35 FR 5662, Apr. 8, 1970. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

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Grades, Factors of Quality, and Grade Compliance

§ 52.388 Grades.

(a) "U.S. Grade A" (or "U.S. Fancy") is the quality of frozen asparagus that is of similar varietal characteristics; that has a good flavor and odor; that has no grit or silt present that affects the appearance or edibility of the product; in which no more than 5 percent, by weight, of loose material may be present; and that has an attractive appearance and eating quality within the limits specified for the various quality factors.

(b) "U.S. Grade B" or ("U.S. Extra Standard") is the quality of frozen asparagus that is of similar varietal characteristics; that has a good flavor and odor; that has no more than a trace of grit or silt present that slightly affects the appearance or edibility of the product; in which no more than 10 percent, by weight, of loose material may be present; and that has a reasonably attractive appearance and eating quality within the limits specified for the various quality factors.

(c) "Substandard" is the quality of frozen asparagus that fails to meet the requirements of U.S. Grade B.

[34 FR 5152, Mar. 13, 1969, as amended at 35 FR 5663, Apr. 8, 1970. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

§ 52.389 Factors of quality and grade compliance.

(a) The grade of a lot of frozen asparagus is based on compliance with requirements for the following quality factors:

(1) Color (Table IV);
(2) Uniformity of lengths (Table IV);
(3) Character (Table V);
(4) Damage (Table V); and
(5) Harmless extraneous vegetable material (Table VI).

(b) Defects are classified as to minor, major, severe, or critical. Each "X" mark in Tables IV, V, and VI represents "one (1) defect."

TABLE IV—CLASSIFICATION OF DEFECTS

[Color—Length]

Quality factors	Defects	Classification		
		Minor	Major	Severe
Color	Green or all-green spears or tips			
	White or yellowish-white color exceeding ¼ inch up to ½ the length of the stalk		X	
	White or yellowish-white color over ½ the length of the stalk			
Color	Green-white spears or tips. White or yellowish-white color exceeding ½ the length of the stalk		X	
Uniformity of length	All types:			
	Cut Spear; Cuts and Tips, "Cuts", Center Cuts styles.			
	White or yellowish-white, or partially of such color		X	
	Spears, Tips styles. Any unit which varies more than 1½ inches from the predominant length of the sample unit	X		
	Cut Spears, Cut and Tips, Cuts, Center Cuts Style.			
	Any unit of cut asparagus, less than ½ inch in length (excluding head material or loose material)	X		
	Any unit of cut asparagus, more than 2 inches in length		X	

TABLE V—CLASSIFICATION OF DEFECTS, CHARACTER—DAMAGE

Quality factors	Defects	Classification		
		Minor	Major	Severe
Character	Spears and tips styles.			
	In Grade A only—			
	Reasonably well developed (worse than Plate 1 but not worse than Plate 2 or 3)		X	
	In all grades—			
	Poorly developed (worse than Plate 2 or 3):			
	Seedy		X	

TABLE V—CLASSIFICATION OF DEFECTS, CHARACTER—DAMAGE—Continued

Quality factors	Defects	Classification		
		Minor	Major	Severe
	Flowered			X
	Cut spears or cuts and tips style			
	In all grades—			
	Poorly developed (worse than Plate 2 or 3):			
	Seedy	X		
	Flowered		X	
	Tough fiber development			
	2 inches or less		X	
	More than 2 inches or woody units of any length			X
Damage	Shattered heads—broken or shattered to the extent that it is definitely noticeable	X		
	Misshapen—badly crooked or affected in appearance by doubles or malformations	X		
	Poorly cut—angle of cut less than 45 degrees—cut is ragged or partially cut.	X		
	Discoloration, mechanical injury, pathological or damaged by other means to the extent that the appearance and eating quality of a unit is affected:			
	Slightly	X		
	Materially		X	
	Seriously			X

For interpretative guides, see USDA illustrations of "Stages of Development in Frozen Asparagus," which are a part of this document.

TABLE VI—CLASSIFICATION OF DEFECTS

[Extraneous material]

Quality factors	Defects	Classification			
		Minor	Major	Severe	Critical
Harmless extraneous vegetable material.	Grass, weeds, leaves, stems, and dried stalks:				
	1 inch or less	X			
	More than 1 inch but not more than 2 inches		X		
	More than 2 inches but not more than 3 inches			X	
	More than 3 inches				X

TABLE VII

Number of sample units	Number of spears or tips	Grade compliance spears, and tips							
		U.S. Grade A				U.S. Grade B			
		Critical	Severe	Major	Total[a]	Critical	Severe	Major	Total[a]
Maximum defects permitted in any sample unit (AL)[1]		0	5	8	15	2	8	13	25
		In the total sample							
1	0	0	3	6	12	1	8	10	20
2	100	0	5	11	21	2	11	18	37
3	150	0	7	15	30	3	15	25	53
4	200	0	9	18	39	3	19	33	68
5	250	0	10	23	47	4	23	40	84
6	300	0	12	27	55	4	27	47	98
7	350	0	14	30	63	5	30	54	114
8	400	0	15	34	72	5	34	61	130
9	450	0	17	38	80	6	38	68	145
10	500	0	18	42	90	6	42	75	159
11	550	0	20	45	96	7	45	81	175
12	600	0	21	49	104	7	49	88	190
13	650	0	23	53	112	8	53	95	204
14	700	0	24	56	121	8	56	102	219

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TABLE VII—Continued

Number of sample units	Number of spears or tips	Grade compliance spears and tips							
		U.S. Grade A				U.S. Grade B			
		Critical	Severe	Major	Total[2]	Critical	Severe	Major	Total[2]
15	750	0	26	60	129	9	60	108	234
16	800	0	27	64	140	9	64	117	248
17	850	0	29	67	145	9	67	122	264
18	900	0	30	71	153	10	71	129	276
19	950	0	32	74	161	10	74	136	293
20	1000	0	33	78	169	11	78	142	306
21	1050	0	35	81	177	11	81	149	322

[1] In any sample unit, except the first one of 50 spears or tips.
[2] "Total"—the sum of "Critical", "Severe", "Major", and "Minor" defects, as applicable.

TABLE VIII

Number of sample units	Number of spears or tips	Grade compliance spears and cuts							
		U.S. Grade A				U.S. Grade B			
		Critical	Severe	Major	Total[2]	Critical	Severe	Major	Total[2]
Maximum defects permitted in any sample unit (AL)[1]		0	5	8	15	2	8	13	25
		In the total sample							
1	100	0	8	11	21	2	11	18	37
2	200	0	9	19	39	3	19	33	68
3	300	0	12	27	55	4	27	47	99
4	400	0	15	34	72	5	34	61	130
5	500	0	18	42	90	6	42	76	160
6	600	0	21	49	104	7	49	88	190
7	700	0	24	56	121	8	56	102	218
8	800	0	27	64	140	9	64	117	248
9	900	0	30	71	153	10	71	129	278
10	1,000	0	33	78	169	11	78	142	306
11	1,100	0	36	85	185	12	85	156	337
12	1,200	0	39	92	200	12	92	169	366
13	1,300	0	42	99	216	13	99	182	396
14	1,400	0	45	106	232	14	106	195	425
15	1,500	0	47	113	248	15	113	209	454
16	1,600	0	50	120	264	16	120	222	483
17	1,700	0	53	127	279	17	127	235	512
18	1,800	0	56	134	295	17	134	248	541
19	1,900	0	59	141	311	18	141	261	570
20	2,000	0	62	148	326	19	148	274	599
21	2,100	0	64	155	342	20	155	287	628

[1] In any sample unit, except the first one of 100 cuts.
[2] "Total"—the sum of "Critical", "Severe", "Major", and "Minor" defects, as applicable.

[34 FR 5152, Mar. 13, 1969, as amended at 35 FR 5663, Apr. 8, 1970; 39 FR 17304, May 15, 1974. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

LOT COMPLIANCE

§ 52.390 Sample size.

(a) *General.* The sample size to determine compliance with requirements for size, percent head material, and quality factors shall be the sampling plans specified in the "Regulations Governing Inspection of Processed Fruits and Vegetables and Related Products" (§§ 52.1-52.87).

(b) *Acceptance numbers.* The acceptance numbers for deviants specified in the sampling plans cited in paragraph (a) of this section do not apply to these standards.

§ 52.391 Lot acceptance for size.

A lot of frozen asparagus is considered as meeting the requirements for a specified size if the defects permitted and the AL values for the applicable defect classifications, specified in Table III, are not exceeded.

§ 52.392 Lot acceptance for "Percent Head Material" in the style of cut-spears.

The percent, by count, of heads is determined by averaging the percentage of heads in all of the sample units comprising the sample: *Provided,* That:

(a) When cut into units 1¼ inches or less in length no individual sample unit may contain less than 12 percent, by count, of heads; and

(b) When cut into units longer than 1¼ inches, no sample unit may contain less than 15 percent, by count, of heads.

§ 52.393 Lot acceptance for "Percent loose material".

The percent of loose material, by weight, is determined by averaging the percentage by weight of loose material in the total weight of all of the sample units comprising the sample.

[35 FR 5663, Apr. 8, 1970. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

§ 52.394 Lot acceptance for quality.

A lot of frozen asparagus is considered as meeting the quality requirements of either U.S. Grade A or U.S. Grade B if:

(a) The product has a good flavor and odor; and

(b) The product is free of grit or silt that affects the appearance or edibility within the limits specified for either U.S. Grade A or U.S. Grade B; and

(c) The product complies with the limits specified for loose material for either U.S. Grade A or U.S. Grade B; and

(d) The defects permitted and the AL values for the applicable defect classifications, specified in Tables VII and VIII, are not exceeded.

[34 FR 5152, Mar. 13, 1969, as amended at 35 FR 5663, Apr. 8, 1970. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

SCORE SHEET

§ 52.395 Score sheet for frozen asparagus.

Defect Tally Sheet for Frozen Asparagus

Number, size, kind of container _____
Label statements _____
Container mark or identification:
Packages _____
Cases _____
Net weight _____
Style _____
Sizes of spears: tips styles _____
Head material (percent) _____

Quality factors	Defects							
	Sample unit				Sample unit			
	Minor	Major	Severe	Critical	Minor	Major	Severe	Critical
Color								
Uniformity of length								
Damage								
Harmless extraneous material								
Character								
Total defects—Each class								
Total defects—All classes: Minor, Major, Severe, Critical								
Size—Diameters								
Total defects—Each class								

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Quality factors	Defects							
	Sample unit				Sample unit			
	Minor	Major	Severe	Critical	Minor	Major	Severe	Critical
Total defects—All classes Minor, Major Severe								
Flavor and odor: Good; Objectionable								
Grit, silt, earthy material: Free; Present/degree								
Grade								

(34 FR 5152, Mar. 13, 1969. Redesignated at 35 FR 5663, Apr. 8, 1970; 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981)

Subpart—United States Standards for Grades of Canned Dried Beans

Source: 41 FR 32223, Aug. 2, 1976, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981.

§ 52.411 Product description.

"Canned dried beans" is the product prepared from dry mature beans or peas used for canning; but not including soybeans, sweet peas, or early peas. Any safe and suitable ingredients permissible under the provisions of the Federal Food, Drug, and Cosmetic Act may be used. The product is prepared by washing, soaking, blanching, cooking, or other processing. It is packed in hermetically sealed containers and sufficiently processed by heat to assure preservation.

§ 52.412 Types.

(a) White beans.
(b) Lima beans.
(c) Red beans.
(d) Pinto beans.
(e) Pink beans.
(f) Garbanzos or chick-peas.
(g) Black beans.
(h) Yelloweye beans.
(i) Black-eye peas or field peas (Southern peas).
(j) Mixed beans (two or more varietal types of beans in any proportions).
(k) Beans of other colors or types (except soybeans, sweet peas, and early peas).

§ 52.413 Styles.

(a) "In tomato sauce" means packed with tomato pulp or a similar tomato product and any other safe and suitable ingredient(s). The sauce may be highly seasoned.

(b) "In sweetened sauce" means packed with nutritive carbohydrate sweetening ingredient(s) and any other safe and suitable ingredient(s). The sauce may be highly seasoned.

(c) "In brine" means packed in brine and any other safe and suitable ingredient(s).

§ 52.414 Grades.

(a) "U.S. Grade A" is the quality of canned dried beans that has the following attributes:

(1) Practically similar varietal characteristics (except "mixed" type);
(2) At least a reasonably good consistency for the styles of "in tomato sauce" and "in sweetened sauce";
(3) Practically free from defects;
(4) Good character;
(5) Good flavor;
(6) Scores at least 17 points for color; and
(7) Totals not less than 90 points when scored in accordance with the scoring system outlined in this subpart.

(b) "U.S. Grade B" is the quality of canned dried beans that has at least the following attributes:

(1) Reasonably similar varietal characteristics (except "mixed" type);

(2) Reasonably good consistency for the styles of "in tomato sauce" and "in sweetened sauce";
(3) Reasonably free from defects;
(4) Reasonably good character;
(5) Reasonably good flavor;
(6) Reasonably good color; and
(7) Totals not less than 80 points when scored in accordance with the scoring system outlined in this subpart.

(c) "Substandard" is the quality of canned dried beans that fails to meet the requirements of U.S. Grade B.

§ 52.415 Sample unit size.

Compliance with requirements for factors of quality is based on a sample unit consisting of the entire contents of one container, irrespective of container size.

§ 52.416 Determining the grade.

(a) *General.* The factor of canned dried beans is determined by considering, in addition to the requirements of the respective grade, the following factors:

(1) *Factors not rated by score points.* (i) Similar varietal characteristics;
(ii) Consistency; and
(iii) Flavor.

(2) *Factors rated by score points.* The relative importance of each factor is expressed numerically on the scale of 100. The maximum number of points that may be given each factor is:

Factors	Points
Color	20
Absence of defects	40
Character	40
Total	100

(b) *Definitions*—(1) *Similar varietal characteristics.* (i) "Contrasting varieties" means dried beans of the same type or of other types that are of a noticeably different color, size, or shape from the dried beans of the predominating variety (such as red beans with white beans);

(ii) "Varieties that blend" means dried beans of the same type or of other types that are similar in color, size, or shape to the dried beans of the predominating variety (such as pea beans with small white beans);

(iii) "Practically similar varietal characteristics" means that the beans are practically alike in size, shape, color, general characteristics, and that there may be present not more than 0.5 percent, by weight, of contrasting varieties; and not more than 5 percent, by weight, of varieties that blend (not applicable to "mixed" type); and

(iv) "Reasonably similar varietal characteristics" means that the beans are reasonably alike in size, shape, color, general characteristics, and that there may be present not more than 1 percent, by weight, of contrasting varieties; and not more than 10 percent, by weight, of varieties that blend (not applicable to "mixed" type).

(2) *Consistency.* (i) "Reasonably good consistency" means that the sauce is reasonably smooth and may be slightly grainy or slightly lumpy. The product may have a thick consistency but is practically free from "matting" and when emptied on a flat surface may have practically no separation of liquid; or, the product may have a thin consistency with separation of liquid, but it shall not be watery (not applicable to "in brine" style). "Matting" means compaction to the extent that the beans cannot be removed from the container without causing damage or excessive mushiness.

(3) *Flavor.* (i) "Good flavor" means that the product has a good, normal flavor and odor, characteristic of the style of pack, and is free from objectionable flavors and objectionable odors of any kind; and

(ii) "Reasonably good flavor" means that the product may be lacking in good flavor and odor, but is characteristic of the style of pack, and is free from objectionable flavors and objectionable odors of any kind.

§ 52.417 Determining the rating of the factors which are scored.

The essential variations within each factor which is scored are so described that the value is determined for each factor and expressed numerically. The numerical range within each factor which is scored is inclusive (for exam-

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Standard bromide-bromate solution—prepared and standardized to 0.099N in accordance with Chapter 42. Standard Solutions in the current edition of the AOAC.[1] For use add 1 volume of standard solution to 3 volumes of water to make 0.0247N solution. 1 ml of 0.0247N solution supplies bromine to react with 0.00085g., or 0.0010 ml., of d-limonene. The solutions are stable for 6 months.

2-*Propanol*—Reagent grade ACS (American Chemical Society).

Subpart—United States Standards for Grades of Canned Asparagus

SOURCE: 38 FR 13336, May 21, 1973, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981.

PRODUCT DESCRIPTION, STYLES, GRADES, AND TYPES

§ 52.2541 Identity.

"Canned asparagus" means the canned product prepared from clean, sound, succulent shoots of the asparagus plant prepared and processed in accordance with good commercial practice as such product is defined in the standard of identity for canned asparagus (21 CFR 155.200) issued pursuant to the Federal Food, Drug, and Cosmetic Act.

§ 52.2542 Styles.

(a) "Spears" (stalks), which may be peeled or unpeeled, is the style of canned asparagus that consists of the head and adjoining portion of the shoot that is 3¾ inches or more in length.

(b) "Tips" is the style of canned asparagus that consists of the head and adjoining portion of the shoot that is less than 3¾ inches but not less than 2¾ inches in length.

(c) "Points" is the style of canned asparagus that consists of the head and adjoining portion of the shoot that is less than 2¾ inches in length.

(d) "Cut spears" (cut stalks) is the style of canned asparagus that consists of shoots cut transversely into pieces. The recommended minimum percent, by count, of heads in cut spears is given in table I of this section.

TABLE I—RECOMMENDED MINIMUM PERCENT, BY COUNT, OF HEADS IN CUT SPEARS

Length of units	Percent, by count, of heads
1¼ inches or less	15
Over 1¼ inches	20

(e) "Bottom cuts" or "cuts—tips removed" is the style of canned asparagus that consists of portions of shoots with heads removed that are cut transversely into pieces.

(f) "Mixed" is the style of canned asparagus consisting of two or more of the foregoing styles.

§ 52.2543 Grades.

(a) "U.S. Grade A" or "U.S. Fancy" is the quality of canned asparagus that possesses a good flavor; that possesses a clear liquor; that possesses a good color; that is practically free from defects; that possesses a good character; and that for those factors which are scored in accordance with the scoring system outlined in this section the total score is not less than 85 points: *Provided*, That the canned asparagus may possess a fairly clear liquor and a fairly good color if the total score is no less than 85 points.

(b) "U.S. Grade C" or "U.S. Standard" is the quality of canned asparagus that possesses a fairly good flavor; that possesses a fairly clear liquor; that possesses a fairly good color; that is fairly free from defects; that possesses a fairly good character; and that scores not less than 70 points when scored in accordance with the scoring system outlined in this section.

(c) "Substandard" is the quality of canned asparagus that fails to meet the requirements of U.S. Grade C or U.S. Standard.

§ 52.2544 Types.

The type of canned asparagus is not incorporated in the grades of the processed product, since the type of canned asparagus is not a factor of quality for the purpose of these grades. The type of asparagus may be designated in accordance with the following requirements:

(a) "Green" (all green) consists of units of canned asparagus which are typical green, light green, or yellowish green in color.

(b) "Green tipped" consists of canned asparagus spears, tips, and points, of which one-half or more of the unit measured from the tip end is green, light green, or yellowish green in color.

(c) "Green tipped and white" consists of (1) spears, tips, and points of canned asparagus which are typical white or yellowish white in color, and may have green, light green, or yellowish green heads, and the green color may extend to not more than one-half of the length of the stalk measured from the tip end; and (2) green tipped and white spears, tips, and points, when cut into units, may consist of a mixture of typical white, yellowish white, green, light green, or yellowish green units.

(d) "White" consists of units of canned asparagus which are typical white or yellowish white in color.

FILL OF CONTAINER, DRAINED WEIGHTS, AND FILL WEIGHTS

§ 52.2545 Recommended fill of container.

The recommended fill of container for canned asparagus is not incorporated in the grades of the processed product, since fill of container, as such, is not a factor of quality for the purpose of these grades. It is recommended that each container of canned asparagus be filled as full as practicable with asparagus without impairment of quality.

§ 52.2546 Recommended minimum drained weights.

(a) *General.* The minimum drained weight recommendations in table II are not incorporated in the grades of the processed product, since drained weight, as such, is not a factor of quality for the purpose of these grades.

(b) *Method for ascertaining drained weights.* The drained weight of canned asparagus is determined by emptying the contents of the container upon a U.S. Standard No. 8 sieve of proper diameter, inclining the sieve to facilitate drainage, and allow to drain for 2 minutes. The drained weight is the weight of the sieve and the asparagus less the weight of the dry sieve. A sieve 8 in. in diameter is used for the No. 2½ can (401 × 411) and smaller sizes, and a sieve 12 in. in diameter is used for containers larger than the No. 2½ size can.

(c) *Definitions of symbols.* (1) X_a—the average drained weight of all the sample units in the sample.

(2) LL—lower limit for drained weights of individual sample units.

(d) *Compliance with recommended minimum drained weights.* A lot of canned asparagus is considered as meeting the minimum drained weight recommendations if the following criteria are met:

(1) The average of the drained weights of all the sample units in the sample meets the recommended minimum average drained weight (designated as X_a in table II); and

(2) The number of sample units which fail to meet the recommended drained weight lower limit for individuals (designated as LL in table II) does not exceed the applicable acceptance number specified in table III.

[1] "AOAC" refers to the Official Methods of Analysis published by the Association of Official Analytical (formerly Agricultural) Chemists. Copies may be obtained from this Association at Box 540, Benjamin Franklin Station, Washington, D.C. 20044.

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TABLE II—RECOMMENDED MINIMUM DRAINED WEIGHT FOR CANNED ASPARAGUS

Container designation (metal, unless otherwise stated)	Container dimensions (inches, or water capacity in ounces avoirdupois as applicable)		Small, medium, or large sizes, and blends of these sizes				Extra large, colossal, giant sizes, or blends including these sizes				Cuts spears, bottom cuts-tips removed			
			Green tipped and white, white (ounces)		Green and green tipped (ounces)		Green tipped and white, white (ounces)		Green and green tipped (ounces)		Green tipped and white (ounces)		Green (ounces)	
	Diameter	Height	LL	X_d	LL	X_d	LL	X_d	LL	X_d	LL	X_d	LL	X_d
8 oz glass	8.5 oz avdp		4.8	5.1	4.6	4.9	4.8	5.1	4.6	4.9	4.7	5.0	4.4	4.7
8Z short	2 1/16	3	4.4	4.7	4.2	4.5	4.4	4.7	4.2	4.5	4.2	4.5	4.1	4.3
8Z tall	2 1/16	3 1/16	4.9	5.2	4.7	5.0	4.9	5.2	4.7	5.0	4.7	5.0	4.5	4.8
No. 1 picnic	2 1/16	4	6.6	7.0	5.8	6.2	6.1	6.5	5.8	6.0	6.2	6.5	5.7	6.0
12Z	2 1/16	4 9/16	7.6	8.0	7.1	7.5	7.3	7.7	6.8	7.2	7.3	7.7	6.8	7.2
13½Z glass	14.0 oz avdp		8.6	9.1	7.8	8.3	8.1	8.6	7.5	8.0				
No. 300	3	4 1/16	8.0	8.5	8.2	8.7	8.5	9.0	7.9	8.4	8.6	9.0	8.2	8.6
300 x 409	3	4 9/16	9.2	9.7	8.5	9.0	8.7	9.2	8.1	8.6	8.8	9.2	8.4	8.8
No. 1 tall	3 1/16	4 13/16	9.9	10.3	8.9	9.4	9.3	9.9	8.5	9.1	9.1	9.6	8.6	9.1
No. 303 glass	17.7 oz avdp		10.3	10.5	9.1	9.7	9.7	10.3	8.8	9.4	9.4	9.9	8.9	9.4
No. 303	3 1/16	4 1/16	10.1	10.7	8.9	9.5	9.5	10.1	8.6	9.2	9.2	9.7	8.7	9.2
No. 303 cylinder	3	5 9/16			10.3	11.0			9.8	10.5				
No. 2	3 1/16	4 9/16	12.3	13.0	11.1	11.8	11.6	12.3	10.6	11.3	12.1	12.7	11.1	11.7
No. 2½ glass	2 13/16 oz avdp		17.7	18.7	16.0	17.0	16.7	17.7	15.5	16.5	17.6	18.3	16.0	16.7
No. 2½	4 1/16	4 13/16	18.0	19.0	16.2	17.2	17.0	18.0	15.7	16.7	17.8	18.5	16.2	16.9
No. 5 squat	6 1/16	4 9/16	41.5	43.0	37.5	39.0	39.5	41.0	36.5	38.0	41.0	42.0	37.0	38.0
No. 10	6 1/16	7									63.1	64.5	58.8	60.2

TABLE III—SINGLE SAMPLING PLAN FOR DRAINED WEIGHTS

Sample size (number of sample units)	3	6	13	21	29	38	48	60	72
Acceptance No.	0	1	2	3	4	5	6	7	8

§ 52.2547 Recommended minimum fill weights.

(a) *General.* The minimum fill weight recommendations specified in tables IV, V, VI, VII, VIII, and IX are not incorporated in the grades of the finished product since fill weight, as such, is not a factor of quality for the purposes of these grades.

(b) *Method for ascertaining fill weights.* Fill weight is determined in accordance with the U.S. Standards for Inspection by Variables and the U.S. Standards for Determination of Fill Weights.

(c) *Definitions of terms and symbols.* "Subgroup" means a group of sample units representing a portion of a sample.

X'_{min} means the minimum lot average fill weight.

LWL_s means the lower warning limit for subgroup averages.

LRL_s means the lower reject limit for subgroup averages.

LWL means the lower warning limit for individual fill weight measurements.

LRL means the reject limit for individual fill weight measurements.

R' means a specified average range value.

R_{max} means a specified maximum range for a subgroup.

"Sampling allowance code" means a code letter on the Sampling Allowance Chart of the U.S. Standards for Inspection by Variables. This letter identifies the appropriate line which gives the amount of sampling allowance to be applied to the specification average for fill weights in order to determine compliance with requirements for fill weight averages for a sample.

(d) *Compliance with recommended fill weights.* Compliance with the recommended fill weights shall be in accordance with the acceptance criteria specified in the U.S. Standards for Inspection by Variables and the U.S. Standards for Determination of Fill Weights.

TABLE IV—RECOMMENDED FILL WEIGHT VALUES

Container designation (metal, unless otherwise designated)	Green and green tipped—spears, tips, or points (small, medium, large, or blends of these sizes)							Sampling allowance code
	X'_{min}	LWL_s	LRL_s	LWL	LRL	R'	R_{max}	
8 oz glass	5.0	4.7	4.6	4.4	4.1	0.70	1.50	E
8Z short	4.8	4.3	4.2	4.0	3.7	0.70	1.50	E
8Z tall	5.1	4.8	4.7	4.5	4.2	0.70	1.50	E
No. 1 picnic	6.3	6.0	5.8	5.6	5.2	0.80	1.70	F
12Z	7.6	7.2	7.0	6.8	6.4	0.90	2.0	G
13½Z glass	8.4	8.0	7.6	7.5	7.0	1.10	2.20	H
No. 300	8.8	8.4	8.2	7.9	7.4	1.10	2.20	H
300 x 409	9.1	8.7	8.5	8.2	7.7	1.10	2.20	H
No. 1 tall	9.6	9.1	8.9	8.6	8.1	1.20	2.50	I
No. 303 glass	9.9	9.4	9.2	8.9	8.4	1.20	2.50	I
No. 303	9.7	9.2	9.0	8.7	8.2	1.20	2.50	I
No. 300 cylinder	11.2	10.6	10.3	9.9	9.2	1.50	3.20	L
No. 2	12.0	11.4	11.1	10.7	10.0	1.50	3.20	L
No. 2½ glass	17.4	16.5	16.1	15.5	14.5	2.20	4.70	R
No. 2½	17.6	16.7	16.3	15.7	14.7	2.20	4.70	R
No. 5 squat	41.0	39.7	39.1	38.2	36.8	3.30	6.90	W

TABLE V—RECOMMENDED FILL WEIGHT VALUES

Container designation (metal, unless otherwise designated)	Green and green tipped—spears, tips, or points (extra large, colossal, giant, or blends including these sizes)							Sampling allowance code
	X'_{min}	LWL_s	LRL_s	LWL	LRL	R'	R_{max}	
8 oz glass	5.0	4.7	4.6	4.4	4.1	0.70	1.50	E
8Z short	4.6	4.3	4.2	4.0	3.7	0.70	1.50	E
8Z tall	5.1	4.8	4.7	4.5	4.2	0.70	1.50	E
No. 1 picnic	6.1	5.8	5.6	5.4	5.0	0.80	1.70	F
12Z	7.3	6.9	6.7	6.5	6.1	0.90	2.0	G
13½Z glass	8.1	7.7	7.5	7.2	6.7	1.10	2.20	H
No. 300	8.4	8.2	8.0	7.7	7.2	1.10	2.20	H
300 x 409	8.8	8.4	8.2	7.8	7.4	1.10	2.20	H
No. 1 tall	9.3	8.8	8.6	8.3	7.8	1.20	2.50	I
No. 303 glass	9.2	8.7	8.5	8.2	7.7	1.20	2.50	I
No. 303	9.4	8.9	8.7	8.4	7.9	1.20	2.50	I
No. 300 cylinder	10.7	10.1	9.8	9.4	8.7	1.50	3.20	L
No. 2	11.6	11.0	10.7	10.3	9.6	1.50	3.20	L
No. 2½ glass	16.9	16.0	15.6	15.0	14.0	2.20	4.70	R
No. 2½	17.1	16.2	15.8	15.2	14.2	2.20	4.70	R
No. 5 squat	39.5	38.2	37.6	36.7	35.3	3.30	6.90	W

TABLE VI—RECOMMENDED FILL WEIGHT VALUES

Container designation (metal, unless otherwise designated)	Green tipped and white; and white—spears, tips, or points (small, medium, large, or blends of these sizes)							Sampling allowance code
	X'_{min}	LWL_s	LRL_s	LWL	LRL	R'	R_{max}	
8 oz glass	5.2	4.9	4.8	4.6	4.3	.70	1.50	E
8Z short	4.8	4.5	4.4	4.2	3.9	.70	1.50	E
8Z tall	5.3	5.0	4.9	4.7	4.4	.70	1.50	E
No. 1 picnic	7.1	6.8	6.6	6.4	6.0	.80	1.70	F
12Z	7.9	7.5	7.3	7.1	6.7	.90	2.0	G
13½Z glass	9.2	8.8	8.6	8.3	7.8	1.10	2.20	H
No. 300	9.6	9.2	9.0	8.7	8.2	1.10	2.20	H
300 x 409	9.8	9.4	9.2	8.9	8.4	1.10	2.20	H
No. 1 tall	10.7	10.2	10.0	8.7	8.2	1.20	2.50	I
No. 303 glass	11.1	10.6	10.4	10.1	9.6	1.20	2.50	I
No. 303	10.9	10.4	10.2	8.9	8.4	1.20	2.50	I
No. 2	13.2	12.6	12.3	11.7	11.2	1.50	3.20	L
No. 2½ glass	19.0	18.1	17.7	17.1	16.1	2.20	4.70	R
No. 2½	19.3	18.4	18.0	17.4	16.4	2.20	4.70	R

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TABLE VI—RECOMMENDED FILL WEIGHT VALUES—Continued

Container designation (metal, unless otherwise designated)	Green tipped and white, and white—spears, tips, or points (small, medium, large, or blends of these sizes)							Sampling allowance code
	X'_{min}	LWL_s	LRL_s	LWL	LRL	R'	R_{max}	
No. 5 squat	44.5	43.2	42.6	41.7	40.3	3.30	6.90	W

TABLE VII—RECOMMENDED FILL WEIGHT VALUES

Container designation (metal, unless otherwise designated)	Green tipped and white; and white—spears, tips, or points (extra large, colossal, giant, or blends of these sizes)							Sampling allowance code
	X'_{min}	LWL_s	LRL_s	LWL	LRL	R'	R_{max}	
8 oz glass	5.2	4.9	4.8	4.6	4.3	0.70	1.50	E
8Z short	4.8	4.5	4.4	4.2	3.9	0.70	1.50	E
8Z tall	5.3	5.0	4.9	4.7	4.4	0.70	1.50	E
No. 1 picnic	6.6	6.3	6.1	5.8	5.5	0.80	1.70	F
12Z	7.8	7.4	7.2	7.0	6.6	0.90	2.0	G
13½Z glass	8.7	8.3	8.1	7.8	7.3	1.10	2.20	H
No. 300	9.1	8.7	8.5	8.2	7.7	1.10	2.20	H
300 x 408	9.4	9.0	8.8	8.5	8.0	1.10	2.20	H
No. 1 tall	10.1	9.6	9.4	9.1	8.6	1.20	2.50	I
No. 303 glass	10.5	10.0	9.8	9.5	9.0	1.20	2.50	I
No. 303	10.3	9.8	9.6	9.3	8.8	1.20	2.50	I
No. 2	12.5	11.9	11.5	11.2	10.5	1.50	3.20	L
No. 2½ glass	18.0	17.1	16.7	16.1	15.1	2.20	4.70	R
No. 2½	18.3	17.4	17.0	16.4	15.4	2.20	4.70	R
No. 5 squat	42.5	41.2	40.6	39.7	38.3	3.30	6.90	W

TABLE VIII—RECOMMENDED FILL WEIGHT VALUES

Container designation (metal, unless otherwise designated)	Green—cut spears; bottom cuts, or cuts-tips removed							Sampling allowance code
	X'_{min}	LWL_s	LRL_s	LWL	LRL	R'	R_{max}	
8 oz glass	4.9	4.6	4.5	4.3	4.0	0.70	1.50	E
8Z short	4.5	4.2	4.1	3.9	3.6	0.70	1.50	E
8Z tall	5.0	4.7	4.6	4.4	4.1	0.70	1.50	E
No. 1 picnic	6.3	6.0	5.9	5.7	5.4	0.70	1.50	E
12Z	7.5	7.2	7.0	6.8	6.4	0.80	1.70	F
No. 300	8.8	8.5	8.3	8.1	7.7	0.90	2.0	G
300 x 408	9.1	8.7	8.5	8.3	7.9	0.90	2.0	G
No. 1 tall	9.4	9.0	8.8	8.5	8.0	1.10	2.20	H
No. 303 glass	9.7	9.3	9.1	8.8	8.3	1.10	2.20	H
No. 303	9.5	9.1	8.9	8.6	8.1	1.10	2.20	H
No. 2	12.0	11.5	11.3	11.0	10.5	1.20	2.50	I
No. 2½ glass	17.3	16.7	16.4	16.0	15.4	1.40	3.0	K
No. 2½	17.5	17.0	16.7	16.3	15.7	1.40	3.0	K
No. 5 squat	41.0	40.2	39.8	39.2	38.3	2.10	4.40	O
No. 10	65.5	64.3	63.7	62.9	61.8	3.0	6.40	V

TABLE IX—RECOMMENDED FILL WEIGHT VALUES

Container designation (metal, unless otherwise designated)	Green tipped and white—cut spears, bottom cuts; or cuts-tips removed							Sampling allowance code
	X'_{min}	LWL_s	LRL_s	LWL	LRL	R'	R_{max}	
8 oz glass	5.3	5.0	4.9	4.7	4.4	0.70	1.50	E
8Z short	4.8	4.5	4.4	4.2	3.9	0.70	1.50	E
8Z tall	5.4	5.1	5.0	4.8	4.5	0.70	1.50	E
No. 1 picnic	6.8	6.5	6.4	6.2	5.9	0.70	1.50	E

TABLE IX—RECOMMENDED FILL WEIGHT VALUES—Continued

Container designation (metal, unless otherwise designated)	Green tipped and white—cut spears; bottom cuts; or cuts-tips removed							Sampling allowance code
	X'_{min}	LWL_s	LRL_s	LWL	LRL	R'	R_{max}	
12Z	8.0	7.7	7.6	7.3	6.9	0.80	1.70	F
No. 300	9.4	9.0	8.8	8.6	8.2	0.90	2.0	G
300 x 408	9.6	9.2	9.0	8.8	8.4	0.90	2.0	G
No. 1 tall	9.9	9.5	9.3	9.0	8.5	1.10	2.20	H
No. 303 glass	10.2		9.6	9.3	8.8	1.10	2.20	H
No. 303	10.0	.8	9.4	9.1	8.6	1.10	2.20	H
No. 2	13.0	12.5	12.3	12.0	11.5	1.20	2.50	I
No. 2½ glass	18.8	18.3	18.0	17.6	17.0	1.40	3.0	K
No. 2½	19.0	18.6	18.2	17.8	17.2	1.40	3.0	K
No. 5 squat	44.5	43.7	43.3	42.7	41.8	2.10	4.40	O
No. 10	71.0	69.8	69.2	68.4	67.1	3.0	6.40	V

[38 FR 13336, May 21, 1973; 38 FR 15511, June 13, 1973. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

SIZE (DIAMETER) OF SPEARS, TIPS, AND POINTS

§ 52.2548 Size (diameter) of spears, tips, and points.

The size (diameter) of asparagus spears, tips, and points in canned asparagus is determined by measuring the largest diameter across the base at right angles to the longitudinal axis of the unit. Units compressed in processing should be restored to their approximate original contour before sizing. Asparagus spears longer than 5 in are measured at a point 5 in from the top of the spear. Units 5 in in length and less are measured at the base or largest cut end of the unit.

§ 52.2549 Compliance with single size recommendations.

Canned asparagus spears, tips, and points will be considered as meeting a designated size when not more than 20 percent, by count, of all the units are of the next size smaller or the next size larger than the diameter range of the particular size designation.

TABLE X—SIZES (DIAMETER) OF ASPARAGUS SPEARS, TIPS, AND POINTS IN CANNED ASPARAGUS

Word designation	Diameter (16ths of inch)
Small	Approximately 6/16.
Medium	6/16 to 8/16.
Large	8/16 to 10/16.
Extra large or mammoth	10/16 to 13/16.

TABLE X—SIZES (DIAMETER) OF ASPARAGUS SPEARS, TIPS, AND POINTS IN CANNED ASPARAGUS—Continued

Word designation	Diameter (16ths of inch)
Colossal	13/16 to 16/16.
Giant	16/16 and over.
Blend of sizes	A mixture of 2 or more of the foregoing sizes.

FACTORS OF QUALITY

§ 52.2550 Ascertaining the grade.

(a) *General.* In addition to considering other requirements outlined in the standards, the following quality factors are evaluated in ascertaining the grade of the product:

(1) *Factor not rated by score points* (i) Flavor.

(2) *Factors rated by score points* (i) The relative importance of each factor which is rated is expressed numerically on the scale of 100. The maximum number of points that may be given each such factor is:

Factors	Points
Liquor	10
Color	20
Defects	30
Character	40
Total score	100

(ii) "Good flavor" means that the product has a good, characteristic

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normal flavor and odor and is free from objectionable flavors and objectionable odors of any kind.

(iii) "Fairly good flavor" means that the product may be lacking in good flavor and odor but is free from objectionable flavors and objectionable odors of any kind.

§ 52.2551 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is rated by score points are so described that the value may be ascertained for such factors and expressed numerically. The numerical range within each such factor is inclusive (for example, "17 to 20 points" means 17, 18, 19, or 20 points).

§ 52.2552 Liquor.

(a) (*A*) *classification.* Canned asparagus that possesses a clear liquor may be given a score of 9 or 10 points. "Clear liquor" means that the liquor may possess a typical yellow or green color and is fairly free from suspended material and sediment.

(b) (*C*) *classification.* If the canned asparagus possesses a fairly clear liquor a score of 7 or 8 points may be given. "Fairly clear liquor" means that the liquor may be cloudy but not excessively cloudy or may possess an accumulation of sediment which may be slightly gray or slightly brown but is not seriously objectionable and is not off color.

(c) (*SStd*) *classification.* Canned asparagus that fails to meet the requirements of paragraph (b) of this section may be given a score of 0 to 6 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.2553 Color.

(a) *General.* The color of asparagus in canned asparagus is based on the type and style of asparagus and the characteristic and predominant color of the units.

(b) (*A*) *classification.* Canned asparagus that possesses a good color may be given a score of 17 to 20 points. "Good color" has the following meanings with respect to the following types and styles of canned asparagus:

(1) *Spears, tips, or points*—(i) *Green.* The units possess a good, characteristic, green, light green, or yellowish green color typical of well developed asparagus, and the bottom portion of not more than 10 percent, by count, of the units, or one unit, whichever is larger, may possess typical white or yellowish white color not to exceed one-eighth of the length of the unit.

(ii) *Green tipped.* The units possess a good, characteristic, green, light green, or yellowish green color with typical white or yellowish white color at the base ends, typical of well developed asparagus, and not more than 20 percent, by count, of the units may possess typical white or yellowish white color in excess of one-half of the length of the unit or may be all green.

(iii) *Green tipped and white.* The units possess a good, characteristic, white or yellowish white color, and may possess green, light green, or yellowish green heads and adjacent areas typical of well developed asparagus, and not more than 20 percent, by count, of the units may possess green, light green, or yellowish green heads and adjacent areas exceeding one-half of the length of the unit.

(iv) *White.* The units possess a good, characteristic, white, or yellowish white color typical of well developed asparagus, and not more than 10 percent, by count, of the units, or one unit, whichever is larger, may possess green, light green, or yellowish green heads and adjacent areas not to exceed one-half of the length of the unit.

(2) *Cut spears, bottom cuts or cuts—tips removed, and mixed*—(i) *Green.* The units possess a good, characteristic, green, light green, or yellowish green color typical of well developed asparagus, and not more than 10 percent, by count, of the units may be green and white or white: *Provided,* That not more than 2 percent, by count, of all the units may be white.

(ii) *Green tipped and white or white.* The units possess a good, characteristic color typical of well developed green tipped and white or white asparagus.

(c) (*C*) *classification.* If the canned asparagus possesses a fairly good color, a score of 14 to 16 points may be given. "Fairly good color" has the following meanings with respect to the following types and styles of canned asparagus:

(1) *Spears, tips, or points*—(i) *Green.* The units possess a fairly good, characteristic, green, light green, or yellowish green color typical of fairly well developed asparagus and the bottom portion of not more than 20 percent, by count, of the units may possess typical white or yellowish white color not to exceed one-fourth of the length of the unit.

(ii) *Green tipped.* The units possess a fairly good, characteristic, green, light green, or yellowish green color with typical white or yellowish white color at the base ends, typical of fairly well developed asparagus, and not more than 50 percent, by count, of the units may possess typical white or yellowish white color in excess of one-half of the lenth of the unit, or may be all green.

(iii) *Green tipped and white.* The units possess a fairly good characteristic, white or yellowish white color and may possess green, light green, or yellowish green heads and adjacent areas typical of fairly well developed asparagus, and not more than 50 percent, by count, of the units may possess green, light green, or yellowish green heads and adjacent areas in excess of one-half of the length of the unit.

(iv) *White.* The units possess a fairly good, characteristic, white or yellowish white color typical of fairly well developed white asparagus, and not more than 20 percent, by count, of the units may posses green, light green, or yellowish green heads and adjacent areas not to exceed one-half of the length of the unit.

(2) *Cut spears, bottom cuts or cuts—tips removed, and mixed*—(i) *Green.* The units possess a fairly good, characteristic, green, light green, or yellowish green color typical of fairly well developed asparagus and not more than 20 percent, by count, of the units may be green and white or white: *Provided,* That not more than 5 percent, by count, of all the units may be white.

(ii) *Green tipped and white or white.* The units possess a fairly good, characteristic color typical of fairly well developed green tipped and white or white asparagus.

(d) (*SStd*) *classification.* Canned asparagus that fails to meet the requirements of paragraph (c) of this section or is definitely off color may be given a score of 0 to 13 points and shall not be graded above substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.2554 Defects.

(a) *General.* The factor of defects refers to the degree of freedom from grit or silt, loose material, shattered heads, poorly cut unit, damaged units, and seriously damaged units.

(1) "Grit or silt" means sand or any other particle of earthy material.

(2) "Loose material" means shattered asparagus material and cut or broken pieces which are less than three-eights inch in length.

(3) "Shattered head" means any unit with the asparagus head broken or shattered to the extent that the appearance is seriously affected.

(4) "Misshapen" means any spear, tip, or point that is badly crooked, or any unit that is seriously affected in appearance by doubles or other malformations.

(5) "Poorly cut" means a unit that has a very ragged, stringy, or frayed edge or edges, or a unit that is partially cut, or is cut at an angle of less than approximately 45 degrees.

(6) "Damaged" means damaged by discoloration, mechanical injury, or damaged by other means to the extent that the appearance or edibility of the unit is materially affected.

(7) "Seriously damaged" means damaged to such an extent that the appearance or edibility of the unit is seriously affected.

(b) (*A*) *classification.* Canned asparagus that is practically free from defects may be given a score of 25 to 30 points. "Practically free from defects" means that no grit or silt may be present that affects the appearance or edibility of the product; that loose material may be present that does not materially affect the appearance of the product; and that with respect to the following styles of canned asparagus:

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(1) *Spears, tips, and points.* There may be present with respect to green and green tipped types not more than 10 percent, and with respect to green tipped and white types not more than 15 percent, by count, of units with shattered heads, misshapen units and poorly cut units, and damaged and seriously damaged units: *Provided,* That not more than 3 percent, by count, of the units may be seriously damaged, or one unit in a single container may be seriously damaged if such unit exceeds the allowance of 3 percent: *Provided,* That in all of the containers comprising the sample such damaged units do not exceed an average of 3 percent, by count, of the total number of units.

(2) *Cut spears, bottom cuts or cuts—tips removed, and mixed.* There may be present for the applicable style not more than 10 percent, by count, of units with shattered heads, misshapen units and poorly cut units, and damaged and seriously damaged units: *Provided,* That not more than 2 percent, by count, of the units may be seriously damaged or one unit in a single container may be seriously damaged if such unit exceeds the allowance of 2 percent: *Provided,* That in all of the containers comprising the sample such damaged units do not exceed an average of 2 percent, by count, of the total number of units.

(c) (*C*) *classification.* If the canned asparagus is fairly free from defects, a score of 21 to 24 points may be given. Canned asparagus that falls into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly free from defects" means that not more than a trace of grit or silt may be present that affects the appearance or edibility of the product; that loose material may be present that does not seriously affect the appearance of the product; and that with respect to the following styles of canned asparagus:

(1) *Spears, tips, and points.* There may be present with respect to green and green tipped types not more than 20 percent, and with respect to green tipped and white and white types not more than 30 percent, by count, of units with shattered heads, misshapen units, and poorly cut units, and damaged and seriously damaged units: *Provided,* That not more than 10 percent, by count, of the units may be seriously damaged, or one unit in a single container may be seriously damaged if such unit exceeds the allowance of 10 percent: *Provided,* That in all of the containers comprising the sample such damaged units do not exceed an average of 10 percent, by count, of the total number of units.

(2) *Cut spears, bottom cuts or cuts—tips removed, and mixed.* There may be present for the applicable style not more than 20 percent, by count, of units with shattered heads, misshapen units and poorly cut units, and damaged and seriously damaged units: *Provided,* That not more than 7 percent, by count, of all the units may be seriously damaged.

(d) (*SStd*) *classification.* Canned asparagus that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 20 points and shall not be graded above substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.2555 Character.

(a) *General.* The factor of character refers to the degree of development of the head and bracts and to the tenderness and texture of the unit.

(1) "Well developed" means that the appearance of the head is not materially affected by a seedy appearance, and is practically compact.

(2) "Fairly well developed" means that the head may show a seedy appearance over the surface of the head and the head and bracts may be elongated but not so developed or elongated as to give a definitely spread or branching appearance.

(b) (*A*) *classification.* Canned asparagus that possesses a good character may be given a score of 34 to 40 points. "Good character" has the following meanings with respect to the following styles and types of canned asparagus:

(1) *Spears, tips, and points.* Not less than 85 percent, by count, of the heads are well developed, and the remaining units are at least fairly well developed, and with respect to green and green tipped types not more than 10 percent, and with respect to green tipped and white and white types not more than 20 percent, by count, of the units, or one unit in a container if such unit exceeds the allowances provided for the respective type, may be tough.

(2) *Cut spears and mixed.* Not less than 50 percent, by count, of the heads are well developed, and the remainder are at least fairly well developed, and with respect to green and green tipped types not more than 10 percent, and with respect to green tipped and white and white types not more than 20 percent, by count, of the units may be tough.

(3) *Bottom cuts or cuts—tips removed.* With respect to green and green tipped types not more than 10 percent, and with respect to green tipped and white and white types not more than 33⅓ percent, by count, of the units may be tough.

(c) (*C*) *classification.* If the canned asparagus possesses a fairly good character, a score of 28 to 33 points may be given. Canned asparagus that falls into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly good character" has the following meanings with respect to the following styles and types of canned asparagus:

(1) *Spears, tips, and points.* Not less than 90 percent, by count, of the heads are at least fairly well developed, and the remaining units may fail to meet the requirements for fairly well developed heads, and with respect to green and green tipped types not more than 25 percent, and with respect to green tipped and white and white types not more than 50 percent, by count, of the units may be tough.

(2) *Cut spears and mixed.* Not less than 90 percent, by count, of all the heads are at least fairly well developed, and the remainder may fail to meet the requirements for fairly well developed heads, and with respect to green and green tipped types not more than 25 percent, and with respect to green tipped and white and white types, not more than 50 percent, by count, of the units may be tough.

(3) *Bottom cuts or cuts—tips removed.* With respect to green and green tipped types not more than 25 percent, and with respect to green tipped and white and white types not more than 50 percent, by count, of the units may be tough.

(d) (*SStd*) *classification.* Canned asparagus that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 27 points and shall not be graded above substandard, regardless of the total score for the product (this is a limiting rule).

Definitions and Explanations

§ 52.2556 Definitions and explanations of terms.

(a) *Head.* Head in cut spears means the tip end which has been cut from an asparagus shoot which is ⅝ inch or more in length with respect to the green type and which is ⅜ inch or more in length with respect to green tipped and white and white types, or the upper portion of a spear which possesses a substantial amount of head material which has been cut from near the tip end and which is approximately the same length as the other cut units.

(b) *Unit.* Unit means any individual portion of an asparagus shoot ⅜ inch or more in length in canned asparagus.

(c) *Percent, by count, of heads.* Percent, by count, of heads means the percent determined by averaging the percent, by count, of heads in all of the containers comprising the sample.

(d) *Tough unit*—(1) *Spears, tips, and points.* Tough unit means a unit which is not cut through in 5 seconds or less when tested by means of the fiberometer and which possesses fibrous material which is materially objectionable upon eating. When tested by means of the fiberometer the test is made at a point 1 inch from the cut end with respect to the green type and at a point 1½ inches from the cut end with respect to the green tipped type, and at the mid-point of the unit with respect to the green tipped and white and white types.

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(2) *Cut spears, bottom cuts or cuts—tips removed, and mixed; containing cut spears and bottom cuts or cuts—tips removed.* Tough unit means a unit which possesses fibrous material which is materially objectionable upon eating.

(e) *Asparagus fiberometer.* The cutting wire of the fiberometer shall be 0.031 in diameter stainless steel wire and is mounted in a metal frame having an overall weight of 3 lb avoirdupois. The slots in the block supporting the asparagus unit to be tested shall be not less than 0.039 in nor more than 0.042 in in width.

Lot Inspection and Certification

§ 52.2557 Ascertaining the grade of a lot.

The grade of a lot of canned asparagus covered by these standards is determined by the procedures set forth in the Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products (7 CFR 52.1 through 52.87).

Score Sheet

§ 52.2558 Score sheet.

Number, size, and kind of container _____
Label _____
Container mark or identification _____
Net weight (ounces) _____
Vacuum (inches) _____
Drained weight (ounces) _____
Type _____
Style _____
Size or sizes (Spears, tips, and points) _____
Length of cut _____
Heads (cut) (percent, by count) _____

Factors			Score points
Liquor	10	(A)	9-10
		(C)	7-8
		(SSkd)	[1] 0-6
Color	20	(A)	17-20
		(C)	14-16
		(SSkd)	[1] 0-13
Defects	30	(A)	25-30
		(C)	[1] 21-24
		(SSkd)	[1] 0-20
Character	40	(A)	34-40
		(C)	[1] 28-33
		(SSkd)	[1] 0-27
Total score	100		

Flavor (A, C, or SSkd) _____
Grade _____

[1] Indicates limiting rule.

Subpart—United States Standards for Grades of Canned Clingstone Peaches[1]

Source: 43 FR 20957, May 16, 1978, unless otherwise noted. Redesignated at 46 FR 63203, Dec. 31, 1981.

§ 52.2561 Product description.

Canned clingstone peaches is the product represented as defined in the Standards of Identity for canned peaches (21 CFR 145.170(a) and 145.171) issued under the Federal Food, Drug and Cosmetic Act. For the purposes of the standards in this subpart, and unless the text indicates otherwise, the terms, "canned peaches" or "canned clingstone peaches" include "canned yellow clingstone peaches," "canned spiced yellow clingstone peaches," "canned 'solid-pack' yellow clingstone peaches" and "canned artificially sweetened yellow clingstone peaches" as defined in the Standards of Identity.

§ 52.2562 Styles.

(a) *"Halves" or "Halved"* canned peaches are peeled and pitted peaches, cut approximately in half along the suture from stem to apex.

(b) *"Quarters" or "Quartered"* canned peaches are halved peaches cut into two approximately equal parts.

(c) *"Slices" or "Sliced"* canned peaches are peeled and pitted peaches cut into sectors smaller than quarters.

(d) *"Dice" or "Diced"* canned peaches are peeled and pitted peaches cut into approximate cubes.

(e) *"Whole"* canned peaches are peeled, unpitted, whole peaches with or without stems removed.

(f) *"Mixed pieces of irregular sizes and shapes"* are peeled, pitted, and cut units of canned peaches that are predominantly irregular in size and shape which do not conform to a single style of halves, quarters, slices, or dice and which may consist of:

(1) Units (commonly called "salad cuts" or "salad pieces") which may have been prepared originally as peach halves but which are irregular in size and shape in that more than one-fourth of the unit appears to have been removed at the outer curved surface and which have been cut further into pieces;

(2) Units which may have been prepared originally as peach slices but which are irregular in size and shape in that they have been cut further into pieces; or

(3) Mixtures of two or more of the following styles which may or may not be of normal shape: Halves, quarters, slices, or diced.

[50 FR 26966, July 1, 1985]

§ 52.2563 Grades.

(a) *"U.S. Grade A"* is the quality of halves, quarters, slices, dice, or whole canned clingstone peaches that possess similar varietal characteristics, that possess a normal flavor and odor; that possess a good color; that are practically uniform in size and symmetry for the applicable style; that are practically free from defects; that possess a good character; and that for those factors which are scored in accordance with the scoring system outlined in this subpart the total score is not less than 90 points: Provided, That halves, quarters, slices, dice, or whole canned clingstone peaches may possess a reasonably good color; may be reasonably uniform in size and symmetry; and may possess a reasonably good character, if the total score is not less than 90 points.

(b) *"U.S. Grade B"* is the quality of halves, quarters, slices, dice, whole, or mixed pieces of irregular sizes and shapes of canned clingstone peaches that possess similar varietal characteristics; that possess a normal flavor and odor; that possess a reasonably good color; that are reasonably uniform in size and symmetry for the applicable style; that are reasonably free from defects; that possess a reasonably good charcter; and that for those factors which are scored in accordance with the scoring system outlined in this subpart the total score is not less than 80 points: Provided, That halves, quarters, slices, dice, or whole canned clingstone peaches may be fairly uniform in size and symmetry if the total score is not less than 80 points.

(c) *"U.S. Grade C"* is the quality of halves, quarters, slices, diced, whole or mixed pieces of irregular sizes and shapes of canned clingstone peaches that possess similar varietal characteristics; that possess a normal flavor and odor; that possess a fairly good color; that are fairly uniform in size and symmetry for the applicable style; that are fairly free from defects; that possess a fairly good character; and that for those factors which are scored in accordance with the scoring system outlined in this subpart the total score is not less than 70 points.

(d) *"U.S. Grade D"* is the quality of halves, quarters, slices, diced, whole, or mixed pieces of irregular sizes and shapes of canned clingstone peaches that may possess dissimilar varietal characteristics; that possess a normal flavor odor; that possess a fairly good color; that may vary in size and symmetry for the applicable style; that are fairly free from defects except for crushed and broken units in the styles of halves, quarters, or whole style; that possess a noticeable variability in character; and that for those factors which are scored in accordance with the scoring system outlined in this subpart the total score is not less than 60 points. Canned clingstone peaches of this grade may or may not meet the minimum standards of quality for canned peaches issued pursuant to the Federal Food, Drug, and Cosmetic Act.

(e) *"Substandard"* is the quality of canned clingstone peaches that fails to meet the applicable requirements of U.S. Grade C or of U.S. Grade D and is the quality of canned clingstone peaches that may or may not meet the minimum standards of quality for canned peaches issued pursuant to the Federal Food, Drug, and Cosmetic Act.

[50 FR 26966, July 1, 1985]

§ 52.2564 Grades of canned "solid-pack" clingstone peaches.

(a) *"U.S. Grade C Solid-Pack"* is the quality of halves, quarters, slices, dice, or mixed pieces of irregular sizes and

[1] Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act, or with applicable State Laws and regulations.

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§ 51.3912 Damage.

"Damage" means any defect or combination of defects which materially detracts from the appearance or the grinding quality of the root, or which cannot be removed without a loss of more than 10 percent, by weight, of the root including the peel covering the defective area.

(a) Dirt shall be considered as damage when it is more than lightly caked on the root.

§ 51.3913 Serious damage.

"Serious damage" means any defect or combination of defects which seriously detracts from the appearance or the grinding quality of the root or which cannot be removed without a loss of more than 25 percent, by weight, of the root including the peel covering the defective area.

(a) Dirt shall be considered as serious damage if it is more than moderately caked or encrusted on the root.

§ 51.3914 Head.

"Head" means that part of the root to which the leaves are attached. It is usually a rounded knob at or near the top of the root.

§ 51.3915 Good head formation.

"Good head formation" means a head formation consisting of any number of heads, provided they are at the top of the root and not more than two are separated by a deep crotch.

§ 51.3916 Fairly good head formation.

"Fairly good head formation" means a head formation consisting of any number of heads, provided they are at the top of the root and not more than four are separated by deep crotches.

§ 51.3917 Length.

"Length" means the total over all length of the root from the top of the uppermost head to the tip of the main, usable root.

§ 51.3918 Diameter.

"Diameter" means the greatest thickness of the root at a point halfway of its length.

Subpart—United States Standards for Grades of Kale

SOURCE: 32 FR 8863, June 22, 1967, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.3930 U.S. No. 1.

"U.S. No. 1" consists of plants of kale of one type which are well trimmed, not stunted, free from decay and from damage caused by yellow or discolored leaves, seedstems, wilting, bud burn, freezing, dirt, disease, insects, or mechanical or other means. (See § 51.3933.)

§ 51.3931 U.S. Commercial.

"U.S. Commercial" consists of plants of kale which meet the requirements of U.S. No. 1 except that bronze or slightly yellowish color affecting only the edges of the leaves shall be permitted, provided these edges are not dried. (See § 51.3933.)

UNCLASSIFIED

§ 51.3932 Unclassified.

"Unclassified" consists of plants of kale which have not been classified in accordance with either of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards but is provided as a designation to show that no grade has been applied to the lot.

TOLERANCES

§ 51.3933 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by weight, are provided as specified:

(a) Ten percent for plants in any lot which fail to meet the requirements of the specified grade, including therein not more than 1 percent for plants affected by wet decay.

APPLICATION OF TOLERANCES

§ 51.3934 Application of tolerances.

The contents of individual packages in the lot are subject to the following limitations:

(a) For a tolerance of 10 percent, individual packages may contain not more than one and one-half times the tolerance specified: *Provided*, That the average for the entire lot is within the tolerance specified for the grade.

(b) For a tolerance of less than 10 percent, individual packages may contain not more than double the tolerance specified: *Provided*, That at least one defective specimen may be permitted in any package: *And provided further*, That the average for the entire lot is within the tolerance specified for the grade.

DEFINITIONS

§ 51.3935 One type.

"One type" means that the kale in any container shall have the same general character of growth and color; i.e., curly leaf type and distinctly smooth leaf types shall not be mixed, and distinctly purple type plants shall not be mixed with green or blue type kale. As blue type kale often shows a purplish tinge on some leaves while other plants of this type may not show this color, such a mixture shall be considered as one type.

§ 51.3936 Well trimmed.

"Well trimmed" means that the butt is trimmed off to not more than three-fourths of an inch from the point of attachment of the outer leaves and that yellow, discolored, dried or otherwise damaged leaves which materially affect the appearance of the plant have been removed.

§ 51.3937 Damage.

"Damage" means any defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the plant. A plant shall be considered as damaged by a seedstem when the flower buds are dried or have opened, or when the seedstem extends above the top of the plant when the leaves are folded together around the seedstem, or if the removal of part of the seedstem has caused the appearance of the plant to be materially injured.

Subpart—United States Standards for Grades of Okra

SOURCE: 32 FR 8864, June 22, 1967, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADE

§ 51.3945 U.S. No. 1.

"U.S. No. 1" consists of pods of okra of similar varietal characteristics which are fresh, tender, not badly misshapen, free from decay, and from damage caused by dirt or other foreign matter, disease, insects, mechanical or other means.

(a) In order to allow for variations incident to proper grading and handling, the following tolerances, by weight, are provided as specified:

(1) Ten percent for pods in any lot which fail to meet the requirements of this grade, including therein not more than 5 percent for defects causing serious damage, and including in this latter amount not more than 1 percent for pods affected by decay.

UNCLASSIFIED

§ 51.3946 Unclassified.

"Unclassified" consists of pods of okra which have not been classified in accordance with the foregoing grade. The term "unclassified" is not a grade within the meaning of these standards but is provided as a designation to show that no grade has been applied to the lot.

DEFINITIONS

§ 51.3947 Damage.

"Damage" means any defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the individual pod or of the lot as a whole.

§ 51.3948 Serious damage.

"Serious damage" means any defect, or any combination of defects, which seriously detracts from the appear-

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ance, or the edible or marketing quality of the individual pod or of the lot as a whole.

Subpart—United States Standards for Grades of Creole Onions

SOURCE: 32 FR 8864, June 22, 1967, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.3955 U.S. No. 1.

"U.S. No. 1" consists of Creole onions of similar varietal characteristics which are mature, fairly well shaped, free from soft rot, doubles, bottlenecks, and from damage caused by splits, seedstems, tops, roots, moisture, sunburn, sunscald, cuts, staining, dirt or other foreign matter, diseases, insects, or mechanical or other means. Unless otherwise specified, the minimum size shall be 1¾ inches in diameter. (See § 51.3959.)

§ 51.3956 U.S. No. 2.

"U.S. No. 2" consists of Creole onions of similar varietal characteristics which are not badly misshapen and are free from soft rot, doubles, bottlenecks, and from damage caused by splits, moisture, sunscald, and from serious damage caused by seedstems, tops, roots, cuts, staining, dirt or other foreign matter, diseases, insects, or mechanical or other means. Unless otherwise specified, the minimum size shall be 1½ inches in diameter. (See § 51.3959.)

§ 51.3957 U.S. Combination.

"U.S. Combination." Any lot of Creole onions may be designated "U.S. Combination" when not less than 50 percent, by weight, of the onions in each container meet the requirements of U.S. No. 1 grade and the remainder U.S. No. 2 grade. (See § 51.3959.)

UNCLASSIFIED

§ 51.3958 Unclassified.

"Unclassified" consists of onions which have not been classified in accordance with any of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards but is provided as a designation to show that no grade has been applied to the lot.

TOLERANCES

§ 51.3959 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by weight, are provided as specified:

(a) *For defects*—(1) *U.S. No. 1 and U.S. No. 2 grades.* Ten percent for onions in any lot which fail to meet the requirements of the specified grade, including therein not more than 2 percent for onions which are watersoaked or affected by soft rot.

(2) *U.S. Combination grade.* Ten percent for onions in any lot which fail to meet the requirements of U.S. No. 2 grade, including therein not more than 2 percent for onions which are watersoaked or affected by soft rot. No part of any tolerance shall be allowed to reduce for the lot as a whole the percentage of U.S. No. 1 onions required in the combination, but individual containers may have not more than a total of 15 percentage points less than the percentage of U.S. No. 1 onions required: *Provided,* That the entire lot averages within the percentage required.

(b) For *off-size.* Five percent for onions in any lot which are below the specified minimum size and 15 percent for onions which are larger than any specified maximum size.

APPLICATION OF TOLERANCES

§ 51.3960 Application of tolerances.

The contents of individuals packages in the lot are subject to the following limitations: following limitations:

(a) For a tolerance of 10 percent or more, not more than one-tenth of the packages in any lot may contain more than one and one-half times the tolerance specified: *Provided,* That soft rot in any package shall not exceed three times the tolerance: and *provided further,* That the average for the entire lot is within the tolerance specified for the grade.

(b) For a tolerance of less than 10 percent, not more than one-tenth of the packages in any lot may contain more than double the tolerance specified: *Provided,* That soft rot in any package shall not exceed three times the tolerance and that at least one defective and one off-size specimen may be permitted in any package: *And provided further,* That the average for the entire lot is within the tolerance specified or the grade.

DEFINITIONS

§ 51.3961 Similar varietal characteristics.

"Similar varietal characteristics" means that the onions have the general distinguishing features of the Creole type, i.e., flat to somewhat globular shape. Variations in color from yellow to brownish red shall be permitted but white Creole onions shall not be mixed in the same container with onions of other colors.

§ 51.3962 Mature.

"Mature" means having reached a stage of development at which the onions are firm, not becoming soft or spongy.

§ 51.3963 Fairly well shaped.

"Fairly well shaped" means having the characteristic shape, not thick-necked, lopsided or otherwise materially deformed, but not necessarily of either flat or globe type.

§ 51.3964 Soft rot.

"Soft rot" means any soft or mushy condition of the tissue such as bacterial soft rot, or wet breakdown following sunscald.

§ 51.3965 Doubles.

"Doubles" means onions which have developed more than one distinct bulb joined only at the base.

§ 51.3966 Bottlenecks.

"Bottlenecks" means onions which have thick necks, usually with poorly developed bulbs.

§ 51.3967 Badly misshapen.

"Badly misshapen" means that the onion is so decidedly deformed that its appearance is seriously affected.

§ 51.3968 Damage.

"Damage" means any specific defect described in this section; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the onion. The following specific defects shall be considered as damage:

(a) *Splits.* A split is an onion which has more than one distinct bulb at least partially covered by an outer scale. Such an onion, if not well cured, shall be considered damaged when not completely covered by more than one outer scale. If well cured, such an onion shall not be regarded as damaged if practically covered by an outer scale, unless the distinct bulbs are readily apparent upon casual examination of the onion.

(b) Seedstems when any seedstem is tough or woody, or is more than one-fourth inch in diameter.

(c) *Sunburn.* Sunburn means discoloration due to exposure to the sun where there is no injury to the tissue. Individual onions showing bad sunburn shall be considered as damaged but onions showing slight sunburn shall not be regarded as damaged unless present in a sufficient amount to cause the lot to have a distinctly greenish cast. Onions should not be peeled to detect sunburn.

(d) *Sunscald.* An onion, when not dry and well cured, shall be considered as damaged if it is affected by any sunscald. If dry and well cured, an onion affected by sunscald shall be regarded as damaged except when the affected area is dry and so inconspicuous that the appearance of the onions is not materially injured.

(e) *Staining.* Any lot of onions which is materially stained shall be considered as damaged. In this connection the number of stained onions permitted, before the lot is considered damaged, will depend upon the degree of staining on individual onions. As a guide, a lot should be considered damaged if the appearance is affected to a greater extent than the presence of 15 percent appreciably stained plus 5 percent badly stained onions. If the lot has 15 percent which are appreciably

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§ 51.3620 Compact.

"Compact" means that the bunches are well filled and have no open spaces.

§ 51.3621 Fairly compact.

"Fairly compact" means that the bunches are well filled but that the berries are not closely spaced as in "compact" bunches.

§ 51.3622 Damage.

"Damage" means any specific defect described in this section; or an equally objectionable variation of this defect, any other defect, or any combination of defects, which materially detracts from the appearance, or the edible or shipping quality of the individual berry or the bunch as a whole. The following specific defect shall be considered as damage:

(a) Mildew when detracting from the appearance of the individual berry or the bunch as a whole. Berries on the inside of the bunch which show only slight traces of mildew are not considered as damaged.

§ 51.3623 Serious damage.

"Serious damage" means any defect, or any combination of defects, which seriously detracts from the appearance, or the edible or shipping quality of the individual berry or the bunch as a whole.

§ 51.3624 Straggly.

"Straggly" means that the bunches are decidedly open with large open spaces and very few berries. Small immature shot berries, characteristic of the Worden variety, should be disregarded unless they are excessive in number and detract materially from the appearance.

Subpart—United States Standards for Grades of Okra for Processing

Source: 30 FR 14359, Nov. 17, 1965, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

General

§ 51.3635 Application.

These standards are intended to apply only to seed pods of the okra plant (Hibiscus esculentus) delivered to a freezing or canning plant for processing purposes. They may be used as a basis for grading the quality of lots of okra for the purpose of more equitable pricing. It is assumed that a schedule of prices will be established to be paid by the pound for each quality and size of okra to be purchased by the processor. The percentage of each quality and size okra in the lot may be approximately determined by analyzing a representative sample or samples drawn from the lot. The price of the load can be calculated from the number of pounds and the established price of each quality and size.

Grades

§ 51.3636 U.S. No. 1.

"U.S. No. 1" consists of pods of okra of similar varietal characteristics which are fresh, tender, fairly well colored, fairly well formed, free from decay and worm holes, and free from damage caused by scars, bruises, cuts, punctures, insects, discoloration, dirt or other foreign material or other means. Pods in this grade are at least fairly well trimmed, unless specified as well trimmed or poorly trimmed. (See Size, § 51.3639.)

§ 51.3637 U.S. No. 2.

"U.S. No. 2" consists of pods of okra which meet the requirements of U.S. No. 1 grade except those for color, shape and trim. Okra in this grade may be pale green in color, moderately misshapen and poorly trimmed. (See Size, § 51.3639.)

Culls

§ 51.3638 Culls.

"Culls" consists of pods of okra which fail to meet the requirements of either of the foregoing grades, and any extraneous material in the lot.

Size Classifications

§ 51.3639 Size classifications.

Okra may be classified as to size in connection with the grade into two or more groups on the basis of specified lengths in inches, or on the basis of the following size classifications:

(a) "Very small" includes pods of okra less than 1¾ inches in length.

(b) "Small" ("baby") includes pods of okra not less than 1¾ inches or more than 3½ inches in length.

(c) "Medium" includes pods of okra more than 3½ inches in length and, unless otherwise specified, not more than 5 inches in length.

(d) "Large," unless otherwise specified, includes pods of okra more than 5 inches in length.

Definitions

§ 51.3640 Similar varietal characteristics.

"Similar varietal characteristics" means that the pod is of the same type and closely similar in appearance to the rest of the pods in the lot.

§ 51.3641 Fresh.

"Fresh" means that the pod is not appreciably wilted or flabby.

§ 51.3642 Tender.

"Tender" means that the pod is succulent and reasonably free from fiber. The tip will break fairly easily and cleanly when bent back, and flesh of the central portion of the pod can be cut crosswise with a sharp knife using very little pressure.

§ 51.3643 Fairly well colored.

"Fairly well colored" means that the pod of a green variety has a good green color or is at least light green with no yellowish cast.

§ 51.3644 Fairly well formed.

"Fairly well formed" means that the pod is not more than slightly curved, crooked or otherwise not more than slightly deformed.

§ 51.3645 Worm hole.

"Worm hole" means a hole caused by an insect penetrating the wall of the pod.

§ 51.3646 Damage.

"Damage" means any specific defect described in this section; or an equally objectionable variation of any one of these defects, or any other defect, or any combination of defects which materially detracts from the edible or processing quality of the pod. The following specific defects shall be considered as damage:

(a) Scars or bruises which will materially detract from the appearance of the pod after processing;

(b) Cuts or punctures which penetrate the wall of the pod.

(c) Insects when the insect is present inside the pod, or when the action of insects has distinctly affected the appearance of the pod;

(d) Discoloration which will materially detract from the appearance of the pod after processing; and,

(e) Dirt or other foreign material which is so firmly attached to the pod that it cannot be removed by the usual processing plant washing.

§ 51.3647 Fairly well trimmed.

"Fairly well trimmed" means that the stem has been broken or cut off at a point not more than three-fourths inch below the cap scar at the base of the pod, and that the open seed cavities have not been exposed by excessively high trimming.

§ 51.3648 Well trimmed.

"Well trimmed" means that the stem has been neatly cut off at a point not more than one-fourth inch below the cap scar at the base of the pod, and that the open seed cavities have not been exposed by excessively high trimming.

§ 51.3649 Pale green.

"Pale green" means that the pod of a green variety has a tinge of green predominating over most or all of its surface, and not more than one-tenth of its surface shows a yellowish cast.

§ 51.3650 Moderately misshapen.

"Moderately misshapen" means that the pod is not badly curved, crooked or otherwise badly misshapen.

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§ 51.3651 Poorly trimmed.

"Poorly trimmed" means that the stem has been broken or cut off at a point more than three-fourths inch below the cap scar at the base of the pod, or that the open seed cavities have been exposed by excessively high trimming.

§ 51.3652 Length.

"Length" means the dimension of the pod measured from the cap scar at the base to the tip end of the pod.

Subpart—United States Standards for Grades of Rhubarb (Field-Grown)

SOURCE: 30 FR 17153, Dec. 31, 1965, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.3665 U.S. Fancy.

"U.S. Fancy" consists of stalks of rhubarb of similar varietal characteristics which are very well colored, fresh, tender, straight, clean, well trimmed and not pithy; which are free from decay, and free from damage caused by scars, freezing, disease, insects, or mechanical or other means. (See § 51.3669.)

(a) The diameter of each stalk is not less than 1 inch, and the length not less than 10 inches. (See § 51.3669.)

§ 51.3666 U.S. No. 1.

"U.S. No. 1" consists of stalks of rhubarb of similar varietal characteristics which are well colored, fresh, tender, straight, clean, well trimmed and not pithy; which are free from decay, and free from damage caused by scars, freezing, disease, insects or mechanical or other means. (See § 51.3669.)

(a) Unless otherwise specified, the diameter of each stalk is not less than three-fourths inch, and the length not less than 10 inches. (See § 51.3669.)

§ 51.3667 U.S. No. 2.

"U.S. No. 2" consists of stalks of rhubarb of similar varietal characteristics which are fairly well colored, fresh fairly straight, clean, well trimmed and not pithy; which are free from decay, and free from serious damage caused by scars, freezing, disease, insects or mechanical or other means. (See § 51.3669.)

(a) Unless otherwise specified, the diameter of each stalk is not less than one-half inch, and the length not less than 8 inches. (See § 51.3669.)

UNCLASSIFIED

§ 51.3668 Unclassified.

"Unclassified" consists of rhubarb which has not been classified in accordance with any of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards, but is provided as a designation to show that no grade has been applied to the lot.

TOLERANCES

§ 51.3669 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by count, are provided as specified:

(a) *For defects.* 10 percent for stalks of rhubarb in any lot which fail to meet the requirements of the designated grade, including not more than one-tenth of this amount, or 1 percent, for stalks affected by decay.

(b) *For size.* 5 percent for stalks of rhubarb in any lot which fail to meet the specified minimum diameter, and 5 percent for stalks of rhubarb in any lot which fail to meet the specified minimum length.

APPLICATION OF TOLERANCES

§ 51.3670 Application of tolerances.

The contents of individual packages in the lot are subject to the following limitations:

(a) For a tolerance of 10 percent, individual packages may contain not more than one and one-half times the tolerance: *Provided,* That the average for the entire lot is within the tolerance specified for the grade.

(b) For a tolerance of 5 percent or less, individual packages may contain not more than double the tolerance specified: *Provided,* That at least one stalk which is defective and one stalk which is undersize may be permitted

in any package: *And provided further,* That the averages for the entire lot are within the tolerances specified for the grade.

DEFINITIONS

§ 51.3671 Similar varietal characteristics.

"Similar varietal characteristics" means that the rhubarb stalks are alike in general characteristics.

§ 51.3672 Very well colored.

"Very well colored" means that a pink or red color predominates on three-fourths or more of the length of the stalk.

§ 51.3673 Well colored.

"Well colored" means that a pink or red color predominates on one-half or more of the length of the stalk.

§ 51.3674 Fairly well colored.

"Fairly well colored" means that a pink or red color predominates one one-fourth or more of the length of the stalk.

§ 51.3675 Fresh.

"Fresh" means not limp or wilted.

§ 51.3676 Straight.

"Straight" means that the stalk has not more than a slight concave curvature of the face, and not more than slight twisting along the longitudinal axis of the stalk.

§ 51.3677 Well trimmed.

"Well trimmed" means that the top has been neatly knife-trimmed so that not more than 2 inches of the midribs and thin leaf tissue remains, and that most of the basal husk has been removed.

§ 51.3678 Pithy.

"Pithy" means that the stalk has an open texture with air spaces in the central portion.

§ 51.3679 Damage.

"Damage" means any defect or any combination of defects which materially detracts from the appearance, or the edible or shipping quality of the stalk.

§ 51.3680 Diameter.

"Diameter" means the greatest distance across the flat face of the stalk at the center of its length.

§ 51.3681 Length.

"Length" means the overall length after the stalk has been well trimmed.

§ 51.3682 Fairly straight.

"Fairly straight" means that the stalk is not badly twisted or crooked.

§ 51.3683 Serious damage.

"Serious damage" means any defect or any combination of defects which seriously detracts from the appearance, or the edible or shipping quality of the stalk. Broken, badly bruised, and crushed stalks shall be considered as serious damage.

Subpart—United States Standards for Grades of Fresh Freestone Peaches for Canning, Freezing, or Pulping

SOURCE: 31 FR 7671, May 28, 1966, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.3695 U.S. No. 1.

"U.S. No. 1" consists of fresh freestone peaches of similar varietal characteristics which are mature, fairly well formed, firm, firm ripe, or ripe, but not hard or soft; which are free from decay, worms, worm holes, and split pits, and free from damage caused by scab, bacterial spot, other disease, insects, bruises, or other means. Ground color shall not be greener than yellowish-green.

§ 51.3696 U.S. No. 2.

"U.S. No. 2" consists of fresh freestone peaches of similar varietal characteristics which are mature, not badly misshapen, which may be firm, firm ripe, or ripe, but not hard or soft; and are free from decay, worms, worm holes, and from serious damage by split pits, scab, bacterial spot, other disease, insects, bruises, or other

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[1] Indicates limiting rule.
[2] Indicates partial limiting rule.

Subpart—United States Standards for Grades of Canned Okra

SOURCE: 22 FR 4012, June 7, 1957, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981.

PRODUCT DESCRIPTION, TYPES, STYLES, AND GRADES

§ 52.3331 Product description.

Canned okra is the product prepared from clean, sound, succulent, immature pods of either the green or white varieties of the okra plant, which are properly trimmed and sorted; which may or may not have undergone partial fermentation; and is washed, packed, and processed in accordance with good commercial practice which includes such product as defined in the standard of identity for canned okra (21 CFR 155.200) issued pursuant to the Federal Food, Drug, and Cosmetic Act.

§ 52.3332 Types of canned okra.

(a) *Type I canned okra.* Canned okra of this type has been partially fermented in a salt brine before processing.

(b) *Type II canned okra.* Canned okra of this type has not been fermented before processing.

§ 52.3333 Styles of canned okra.

(a) "Whole" means canned okra consisting of whole pods with stems removed and with or without the caps removed.

(b) "Whole salad" means canned okra consisting of whole pods with stems attached which are at least one-half inch but not exceeding one inch in length.

(c) "Cut" means canned okra consisting of pods with the caps and stems removed, which have been cut transversely into pieces.

§ 52.3334 Grades of canned okra.

(a) "U.S. Grade A" or "U.S. Fancy" is the quality of canned okra that possesses similar varietal characteristics; that possesses a normal flavor; that possesses a good color; that is practically uniform in size; that is practically free from defects; that possesses a good character; and that for those factors which are rated in accordance with the scoring system outlined in this subpart the total score is not less than 85 points.

(b) "U.S. Grade C" or "U.S. Standard" is the quality of canned okra that possesses similar varietal characteristics; that possesses a normal flavor; that possesses a fairly good color; that is fairly uniform in size; that is fairly free from defects; that possesses a fairly good character; and that for those factors which are rated in accordance with the scoring system outlined in this subpart the total score is not less than 70 points: *Provided*, That the canned okra may be variable in size if the total score is not less than 70 points.

(c) "Substandard" is the quality of canned okra that fails to meet the requirements of U.S. Grade C or U.S. Standard.

FILL OF CONTAINER AND DRAINED WEIGHTS

§ 52.3335 Recommended fill of container.

The recommended fill of container is not incorporated in the grades of the finished product since fill of container, as such, is not a factor of quality for the purpose of these grades. It is recommended that each container of canned okra be filled with okra as full as practicable without impairment of quality and that the product and packing medium occupy not less than 90 percent of the volume of the container.

§ 52.3336 Drained weights.

(a) *General.* The minimum drained weight recommendations for canned okra in Table No. I of this section are not incorporated in the grades of the finished product since drained weight as such, is not a factor of quality for the purpose of these grades.

(b) *Method for ascertaining a drained weight.* The drained weight is determined by emptying the contents of the container upon a United States Standard No. 8 sieve of proper diameter so as to distribute the product evenly inclining the sieve to facilitate drainage, and allow the product to drain for two minutes. The drained weight is the weight of the sieve and the drained product less the weight of the dry sieve. A sieve 8 inches in diameter is used for the No. 3 size can (404 × 414) and smaller sizes; and a sieve 12 inches in diameter is used for containers larger than the equivalent of the No. 3 size can.

(c) *Compliance with recommended drained weights.* Compliance with the recommended drained weights is determined by averaging the drained weight from all the containers which are representative of a specific lot and such lot is considered as meeting the recommendations if the following criteria are met:

(1) The average of the drained weights from all of the containers meets the recommended drained weight;

(2) One-half or more of the containers meets the recommended drained weight; and

(3) The drained weights from the containers which do not meet the recommended drained weight are within the range of variability for good commercial practice.

TABLE I—RECOMMENDED MINIMUM DRAINED WEIGHT OF OKRA, IN OUNCES

Container size or designation	Container dimensions (inches)		Styles of canned okra	
	Width	Height	Whole or salad	Cut
8 oz. Tall	2 1/16	3 1/16	4.5	5
No. 1 Picnic	2 1/16	4	6.2	6.5
No. 1 Tall	3 1/16	4 1/16	9.8	10.2
No. 303	3 1/16	4 1/16	10	10.5
No. 2	3 1/16	4 1/16	12	12.8
No. 2½	4 1/16	4 1/16	17.8	18.8
No. 10	6 1/16	7	60	60

FACTORS OF QUALITY

§ 52.3337 Ascertaining the grade.

(a) *General.* In addition to considering other requirements outlined in the standards, the following quality factors are evaluated in ascertaining the grade of the product:

(1) *Factors not rated by score points.*

(i) Varietal characteristics.

(ii) Flavor.

(2) *Factors rated by score points.* The relative importance of each factor which is scored is expressed numerically on the scale of 100. The maximum number of points that may be given such factors is:

Factors	Points
Color	20
Size	10
Defects	35
Character	35
Total score	100

(b) *Normal flavor.* "Normal flavor" means that the product has a normal characteristic flavor and odor for the type and is free from objectionable flavors and objectionable odors of any kind.

§ 52.3338 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained for such factors and expressed numerically. The numerical range within each factor which is scored is inclusive (for example, "17 to 20 points" means 17, 18, 19, or 20 points).

§ 52.3339 Color.

(a) (*A*) *classification.* Canned okra that possesses a good color may be given a score of 17 to 20 points. "Good color" means that the outer surfaces of the okra pods possess a practically uniform color typical for the type and variety of young, tender, properly prepared, and properly processed canned okra.

(b) (*C*) *classification.* Canned okra that possesses a fairly good color may be given a score of 14 to 16 points. Canned okra that falls into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly good color" means that the outer surfaces of the okra pods possess a fairly uniform color typical for the type and variety of fairly tender, properly prepared, and properly processed canned okra.

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(c) (*SStd.*) *classification.* Canned okra that fails to meet the requirements of paragraph (b) of this section may be given a score of 0 to 13 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.3340 Size.

(a) (*A*) *classification.* Canned okra that is practically uniform in size may be given a score of 8 to 10 points. "Practically uniform in size" has the following meanings with respect to the following styles of canned okra:

(1) *Whole and whole salad.* (i) In 90 percent, by count, of the most uniform pods of okra, the length of the longest unit is not more than twice the length of the shortest unit, and that

(ii) The overall length of the unit does not exceed 3½ inches.

(2) *Cut.* The appearance of the product is not materially affected by the variation in the size of the units.

(b) (*C*) *classification.* Canned okra that is fairly uniform in size may be given a score of 7 points. Canned okra that falls into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule) "Fairly uniform in size" has the following meanings for the following styles:

(1) *Whole and whole salad.* In 90 percent, by count, of the most uniform pods of okra, the length of the longest unit is not more than three times the length of the shortest unit.

(2) *Cut.* The appearance of the product is not seriously affected by the variation in the size of the units.

(c) (*SStd.*) *classification.* Canned okra that fails to meet the requirements of paragraph (b) of this section may be given a score of 0 to 6 points and shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a partial limiting rule).

§ 52.3341 Defects.

(a) *General.* The factor of defects refers to the degree of freedom from extraneous vegetable matter, small pieces, poorly trimmed units, misshapen pods, and from damaged or seriously damaged units.

(1) "Extraneous vegetable matter" means any vegetable substance (including but not limited to a leaf, unattached stem, or portions thereof) that is harmless.

(2) "Small pieces" means pieces of canned okra less than ⅜ inch in length.

(3) "Poorly trimmed": (i) "With respect to whole style" means a unit that has an attached stem more than ¼ inch in length measured from the blossom scar.

(ii) "With respect to whole salad style" means a unit that has an attached stem less than ⅛ inch or more than 1 inch in length measured from the blossom scar.

(iii) "With respect to cut style" means a unit that is partially cut or possesses ragged edges or attached caps or portions thereof.

(4) "Misshapen units" means any unit in whole or whole salad styles that is malformed or crooked to the extent that the appearance or eating quality of the unit is seriously affected.

(5) "Damaged unit" means any pod or piece of pod affected by insect injury, pathological injury, mechanical injury, discoloration, or damaged by other means to the extent that the appearance or eating quality is materially affected.

(6) "Seriously damaged unit" means damaged to such an extent that the appearance or eating quality is seriously affected.

(b) (*A*) *classification.* Canned okra that is practically free from defects may be given a score of 30 to 35 points. "Practically free from defects" means that extraneous vegetable matter, small pieces of canned okra, poorly trimmed units, misshapen units, and damaged and seriously damaged units may be present for the applicable styles that do not materially affect the appearance and eating quality of the product.

(c) (*C*) *classification.* Canned okra that is fairly free from defects may be given a score of 25 to 29 points. Canned okra that falls into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly free from defects" means that extraneous vegetable matter, small pieces of canned okra, poorly trimmed units, misshapen units, and damaged or seriously damaged units may be present for the applicable styles that do not seriously affect the appearance and eating quality of the product.

(d) (*SStd.*) *classification.* Canned okra that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 24 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.3342 Character.

(a) *General.* The factor of character refers to the degree of development of the pod, the freedom from fibrous material, and the tenderness and texture of the pod and the seed.

(b) (*A*) *classification.* Canned okra that possesses a good character may be given a score of 30 to 35 points. "Good character" means that the units are tender and practically free from fibrous material, which is objectionable upon eating, that the seeds are in the early stages of development, and that with respect to Type I canned okra the appearance of the product is not more than slightly affected by the presence of broken, crushed, or mashed units and with respect to Type II canned okra the appearance is not materially affected by the presence of crushed, broken, and mashed units.

(c) (*C*) *classification.* Canned okra that possesses a fairly good character may be given a score of 24 to 29 points. Canned okra that falls into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly good character" means that the units may be fairly tender, that the seeds may have passed the early stages of development, and that the product contains not more than 0.20 percent, by weight, of dried cellulose material.

(d) (*SStd.*) *classification.* Canned okra that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 23 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

METHODS OF ANALYSIS

§ 52.3343 Percent, by weight, of fibrous material.

(a) Canned okra shall be tested by the following method to determine the percent, by weight, of fibrous material:

(1) Distribute the contents of the container over the meshes of a circular sieve which has been previously weighed. The diameter of the sieve is 8 inches if the quantity of the contents of the container is less than 3 pounds, and 12 inches if such quantity is 3 pounds or more. The bottom of the sieve is woven wire cloth which complies with the specifications for such cloth set forth under "2380 Micron (No. 8)" in Table I of "Standard Specifications for Sieves," published March 1, 1940, in L. C. 584 of the United States Department of Commerce, National Bureau of Standards. Without shifting the material on the sieve, so incline the sieve as to facilitate drainage. Two minutes from the time drainage begins, weigh the sieve and the drained material. Record, in ounces, the weight so found less the weight of the sieve as the drained weight.

(2)(i) Remove from the sieve one or more representative samples of 3½ to 4 ounces, covering each sample as taken to prevent evaporation. Transfer to the metal cup of a malted milk stirrer and mash with a pestle. Wash material adhering to the pestle back into cup with 200 cc. of boiling water. Bring mixture nearly to a boil, add 25 cc. of 50 percent (by weight) sodium hydroxide solution and bring to a boil. (If foaming is excessive, 1 cc. of capryl alcohol may be added.) Boil for 5 minutes, then stir for 5 minutes with a malted milk stirrer capable of a no-load speed of at least 7200 r.p.m. Use a rotor with two scalloped buttons shaped as shown in the diagram in Exhibit 1.

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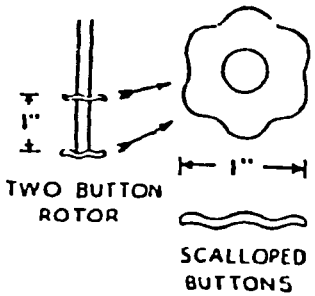

EXHIBIT 1

(ii) Transfer the material from the cup to a previously weighed 30-mesh monel metal screen having a diameter of about 3¼ to 4 inches and side walls about 1 inch high, and wash fiber on the screen with a stream of water using a pressure not exceeding a head (vertical distance between upper level of water and outlet of glass tube) of 60 inches, delivered through a glass tube 3 inches long and ⅛ inch inside diameter inserted into a rubber tube of ¼ inch inside diameter. Wash the pulpy portion of the material through the screen and continue washing until the remaining fibrous material, moistened with phenolphthalein solution, does not show any red color after standing 5 minutes. Again wash to remove phenolphthalein Dry the screen containing the fibrous material for 2 hours at 100° C., cool, weight, and deduct weight of screen Divide the weight of fibrous material by the drained weight and multiply by 100 to obtain the percentage of fibrous material.

ASCERTAINING THE GRADE OF A LOT

§ 52.3344 Ascertaining the grade of a lot.

The grade of a lot of canned okra is determined by the procedures set forth in the regulations governing inspection and certification of processed fruits, vegetables, processed products thereof and certain other processed food products (§§ 52.1 to 52.87 of this chapter).

SCORE SHEET

§ 52.3345 Score sheet.

Container size _____
Container code or marking _____
Label _____
Net weight (ounces) _____
Vacuum readings (inches) _____
Drained weight (ounces) _____
Type _____
Style _____
Count _____

Factors		Score points	
Color	20	(A)	17–20
		(C)	[1] 14–16
		(SSkd.)	[1] 0–13
Size	10	(A)	8–10
		(C)	[1] 7
		(SSkd.)	[1] 0–6
Defects	35	(A)	30–35
		(C)	[1] 25–29
		(SSkd.)	[1] 0–24
Character	35	(A)	30–35
		(C)	[1] 24–29
		(SSkd.)	[1] 0–23
Total score	100		

Flavor _____
Grade _____

[1] Indicates limiting rule.
[2] Indicates partial limiting rule.

Subpart—United States Standards for Grades of Canned Tomatoes and Okra and Canned Okra and Tomatoes

SOURCE: 22 FR 9379, Nov. 23, 1957, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981.

PRODUCT DESCRIPTION, PROPORTION OF INGREDIENTS, AND GRADES

§ 52.3421 Product description.

Canned tomatoes and okra and canned okra and tomatoes, called canned tomatoes and okra in this subpart, is the product prepared from clean, sound, properly matured tomatoes of red or reddish varieties which may be canned, and the clean, sound, succulent, immature pods of either the green or white varieties of the okra plant which may be processed. The tomatoes have been prepared by trimming, washing, sorting, peeling, and coring. The okra is prepared by trimming, washing, and sorting, and may be whole or cut into pieces. The tomatoes and okra may be packed with or without a small amount of tomato juice or tomato puree and with or without such other ingredients permissible under the provisions of the Federal Food, Drug, and Cosmetic Act in accordance with good commercial practice. The product is sufficiently processed by heat to assure preservation in hermetically sealed containers.

§ 52.3422 Proportion of ingredients.

(a) Canned tomatoes and okra shall consist of 50 percent or more, by weight, of the tomato ingredient and not less than 12.5 percent nor more than 50 percent, by weight, of whole or cut okra.

(b) Canned okra and tomatoes shall consist of 50 percent or more, by weight, of whole or cut okra and not less than 12.5 percent nor more than 50 percent, by weight, of the tomato ingredient.

(c) Compliance with the requirement for proportions of ingredients will be determined by averaging the percent, by weight, of each ingredient in all of the containers in the sample: *Provided*, That any deviation from the prescribed proportion of ingredients in any one container is within the limits of good commercial practice.

§ 52.3423 Grades.

(a) "U.S. Grade A" or "U.S. Fancy" is the quality of canned tomatoes and okra that possess a good flavor; that possess a good color; that are practically free from defects; that possess a good character; and that score not less than 85 points when scored in accordance with the scoring system outlined in this subpart.

(b) "U.S. Grade C" or "U.S. Standard" is the quality of canned tomatoes and okra that possess a fairly good flavor; that possess a fairly good color; that are fairly free from defects; that possess a fairly good character; and that score not less than 70 points when scored in accordance with the scoring system outlined in this subpart.

(c) "Substandard" is the quality of canned tomatoes and okra that fail to meet the requirements of U.S. Grade C or U.S. Standard.

FILL OF CONTAINER

§ 52.3424 Fill of container.

The recommended fill of container for canned tomatoes and okra is not incorporated in the grades of the finished product since fill of the container, as such, is not a factor of quality for the purpose of these grades. It is recommended that each container be filled as full of tomatoes and okra as practicable without impairment of quality and that the product shall fill the container to not less than 90 percent of its total capacity.

FACTORS OF QUALITY

§ 52.3425 Ascertaining the grade.

(a) *General.* In addition to considering other requirements outlined in the standards the following quality factors are evaluated in ascertaining the grade of the product:

(1) *Factor not rated by score points* (i) Proportion of ingredients.

(2) *Factors rated by score points.* The relative importance of each factor which is rated is expressed numerically on the scale of 100. The maximum number of points that may be given each such factor is:

Factors	Points
Color	20
Flavor	20
Defects	30
Character	30
Total score	100

§ 52.3426 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained for each factor and expressed numerically. The numerical range within each factor which is scored is inclusive (for example, "26 to 30 points" means 26, 27, 28, 29, or 30 points).

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may be given a score of 18 to 20 points. "Good character" means that the units are firm and tender; the product is practically free from fibrous or rubbery units; and that with respect to the styles of "Whole" and "Buttons" not less than 95 percent, by weight, of all the units possess closed veils. One unit which fails to meet the requirements for closed veils in the styles of "Whole" and "Buttons" is permitted in a container: *Provided*, That the average for such units in all the containers comprising the sample does not exceed 5 percent, by weight.

(d) (*B*) *classification*. Canned mushrooms that possess a fairly good character may be given a score of 16 or 17 points. Canned mushrooms that fall into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a limiting rule). "Fairly good character" means that the units are reasonably tender; may be slightly soft; the product is reasonably free from fibrous or rubbery units, and that with respect to the styles of "Whole" and "Buttons" not less than 90 percent, by weight, of all the units possess closed veils. One unit which fails to meet the requirements for closed veils in the styles of "Whole" and "Buttons" is permitted in a container: *Provided*, That the average for such units in all the containers comprising the sample does not exceed 10 percent, by weight.

(e) (*SStd.*) *classification*. Canned mushrooms that fail to meet the requirements of paragraph (d) of this section may be given a score of 0 to 15 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

[27 FR 38, Jan. 4, 1962, as amended at 27 FR 3315, Apr. 7, 1962. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

Lot Inspection and Certification

§ 52.1494 Ascertaining the grade of a lot.

The grade of a lot of canned mushrooms covered by these standards is determined by the procedures set forth in the Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof and Certain Other Processed Food Products (7 CFR §§ 52.1 through 52.87).

Score Sheet

§ 52.1495 Score sheet for canned mushrooms.

Size and kind of container _____
Container mark or identification _____
Label _____
Net weight (ounces) _____
Vacuum (inches) _____
Drained weight (ounces) _____
Style _____
Size _____
Color _____

Factors			Score points
Color	30	(A)	27-30
		(B)	[1] 24-26
		(SStd.)	[1] 0-23
Uniformity of size and shape	20	(A)	18-20
		(B)	16-17
		(SStd.)	[2] 0-15
Defects	30	(A)	27-30
		(B)	[1] 24-26
		(SStd.)	[1] 0-23
Character	20	(A)	18-20
		(B)	[1] 16-17
		(SStd.)	[1] 0-15
Total score	100		

Grade _____
Normal flavor and odor _____

[1] Indicates limiting rule.
[2] Indicates partial limiting rule.

Subpart—United States Standards for Grades of Frozen Okra

Source: 34 FR 9697, June 21, 1969, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981.

Product Description, Styles, and Grades

§ 52.1511 Product description.

Frozen okra is the product prepared from the clean, sound, succulent, and edible fresh pods of the okra plant (Hibiscus esculentus) of the green variety. The product is properly prepared and properly processed and is then frozen and stored at temperatures necessary for preservation.

§ 52.1512 Styles of frozen okra.

(a) "Whole okra" consists of trimmed whole pods of any length which may possess an edible portion of the cap. The length of a whole pod is determined by measuring from the outermost point of the tip end of the pod to the outermost point of the stem end of the pod, exclusive of any inedible stem portion which may be present.

(b) "Cut okra" is trimmed whole pods, which may possess an edible portion of cap, and which have been cut transversely into pieces of approximate uniform length. The length of a unit of cut okra is determined by measuring the longitudinal axis of the unit.

§ 52.1513 Grades of frozen okra.

(a) "U.S. Grade A" (or "U.S. Fancy") is the quality of frozen okra that:

(1) Possesses similar varietal characteristics in all styles;

(2) Has a good flavor and odor;

(3) Has a good color;

(4) Is practically free from defects;

(5) Has a good character; and

(6) Scores not less than 90 points when scored in accordance with the scoring system outlined in this subpart.

(b) "U.S. Grade B" (or "U.S. Extra Standard") is the quality of frozen okra that:

(1) Possesses similar varietal characteristics in the whole style;

(2) May or may not possess similar varietal characteristics in the cut style;

(3) Has a normal flavor and odor;

(4) Has a reasonably good color;

(5) Is reasonably free from defects;

(6) Has a reasonably good character; and

(7) Scores not less than 80 points when scored in accordance with the scoring system outlined in this subpart.

(c) "Substandard" is the quality of frozen okra that fails to meet the requirements of U.S. Grade B.

Factors of Quality

§ 52.1514 Ascertaining the grade of a sample unit.

(a) *General*. The grade of a sample unit of frozen okra is ascertained by considering the factors of varietal characteristics and flavor and odor which are not scored; the ratings for the factors of color, defects, and character, which are scored; the total score; and the limiting rules which apply.

(b) *Definitions*. (1) "Good flavor" means that the product, before and after cooking, has a good, distinctive flavor and odor, characteristic of young, tender okra and is free from any kind of objectionable flavor or objectionable odor.

(2) "Normal flavor" means that the product, before and after cooking, has a normal, typical flavor and odor, characteristic of properly prepared and processed okra and is free from any kind of objectionable flavor or objectionable odor.

(c) *Sample units*. (1) A "sample unit" of "Whole" okra shall be comprised of 50 pods of okra.

(2) A "sample unit" of "Cut" okra shall be comprised of 10 ounces of okra.

(d) *Evaluating quality factors*. The rating for the factors of color, defects, and character (with respect to pod and seed development), and the evaluation of similar varietal characteristics are determined immediately after thawing to the extent that the product is sufficiently free from ice crystals to permit proper handling as individual units. A representative sample is properly cooked (in sufficient unsalted water) to ascertain the tenderness of the units and freedom from fiber development before final evaluation of character. Flavor and odor is evaluated on both the uncooked and cooked sample.

(e) *Application of percentages*. (1) The term "percent", or the symbol, "%", wherever used in this subpart, means: Percent, by count, in the "Whole" style of frozen okra and percent, by weight, in the "Cut" style of frozen okra.

(f) *Factors rated by score points*. The relative importance of each factor

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which is rated is expressed numerically on the scale of 100. The maximum number of points that may be given for each factor is:

Factors	Points
Color	30
Defects	40
Character	30
Total score	100

§ 52.1515 Ascertaining the rating of the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained for each factor and expressed numerically. The numerical range within each factor which is scored is inclusive (for example: 27 to 30 points means 27, 28, 29, or 30 points).

§ 52.1516 Color.

(a) (*A*) *Classification.* Frozen okra that possesses a good color may be given a score of 27 to 30 points. "Good color" means that the color of the frozen okra is bright, practically uniform, and typical of the varietal characteristic for young, tender okra. No more than 10 percent of the units in the sample unit may possess a slightly dull color, or possess a slight yellowish-green to brownish-green cast, or vary materially from the overall general, uniform color; and none of the units in the sample unit may possess a noticeable yellow or brown color or be "off color."

(b) (*B*) *Classification.* Frozen okra that possesses a reasonably good color may be given a score of 24 to 26 points. Frozen okra that falls into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a limiting rule). "Reasonably good color" means that the frozen okra possesses a color which may be slightly dull but which is typical of the varietal characteristic for reasonably young and reasonably tender okra. No more than 20 percent of the units in the sample unit may possess a color that is typical of less than reasonably young and reasonably tender okra: *Provided,* That not more than 6 percent of the units in the sample unit may possess a noticeable yellow or brown color or vary markedly from the general, overall color; and none of the units may be "off color."

(c) (*SStd.*) *Classification.* Frozen okra that fails to meet the requirements of paragraph (b) of this section may be given a score of 0 to 23 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.1517 Defects.

(a) *Visual aids.* Color print photographs illustrative of certain types of defects defined in this subpart are available for review at specified USDA Processed Products Inspection offices. Information regarding the location of such offices is available upon request from:

Chief, Processed Products Standardization and Inspection Branch, Fruit and Vegetable Division, AMS, U.S. Department of Agriculture, Washington, D.C. 20250.

(b) *General.* The factor of defects concerns the degree of freedom from units or any material as may be defined in paragraph (c) of this section or from any other defects present, whether or not specifically defined or listed therein, which would affect the appearance or edibility of the product.

(c) *Definitions of types of defects.* (1) "Insignificantly blemished unit" refers to very slight abnormalities, scars, discolorations, or any other imperfections on the individual unit which may affect the appearance slightly but which do not affect the edibility of the unit.

(2) "Blemished unit" means any unit which is so affected by discoloration or abnormalities, including trimmed or cut surfaces, as to materially affect the appearance of the unit.

(3) "Seriously blemished unit" means any unit which is so affected by discoloration or abnormalities, including trimmed or cut surfaces, as to seriously affect the appearance or edibility of the unit.

(4) "Harmless extraneous material" consists of leaves, attached inedible stems in excess of one-half inch, detached stems of any length, and similar harmless plant material.

(5) "Poorly trimmed" units in the "Whole" style of frozen okra include, but are not limited to:

(i) Apparent untrimmed pods;

(ii) Pods with attached inedible stems of one-half inch or less;

(iii) Pods possessing a conical-shaped or severely biased cut of the cap portion;

(iv) Trimmed pods with cut surface having very ragged edges;

(v) Pods with partially detached cap portions;

(vi) Pods with attached portions of cap that are inedible.

(6) "Poorly trimmed" units in the "Cut" style of frozen okra include, but are not limited to:

(i) Units with attached inedible stems of one-half inch or less;

(ii) Units with portions of cap that are inedible.

(7) "Excessively trimmed" are whole pods that:

(i) Have been so trimmed as to collapse the pod;

(ii) Have been so trimmed as to expose a longitudinal plane of the seed cavity;

(iii) Have been obviously trimmed on both ends.

(8) A "small piece" in "Whole" frozen okra means a piece of pod (exclusive of very small tip ends) which is one-fourth or less the weight of the smallest whole pod in the sample unit.

(9) "Small pieces" or "damaged pieces" in cut frozen okra means pieces of pods one-fourth inch in length or less, or units that may be broken, mashed, split, shattered, or improperly or incompletely cut so as to noticeably affect the appearance or edibility of the unit.

(10) "Damaged by mechanical injury" means whole pods or portions thereof that have been broken, mashed, split, or shattered to the extent that the appearance of the unit is noticeably affected.

(11) "Misshapen units" are whole pods which are seriously deformed.

(12) "Pathological or insect injury" refers to any unit that possesses obvious pathological or insect damage.

(13) "Sand, grit, or silt" means any particle of earthy material.

(d) (*A*) *Classification.* Frozen okra that is practically free from defects may be given a score of 36 to 40 points. "Practically free from defects" means that:

(1) Any defects present, whether or not specifically defined or listed herein, do not materially detract from the appearance or edibility of the product; and

(2) The defects that may be present in the sample unit do not exceed the allowances specified in table I.

(e) (*B*) *Classification.* Frozen okra that is reasonably free from defects may be given a score of 32 to 35 points. Frozen okra that falls into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a limiting rule). "Reasonably free from defects" means that:

(1) Any defects present, whether or not specifically defined or listed herein, do not seriously detract from the appearance or edibility of the product; and

(2) The defects that may be present in the sample unit do not exceed the allowances specified in table I.

(f) (*SStd.*) *Classification.* Frozen okra that fails to meet the requirements of paragraph (e) of this section may be given a score of 0 to 31 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

TABLE I—ALLOWANCES FOR DEFECTS IN FROZEN OKRA

	Whole style (maximum—per 50 pods)		Cut style (maximum—per 10 ounces)	
	Grade A	Grade B	Grade A	Grade B
Blemished units; and seriously blemished units.	3 units, but not more than 1 unit seriously blemished.	6 units, but not more than 2 units seriously blemished.	6 units, but not more than 2 units seriously blemished.	12 units, but not more than 4 units seriously blemished.

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TABLE I—ALLOWANCES FOR DEFECTS IN FROZEN OKRA—Continued

	Whole style (maximum—per 50 pods)		Cut style (maximum—per 10 ounces)	
	Grade A	Grade B	Grade A	Grade B
Insignificantly blemished units	Do not more than slightly detract from the appearance	Do not seriously detract from the appearance	Do not more than slightly detract from the appearance	Do not seriously detract from the appearance.
Harmless extraneous material	2 pieces	3 pieces	1 piece	2 pieces.
Poorly trimmed, excessively trimmed, small or damaged units, misshapen units or any combination of these	10 units	15 units	12 units	18 units.
Damaged by mechanical injury	5 units	10 units	Not applicable	Not applicable
Plant fungal or insect injury	None	1 unit	1 unit	2 units
Sand, grit, or silt	None	Trace	None	Trace
Total. All defects above and any other defects or including above	10 units, do not materially detract from the appearance	15 units, do not seriously detract from the appearance	12 units, do not materially detract from the appearance	18 units, do not seriously detract from the appearance.

§ 52.1518 Character.

(a) *General.* The factor of character refers to the development of the pods and seeds and to the degree of freedom from tough fiber. "Tough fiber" in frozen okra means any cooked unit that contains tough fibrous development to the extent that the eating quality of the unit is materially affected.

(b) (*A*) *Classification.* Frozen okra that possesses a good character may be given a score of 27 to 30 points. "Good character" means that the units are fleshy and tender, that the seeds are in the early stages of maturity, and that not more than 2 whole pods or 4 cut units (as applicable) per sample unit possess tough fibers.

(c) (*B*) *Classification.* Frozen okra that possesses a reasonably good character may be given a score of 24 to 26 points. Frozen okra that falls into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a limiting rule). "Reasonably good character" means that the units may have lost their fleshy texture to a considerable extent, that the units are reasonably tender, that the seeds may have passed the early stages of maturity, and that not more than 4 whole pods or 8 cut units (as applicable) per sample unit possess tough fibers.

(d) (*SSStd.*) *Classification.* Frozen okra that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 23 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

LOT COMPLIANCE

§ 52.1519 Ascertaining the grade of a lot.

The grade of a lot of frozen okra covered by these standards is determined by the procedures set forth in the Regulations Governing Inspection and Certification of Processed Products Thereof, and Certain Other Processed Food Products (§§ 52.1 to 52.87).

SCORE SHEET

§ 52.1520 Score sheet for frozen okra.

Size and kind of container _____
Container marks or identification _____
Label _____
Net Weight (ounces) _____
Style (whole cut) _____
Variety _____

Factors			Score points
Color	30	(A)	27-30
		(B)	*24-26
		(SSStd.)	*0-23
Defects	40	(A)	36-40
		(B)	*32-35
		(SSStd.)	*0-31
Character	30	(A)	27-30
		(B)	*24-26
		(SSStd.)	*0-23
Total score	100		

Flavor and odor _____
Grade _____

* Indicates limiting rule.

Subpart—United States Standards for Grades of Olive Oil

SOURCE: 18 FR 8014, Dec. 9, 1953, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981.

PRODUCT DESCRIPTION AND GRADES

§ 52.1531 Product description.

Olive oil is the edible oil obtained from the fruit of the olive tree (Olea europaea L.); is clarified, has a specific gravity of 0.910 to 0.915 at 25° C./25° C.; has an iodine number (Hanus) of 79 to 90; has a refractive index of 1.4668 to 1.4683 at 25° C.; and is packed in containers suitable for preservation of the product.

§ 52.1532 Grades of olive oil.

(a) "U.S. Grade A" or "U.S. Fancy" is the quality of olive oil that possesses the typical greenish to light yellow color of olive oil; possesses a free fatty acid content, calculated as oleic, of not more than 1.4 percent; is free from defects; and is of such quality with respect to odor and flavor as to score not less than 90 points when scored in accordance with the scoring system outlined in this subpart.

(b) "U.S. Grade B" or "U.S. Choice" is the quality of olive oil that possesses the typical greenish to light yellow color of olive oil; possesses a free fatty acid content, calculated as oleic, of not more than 2.5 percent; is reasonably free from defects; possesses a reasonably good typical odor; possesses a reasonably good typical flavor; and scores not less than 80 points when scored in accordance with the scoring system outlined in this subpart.

(c) "U.S. Grade C" or "U.S. Standard" is the quality of olive oil that possesses the typical greenish to light yellow color of olive oil; possesses a free fatty acid content, calculated as oleic, of not more than
fairly free from defect
fairly good typical odc
fairly good typical flav
not less than 70 points
accordance with the s
outlined in this subpart.

(d) "U.S. Grade D"
ard" is the quality of
fails to meet the requir
Grade C or U.S. Standar

FILL OF CONTA

§ 52.1533 Recommended f

The recommended fill
not incorporated in the
finished product since fi
as such, is not a factor
the purpose of these gr
ommended that each
olive oil be filled with c
as practicable without
quality.

FACTORS OF QU

§ 52.1534 Ascertaining the

(a) The grade of olive
certained by considerin
to the requirements of
grade, the following fact
acid content, absence of
and flavor.

(b) The relative impo
factor is expressed nur
scale of 100. The maxim
points that may be g
factor is:

Factors	
Free fatty acid content	
Absence of defects	
Odor	
Flavor	
Total score	

§ 52.1535 Ascertaining the
factor.

The essential variatio
factor are so described
may be ascertained for e
expressed numerically.
range within each fact
(for example, "27 to 30
27, 28, 29, and 30 points)

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Inches	Millimeters (mm)
7 equals	177.8
8 equals	203.2
9 equals	228.6

Subpart—United States Standards for Grades of Lima Beans

SOURCE: 32 FR 8859, June 22, 1967, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.3805 U.S. No. 1.

"U.S. No. 1" consists of pods of lima beans of similar varietal characteristics which are fairly well filled and not excessively small, not badly misshapen, and which are fresh, and not overmature, free from soft decay, sprouted beans, worm holes, and from damage caused by dirt, russeting, scars, leaves or other foreign matter, freezing, hail, disease, insects, or mechanical or other means.

(a) In order to allow for variations incident to proper grading and handling, not more than a total of 10 percent, by weight, of the pods of lima beans in any lot may be below the requirements of this grade, but not more than one-half of this tolerance, or 5 percent, shall be allowed for defects causing serious damage, and not more than one-fifth of this amount, or 1 percent, shall be allowed for lima beans affected by soft decay.

§ 51.3806 U.S. Combination.

"U.S. Combination" consists of a combination of U.S. No. 1 and U.S. No. 2 lima beans: *Provided*, That at least 75 percent, by weight, meet the requirements of U.S. No. 1 grade.

(a) In order to allow for variations incident to proper grading and handling, not more than a total of 10 percent, by weight, of the pods of lima beans in any lot may be below the requirements of U.S. No. 2 grade, but not more than one-tenth of this amount, or 1 percent, shall be allowed for lima beans affected by soft decay. No part of this tolerance shall be allowed to reduce for the lot as a whole the percentage of U.S. No. 1 lima beans required in the combination but individual containers may have not more than 10 percent less than the percentage of U.S. No. 1 lima beans required.

§ 51.3807 U.S. No. 2.

"U.S. No. 2" consists of pods of lima beans of similar varietal characteristics, which are reasonably well filled, fairly fresh and not overmature, free from soft decay and from serious damage caused by dirt, russeting, scars, leaves or other foreign matter, freezing, hail, disease, insects, or mechanical or other means.

(a) In order to allow for variations incident to proper grading and handling, not more than a total of 10 percent, by weight, of the pods of lima beans in any lot may be below the requirements of this grade, but not more than one-tenth of this amount, or 1 percent, shall be allowed for lima beans affected by soft decay.

UNCLASSIFIED

§ 51.3808 Unclassified.

"Unclassified" consists of pods of lima beans which have not been classified in accordance with any of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards but is provided as a designation to show that no grade has been applied to the lot.

APPLICATION OF TOLERANCES

§ 51.3809 Application of tolerances.

The contents of individual packages in the lot, based on sample inspection, are subject to the following limitations:

(a) For a tolerance of 10 percent or more, individual packages in any lot may contain not more than one and one-half times the tolerance specified: *Provided*, That the average for the entire lot is within the tolerance specified for the grade.

(b) For a tolerance of less than 10 percent, individual packages in any lot may contain not more than double the tolerance specified: *Provided*, That the average for the entire lot is within the tolerance specified for the grade.

DEFINITIONS

§ 51.3810 Similar varietal characteristics.

"Similar varietal characteristics" means that the pods of lima beans in any container are of the same general type.

§ 51.3811 Fairly well filled and not excessively small.

"Fairly well filled and not excessively small" means that more than one-half of each pod shall be filled with fairly well and/or well developed beans but that no pod may have less than two fairly well and/or well developed beans. Pods that are just half filled with at least fairly well developed beans but have enough additional beans a little smaller than those considered fairly well developed so as to make the equivalent in volume to the beans in a pod more than half filled with at least fairly well developed beans shall be considered as fairly well filled.

§ 51.3812 Reasonably well filled.

"Reasonably well filled" means that not less than a third of each pod is filled with fairly well and/or well developed beans. Pods that are not a third filled with at least fairly well developed beans but have enough beans a little smaller than those considered fairly well developed so as to make the equivalent in volume to the beans in a pod one-third filled with at least fairly well developed beans, shall be considered reasonably well filled.

§ 51.3813 Badly misshapen.

"Badly misshapen" means that the pods are badly constricted, crooked, curled, twisted, or otherwise badly malformed.

§ 51.3814 Fresh.

"Fresh" means that the pods are not more than slightly wilted and flabby.

§ 51.3815 Fairly fresh.

"Fairly fresh" means that the pods are not badly wilted and flabby.

§ 51.3816 Overmature.

"Overmature" means that the beans have developed beyond that stage of growth at which they are c[illegible] use as fresh beans. Pods tha[illegible] coming yellow and dry or b[illegible] do not show a tinge of green [illegible] the cotyledons after remo[illegible] outer skin, or have becom[illegible] starchy and brittle shall be c[illegible] as overmature.

§ 51.3817 Damage.

"Damage" means any defec[illegible] combination of defects, whic[illegible] ally detracts from the appea[illegible] the edible or marketing qua[illegible] or russeting which materially [illegible] from the appearance of the [illegible] be considered as damage.

§ 51.3818 Serious damage.

"Serious damage" means an[illegible] or any combination of defect[illegible] seriously detracts from the [illegible] ance, or the edible or market[illegible] ity.

Subpart—United States Stand[illegible] Grades of Snap Bean[illegible]

SOURCE: 32 FR 8860, June 22, 19[illegible] otherwise noted. Redesignated [illegible] 32514, June 27, 1977, and furthe[illegible] nated at 46 FR 63203, Dec. 31, 1981

GENERAL

§ 51.3820 General.

These standards can be appli[illegible] beans used in their entirety as [illegible] to shelled beans, and includ[illegible] such as snap, pole, and wax[illegible] These standards do not apply [illegible] such as fava, lima, pinto o[illegible] beans.

[66 FR 23776, June 4, 19901

GRADES

§ 51.3830 U.S. Fancy.

"U.S. Fancy" consists of b[illegible] similar varietal characteristic[illegible] are of reasonable and fairly [illegible] size, well formed, bright, clear [illegible] young and tender, firm, and w[illegible] free from soft rot and fre[illegible] damage caused by leaves, le[illegible] other foreign matter, hail, dis[illegible] sects or mechanical or other [illegible] (See § 51.3835.)

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§ 51.3831 U.S. No. 1.

"U.S. No. 1" consists of beans of similar varietal characteristics which are of reasonable size, fairly well formed, fairly bright, fresh, fairly young and tender, firm, and which are free from soft rot and free from damage caused by dirt, leaves, leafstems, other foreign matter, hail, disease, insects or mechanical or other means. (See § 51.3835.)

§ 51.3832 [Reserved]

§ 51.3833 U.S. No. 2.

"U.S. No. 2" consists of beans of similar varietal characteristics which are fairly fresh, firm, not overmature, and which are free from soft rot and free from serious damage caused by dirt, leaves, leafstems, other foreign matter, hail, disease, insects or mechanical or other means. (See § 51.3835.)

§ 51.3834 [Reserved]

TOLERANCES

§ 51.3835 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by weight, are provided as specified:

(a) *U.S. Fancy.* Ten percent for beans in any lot which fail to meet the requirements of the grade, including not more than 3 percent damage by broken beans. Additionally, within the ten percent tolerance, not more than 5 percent shall be allowed for defects causing serious damage, including therein, not more than 1 percent for beans affected by soft rot.

(b) *U.S. No. 1.* Thirteen percent for beans in any lot which fail to meet the requirements of the grade, including not more than ten percent damage by grade defects other than damage by broken beans, including not more than 5 percent shall be allowed for defects causing serious damage, including therein, not more than 1 percent for beans affected by soft rot.

(c) *U.S. No. 2.* Fifteen percent for beans in any lot which fail to meet the requirements of the grade, including not more than ten percent serious damage by grade defects other than serious damage by broken beans, including therein, not more than 1 percent for beans affected by soft rot.

[32 FR 8860, June 22, 1967, as amended at 55 FR 22774, June 4, 1990]

APPLICATION OF TOLERANCES

§ 51.3836 Application of tolerances.

The contents of individual packages in the lot are subject to the following limitations:

(a) For tolerances of ten percent or more, individual packages may contain not more than one and one half times the tolerances specified: *Provided,* That the average for the entire lot is within the tolerance specified for the grade.

(b) For a tolerance of less than 10 percent, individual packages may contain not more than double the tolerance specified: *Provided,* That the average for the entire lot is within the tolerance specified for the grade.

[32 FR 8860, June 22, 1967, as amended at 55 FR 22774, June 4, 1990]

DEFINITIONS

§ 51.3837 Similar varietal characteristics.

"Similar varietal characteristics" means that the beans are of the same color and general type. For example, wax and green beans, or Snap and Pole beans may not be mixed.

[55 FR 22774, June 4, 1990]

§ 51.3838 Reasonable size.

"Reasonable size" means that the pods are not spindly or excessively short for the variety and have not been prematurely picked.

§ 51.3839 Well formed.

"Well formed" means that the pods have the normal typical shape for the variety.

§ 51.3840 Firm.

"Firm" means that the pods are not wilted or flabby.

§ 51.3841 Damage.

(a) "Damage" means any defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the snap bean. Pods having spots due to Blight or Anthracnose, and similar spots caused by other diseases, shall be considered as damaged.

(b) Broken beans shall be considered as damage when:

(1) There is one break present in the thick portion of the bean or one break at each end in the thin portion of the bean;

(2) Any break that is materially affected by dirt or discoloration;

(3) Any break that is ragged and materially detracts from the appearance; or

(4) Unless otherwise specified, the remaining portion of the bean is less than 3¼ inches in length (5¼ inches for pole type beans).

[32 FR 8860, June 22, 1967, as amended at 55 FR 22774, June 4, 1990]

§ 51.3842 Fairly well formed.

"Fairly well formed" means that the pods are not badly crooked, cruled, twisted, or otherwise badly misshapen for the variety. Excessively tapered pods caused by unfavorable pollinating or growing conditions shall not be considered as fairly well formed.

§ 51.3843 Overmature.

"Overmature" means that the walls of the pods are distinctly woody or fibrous.

§ 51.3844 Serious damage.

(a) "Serious damage" means any defect, or any combination of defects, which seriously detracts from the appearance, or the edible or marketing quality of the snap bean.

(b) Broken beans shall be considered as serious damage when:

(1) There is a break on each end in the thick portion of the bean;

(2) Any break is seriously affected by dirt or discoloration;

(3) Any break is ragged and seriously detracts from the appearance or exposes a seed; or

(4) Unless otherwise specified, the remaining portion of the bean is less than 3 inches in length (5 inches for pole type beans).

[32 FR 8860, June 22, 1967, as
55 FR 22774, June 4, 1990]

Subpart—United States St
Grades of Greenhouse C

SOURCE: 50 FR 36041, Sept. 5
otherwise noted.

§ 51.3855 General.

Compliance with the pr
these standards shall not
ure to comply with provisi
cable Federal or State laws

[50 FR 36041, Sept. 5, 1985;
Sept. 12, 1985]

§ 51.3856 Grades.

(a) "U.S. Fancy" consist
bers which meet the follow
ments:

(1) Basic requirements:
(i) Clean;
(ii) Well formed;
(iii) Well colored;
(iv) Fresh; and,
(v) Firm.
(2) Free from: Decay, c
chanical injury.
(3) Free from injury by:
(i) Scars;
(ii) Freezing;
(iii) Mosaic or other disea
(iv) Insects or other mecha
(4) Size: Unless otherwi
the minimum length shall
than 11 inches.
(b) Tolerances: (See § 51.
(b) "U.S. No. 1" consist
bers which meet the follow
ments:

(1) Basic requirements:
(i) Clean;
(ii) Fairly well formed;
(iii) Fairly well colored;
(iv) Fresh; and,
(v) Firm.
(2) Free from: Decay an
cuts.
(3) Free from damage by:
(i) Scars;
(ii) Freezing;
(iii) Mosaic or other disea
(iv) Insects; and,
(v) Mechanical or other n
(4) Size: Unless otherwi
the minimum length shall
than 11 inches.

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(a) Seedstems which are tough or woody, or which are more than one-fourth inch in diameter;

(b) Splits when well cured onions are not practically covered by an outer scale;

(c) Dry sunscald when the injury is more than slight and is readily apparent without peeling the onion;

(d) Sunburn when dark green in color and affecting an area equivalent to that of a circle 1 inch in diameter on an onion 2¾ inches in diameter or correspondingly smaller or larger areas on smaller or larger onions, or when medium to light green in color and affecting more than 10 percent of the surface of the onion;

(e) Sprouting when any sprout is visible, or when concealed within the neck scales and are more than three-fourths inch in length;

(f) Staining, dirt or other foreign material when the onions in any lot are affected in appearance to a more serious degree than of a lot of yellow onions having 15 percent appreciably stained and 5 percent badly stained, or a lot of white onions having 10 percent appreciably stained and 5 percent badly stained:

(1) "Appreciably stained" means that there is sufficient staining or discoloration caused by weathering or other means to materially affect the appearance of the individual onion; and,

(2) "Badly stained" means that there is sufficient staining caused by weathering or other means to seriously affect the appearance of the individual onion; and,

(g) Mechanical when any cut extends deeper than one fleshy scale, or when any bruise breaks a fleshy scale.

§ 51.3208 Serious damage.

"Serious damage", unless otherwise specifically defined in this section, means any defect which seriously affects the appearance, or the edible or shipping quality of the onions. Any one of the following defects, or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as serious damage:

(a) Seedstems when more than one-half inch in diameter;

(b) Dry sunscald when extending deeper than one fleshy scale, or when affecting an area equivalent to that of a circle 1 inch in diameter on an onion 2¾ inches in diameter, or correspondingly lesser or greater areas on smaller or larger onions;

(c) Sprouting when any visible sprout is more than one-half inch in length;

(d) Staining, dirt or other foreign material when the onions in any lot are affected in appearance to a more serious degree than that of a lot of onions having 25 percent badly stained:

(1) "Badly stained" means that there is sufficient staining caused by weathering or other means to seriously affect the appearance of the individual onion; and,

(e) Mechanical when any cut extends deeper than two fleshy scales, or when cuts seriously damage the appearance of the onion.

§ 51.3209 Diameter.

"Diameter" means the greatest dimension of the onion at right angles to a line running from the stem to the root.

Subpart—United States Standards for Cauliflower for Processing

SOURCE: 24 FR 6238, Aug. 4, 1959, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADE

§ 51.3220 U.S. No. 1.

"U.S. No. 1" consists of cauliflower which is fresh, compact, which has good characteristic color and is free from jacket leaves, stalks and other cull material, soft or wet decay, and free from damage caused by discoloration, bruising, riciness, fuzziness, enlarged bracts, dirt or other foreign material, mildew or other disease, insects, freezing, hail or mechanical or other means.

(a) Unless otherwise specified, each head shall be not less than 4 inches in diameter.

CULLS

§ 51.3221 Culls.

"Culls" consist of cauliflower which fails to meet the requirements of the foregoing grade, other than for size.

BASIS OF GRADING CAULIFLOWER

§ 51.3222 Basis of grading cauliflower.

In grading cauliflower the head is cored and quartered. The defective segments are then removed from the head and classed as culls. (See § 51.3230.)

APPLICATION OF STANDARDS

§ 51.3223 Application of standards.

In the application of this grade to determine the percentage of the lot which meets the requirements of U.S. No. 1 grade, tolerances shall not apply. When a lot is required to meet U.S. No. 1 grade, the following tolerances, by weight, shall apply:

(a) *Tolerances for defects.* 10 percent for cauliflower which fails to meet the requirements of the grade, other than for size: *Provided,* That not more than one-fifth of this amount, or 2 percent, shall be allowed for cauliflower affected by soft or wet decay; and.

(b) *Tolerance for size.* Not more than 5 percent of any lot shall be allowed for heads failing to meet the specified minimum size.

DEFINITIONS

§ 51.3224 Fresh.

"Fresh" means that the head is not more than slightly wilted.

§ 51.3225 Compact.

"Compact" means that the flower clusters of the head or segments of the head are tightly united.

§ 51.3226 Characteristic color.

"Characteristic color" means that the head or segments of the head are white or creamy white.

§ 51.3227 Cull material.

"Cull material" means jacket leaves and stems removed in the proper trimming of the heads and any loose leaves or foreign material.

§ 51.3228 Damage.

"Damage", unless other cally defined in this sect any defect which materi the appearance, or the quality of the cauliflower, the following defects, or a tion of defects the seri which exceeds the maxim for any one defect, shall be as damage:

(a) Discoloration when flower is of some abno which will not change to light cream color in the orc ess of blanching;

(b) Riciness when indi branches have become sli gated and flower clusters compactness to the exte granular or abnormally rou is apparent;

(c) Enlarged leaf bracts (r grown leaves) when a segme

(1) More than 3 light bracts extending over the the segment;

(2) One light green leaf tending more than half way segment; or,

(3) Any leaf bract darke than light green; and,

(d) Insects when there is slight infestation or when flower is blemished by other means to the extent t pearance or processing quali rially affected.

§ 51.3229 Diameter.

"Diameter" means the g mension of the head measur angles to a line running crown to the base of the he sive of the jacket leaves.

§ 51.3230 Segment.

"Segment" means one of pal divisions of the head, co a primary branch of the ste ing secondary branches a buds.

Subpart—United States Star Snap Beans for Proces

SOURCE: 24 FR 5884, July 19, otherwise noted. Redesignated

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32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.3240 U.S. No. 1.

"U.S. No. 1" consists of snap beans of similar varietal characteristics which are fresh, firm, succulent, tender, fairly well formed, free from decay, anthracnose and extraneous material, and free from damage caused by scars, rust, other disease, insects, bruises, punctures, broken ends or other means.

(a) Unless a larger diameter is specified, the maximum diameter of beans in this grade shall be less than 5/64 of an inch (maximum diameter of 4 sieve size).

(b) Unless otherwise specified, the minimum diameter of beans in this grade shall be 1/64 of an inch.

§ 51.3241 U.S. No. 2.

"U.S. No. 2" consists of snap beans of similar color and reasonably similar type which are fresh, firm, not tough or overmature, not seriously misshapen, and which are free from decay, anthracnose and extraneous material, and free from serious damage caused by scars, rust, other disease, insects, bruises, punctures, broken ends or other means.

(a) There shall be no maximum diameter in this grade.

(b) Unless otherwise specified, the minimum diameter of beans in this grade shall be 1/64 of an inch.

CULLS

§ 51.3242 Culls.

"Culls" consists of beans which do not meet the requirements of U.S. No. 2 grade.

SIZE CLASSIFICATIONS

§ 51.3243 Size classifications.

Size classifications have been established by the industry to describe different sizes of beans. If size is specified, it is recommended that one or more of the following designations be used:

Sieve size	Diameter
No. 1	12/64 to, but not including, 14 5/64 inch
No. 2	14 5/64 to, but not including, 18 5/64 inch
No. 3	18 5/64 to, but not including, 21/64 inch
No. 4	21/64 to, but not including, 24/64 inch
No. 5	24/64 to, but not including, 27/64 inch
No. 6 and larger	27/64 inch and larger

APPLICATION OF STANDARDS

§ 51.3244 Application of standards.

In determining the grade of a lot of beans, representative samples are drawn from various parts of the lot and mixed together. The composite sample or a portion thereof is sorted into U.S. No. 1 grade, U.S. No. 2 grade, culls and extraneous material, and the percentage, by weight, of each is determined. Under this system, tolerances for beans below grade or for extraneous material are not required in the standards.

DEFINITIONS

§ 51.3245 Similar varietal characteristics.

"Similar varietal characteristics" means that the beans are of the same general type and color. Wax type shall not be mixed with green type, and round, semi-flat and flat types shall not be mixed.

§ 51.3246 Fresh.

"Fresh" means that the bean is not more than slightly wilted.

§ 51.3247 Firm.

"Firm" means that the walls of the bean are reasonably solid, not puffy or spongy.

§ 51.3248 Succulent.

"Succulent" means that the flesh inside of the walls of the bean is translucent and juicy with not more than a slight trace of drying around the seed.

§ 51.3249 Tender.

"Tender" means that the bean is practically free from fiber or strings.

§ 51.3250 Fairly well formed.

"Fairly well formed" means that the bean is not more than moderately curved, crooked, twisted or tapered.

§ 51.3251 Extraneous material.

"Extraneous material" consists of bean vines and leaves, weeds, stones, sticks, loose dirt or other foreign material. All vines attached to beans shall be detached in determining the grade and included with the extraneous material.

§ 51.3252 Damage.

"Damage", unless otherwise specifically defined in this section, means any defect which materially affects the processing quality of the bean. Any one of the following defects, or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as damage:

(a) Scar, rust or other disease spot which will be plainly noticeable after the bean has been blanched;

(b) Bruises or punctures which are noticeably discolored, or which affect an area more than one-fourth inch in length;

(c) Broken ends when the flesh of the thick portion of the bean is exposed, or when the remaining portion of the bean is less than 2½ inches long; and,

(d) Insect stings or scars which will be plainly noticeable after the bean has been blanched.

§ 51.3253 Diameter.

"Diameter" means thickness as determined by the width of the smallest slot through which the bean may be passed, without forcing, in any one position or series of positions.

§ 51.3254 Similar color.

"Similar color" means that the bean is of the same color type as the majority of the beans in the lot. Wax type beans in a lot of green beans shall be classed as culls, and green type beans in a lot of wax beans shall be classed as culls.

§ 51.3255 Reasonably similar t

"Reasonably similar typ
that the beans are not dis
ferent in cross-section shap
ample, round and semi-flat
be considered reasonably si
flat and semi-flat beans sh
sidered reasonably similar.
flat beans shall not be cons
sonably similar types.

§ 51.3256 Tough or overmature

"Tough or overmature" m
the bean is leathery, fil
stringy or has dry, whit
tissue or air pockets around

§ 51.3257 Seriously misshapen.

"Seriously misshapen" m
the bean is badly curved,
twisted or tapered.

§ 51.3258 Serious damage.

"Serious damage", unless
specifically defined in thi
means any defect which sei
fects the processing quali
bean. Any one of the followi
or any combination of defect
ousness of which exceeds
mum allowed for any one de
be considered as serious dam

(a) Scars, rust or disease s
are very dark colored or ver
ly, or which are moderately
moderately unsightly and a
than one-fourth the lengt
bean;

(b) Bruises or punctures
badly discolored, or which
area more than three-fourth
length;

(c) Broken ends which e
flesh of the thick portion of
when both ends are broken
one end is broken and th
flesh is distinctly discolored
the remaining portion of th
less than 2½ inches long; and

(d) Insects which are pres
the bean, or any insect hole
ing the wall of the bean, or
slightly insect stings or scars.

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ple, "18 to 20 points" means 18, 19, or 20 points).

§ 52.418 Color.

(a) "Good color" means that the beans have a color that is bright and reasonably uniform, typical of the type; and that the sauce or brine has a color typical of the style of pack. Canned dried beans that have a good color may be given a score of 18 to 20 points.

(b) "Reasonably good color" means that the beans have a color that is fairly uniform, typical of the type; may be dull but not off-color; and that the sauce or brine has a color typical of the style of pack. Canned dried beans that have a reasonably good color may be given a score of 16 or 17 points. Canned dried beans that score 16 points for color shall not be graded above "U.S. Grade B," regardless of the total score for the product (this is a partial limiting rule).

(c) "Substandard." Canned dried beans that fail to meet the requirements of grade B may be given a score of 0 to 15 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.419 Absence of defects.

(a) *General.* The factor of absence of defects refers to the degree of freedom from extraneous vegetable material, loose skin, broken and mashed beans, and blemished beans; or any other defects that may affect the appearance or eating quality of the product.

(b) *Definitions.* (1) "Loose skin" means a skin or portions of a skin which have become separated wholly from the cotyledons;

(2) "Broken" means a cotyledon or portions of a cotyledon which have become separated; or a bean or portions of a bean with the skin or portions of the skin missing;

(3) "Mashed" means a bean that is crushed or flattened to the extent that the appearance is seriously affected;

(4) "Blemished" means a bean that is affected or damaged by any means to the extent that its appearance or eating quality is adversely affected;

(i) Slightly;

(ii) Materially;

(iii) Seriously; and

(5) "Extraneous vegetable material" means vegetable material common to the bean plant or other plants that is harmless upon eating and includes, but is not limited to, peas, lentils, cereal grains, and corn.

(c) "Practically free from defects" means that the canned dried beans comply with the allowances in Table I. Canned dried beans that are practically free from defects may be given a score of 36 to 40 points.

(d) "Reasonably free from defects" means that the canned dried beans comply with the allowances in Table II. Canned dried beans that are reasonably free from defects may be given a score of 32 to 35 points and shall not be graded above "U.S. Grade B," regardless of the total score for the product (this is a limiting rule).

(e) "Substandard." Canned dried beans that fail to meet the allowances for grade B may be given a score of 0 to 31 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

TABLE I—ALLOWANCES FOR DEFECTS IN CANNED DRIED BEANS—U.S. GRADE A

Defects	Maximum amount of defects permitted	
	Sample unit (percent of net weight)	Sample average
Loose skin, broken, and mashed	5	
Total blemished (slightly, materially, and seriously)	3	
Materially blemished	2	
Seriously blemished	1	
Extraneous vegetable material	(1)	1 piece per 50 oz net weight

[1] No limit.

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TABLE II—ALLOWANCES FOR DEFECTS IN CANNED DRIED BEANS—U.S. GRADE B

Defects	Maximum amount of defects permitted	
	Sample unit (percent of net weight)	Sample average
Loose skin, broken, and mashed	10	
Total blemished (slightly, materially, and seriously)	6	
Materially blemished	4	
Seriously blemished	2	
Extraneous vegetable material	(1)	1 piece per 20 oz net weight

[1] No limit.

§ 52.420 Character.

(a) *General.* The factor of character refers to the degree of freedom from hard beans, mushy beans, beans with tough skins; and the overall texture of the product.

(b) "Good character" means that the beans have a good, typical texture, that may be slightly soft or slightly firm; and that the skins are tender. Canned dried beans that have a good character may be given a score of 36 to 40 points.

(c) "Reasonably good character" means that the beans have a reasonably good, typical texture, that the beans may be firm or soft and that the presence of hard or mushy beans does not materially affect the eating quality; and that the skins may be slightly tough. Canned dried beans that have a reasonably good character may be given a score of 32 to 35 points and shall not be graded above "*U.S. Grade B,*" regardless of the total score for the product (this is a limiting rule).

(d) "Substandard." Canned dried beans that fail to meet the requirements of grade B may be given a score of 0 to 31 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.421 Determining the grade of a lot.

The grade of a lot of canned dried beans covered by these standards is determined by the procedures set forth in the Regulations Governing Inspection and Certificatio essed Fruits and Vegetables, Products Thereof, and Cert Processed Food Products (52.83).

§ 52.422 Score sheet for ca beans.

Container size
Container code or identification
Label
Net weight
Vacuum
Type
Style

Factors		Score pos
Color	20	(A) (B) (SSTD)
Absence of defects	40	(A) (B) (SSTD)
Character	40	(A) (B) (SSTD)
Total score	100	

Consistency
Flavor
Similar varietal characteristics
Grade

[1] Indicates partial limiting rule.
[2] Indicates limiting rule.
[3] Not applicable for the style of "in brine."
[4] Not applicable for "mixed" type.

Subpart—United States St Grades of Canned G and Canned Wax Bea

SOURCE: 26 FR 5555, June 22 otherwise noted. Redesignate 32514, June 27, 1977 and at Dec. 31, 1981.

IDENTITY, STYLES, AND

§ 52.441 Identity.

(a) "Canned green be canned green beans as de definitions and standard for canned green bean 155.120(a)), issued pursu Federal Food, Drug, and C

(b) "Canned wax be canned wax beans as de definitions and standard for canned wax beans 155.120(a)), issued pursu Federal Food, Drug, and C

(c) "Canned beans" or "beans" as hereinafter referred to in this subpart means canned green beans or canned wax beans.

(d) "Unit" means an individual green bean or wax bean, or portion of either in canned beans.

§ 52.442 Styles of canned beans.

(a) "Whole" means canned beans that consist of whole pods, including pods which after removal of either or both ends are less than 2¾ inches in length or transversely cut pods not less than 2¾ inches in length and, except for "vertical pack" or asparagus style, are not arranged in any definite position in the container.

(b) "Whole vertical pack" means canned beans that are "whole" and are packed parallel to the sides of the container.

(c) "Whole asparagus style" means canned beans that are "whole" and consist of pods that are cut at both ends are of substantially equal lengths, and are packed parallel to the sides of the container.

(d) "Sliced lengthwise" or "French style" means canned beans consisting of pods that are sliced lengthwise.

(e) "Cut" or "cuts" means canned beans consisting of pods that are cut transversely into pieces less than 2¾ inches, but not less than ⅞ inch, in length, and may contain shorter end pieces which result from cutting.

(f) "Short cut" or "short cuts" means canned beans consisting of pieces of pods of which not less than 75 percent are less than ⅞ inch in length and not more than 1 percent are more than 1¾ inches in length.

(g) "Mixed" or "mixture" means a mixture of two or more of the following styles of canned beans: "whole"; "sliced lengthwise"; "cuts"; or "short cuts".

§ 52.443 Grades of canned beans.

(a) "U.S. Grade A" (or "U.S. Fancy") is the quality of canned green beans or canned wax beans that possess similar varietal characteristics; possess a normal flavor and odor; are practically free from defects for reasons other than damaged by mechanical injury; possess a good character; and are of such quality with respect to clearness of liquor, uniformity of color, and absence of defects as to score not less than 90 points when scored in accordance with the scoring system outlined in this subpart.

(b) "U.S. Grade B" (or "U.S. Extra Standard") is the quality of canned green beans or canned wax beans that possess similar varietal characteristics; possess a normal flavor and odor; possess a reasonably uniform typical color, are reasonably free from defects; possess a reasonably good character; and are of such quality with respect to clearness of liquor as to score not less than 80 points when scored in accordance with the scoring system outlined in this subpart.

(c) "U.S. Grade C" (or "U.S. Standard") is the quality of canned green beans or canned wax beans that possess similar varietal characteristics; possess a normal flavor and odor; possess a fairly good liquor; possess a fairly uniform typical color; are fairly free from defects; possess a fairly good character; and score not less than 70 points when scored in accordance with the scoring system outlined in this subpart.

(d) "Substandard" is the quality of canned beans that fail to meet the requirements of U.S. Grade C and may or may not be "Below Standard in Quality—Good Food—Not High Grade".

Fill of Container and Drained Weights

§ 52.444 Recommended fill of container.

The recommended fill of container is not incorporated in the grades of the finished product since fill of container, as such, is not a factor of quality for the purpose of these grades. It is recommended that each container of canned beans be filled with beans as full as practicable without impairment of quality and that the product and packing medium occupy not less than 90 percent of the total capacity of the container.

§ 52.445 Recommended drained weight.

The drained weight recommendations in Table No. 1 of this section are not incorporated in the grades of the finished product since the drained

weight, as such, is not a factor of quality for the purpose of these grades. The drained weight of beans is determined by emptying the contents of the container upon a United States Standard No. 8 circular sieve of proper diameter containing 8 meshes to the inch (0.0937-inch ±3%, square openings) so as to distribute the product evenly, inclining the sieve slightly to facilitate drainage, and allowing to drain for 2 minutes. A sieve 8 inches in diameter is used for No. 2½ size cans (401 x 411) and smaller sizes, and a sieve 12 inches in diameter is used for containers larger than the No. 2½ size can.

§ 52.446 Compliance with recommended drained weights.

Compliance with the recommended drained weights for canned beans in Table I is determined by av drained weights from all 7 ers in the sample which is tive of a specific lot and considered as meeting the dations if the following met:

(a) The average of tl weights from all of the cc the sample meets the re minimum drained weight plicable style;

(b) The drained weight containers which do not m ommended minimum drai are within the range of vi good commercial practice.

TABLE I—RECOMMENDED MINIMUM DRAINED WEIGHTS FOR CANNED GREEN BEA BEANS

Container size or designation	Whole (Ounces)	Whole vertical pack, and whole asparagus style (Ounces)	Short cuts and cuts less than 1¾ inches (Ounces)	Cuts—¾ inches and longer (Ounces)	Sl Cu 1 10
8 oz tall	4.0	4.6	4.3	4.1	
8 oz glass	3.6	4.5	4.4	4.0	
No. 1 (picnic)	6.6	6.1	6.0	6.7	
No. 300	8.2	9.2	8.5	8.2	
No. 300 glass	8.2	9.2	8.5	8.2	
No. 1 tall	8.5	8.5	8.2	8.7	
No. 303	8.5	8.5	8.2	8.7	
No. 303 glass	9.0	10.0	9.7	9.2	
No. 2	10.5	11.6	11.2	11.0	
No. 2½	16.0	17.0	16.4	16.2	
No. 2½ glass	15.6	16.6	16.2	16.0	
No. 3 cylinder	26.6	----	27.3	27.0	
No. 10	57.5	----	63.0	60.0	

[26 FR 5555, June 22, 1961, as amended at 37 FR 587, Jan. 14, 1972. Redesign 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

Types and Sizes

§ 52.447 Types of canned beans.

The type of canned beans is not incorporated in the grades of the finished product, since the type of canned beans is not a factor of quality for the purpose of these grades. The type of canned beans is based upon the relationship of the width and thickness measurement and is described as "round-type" o as follows:

(a) "Round-type" are c having a width not great times the thickness of the

(b) "Flat-type" are ca having a width greater th the thickness of the bean.

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§ 52.448 Sizes of canned beans.

The size of beans is not a factor of quality of canned beans for the purpose of these grades. The size of a whole, cut, or short cut bean is determined by measuring the thickness at the shorter diameter of the bean transversely to the long axis at the thickest portion of the pod. The designations of the various sizes of round type and flat type beans are shown in Table No. II-A and II-B of this subpart.

TABLE II-A—SIZES OF ROUND-TYPE BEANS

Number designation	Word designation		Measurement of thickness in 64ths of one inch
	Whole beans	Cut or short cut beans	
Size 1	Tiny	Small	Less than 14½.
Size 2	Small	do	14½, but not including 18½.
Size 3	Medium	do	18½, but not including 21.
Size 4	Medium large	Medium	21, but not including 24.
Size 5	Large	Large	24, but not including 27.
Size 6	Extra large	Extra large	27 or more.

TABLE II-B—SIZES OF FLAT-TYPE BEANS

Number designation	Word designation		Measurement of thickness in 64ths of an inch
	Whole beans	Cut or short cut beans	
Size 2	Small	Small	Less than 14½.
Size 3	Medium	Medium	14½, but not including 18½.
Size 4	Medium large	Medium large	18½, but not including 21.
Size 5	Large	Large	21, but not including 24.
Size 6	Extra large	Extra large	24 or more.

FACTORS OF QUALITY

§ 52.449 Ascertaining the grade of a sample unit.

(a) *General.* In addition to considering other requirements outlined in the standards, the following quality factors are evaluated in ascertaining the grade of the product:

(1) *Factors not rated by score points.* (i) Flavor and odor: "Normal flavor and normal odor" means that the canned beans are free from objectionable flavors and objectionable odors of any kind.

(ii) Varietal characteristics.

(2) *Factors rated by score points.* The relative importance of each factor which is scored is expressed numerically on the scale of 100. The maximum number of points that may be given each factor is:

Factors	Points
Clearness of liquor	10
Color	15
Absence of defects	35
Character	40
Total score	100

§ 52.450 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained for each factor and expressed numerically. The numerical range within each factor which is scored is inclusive (for example, "31 to 35 points" means 31, 32, 33, 34, or 35 points).

§ 52.451 Clearness of liquor.

(a) (*A*) *classification.* Canned beans that possess a practically clear liquor may be given a score of 9 or 10 points. "Practically clear liquor" means that the liquor may possess a slight tint of yellow-green to green color and that not more than a trace of suspended material and sediment is present.

(b) (*B*) *classification.* If the canned beans possess a reasonably clear liquor, a score of 8 points may be given. "Reasonably clear liquor" means that the liquor may be cloudy and contain a small quantity of sediment.

(c) (*C*) *classification.* If the canned beans possess a fairly good liquor, a score of 7 points may be given. "Fairly good liquor" means that the liquor may be dull in color, but not off color; may be cloudy; or may possess a noticeable accumulation of sediment.

(d) (*SSId*) *classification.* Canned beans that possess a liquor that is definitely off color for any reason, is excessively cloudy, or contains a seriously objectionable quantity of sediment may be given a score of 0 to 6 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.452 Color.

(a) (*A*) *classification.* Canned beans that possess a practically uniform bright typical color may be given a score of 14 or 15 points. "Practically uniform bright typical color" means that the canned beans possess a color that is bright and typical of very young and tender green beans or wax beans, as the case may be, of similar varietal characteristics with not more than 5 percent, by count, of units which vary markedly from this typical color.

(b) (*B*) *classification.* If the canned beans possess a reasonably uniform typical color, a score of 12 or 13 points may be given. "Reasonably uniform typical color" means that the canned beans possess a color that is typical of young and reasonably tender green beans or wax beans, as the case may be, of similar varietal characteristics with not more than 10 percent, by count, of units which vary markedly from this typical color.

(c) (*C*) *classification.* Canned beans that possess a fairly uniform typical color may be given a score of 10 or 11 points. Canned beans that fall into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule). "Fairly uniform typical color" means that the
possess a color that is typ
mature and fairly tende
or wax beans, as the ca
similar varietal charac
not more than 15 percen
units which vary marke
typical color.

(d) (*SSId*) *classifica*
beans that are definitel
fail to meet the requiren
graph (c) of this section
a score of 0 to 9 points
be graded above Substar
less of the total score fo
(this is a limiting rule).

§ 52.453 Absence of defects

(a) *General.* The factor
defects refers to the degr
from blemished and se
lished units; from unstem
tached stems, leaves, ext
table matter; or split uni
and pieces of seed, small
and ragged-cut units or
by mechanical injury in
styles; and any other de
cifically defined which
pearance or edibility of
the product.

(b) *Definitions of defec*
units. (1) "Blemished"
unit" mean blemished b
logical injury, insect inj
means in which the aggr
fected exceeds the area
inch in diameter or the
eating quality of the uni
affected.

(2) "Seriously blemisl
ously blemished unit"
lished to such an extent
pearance or eating quali
is seriously affected.

(3) "Long stems" mea
detached stems which a
¼ inch.

(4) "Extraneous vege
means leaves and other
ble matter that is harr
cludes "detached stems"
cated.

(5) "Split unit" means
cut, or short cut unit, t
two parts.

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(6) "Small pieces of pods" means pieces of pods less than ½ inch in length.

(7) "Ragged-cut unit" means a section of a pod that has a very ragged edge, or a section of a pod that is partially cut that seriously affects the appearance of the pod.

(8) "Damaged by mechanical injury" means broken or damaged to such an extent that the appearance or eating quality of the unit is seriously affected.

(c) (*A*) *classification.* Canned beans that are practically free from defects may be given a score of 31 to 35 points. "Practically free from defects" means that:

(1) The limits for allowable defects or defective units in the applicable styles do not exceed the maximum limits for (*A*) classification in Table III of this subpart; and

(2) Notwithstanding the applicable allowances in Table III the defects or defective units (whether or not specifically defined), individually and collectively, do not materially affect the appearance or edibility of the product.

(d) (*B*) *classification.* If the canned beans are reasonably free from defects, a score of 28 to 30 points may be given. Canned beans that fall into this classification for reasons other than damage by mechanical injury shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a partial limiting rule) "Reasonably free from defects" means that:

(1) The limits for allowable defects or defective units in the applicable styles do not exceed the maximum limits for (B) classification in Table III of this subpart; and

(2) Notwithstanding the applicable allowances in Table III the defects or defective units (whether or not specifically defined), individually and collectively, do not seriously affect the appearance or edibility of the product.

(e) (*C*) *classification.* If the canned beans are fairly free from defects, a score of 25 to 27 points may be given. Canned beans that fall into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule) "Fairly free from defects" means that the limits for allowable defects or defective units in the applicable styles do not exceed the maximum limits for (C) classification in Table III of this subpart.

(*f*) (*SSStd*) *classification.* Canned beans that fail to meet the requirements of paragraph (e) of this section may be given a score of 0 to 24 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule); and may also be "Below Standard in Quality—Good Food—Not High Grade" for the following applicable reasons:

Excessive number very short pieces;
Excessive number blemished units;
Excessive number untemined units;
Excessive foreign material;
Excessive loose seeds and pieces of seeds.

TABLE III—MAXIMUM ALLOWANCES FOR DEFECTS OR DEFECTIVE UNITS IN CANNED GREEN OR CANNED WAX BEANS

	(A) Classification	(B) Classification	(C) Classification
All styles			
Total—all defects other than loose seeds and seed pieces	10% of drained weight	15% of drained weight	20% of drained weight
Blemished, and Seriously blemished	2% total but no more than 1% by count seriously	4% total but no more than 2% by count seriously	8% total [1] but no more than 4% by count seriously
Untemmed units and Detached stems	4 total but no more than 2 long stems per 12 ozs drained weight	5 total but no more than 3 long stems per 12 ozs drained weight	Untemmed units, 8 total, but no more than 4 long stems per 12 ozs drained weight
Leaves and other extraneous vegetable matter	1 piece per 12 ozs drained weight	2 pieces per 12 ozs drained weight	Including detached stems, 0.6 ozs per 60 ozs drained weight [1]
All styles except as indicated otherwise:			
Loose seeds and pieces (except in Sliced Lengthwise style)	3% of drained weight	4% of drained weight	5% of drained weight [1]

TABLE III—MAXIMUM ALLOWANCES FOR DEFECTS OR DEFECTIVE UNITS IN CANN
CANNED WAX BEANS—Continued

	(A) Classification	(B) Classification	
Small pieces of pod (in cuts and mixed—cut and short cut styles only)			
(a) 240 count or less per 12 ozs drained weight	40 pieces per 12 ozs drained weight or	60 pieces per 12 ozs drained weight or [1]	60 p or
(b) More than 240 count per 12 ozs drained weight	15% by count of all units	25% by count of all units [1]	25%
Ragged-cut units; and/or damage by mechanical injury (except in Sliced Lengthwise style)	5 total per 12 ozs drained weight	10 total per 12 ozs drained weight	No t in or

[1] Determined as outlined in the standards of quality of canned green beans (21 CFR 155.120(b)) and CFR 155.120(b)) promulgated under the Federal Food, Drug, and Cosmetic Act.

§ 52.454 Character.

(a) *General.* The factor of character refers to the maturity as reflected in the degree of development of pods and seeds and to the tenderness of the pods; to the degree of sloughing of the epidermis; and to the appearance of the slices and portions thereof in "Sliced Lengthwise" style.

(b) *Definitions.* (1) "Trimmed pod" means any pod from which there has been trimmed off as far as the end of the space formerly occupied by seed, any portion of the pod from which seed has become separated.

(2) "Tough strings" means strings or pieces of string at least ½ inch in length which will support a ½ pound weight for not less than 5 seconds.

(3) "Fibrous material" means the properly prepared, dried cellulose material obtained from deseeded pods, including strings, broken or unbroken.

(c) (*A*) *classification.* Canned beans that possess a good character may be given a score of 36 to 40 points. "Good character" means that:

(1) The beans are very young and tender in that the units are full-fleshed for the variety, are tender, and are not fibrous:

(2) The seeds are in the early stages of maturity;

(3) Not more than 5 percent, by count, of the units may possess tough strings;

(4) The beans are not materially affected in appearance by sloughing of the epidermis; and

(5) The beans, in "Sliced Lengthwise" style, are well sliced.

(d) (*B*) *classification.* If the canned beans possess a reasonably good character, a score of 32 to 35 given. Canned beans tha classification shall no above U.S. Grade B, reg total score for the pro limiting rule). "Reasona acter" means that:

(1) The beans are you ably tender in that the lost their fleshy struc extent and are practic fiber;

(2) The seeds may h early stages of maturit reached the late stages

(3) Not more than count, of the units may strings;

(4) The beans are not fected in appearance b the epidermis; and

(5) The beans, in "wise" style, are reasona

(e) (*C*) *classification.* beans possess a fairly a score of 28 to 31 point Canned beans that fall fication shall not be gr Grade C, regardless of for the product (this is "Fairly good character"

(1) The beans may b but are fairly tender i may have lost their fle a considerable extent;

(2) The beans are n fected in appearance the epidermis;

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[illegible] pieces [illegible]:[1]

(4) The deseeded pods contain not more than 0.15 percent, by weight, of fibrous material;[1] and

(5) Not more than 20 percent, by count, of the units may possess tough strings except that in case there are present units at least 3¼ inch or more in diameter, there are not more than 12 strings or pieces of string in 12 ounces, drained weight, which will support a ¼ pound weight for not less than 5 seconds;[1]

(f) (*SSid.*) *classification.* Canned beans that fail to meet the requirements of paragraph (e) of this section may be given a score of 0 to 27 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule); and may also be "Below Standard in Quality—Good Food—Not High Grade", for the following applicable reasons:

Excessive seed and pieces of seed in trimmed pods;
Excessive fibrous material in deseeded pods; and
Excessive tough strings.

Lot Inspection and Certification

§ 52.455 Ascertaining the grade of a lot.

The grade of a lot of canned green beans or canned wax beans covered by these standards is determined by the procedures set forth in the Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products (§§ 52.1 through 52.87).

Score Sheet

§ 52.456 Score sheet for canned green beans or canned wax beans.

Container size	
Container code or marking	
Label	
Drained weight	
Type (round or flat)	
Style	
Size	

Factors			Score points
Clearness of liquor	10	(A)	9-10
		(B)	8
		(C)	7
		(SSid)	[2] 0-6
Color	15	(A)	14-15
		(B)	12-13
		(C)	[2] 10-11
		(SSid)	[2] 0-9
Absence of defects	35	(A)	31-35
		(B)	[2] 28-30
		(C)	[2] 25-27
		(SSid)	[2] 0-24
Character	40	(A)	36-40
		(B)	[2] 32-35
		(C)	[2] 28-31
		(SSid)	[2] 0-27
Total score	100		
Grade			
Normal flavor and odor			

[1] Indicates limiting rule.
[2] Indicates partial limiting rule (i.e., does not apply to damage from mechanical injury such as broken beans).

[1] Determined as outlined in the standards of quality of canned green beans (21 CFR 155.120(b)) and canned wax beans (21 CFR 155.120(b)) promulgated under the Federal Food, Drug, and Cosmetic Act.

Subpart—United States Standards for Grades of Canned Lima Beans

Source: 18 FR 7933, Dec. 9, 1953, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981.

Identity, Types, and Grades

§ 52.471 Identity.

"Canned lima beans" means the canned product properly prepared from the clean, sound, succulent seed of the lima bean plant, as defined in the definitions and standard of identity for canned vegetables (21 CFR 155.200) issued pursuant to the Federal Food, Drug, and Cosmetic Act.

§ 52.472 Types of canned lima beans.

(a) "Thin-seeded," such as Henderson Bush and Thorogreen varieties;

(b) "Thick-seeded Baby Potato," such as Baby Potato, Baby Fordhook, and Evergreen varieties;

(c) "Thick seeded," such as Fordhook variety.

§ 52.473 Grades of canned lima beans.

(a) "U.S. Grade A" or "U.S. Fancy" is the quality of canned lima beans that possess similar varietal characteristics; that possess a normal flavor and odor; that possess a good color; that are practically free from defects; that possess a practically clear liquor; that possess a good character; and that for those factors which are scored in accordance with the scoring system outlined in this subpart the total score is not less than 90 points: *Provided*, That the canned lima beans may possess a reasonably good character and a fairly clear liquor if the total score is not less than 90 points.

(b) "U.S. Grade B" or "U.S. Extra Standard" is the quality of canned lima beans that possess similar varietal characteristics; that possess a normal flavor and odor; that possess a reasonably good color; that are reasonably free from defects; that possess a reasonably clear liquor; that possess a reasonably good character; and that for those factors which are scored in accordance with the scoring system outlined in this subpart the total score is not less than 80 points: *Provided*, That the canned lima beans may possess a fairly clear liquor if the total score is not less than 80 points.

(c) "U.S. Grade C" or "U.S. Standard" is the quality of canned lima beans that possess similar varietal characteristics; that possess a normal flavor and odor; that possess a fairly good color; that are fairly free from defects; that possess a fairly clear liquor; that possess a fairly good character; and that score not less than 70 points when scored in accordance with the scoring system outlined in this subpart.

(d) "Substandard" is the quality of canned lima beans that fail to meet the requirements of U.S. Grade C or U.S. Standard.

Fill of Container and Drained Weights

§ 52.474 Recommended fill of container.

The recommended fill of container for canned lima beans is not incorporated in the grades of the finished product, since fill of container, as such, is not a factor of quality for the purpose of these grades mended that each contai lima beans be filled as fu ble with beans without l quality.

§ 52.475 Recommended mi weight.

The minimum draine ommendations in Table section are not incorpo grades of the finished drained weight, as such, of quality for the pur grades. The drained wei lima beans is determine the contents of the con United States Standard sieve of proper diamete tribute the product ev the sieve to facilitate allow to drain for two drained weight is the sieve and the lima b weight of the dry sie inches in diameter is us 2 size can (307 × 409 sizes, and a sieve 12 inch is used for containers is No. 2 size can.

TABLE I—RECOMMENDED M WEIGHTS (IN OUNCES) O

Container designation	Container sin	
	Overall diameter (inches)	Overall height (inches)
8 Z tall	2 [illegible]	3 [illegible]
8 Z jar		
No. 1 (picnic)	2 [illegible]	4
No. 1 tall	3 [illegible]	4 [illegible]
No. 300	3	4 [illegible]
No. 303	3 [illegible]	4 [illegible]
No. 303 jar		
No. 2	3 [illegible]	4 [illegible]
No. 10	6 [illegible]	7

Sizes

§ 52.476 Sizes of lima b lima beans.

The size of lima bean of quality of canned lim purpose of these grade lima bean is determine the greatest width thro

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TABLE NO. IV

Type	Size	Maximum number of peas that sink in 10 seconds (percent by count)	Percentage of salt in solution
Sweet	All sizes	10	15
Early	All sizes	10	18

(e) *(SSId.) classification.* Canned peas that fail to meet the requirements of paragraph (d) of this section may be given a score of 0 to 36 points and shall not be graded above Substandard regardless of the total score for the product (this is a limiting rule) and may also be "Below Standard in Quality—Good Food—Not High Grade," for the following applicable reasons: "Excessive Cracked Peas," "Not Tender," "Excessively Mealy."

METHODS OF ANALYSES

§ 52.2292 Methods of analyses.

(a) *Brine flotation test.* The brine flotation test utilizes salt solutions of various specific gravities to separate the peas according to maturity. The brine solutions are based on the percentage by weight of pure salt (NaCl) in solution. In making the test a 250 ml. glass beaker is filled with the brine solution to a depth of approximately two inches. The brine equipment, solution and sample should be at the same temperature. Only peas that sink to the bottom of the receptacle within 10 seconds after immersion are counted as "peas that sink." Pieces of peas and loose skins should not be used in making the brine flotation test.

(b) *Alcohol-insoluble solids.* (1) Pour sample on 8-mesh screen, using 8-inch screen for containers of less than 3 pounds net weight, and 12-inch screen for larger quantities. Spread peas evenly and allow to drain. Transfer peas to white pan and remove any foreign material. Add volume of H_2O equal to double volume of original sample.

(2) Pour peas back on screen, spreading evenly; tilt screen as much as possible without shifting peas; and drain two minutes. With cloth wipe surplus moisture from lower surface of screen. Grind drained peas in food chopper until cotyledons are reduced to smooth homogeneous paste, stir, and weigh 20 grams of ground material into 600 ml. beaker. Add 300 ml. of 80 percent alcohol, stir, cover beaker, and bring to boil. Simmer slowly 30 minutes.

(3) Fit into Buchner funnel filter paper of appropriate size (previously prepared by drying in flat-bottom dish two hours at temperature of boiling H_2O, covering with tight-fitting cover, cooling in desiccator, and weighing at once). Apply suction and transfer contents of beaker to the Buchner funnel in such manner as to avoid running over edge of paper. Suck dry and wash material on filter with 80 percent alcohol until washings are clear and colorless.

(4) *Transfer filter paper and alcohol-insoluble solids to dish used in preparation of filter paper, dry uncovered two hours at temperature of boiling* H_2O, place cover on dish, cool in desiccator, and weigh at once. From this weight deduct weight of dish, cover, and paper. Calculate percent by weight of alcohol-insoluble solids.

(c) *Tenderness test.* Remove the skin of a pea, placing one of its cotyledons, with flat surface down on the approximate center of the level, smooth surface of a rigid plate, lowering a horizontal disc to the highest point of the cotyledon, and measuring the height of the cotyledon. The disc must be of rigid material and affixed to a rod held vertically by a support through which the rod can freely move upward or downward. The lower face of the disc must be a smooth, plane surface horizontal to the vertical axis of the rod. A device to which weight may be added is affixed to the upper end of the rod. Before lowering the disc to the cotyledon, adjust the combined weight of disc, rod, and device to 100 grams. After measuring the height of the cotyledon, and shifting the plate, if necessary, so that the cotyledon is under the approximate center of the disc, add weight to the device at a uniform, continuous rate of 12 grams per second until the cotyledon is pressed to one-fourth its previously measured height, or until the combined weight

of disc, rod, and device is 907.2 grams (2 pounds). A pea so tested shall be considered to be crushed when its cotyledon is pressed to one-fourth its original height.

LOT INSPECTION AND CERTIFICATION

§ 52.2293 Ascertaining the grade of a lot.

The grade of a lot of the processed product covered by these standards is determined by the procedures set forth in the regulations governing inspection and certification of processed fruits and vegetables, processed products thereof, and certain other processed food products (§§ 52.1 to 52.87).

(22 FR 3547, May 22, 1957. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981)

SCORE SHEET

§ 52.2294 Score sheet for canned peas.

Size and kind of container _____
Label _____
Container mark or identification _____
Net weight (in ounces) _____
Vacuum readings (in inches) _____
Type _____
Size _____

Factors			Score points
Liquor	10	(A)	8–10
		(B)	8
		(C)	7
		(SSId)	[1] 0–6
Color	10	(A)	8–10
		(B)	7–6
		(C)	[2] 5–4
		(SSId)	[1] 0–4
Defects	30	(A)	27–30
		(B)	[2] 24–26
		(C)	[2] 21–23
		(SSId)	[1] 0–20
Maturity and tenderness	50	(A)	45–50
		(B)	[2] 11–44
		(C)	[2] 37–40
		(SSId)	[1] 0–36
Total score	100		

Flavor and odor _____
Grade _____

[1] Indicates limiting rule.
[2] Indicates partial limiting rule.

Subpart—United States Standards for Grades of Frozen Green Beans and Frozen Wax Beans

SOURCE: 48 FR 26753, June 10, 1983, unless otherwise noted.

§ 52.2321 Product descript

"Frozen green beans" wax beans," hereinafter beans," means the froze pared from the clean, so pods of the bean plant, stemmed, washed, blan and properly drained. T then frozen in accorda commercial practice and temperatures necessary vation of the product.

§ 52.2322 Styles.

(a) *Whole* means fro sisting of whole pods of

(b) *Cut* means frozen ing of pods that are cu into pieces less than 7 c not less than 1.9 cm ¾ i

(c) *Short cut* means consisting of pods that versely into pieces less 1 in) in length.

(d) *Mixed* means a mi more of the following s beans: whole, cut, or sho

(e) *Sliced lengthwise* beans consisting of pods lengthwise and may als *French Style, French S* or *Shoestring.*

§ 52.2323 Style classifica ances.

(a) *General.* For the termining acceptance v of *cut* and *short cut* pie ered as "minor" or "ma cording to their lengths Table I. Each "X" repr defect.

(b) *Requirements.* T style requirements are Tables II and III.

TABLE I—STYLE DEFECT (

Style	Defect
Cut	Each piece shorter than 1 cm (½ in) length. Each piece longer than 7 c (2¾ in) in length.
Short cut	Each piece 1.9 cm (¾ in) longer but not longer th 4.8 cm (1½ in) in length.

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TABLE I—STYLE DEFECT CLASSIFICATION—Continued

Style	Defect	Classification	
		Minor	Major
	Each piece longer than 4.5 cm (1¾ in) in length	.....	X

TABLE II—TOLERANCES FOR CUT STYLE

	Total [1]	Major
AQL [2]	20.0	2.5

[1] AQL expressed as percent defective.
[2] Total = Minor + Major.

TABLE III—TOLERANCES FOR SHORT CUT STYLE

	Total [1]	Major
AQL [2]	20.0	0.65

[1] AQL expressed as percent defective.
[2] Total = Minor + Major.

§ 52.2324 Types.

The type of frozen beans is not incorporated in the grades of finished product, since it is not a factor of quality. The types of frozen beans are described as "round type" and "Romano or Italian type."

(a) *Round type* means frozen beans having a width not greater than 1⅓ times the thickness of the beans.

(b) *Romano or Italian type* means frozen beans having a width greater than 1⅓ times the thickness of the beans.

§ 52.2325 Kinds of pack.

The kind of pack of frozen beans is not incorporated in the grades of finished product, since it is not a factor of quality. The kinds of pack of frozen beans are described as "regular process," "multi-blanch process," and "special pack."

(a) *Regular process* means the frozen beans are processed in such a manner that the brightness is not affected by the process.

(b) *Multi-blanch process* means the frozen beans are intentionally processed in such a manner that the brightness is affected by the process.

(c) *Special pack* means the frozen bean pack intentionally contains beans of two or more varietal characteristics (such as a mixture of green and wax beans).

§ 52.2326 Definitions of terms.

(a) *Acceptable Quality Level (AQL)* means the maximum percent of defective units or the maximum number of defects per hundred units of product that, for the purpose of acceptance sampling, can be considered satisfactory as a process average.

(b) *Blemished* means any unit that is affected by discoloration, or any other means to the extent that the appearance or eating quality is adversely affected:

(1) Slightly;

(2) Materially; or

(3) Seriously.

(c) *Brightness* means the extent that the overall appearance of the sample unit as a mass is affected by dullness. (Applies to "regular process" only).

(1) Grade A—not affected.

(2) Grade B—slightly affected.

(3) Grade C—materially affected.

(4) Substandard—seriously affected.

(d) *Character.*—(1) *Round type—Green Beans.*— (i) *Good character* means the pods are full fleshed; after cooking, the pods are tender and the seeds are not mealy.

(ii) *Reasonably good character* means the pods are reasonably fleshy; after cooking, the pods are tender and the seeds are not mealy.

(iii) *Fairly good character* means the pods have not entirely lost their fleshy structure; after cooking, the pods may contain edible fiber (no inedible fiber allowed) and the seeds may be slightly mealy.

(iv) *Poor character* means the beans fail the requirements for "fairly good character."

(2) *Round type—Wax Beans.*—(i) *Good character* means the pods are full fleshed and may show slight breakdown of the flesh between seed cavities; after cooking, the pods are tender and the seeds are not mealy.

(ii) *Reasonably good character* means the pods are reasonably fleshy and may show substantial breakdown of the flesh between the seed cavities; after cooking, the pods are tender and the seeds are not mealy.

(iii) *Fairly good character* means the pods may show total breakdown of the flesh between the seed cavities with no definite seed pocket but still retain flesh on the inside pod wall; after cooking, the pods may contain edible fiber (no inedible fiber allowed) and the seeds may be slightly mealy.

(iv) *Poor character* means the beans fail the requirements for "fairly good character."

(3) *Romano or Italian type.*—(i) *Good character* means the pods have a full inner membrane, typical of the variety, and are tender after cooking.

(ii) *Reasonably good character* means the pods have a reasonably well developed inner membrane and are reasonably tender after cooking.

(iii) *Fairly good character* means the pods may lack an inner membrane and are fairly tender after cooking. The pods may contain edible fiber (no inedible fiber allowed).

(iv) *Poor character* means the beans fail the requirements for "fairly good character."

(4) *Fiber.*—(i) *Edible fiber* means fiber developed in the wall of the bean pod that is noticeable upon chewing but may be consumed with the rest of the bean material without objection.

(ii) *Inedible fiber* means fiber developed in the wall of the bean pod that is objectionable upon chewing and tends to separate from the rest of the bean material.

(e) *Defect* means any nonconformance of a unit(s) of product from a specified requirement of a single quality characteristic.

(f) *Detached stem* means the stem or portion of stem that attaches the beam pod to the vine stem and has become separated from the pod.

(g) *Extraneous vegetable material (EVM).*—(1) *Edible EVM* means tender, green, harmless, and edible vegetable material similar in color and texture to that of bean pods, including but not limited to:

(i) Leaves or portion of leaves or grass;

(ii) Material from plants other than the bean plant.

(2) *Inedible EVM* means any harmless plant material that is not tender, may not be green, may i
includes but is not limite
(i) Discolored leaves or
tions thereof;
(ii) Bean stalk or vine n
(iii) Material from plan
the bean plant.
(h) *Flavor and odo*
flavor and odor means
after cooking, has a goo
tic flavor and odor and is
jectionable flavors and
kind.
(2) *Fairly good flav*
means the product, after
be lacking in good flavor
is free from objectionabl
odors of any kind.
(i) *Mechanical damag*
unit that is broken or
parts, or has very ragge
crushed, or is damaged b
means to such an extent
pearance is seriously affe
(j) *Sample unit* means
of product specified to b
spection. It may be:
(1) The entire contents
er;
(2) A portion of the
container;
(3) A combination of t
two or more containers; c
(4) A portion of unpack
(k) *Sloughing* means t
of the outer layer of th
bean pod giving a ragge
appearance to the unit.
(l) *Small piece (Slice style only)* means a piec
than 1.9 cm (¾ in) in t
mension and loose seeds
seeds.
(m) *Tough strings* me
pieces of strings, remov
cooked bean pod, that v
227 g (½ lb) weight for
five (5) seconds.
(n) *Unit* means a bean
dividual portion thereof.
(o) *Unsnipped unit* r
without an attached ste
stem collar that is hard
would be objectionable u
(p) *Unstemmed unit* i
with the attached ster
thereof that attaches th
vine stem.

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[48 FR 26753, June 10, 1983; 48 FR 30093, June 30, 1983]

§ 52.2327 Recommended sample unit sizes.

(a) In all styles, other than sliced lengthwise, a mechanically damaged unit that is broken into separate parts will be reassembled to approximate its original size and counted as one unit in the sample unit size.

(b) *Style requirements.* Requirements for cut and short cut styles are based on the recommended sample unit size of 200 units.

(c) *Quality requirements.* Requirements for factors of quality are based on the following recommended sample unit sizes for the respective style:

(1) *Classified defects and character defects.* (i) Sliced lengthwise style—250 g (8.8 oz).

(ii) Whole style—100 units.

(iii) All other styles—200 units.

(2) *Extraneous vegetable material defects (EVM).* (i) On-line grading only (all styles)—1419 g (50 oz). Optional—2838 g (100 oz). Optional—5675 g (200 oz).

(ii) Lot grading only (all styles)—Entire sample.

§ 52.2328 Grades.

(a) *U.S. Grade A* is the quality of frozen beans that:

(1) Meets the following prerequisites in which the beans:

(i) Have similar varietal characteristics (except "special packs");

(ii) Have a good flavor and odor;

(iii) Have a good overall brightness as a mass that is not affected by dullness ("Regular process" only);

(iv) Are practically free from small pieces for the style of "sliced lengthwise";

(v) Have an appearance or eating quality that is not materially affected by sloughing;

(vi) Are practically free from EVM;

(A) On-line grading—within the limits for defects as classified in Table VI and specified in Table XIII.

(B) Lot grading—Not more than two (2) pieces of EVM per 795 g (28 oz) of which not more than one (1) piece may be major.

(2) Is within the limits for defects as classified in Table IV or V and specified in Table VII, VIII, IX, X, XI, or XII, as applicable, for the style.

(b) *U.S. Grade B* is the quality of frozen beans that:

(1) Meets the following prerequisities in which the beans:

(i) Have similar varietal characteristics (except "special pack");

(ii) Have a good flavor and odor;

(iii) Have a reasonably good overall brightness as a mass which may be slightly dull ("Regular process" only);

(iv) Are reasonably free from small pieces for the style of "sliced lengthwise;"

(v) Have an appearance or eating quality that is not seriously affected by sloughing;

(vi) Are reasonably free from EVM;

(A) On-line grading—within the limits for defects as classified in Table VI and specified in Table XIII.

(B) Lot grading—Not more than two (2) pieces of EVM per 395 g (14 oz) of which not more than one (1) piece may be major.

(2) Is within the limits for defects as classified in Table IV or V and specified in Table VII, VIII, IX, X, XI, or XII, as applicable, for the style.

(c) *U.S. Grade C* is the quality of frozen beans that:

(1) Meets the following prerequisites in which the beans:

(i) Have similar varietal characteristics (except "special packs");

(ii) Have a fairly good flavor and odor;

(iii) Have a reasonably good overall brightness as a mass that may be dull but is off-color ("Regular process" only);

(iv) Are fairly free from EVM;

(A) On-line grading—within the limits for defects as classified in Table VI and specified in Table XIII.

(B) Lot grading—Not more than two (2) pieces of EVM per 200 g (7 oz) of which not more than one (1) piece may be major.

(2) Is within the limits for defects as classified in Table IV or V and specified in Table VII, VIII, IX, X, XI, or XII, as applicable, for the style.

(d) Substandard is the quality of frozen beans that fails to meet the requirements of *U.S. Grade C.*

§ 52.2329 Factors of quality.

The grade of frozen beans is based on requirements for the following quality factors:

(a) *Prerequisite quality factors.* (1) Similar varietal characteristics (except "special packs");

(2) Flavor and odor;

(3) Brightness ("Regular process" only);

(4) Freedom from small pieces in the "sliced lengthwise" style;

(5) Freedom from sloughing;

(6) Freedom from extraneous vegetable material (EVM).

(b) *Classified quality factors.* (1) Blemished;

(2) Mechanical damage (all styles except "sliced lengthwise");

(3) Workmanship;

(4) Tough strings;

(5) Character.

§ 52.2330 Classification of defects.

All defects, other than character defects, are classified as minor, major, or severe. All character defects are classified as reasonably good, fairly good, or poor. Each "X" in Tables IV and V represents "one (1) defect."

TABLE IV

Quality factor	Defects	Classification		
		Minor	Major	Severe
Classification of Defects (Other Than Character and EVM) Cut, Short Cut, Whole, Mixed Styles				
Blemished	Slightly (each unit)	X		
	Materially (each unit)		X	
	Seriously (each unit)			X
Mechanical damage	(Each reassembled unit)	X		
Workmanship	Unstemmed (each unit)			X
	Detached stem (each unit)			X

TABLE IV—Contin

Quality factor	Defects	Mar
Tough strings	Unremoved unit (each unit) (Each unit)	
Sliced Lengthwise St		
Blemished	Slightly (each 2.5 g)	X
	Materially (each 2.5 g)	
	Seriously (each 2.5 g)	
Workmanship	Unstemmed (each unit)	
	Detached stem (each unit)	
	Unremoved unit (each unit)	
Tough strings	(Each unit)	

TABLE V—CLASSIFICATION O DEFECTS, ALL STY

Quality factor	Defect	Reasonably good
Character	"B" (each unit)	X
	"C" (each unit)	
	"SSTD" (each unit)	

Note.—For sliced lengthwise style one more equals one (1) unit.

TABLE VI—CLASSIFICATION OF VEGETABLE MATERIAL (EVM)

Quality factor	Defect	
Extraneous vegetable material	Edible EVM (each piece)	X
	Inedible EVM (each piece)	

§ 52.2331 Tolerances for defe

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TABLE VII—ALL CLASSIFIED DEFECTS EXCEPT CHARACTER AND EVM CUT, SHORT CUT, AND MIXED STYLES (200 PLAN)

	Grade A			Grade B			Grade C		
	Total [1]	Major	Severe	Total [2]	Major	Severe	Total [3]	Major	Severe
AQL [4]	6.5	1.5	0.65	8.5	2.5	1.0	12.5	4.0	2.5

[1] AQL expressed as defects per hundred units.
[2] Total = Minor + Major + Severe.

TABLE VIII—ALL CLASSIFIED DEFECTS EXCEPT CHARACTER AND EVM, WHOLE STYLE (100 PLAN)

	Grade A			Grade B			Grade C		
	Total [1]	Major	Severe	Total [2]	Major	Severe	Total [3]	Major	Severe
AQL [4]	10.0	2.5	1.0	15.0	4.0	2.5	20.0	6.5	4.0

[1] AQL expressed as defects per hundred units.
[2] Total = Minor + Major + Severe.

TABLE IX—ALL CLASSIFIED DEFECTS EXCEPT CHARACTER AND EVM, SLICED LENGTHWISE STYLE (100 PLAN)

	Grade A			Grade B			Grade C		
	Total [1]	Major	Severe	Total [2]	Major	Severe	Total [3]	Major	Severe
AQL [4]	6.5	2.5	1.5	10.0	4.0	2.5	15.0	6.5	4.0

[1] AQL expressed as defects per hundred units (100—2.5 g increments in 250 g).
[2] Total = Minor + Major + Severe.

TABLE X—CLASSIFIED DEFECTS FOR CHARACTER ONLY, CUT, SHORT CUT, AND MIXED STYLES (200 PLAN)

	Grade A			Grade B		Grade C
	Total [1]	Fairly good	Poor	Total [2]	Poor	Total [3]
AQL [4]	6.5	0.65	0.15	6.5	0.65	6.5

[1] AQL expressed as percent defective.
[2] Total = Reasonably good + Fairly good + Poor.
[3] Total = Fairly good + Poor.
[4] Total = Poor.

TABLE XI—CLASSIFIED DEFECTS FOR CHARACTER ONLY, WHOLE STYLE (100 PLAN)

	Grade A			Grade B		Grade C
	Total [1]	Fairly good	Poor	Total [2]	Poor	Total [3]
AQL [4]	6.5	0.65	0.15	6.5	0.65	6.5

[1] AQL expressed as percent defective.
[2] Total = Reasonably good + Fairly good + Poor.
[3] Total = Fairly good + Poor.
[4] Total = Poor.

TABLE XII—CLASSIFIED DEFECTS FOR CHARACTER ONLY, SLICED LENGTHWISE STY

	Gr
	Total [1]
AQL [2]	6.5

[1] AQL expressed as percent defective (100–2.5 g increments in 250 g).
[2] Total = Fairly good + Poor.
[3] Total = Poor.

TABLE XIII—EXTRANEOUS VEGETABLE MATERIAL (EVM), ALL STYLES (ON-LINE ONL OPTIONAL 100/200 PLAN)

	Tolerances			
	Grade A		Grade B	
	Total [1]	Major	Total [2]	Major
AQL [3]	8.0	2.5	10.0	5.0

[1] AQL expressed as defects per hundred units.
[2] Total = Minor + Major.

[48 FR 26753, June 10, 1983; 48 FR 30093, June 30, 1983]

§ 52.2332 Sample size.

The sample size used to determine whether the requirements of these standards are met shall be as specified in the sampling plans and procedures in the "Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products" (7 CFR 52.1—52.83) for lot grading and on-line grading, as applicable.

§ 52.2333 Style requirement criteria.

(a) *Lot grading.* A lot of frozen beans is considered as meeting the requirements for style if the Acceptable Quality Levels (AQL) in Tables II and III, as applicable for the style, are not exceeded.

(b) *On-line grading.* A portion of production is considered as meeting the requirements for style if the Acceptable Quality Levels (AQL) in Tables II and III, as applicable for the style, are not exceeded.

(c) *Single sample unit.* Each single sample unit submitted for style evaluation will be treated individually and is considered as meeting the requirements for style if the Acceptable Quality Levels (AQL) in Tables II and III, as applicable for the style, are not exceeded.

§ 52.2334 Quality requiremen

(a) *Lot grading.* A lo beans is considered as me quirements for quality if:

(1) The prerequisite r specified in § 52.2328 are m

(2) The Acceptable Qu (AQL) in Tables VII, VIII and XII, as applicable fo are not exceeded.

(b) *On-line grading.* A production is considered the requirements for quali

(1) The prerequisite r specified in § 52.2328 are m

(2) The Acceptable Qu (AQL) in Tables VII, VIII XII, and XIII, as applic style, are not exceeded.

(c) *Single sample unit.* sample unit submitted for uation will be treated indi is considered as meeting ments for quality if:

(1) The prerequisite r specified in § 52.2328 are m

(2) The Acceptable Qu (AQL) in Tables VII, VIII and XII, as applicable fo are not exceeded.

[48 FR 26753, June 10, 1983; June 30, 1983]

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than 1 percent for avocados affected by decay. No part of any tolerance shall be allowed to reduce for the lot as a whole the percentage of U.S. No. 1 fruit required or specified in the combination, but individual containers may have not more than 10 percent less than the percentage of U.S. No. 1 fruit required or specified. (See §§ 51.3055 and 51.3056.)

§ 51.3052 U.S. No. 2.

"U.S. No. 2" consists of avocados of similar varietal characteristics which are mature but not overripe, fairly well formed, clean, fairly well colored, well trimmed and which are free from decay and freezing injury and are free from serious damage caused by anthracnose, bruises, cuts or other skin breaks, pulled stems, russeting or similar discoloration, scars or scab, sunburn, sunscald or sprayburn, cercospora spot, other disease, insects, or mechanical or other means.

(a) *Tolerances.* In order to allow for variations incident to proper grading and handling, not more than a total of 10 percent, by count, of the avocados in any lot may fail to meet the requirements of this grade: *Provided,* That not more than one-half of this amount, or 5 percent, shall be allowed for avocados affected by decay or seriously damaged by anthracnose, including therein not more than 1 percent for avocados affected by decay. (See §§ 51.3055 and 51.3056.)

§ 51.3053 U.S. No. 3.

"U.S. No. 3" consists of avocados of similar varietal characteristics which are mature but not overripe, which are not badly misshapen, and which are free from decay and are free from serious damage caused by anthracnose and are free from very serious damage caused by freezing injury, bruises, cuts or other skin breaks, pulled stems, russeting or similar discoloration, scars or scab, sunburn, sunscald or sprayburn, cercospora spot, other disease, insects, dirt or mechanical or other means.

(a) *Tolerances.* In order to allow for variations incident to proper grading and handling, not more than a total of 10 percent, by count, of the avocados in any lot may fail to meet the requirements of this grade, including therein not more than 2 percent for avocados affected by decay. (See §§ 51.3055 and 51.3056.)

UNCLASSIFIED

§ 51.3054 Unclassified.

"Unclassified" consists of avocados which have not been classified in accordance with any of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards, but is provided as a designation to show that no grade has been applied to the lot.

STANDARD PACK

§ 51.3055 Standard pack.

(a) The avocados shall be packed in accordance with good commercial practice and the pack shall be at least fairly tight. The weight of the smallest fruit in any container shall be not less than 75 percent of the weight of the largest fruit in the container. Size of the avocados may be specified by count.

(b) In order to allow for variations incident to proper sizing and packing, not more than 5 percent, by count, of the avocados in any container may weigh less than 75 percent of the weight of the largest fruit: *Provided,* That no fruit in any container shall weigh less than 60 percent of the weight of the largest fruit in the container. In addition, not more than 5 percent of the containers in any lot may fail to meet the requirement as to tightness of pack.

APPLICATION OF TOLERANCES

§ 51.3056 Application of tolerances.

(a) The contents of individual packages in the lot, based on sample inspection, are subject to the following limitations: *Provided,* That the averages for the entire lot are within the tolerances specified for the grade:

(1) For packages which contain more than 20 avocados and a tolerance of 10 percent or more is provided, individual packages in any lot shall have not more than one and one-half times the tolerance specified. For packages which contain more than 20 avocados and a tolerance of less than 10 percent

is provided, individual packages in any lot shall have not more than double the tolerance specified, except that at least one defective and one off-size specimen may be permitted in any package; and,

(2) For packages which contain 20 avocados or less, individual packages shall have not more than double the tolerance specified, except that at least one defective and one off-size specimen may be permitted in any package.

DEFINITIONS

§ 51.3057 Similar varietal characteristics.

"Similar varietal characteristics" means that the avocados in any container are similar in shape, texture, and color of skin and flesh.

§ 51.3058 Mature.

"Mature" means that the avocado has reached a stage of growth which will insure a proper completion of the ripening process.

§ 51.3059 Overripe.

"Overripe" means that the avocado is dead ripe with flesh soft or discolored and past commercial use.

§ 51.3060 Well formed.

"Well formed" means that the avocado has the normal shape characteristic of the variety.

§ 51.3061 Clean.

"Clean" means that the avocado is practically free from dirt, staining or other foreign material.

§ 51.3062 Well colored.

"Well colored" means that the avocado has the color characteristic of the variety.

§ 51.3063 Well trimmed.

"Well trimmed" means that the stem, when present, is cut off fairly smoothly at a point not more than one-fourth inch beyond the shoulder of the avocado.

§ 51.3064 Damage.

"Damage" means any defect which materially affects the appearance, or the edible or shipping quality of the

individual fruit, or the gen
ance of the avocados in th
Any one of the following
any combination of defe
ousness of which exceed
mum allowed for any one
be considered as damage:

(a) Cuts or other skin
not healed and penetrat
the epidermis or the ag
exceeds that of a rectang
length and one-eighth in
or when healed and the a
materially affected;

(b) Pulled stems when
stem cavity is excessive
when skin surrounding th
is more than slightly torn;

(c) Russeting or similar
when the appearance of t
affected to a greater exte
of an avocado which has
surface discoloration ag
percent of the fruit surfac

(d) Scars or scab when
ance of the avocado is
greater extent than that
which has light brown
fairly smooth scars aggre
cent of the fruit surface;

(e) Sunburn when the
the avocado is affected
extent than that of an a
has greenish-yellow colo
aggregating 10 percent
surface; and,

(f) Sunscald or sprayb
well healed, or when soft
appearance of the avoca
to a greater extent tha
avocado which has light
ficial scars aggregating
the fruit surface.

§ 51.3065 Fairly well forme

"Fairly well formed" m
avocado may be slightly
shape but not to the ex
appearance is seriously a

§ 51.3066 Fairly well colore

"Fairly well colored" m
avocado shows a shade
is fairly characteristic of

§ 51.3067 Serious damage.

"Serious damage" mea
which seriously affects

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Defect	Damage	Or
Internal discoloration occurring interior to the vascular ring (such as, Internal Brown Spot, Mahogany Browning and Heat Necrosis.)	When more than the equivalent of three scattered light brown spots ¼ inch (6.2 mm) in diameter [1].	[1]
All other internal discoloration excluding discoloration confined to the vascular ring.		

[1] Definitions of damage and serious damage are based on potatoes that are 2-½ inches (63.5 mm) in diameter or 6 ounces (170.10 g) in weight. Correspondingly lesser or greater areas are permitted on smaller or larger potatoes.

(c) *Table II—Internal defects.*

Defect	Serious damage	Or
Internal Discoloration confined to the vascular ring.	When seriously detracting from the appearance of the potato.	When removal causes a loss of more than 10 percent of the total weight of the potato.
Hollow Heart or Hollow Heart with discoloration.	When affected area exceeds that of a circle ¾ inch (18.1 mm) in diameter. [1]	

[1] Definitions of damage and serious damage are based on potatoes that are 2-½ inches (63.5 mm) in diameter or 6 ounces (170.10 g) in weight. Correspondingly lesser or greater areas are permitted on smaller or larger potatoes.

[52 FR 3400, Feb. 4, 1987; 52 FR 4822, Feb. 17, 1987]

Subpart—United States Standards for Fresh Cranberries for Processing

SOURCE: 22 FR 5853, July 24, 1957, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GENERAL

§ 51.3030 General.

(a) These standards apply only to the commonly cultivated Cranberry (Vaccinium macrocarpon).

(b) The primary purpose of these standards in for classifying Cranberries intended for manufacture of strained sauce. When used for other styles of packs such as cocktail, whole sauce, etc., other size and quality requirements may be specified using the quality factors and defects established in these standards.

GRADES

§ 51.3031 U.S. No. 1.

"U.S. No. 1" consists of fresh cranberries which are clean, mature, fairly well colored and which are not soft or decayed and which are free from worms or worm holes and which are free from damage caused by bruises, scars, freezing, sunscald, foreign material, disease, insects or mechanical or other means.

(a) The minimum diameter shall be nine-thirty-seconds of an inch.

(b) Incident to proper grading and handling, the following tolerances, by count, shall be permitted in any lot:

(1) 3 percent for cranberries which fail to meet the size requirement;

(2) 20 percent for cranberries which fail to meet the color requirements for individual cranberries;

(3) 10 percent for cranberries which fail to meet the remaining requirements of the grade but not more than one-half of this amount, or 5 percent, shall be allowed for berries which have worm holes or which are soft or affected by decay: *Provided*, That an additional tolerance of 2 percent for berries which are soft or affected by decay, or a total of not more than 7 percent, for berries which have worm holes or which are soft or affected by decay, shall be allowed en route or at destination: *And provided further*, That not more than one-half of 1 percent, included in the above tolerances, shall be allowed for Black Rot; and,

(4) One-tenth (1/10) of 1 percent for cranberries infested with worms.

UNCLASSIFIED

§ 51.3032 Unclassified.

"Unclassified" consists of cranberries which have not been classified in accordance with the foregoing grade. The term "unclassified" is not a grade within the meaning of these standards, but is provided as a designation to show that no grade has been applied to the lot.

DEFINITIONS

§ 51.3033 Clean.

"Clean" means that the cranberries are practically free from dirt, dust, spray residue, or other adhering foreign material.

§ 51.3034 Mature.

"Mature" means that the cranberry has reached the stage of development which will insure the proper completion of the ripening process.

§ 51.3035 Fairly well colored.

"Fairly well colored" means that 75 percent of the surface of the individual cranberry, in the aggregate, shows pink or red color characteristic of the variety.

§ 51.3036 Damage.

"Damage" means any defect which materially affects the edible or processing quality of the cranberry. The following shall be considered as damage:

(a) Foreign material when the processing quality of the cranberries in the container is materially affected; and,

(b) Any one of the following defects, or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as damage:

(1) Bruises or scars which materially affect the edible or processing quality of the individual cranberry; and,

(2) Insects when any insect injury affects an aggregate area of the surface of the individual cranberry greater than that of a circle one-eighth inch in diameter.

§ 51.3037 Diameter.

"Diameter" means the greatest dimension measured at right angles to a line from stem to blosson
berry.

Subpart—United States S
Florida Avocad

SOURCE: 22 FR 6205, Aug. 2
otherwise noted. Redesignat
32514, June 27, 1977, and fu
nated at 46 FR 63203, Dec. 31,

GRADES

§ 51.3050 U.S. No. 1.

"U.S. No. 1" consists of
similar varietal character
are mature but not ov
formed, clean, well co
trimmed and which are
decay, anthracnose, ar
injury and are free fr
caused by bruises, cuts o
breaks, pulled stems, russe
lar discoloration, scars o
burn, sunscald or sprayi
spora spot, other disease
mechanical or other means

(a) *Tolerances.* In order
variations incident to pro
and handling, not more th
10 percent, by count, of t
in any lot may fail to m
quirements of this grade
That not more than one-
amount, or 5 percent, shal
for avocados affected b
anthracnose, including t
more than 1 percent for
fected by decay. (See §§
51.3056.)

§ 51.3051 U.S. Combination.

"U.S. Combination" co
combination of U.S. No. 1
2 avocados: *Provided*, Tha
percent, by count, of the
each container meet the r
of the U.S. No. 1 grade.

(a) *Tolerances.* In order
variations incident to pro
and handling, not more th
10 percent, by count, of t
in any lot may fail to m
quirements of the U.S. N
Provided, That not more
half of this amount, or 5 p
be allowed for avocados
decay or seriously dama
thracnose, including there

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TABLE II—MAXIMUM ALLOWANCES FOR DEFECTS—Continued

Kind of preserves (or jams) type I only	Grade and score range	Stems: Short (¼" or less)	Stems: Small (over ¼" to ½" inclusive)	Stems: Medium (over ½" to ¾" inclusive)	Stems: Long (longer than ¾")	Leaves	Other extraneous material	Seeds, pits or portions: Pit or pieces of pit	Seeds, pits or portions: Small pieces of pit	Seeds, pits or portions: Pit fragments	Peel	Blemished, underdeveloped or otherwise damaged
Peach Nectarine	U.S. Grade A (17–20 points).	———	———	———	———	1 only per 32 ounces.	1 only per 32 ounces.	1 only per 64 ounces.	——do———	——do———	1 square inch per 16 ounces.	2 units per 8 ounces.
	U.S. Grade B (14–16 points).	———	———	———	———	1 only per 16 ounces.	3 per 32 ounces.	1 only per 48 ounces.	1 only per 32 ounces.	1 only per 8 ounces.	1 square inch per 8 ounces.	8 units per 8 ounces.
Damson plum Green gage plum Plum (other)	U.S. Grade A (17–20 points).	Total of 1 per 8 ounces.	Total of 1 per 8 ounces.	Total of 1 per 8 ounces.	Total of 1 per 8 ounces.	Total of 1 per 8 ounces.	1 only per 128 ounces.	1 only per 32 ounces.	1 only per 32 ounces.	1 only per 32 ounces.	No limit———	1 unit per 8 ounces.
	U.S. Grade B (14–16 points).	Total of 3 per 16 ounces.	Total of 3 per 16 ounces.	Total of 3 per 16 ounces.	Total of 3 per 16 ounces.	Total of 3 per 16 ounces.	1 only per 32 ounces.	1 only per 16 ounces.	1 only per 16 ounces.	1 only per 16 ounces.	——do———	2 units per 8 ounces.

TABLE III—MAXIMUM ALLOWANCES FOR DEFECTS

Kind of preserves (or jams) type I only	Grade and score range	Stems, Leaves	Other extraneous material	Loose sepal-like bracts	Seeds, pits, or portions thereof	Peel	Blemished, underdeveloped, or otherwise damaged
Cranberry Currant (other than black) Currant, red Fig Gooseberry Rhubarb Tomato Tomato, yellow	U.S. Grade A (17–20 points).	Total of 1 per 32 ounces.	1 only per 300 ounces.	3 per 16 ounces.	———	1 square inch per 16 ounces if prepared by peeling.	2 units per 8 ounces.
	U.S. Grade B (14–16 points).	——do———	1 only per 128 ounces.	5 per 16 ounces.	———	1 square inch per 8 ounces if prepared by peeling.	4 units per 8 ounces.
Tangerine	U.S. Grade B (14–16 points).	———	1 only per 128 ounces.	———	1 per 8 ounces.	———	3 units per 8 ounces.
Pineapple	U.S. Grade A (17–20 points).	———	———	———	———	———	2 units per 8 ounces.
	U.S. Grade B (14–16 points).	———	———	———	———	———	4 units per 8 ounces.

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TABLE IV—MAXIMUM ALLOWANCES FOR DEFECTS

Kind of preserves (or jams) (type I only)	Grade and score range	Stems: Short (¼" or less)	Stems: Small (over ¼" to ½" inclusive)	Stems: Medium (over ½" to ¾" inclusive)	Stems: Long (longer than ¾")	Leaves	Caps or portions	Other extraneous material	Loose sepals like bracts	Seeds	Blemished, underdeveloped or otherwise damaged
Grape	U.S. Grade A (17-20 points)	3 short or small thin stems, including only 1 woody base stem per 16 ounces.				1 only per 32 ounces.	—	1 only per 200 ounces.	3 per 16 ounces.	3 seeds per 8 ounces.	7 units per 8 ounces.
	U.S. Grade B (14-16 points)	3 short or small thin stems, including only 2 woody base stems per 8 ounces.				Do.	—	1 only per 128 ounces.	6 per 16 ounces.	6 seeds per 8 ounces.	4 units per 8 ounces.
Strawberry	U.S. Grade A (17-20 points)	4 per 8 ounces	2 small or medium or long stems, including only 1 long stem			¼ square inch if measurable by area or—1 piece harmless extraneous material such as weeds or grass per 32 ounces			—	—	Do.
	U.S. Grade B (14-16 points)	8 per 8 ounces	4 small or medium or long stems, including only 1 long stem			¼ square inch if measurable by area or—1 piece harmless extraneous material such as weeds or grass per 32 ounces			—	—	6 units per 8 ounces.
	U.S. Grade A (17-20 points)	4 per 8 ounces	2 small or medium or long stems, including only 1 long stem			¼ square inch if measurable by area or—1 piece harmless extraneous material such as weeds or grass per 32 ounces			—	—	4 units per 8 ounces.

(1) The term "ounces" refers to "ounces of net weight" of any individual container, of the average net weight of all the containers, or of the aggregate net weight of all the containers comprising the sample as may be applicable. The allowances as stated may be interpolated into other equivalents for containers of other sizes or on an aggregate basis.

(2) When the unit of the allowance, such as "per 200 ounces", is greater than in individual containers, the net weight of all containers in the sample may be aggregated to arrive at the approximate quantity by which to determine compliance with the stated allowance. For example, in a lot consisting of approximate 8-oz. net weight containers and with defects permitted in "1 per 200 ounces", such defect would be permitted in a total of not less than twenty-five 8-oz. containers (approximately 200 ounces in the aggregate).

(3) An occasional defect may be permitted if all the containers in a sample in the aggregate constitute a net weight less than the unit of allowance provided such defect, singly or in combination with other defects, no more than slightly affects the appearance or edibility of the product.

§ 52.1121 Flavor.

(a) *(A) classification.* Fruit preserves (or jams) that possess a good flavor may be given a score of 34 to 40 points. "Good flavor" means:

(1) That the product possesses a good and distinct flavor; and

(2) That the flavor is characteristic of the applicable kind of fruit ingredient or applicable kinds of fruit ingredients.

(b) *(B) classification.* If the fruit preserves (or jams) possess a fairly good flavor, a score of 28 to 33 points may be given. Fruit preserves (or jams) that fall into this classification shall not be graded above U.S. Grade [illegible] or U.S. Choice, regardless of the [illegible]otal score for the product (this is a [illegible]miting rule). "Fairly good flavor" [illegible]eans:

(1) That the product possesses a [illegible]lavor reasonably characteristic of the [illegible]pplicable kind of fruit ingredient or applicable kinds of fr[illegible] and

(2) May possess a sl[illegible] lized flavor but is free f[illegible] flavor or other objectio[illegible] off flavor of any kind.

(c) *(SStd) classificat[illegible]* serves (or jams) that f[illegible] requirements of paragr[illegible] section may be given a [illegible] points and shall not b[illegible] Substandard, regardle[illegible] score for the product (t[illegible] rule).

LOT INSPECTION AND C[illegible]

§ 52.1122 Ascertaining th[illegible]

The grade of a lot o[illegible] product covered by th[illegible] determined by the [illegible] forth in the regulatio[illegible] spection and certificati[illegible] fruits and vegetables, [illegible] ucts thereof, and cert[illegible] essed food products (§§ [illegible]

[22 FR 3541, May 22, 195[illegible] 43 FR 32514, June 27, 1[illegible] 63203, Dec. 31, 1981]

SCORE SH[illegible]

§ 52.1123 Score sheet f[illegible] (or jams).

Size and kind of container [illegible]
Container mark or identification [illegible]
Label [illegible]
Net weight (in ounces) [illegible]
Vacuum (in inches) [illegible]
Type [illegible]
Kind or kinds [illegible]
Soluble solids (percent by refractometer) [illegible]

Factors			S[illegible]
Consistency	20	(A) (B) (SStd)[1]	
Color	20	(A) (B) (SStd)[1]	
Absence of defects	20	(A) (B) (SStd)[1]	
Flavor	40	(A) (B) (SStd)[1]	
Total score	100		
Grade			

[1] Indicates limiting rule.

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44 FR 69614, Dec. 4, 1979. Redesignated at 46 FR 63203, Dec. 31, 1981]

FILL OF CONTAINER

§ 52.1115 Recommended fill of container.

The recommended fill of container is not incorporated in the grades of the finished product since fill of container, as such, is not a factor of quality for the purpose of these grades. It is recommended that each container be filled with fruit preserves (or jams) as full as practicable without impairment of quality and that the product occupy not less than 90 percent of the volume of the container.

FACTORS OF QUALITY

§ 52.1116 Ascertaining the grade.

(a) The grade of fruit preserves (or jams) is ascertained by considering, in conjunction with the requirements of the respective grade, the respective ratings for the factors of consistency, color, absence of defects, and flavor.

(b) The relative importance of each factor which is scored is expressed numerically on the scale of 100. The maximum number of points that may be given such factors are:

Factors	Points
Consistency	20
Color	20
Absence of defects	20
Flavor	40
Total score	100

§ 52.1117 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained for each factor and expressed numerically. The numerical range within each factor which is scored is inclusive (for example, "17 to 20 points" means 17, 18, 19, or 20 points).

§ 52.1118 Consistency.

(a) *General.* The factor of consistency refers to the extent of the dispersion and size of the fruit or fruit particles throughout, and the gel-like properties of the product: *Provided,* That any requirements for wholeness of fruit are waived for products packaged in one and one-half (1½) ounce and smaller containers: *And further provided,* That, fruit puree as a single fruit ingredient may not be used.

(b) *A classification.* (1) Fruit preserves or jams that have a good consistency may be given a score of 17 to 20 points. "Good consistency" means that the fruit or fruit particles are dispersed uniformly throughout the product; that the product has a tender gel or may have no more than a very slight tendency to flow, except that a slightly less viscous consistency may be present when the fruit is chiefly in the form of whole or almost whole units; and that in the following kinds the product does not have a macerated or pureed appearance, and is made from whole or almost whole fruit as indicated:

(i) *Apricot.* Halves or pieces or combinations thereof.

(ii) *Cherry.* Whole or almost whole or pieces of pitted cherries or combinations thereof.

(iii) *Gooseberry.* Whole or almost whole berries or combinations thereof.

(iv) *Peach (clingstone and freestone).* Slices or pieces or combinations thereof.

(v) *Pineapple.* Crushed pieces or small pieces or combinations thereof.

(vi) *Strawberry.* Whole or almost whole berries or combinations thereof.

(2) Fruit preserves or jams for manufacturing that have a good consistency may be given a score of 17 to 20 points. "Good consistency" means that the product meets all of the requirements of (b)(1) of this section: *Provided,* That the product may have a moderate to very firm gel but may not be rubbery.

(c) *(B) classification.* If the fruit preserves (or jams) possess a reasonably good consistency, a score of 14 to 16 points may be given. Fruit preserves (or jams) that fall into this classification shall not be graded above U.S. Grade B or U.S. Choice, regardless of the total score for the product (this is a limiting rule). "Reasonably good consistency" means that the fruit or fruit particles are dispersed reasonably uniformly throughout the product; and that the product may be

firm but not rubbery or may be noticeably viscous but not excessively thin.

(d) *Substandard classification.* Fruit preserves or jams that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 13 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

[18 FR 7984, Dec. 9, 1953. Redesignated at 42 FR 32514 June 27, 1977, and amended at 44 FR 69614, Dec. 4, 1979. Redesignated at 46 FR 63203, Dec. 31, 1981]

§ 52.1119 Color.

(a) *(A) classification.* Fruit preserves (or jams) that possess a good color may be given a score of 17 to 20 points. "Good color" means that the color is bright, practically uniform throughout, and characteristic of the variety or varieties of the fruit ingredients; and that the product is free from dullness of color due to any cause (including, but not being limited to, oxidation or improper processing or improper cooling).

(b) *(B) classification.* If the fruit preserves (or jams) possess a reasonably good color, a score of 14 to 16 points may be given. Fruit preserves (or jams) that fall into this classification shall not be graded above U.S. Grade B or U.S. Choice, regardless of the total score for the product (this is a limiting rule). "Reasonably good color" means that the color is reasonably bright, reasonably uniform throughout, and characteristic of the variety or varieties of the fruit ingredients; however, the color may be slightly dull but may not be off color due to oxidation or improper processing or improper cooling or other causes.

(c) *(SStd) classification.* Fruit preserves (or jams) that for any reason fail to meet the requirements of paragraph (b) of this section may be given a score of 0 to 13 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.1120 Absence of defects.

(a) *General.* The factor of absence of defects refers to the degree of freedom, in the applicable kinds, from substances ordinarily removed in the preparation for the man
fruit preserves (or jams) a
but is not limited to, c
stems, seeds, pits, peel, or a
thereof; from blemished u
developed units, or otherwi
units; and from any defect
ically mentioned that aff
pearance or edibility of the
(1) A "cluster of cap st
three or more joined cap st
(2) A "cap" means a l
tached full cap or a portior
which at least one sepal-li
portion thereof is attache
stem that is attached to a
sidered a part of that cap.
(3) A "short stem" me
that is ⅛ inch or less in
which may include the ce
of a cap to which no sepal-
portion thereof is attach
stem that is attached to a
sidered a part of that cap.
(4) A "small stem" me
that is longer than ⅛ in
more than ¼ inch in leng
stem that is attached to a
sidered as a defect separat
cap.
(5) A "medium stem" me
that is longer than ¼ in
more than ½ inch in
medium stem that is attac
is considered as a defect se
that cap.
(6) A "long stem" means
is longer than ½ inch in le
stem that is attached to a
sidered as a defect separat
cap.
(7) A "woody base-stem"
stem in grape preserves (or
an enlarged woody base
ing 1/16 inch or more in dian
(8) "Peel" means, with
those fruits, such as apples
es, that are commonly p
the manufacture of fruit p
jams) by the removal of
peel, any skin or peel whet
is attached.
(9) "Seeds" means, with
those fruits, such as app
and pears, that are prepa
manufacture of fruit pr
jams) by the removal of th
seeds of such fruit. "Seed
preserves (or jams) prep

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citrus fruits means any seed or any portion thereof, whether or not fully developed, that measures more than 1/16 inch in any dimension. Seeds are not considered as defects in fruit preserves (or jams) prepared from such fruits as figs and tomatoes.

(10) "Pit" means, with respect to those fruits, such as apricots, cherries, plums, and peaches, that are prepared for the manufacture of fruit preserves (or jams) by the removal of the pits, a whole, intact pit. Portions of pits include:

(i) A "piece of pit" which means any portion of a pit that is more than 1/8 inch in any dimension;

(ii) A "small piece of pit" which means any portion of a pit that is not less than 1/4 inch nor more than 1/8 inch in any dimension;

(iii) And a "pit fragment" which means any portion of a pit that is less than 1/4 inch in any dimension.

(11) "Blemished, underdeveloped, or otherwise damaged" means units of fruit in which the appearance or edible quality is damaged or blemished because of discolored skin, bruised spots, dark particles, insect or similar injury, hard areas or units that are hard and shrivelled or damaged by mechanical, pathological or other injury.

(b) (*A*) *classification.* Fruit preserves (or jams) that are practically free from defects may be given a score of 17 to 20 points. "Practically free from defects" means with respect to:

(1) Type II and any kind or kinds with a macerated or pureed appearance (whether of Type I or II), that the defects do not materially affect the appearance or edibility of the product; and

(2) Type I, that the defects and defective units as applicable do not exceed the allowances for U.S. Grade A as specified in Tables I, II, III, or IV of this section and that any defects whether or not specifically mentioned in such tables do not materially affect the appearance or edibility of the product.

(c) (*B*) *classification.* If the fruit preserves (or jams) are reasonably free from defects, a score of 14 to 16 points may be given. Fruit preserves (or jams) that fall into this classification shall not be graded above U.S. Grade B or U.S. Choice, regardless of the total score for the product (this is a limiting rule). "Reasonably free from defects" means with respect to:

(1) Type II and any kind or kinds with a macerated or pureed appearance (whether of Type I or II), that the defects do not seriously affect the appearance or edibility of the product; and

(2) Type I, that the defects and defective units as applicable do not exceed the allowances for U.S. Grade B as specified in Tables I, II, III, or IV of this section and that any defects whether or not specifically mentioned in such tables do not seriously affect the appearance or edibility of the product.

(d) (*SSId*) *classification.* Fruit preserves (or jams) that fail to meet the requirements for paragraph (c) of this section may be given a score of 0 to 13 points and shall not be graded above Substandard, regardless of the total score for the product. (This is a limiting rule.)

(e) *Allowances.* Ascertaining compliance with, and explanation of, allowances in Tables I, II, III, and IV:

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TABLE I—MAXIMUM ALLOWANCES FOR DEFECTS

Kind of preserves (or jams) type I only	Grade and score range	Stems	Leaves	Caps or portions	Other extraneous material	Loose Seed like units	Seeds, pits, or portions thereof	Blemished, underdeveloped, or otherwise damaged
Blackberry Boysenberry Dewberry Loganberry Youngberry	U.S. Grade A (17-20 points). U.S. Grade B (14-16 points).	Total of 1 only per 64 ounces. Total 1 only per 32 ounces.			1 per 8 ounces. 3 per 8 ounces.	10 per 8 ounces in "seedless". 20 per 8 ounces in "seedless".	2 per 8 ounces. 4 per 8 ounces.	
Cherry	U.S. Grade A (17-20 points). U.S. Grade B (14-16 points).	—do. Total of 1 only per 16 ounces.				1 per 32 ounces. —do.	5 per 8 ounces. 8 per 8 ounces.	
Blueberry Huckleberry Huckleberry	U.S. Grade A (17-20 points). U.S. Grade B (14-16 points).	Total of 1 large stem or 1 leaf per 8 ounces, and 1 cluster of cap stems per 8 ounces. Total of 3 large stems or 3 leaves per 16 ounces, and 3 clusters of cap stems per 16 ounces.					3 per 8 ounces. 5 per 8 ounces.	

TABLE II—MAXIMUM ALLOWANCES FOR DEFECTS

Kind of preserves (or jams) type I only	Grade and score range	Stems: Small (over ½" to ¾" in equivalent diameter)	Stems: Medium (over ¼" to ½" in equivalent diameter)	Stems: Long (over ¾" in equivalent diameter)	Leaves	Other extraneous material	Seeds, pits or portions: Pits or pieces of pit	Seeds, pits or portions: Small pieces of pit	Seeds, pits or portions: Pit fragments	Pod	Blemished, underdeveloped or otherwise damaged
	U.S. Grade A (17-20										

Factors	Points
Color	40
Defects	40
Character	20
Total score	100

(b) *Good flavor.* "Good flavor" means that the product has a good characteristic, normal flavor and odor, and is free from objectionable flavors or objectionable odors of any kind.

(c) *Fairly good flavor.* "Fairly good flavor" means that the product may be lacking in good characteristic normal flavor and odor but is free from objectionable flavors or objectionable odors of any kind.

§ 52.1986 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained for such factors and expressed numerically. The numerical range within each factor is inclusive. For example, the range "36 to 40 points" means 36, 37, 38, 39, or 40 points.

§ 52.1987 Color.

(a) (*A*) *classification.* Frozen strawberries that possess a good color may be given a score of 36 to 40 points. "Good color" means that the frozen strawberries as a mass possess a reasonably uniform good characteristic pink to red color which is not more than slightly affected by a dull, gray, or reddish-brown cast; and in addition:

(1) With respect to whole style 85 percent or more, by count, of the strawberries have at least a good characteristic pink to red color over practically the entire surface and of the remainder not more than 5 percent, by count, of all the strawberries may have less than four-fifths of the surface area of a good characteristic pink to red color, or are materially darkened; and that:

(2) With respect to sliced style 85 percent or more, by weight, of the slices have at least a good characteristic pink to red color over practically the entire outer surface (not including cut surfaces) and of the remainder not more than 5 percent, by weight, or all the slices may have less than one-half of the outer surface (not including cut surfaces) of a good characteristic pink to red color, or are materially darkened.

(b) (*B*) *classification.* If the frozen strawberries possess a reasonably good color, a score of 32 to 35 points may be given. Frozen strawberries that fall into this classification shall not be graded above U.S. Grade B or U.S. Choice, regardless of the total score for the product (this is a limiting rule). "Reasonably good color" means that the frozen strawberries as a mass possess a fairly uniform good characteristic pink to red color which is not materially affected by dull, gray, or reddish-brown cast; and in addition:

(1) With respect to whole style 75 percent or more, by count, of the strawberries have at least a good characteristic pink to red color over practically the entire surface, and of the remainder not more than 10 percent, by count, of all the strawberries may have less than four-fifths of the surface area of a good characteristic pink to red color, or are materially darkened; and that:

(2) With respect to sliced style 75 percent or more, by weight, of the slices have at least a good characteristic pink to red color over practically the entire outer surface (not including cut surfaces) and of the remainder not more than 10 percent, by weight, of all the slices may have less than one-half of the outer surface (not including cut surfaces) of a good characteristic pink to red color, or are materially darkened.

(c) (*C*) *classification.* If the frozen strawberries possess a fairly good color, a score of 28 to 31 points may be given. Frozen strawberries that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly good color" means that the frozen strawberries as a mass possess a predominant characteristic pink to red color and may show a dull, gray, or slightly dark color, but not to the extent that the appearance or eating quality is seriously affected; and in addition:

(1) With respect to whole style not more than 15 percent, by count, of all

the strawberries may have less than four-fifths of the surface area of a characteristic pink to red color, or are materially darkened.

(2) With respect to sliced style not more than 15 percent, by weight, of all the slices may have less than one-half of the outer surface (not including cut surfaces) of a characteristic pink to red color, or are materially darkened.

(d) (*SStd.*) *classification.* Frozen strawberries that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 27 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.1988 Defects.

(a) *General.* The factor of defects refers to the degree of freedom from grit, sand, or silt, from harmless extraneous material, caps and portions thereof, sepal-like bracts and portions thereof, stems, short stems, and damaged strawberries.

(1) "Harmless extraneous material" means vegetable substances such as weeds, weed seeds, grass, and leaves and any portions thereof that are harmless.

(2) "Grit, sand, or silt" means any particles of earthy material.

(3) "Short stem" means a stem that is ¼ inch or less in length and which may include the center portion of a cap to which no sepal-like bract or portion thereof is attached.

(4) "Stem" means a stem, either loose or attached, that is longer than ¼ inch.

(5) "Cap" means a loose or attached full cap or portion of a cap to which at least one sepal-like bract or a portion thereof is attached. A short stem that is attached to the cap is considered a part of the cap. A stem that is attached to the cap is considered a separate defect.

(6) "Damaged strawberry" means a strawberry or any physically separated portion thereof that is affected by hard seedy or deformed end, and deformed or damaged areas to the extent that the appearance or eating quality is materially affected. Minute, insignificant injuries are not considered as damaged.

(b) (*A*) *classification.*
berries that are practic
defects may be given a
40 points. "Practically
fects" has the follow
with respect to the foll
frozen strawberries:

(1) *Whole.* No grit, sa
be present that affects t
or eating quality of th
for each 16 ounces of n
may be present an are
than ¼ square inch cor
less extraneous material
and portions thereof,
tions thereof, and le
bracts and portions the
than two stems, inclu
than one stem which
inch in length, or one
harmless extraneous m
not measurable by area
weed seeds, and blade
not more than 16 sh
there may be present n
total of 3 percent, by w
damaged strawberries.

(2) *Sliced.* No grit, sa
be present that affects
or eating quality of th
for each 16 ounces of n
may be present an are
than ¼ square inch co
less extraneous materia
and portions thereof,
tions thereof, and le
bracts and portions the
than two stems, inclu
than one stem which
inch in length, or one
harmless extraneous n
not measurable by area
weed seeds and blades
not more than 16 sh
there may be present n
total of 2½ percent, b
are damaged strawberri

(c) (*B*) *classification*
strawberries are reasor
defects, a score of 32 to
be given. Frozen strawi
into this classificatior
graded above U.S. Gr
Choice, regardless of
for the product (this
rule). "Reasonably fre
has the following me
spect to the following
strawberries:

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(1) *Whole.* No grit, sand, or silt may be present that affects the appearance or eating quality of the product, and for each 16 ounces of net weight there may be present an area of not more than ¼ square inch comprising harmless extraneous material such as leaves and portions thereof, caps and portions thereof, and loose sepal-like bracts and portions thereof; not more than four stems, including not more than one stem which may exceed ¼ inch in length, or one small piece of harmless extraneous material that is not measurable by area such as weeds, weed seeds, and blades of grass; and not more than 32 short stems; and there may be present not more than a total of 10 percent, by weight, that are damaged strawberries.

(2) *Sliced.* No grit, sand, or silt may be present that affects the appearance or eating quality of the product, and for each 16 ounces of net weight there may be present an area of not more than ¼ square inch comprising harmless extraneous material such as leaves and portions thereof, caps and portions thereof, and loose sepal-like bracts and portions thereof; not more than four stems, including not more than one stem which may exceed ¼ inch in length, or one small piece of harmless extraneous material that is not measurable by area such as weeds, weed seeds and blades of grass; and not more than 32 short stems; and there may be present not more than a total of 5 percent, by weight, that are damaged strawberries.

(d) (*C*) *classification.* If the frozen strawberries are fairly free from defects, a score of 28 to 31 points may be given. Frozen strawberries that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly free from defects" has the following meanings with respect to the following styles of frozen strawberries:

(1) *Whole.* A trace of grit, sand or silt may be present that does not materially affect the appearance or eating quality of the product, and for each 16 ounces of net weight there may be present an area of not more than ¾ square inch comprising harmless extraneous material such as leaves and portions thereof, caps and portions thereof, and loose sepal-like bracts and portions thereof; not more than six stems, including not more than one stem which may exceed ¾ inch in length, or two small pieces of harmless extraneous material that is not measurable by area such as weeds, weed seeds, and blades of grass; and there may be present not more than a total of 12 percent, by weight, that are damaged strawberries.

(2) *Sliced.* A trace of grit, sand, or silt may be present that does not materially affect the appearance or eating quality of the product, and for each 16 ounces of net weight there may be present an area of not more than ¾ square inch comprising harmless extraneous material such as leaves and portions thereof, caps and portions thereof, and loose sepal-like bracts and portions thereof; not more than six stems, including not more than one stem which may exceed ¾ inch in length, or two small pieces of harmless extraneous material that is not measurable by area such as weeds, weed seeds, and blades of grass; and there may be present not more than a total of 6 percent, by weight, that are damaged strawberries.

(e) (*SStd.*) *classification.* Frozen strawberries that fail to meet the requirements of paragraph (d) of this section may be given a score of 0 to 27 points and shall not be graded above Substandard, regardless of the total score of the product (this is a limiting rule).

[20 FR 1580, Mar. 16, 1955, as amended at 23 FR 45, Jan. 3, 1958. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981]

§ 52.1989 Character.

(a) *General.* The factor of character refers to firmness, the degree of wholeness, degree of seediness, degree of disintegration as evidenced by partial strawberries and mushy strawberries.

(1) "Partial strawberry" in whole style means that less than three-quarters of the apparent whole strawberry remains intact.

(2) "Mushy strawberries" in whole and sliced styles means strawberries that are so soft they are a pulpy mass or are badly disintegrated.

(b) (*A*) *classification.* Frozen strawberries that possess a good character may be given a score of 18 to 20 points. "Good character" means that the strawberries are reasonably firm, that the appearance and eating quality of the product are not materially affected by disintegration or seediness and that:

(1) With respect to whole style not more than 10 percent, by weight, of strawberries may consist, in the aggregate, of partial strawberries or mushy strawberries or a combination thereof, and that:

(2) With respect to sliced style not more than 20 percent, by weight, of strawberries may consist, in the aggregate, of mushy strawberries.

(c) (*B*) *classification.* If the frozen strawberries have a reasonably good character, a score of 16 or 17 points may be given. Frozen strawberries that fall into this classification shall not be graded above U.S. Grade B or U.S. Choice regardless of the total score for the product (this is a limiting rule). "Reasonably good character" means that the strawberries are fairly firm, that the appearance and eating quality of the product are not seriously affected by seediness or disintegration, and that:

(1) With respect to whole style not more than 20 percent, by weight, of strawberries may consist, in the aggregate, of partial strawberries or mushy strawberries or a combination thereof, and that:

(2) With respect to sliced style not more than 30 percent, by weight, of strawberries may consist, in the aggregate, of mushy strawberries.

(d) (*C*) *classification.* If the frozen strawberries have a fairly good character, a score of 14 or 15 points may be given. Frozen strawberries that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard regardless of the total score for the product (this is a limiting rule). "Fairly good character" means that the strawberries are fairly firm, and that:

(1) With respect t
more than 30 percent, by
strawberries may consist, ir
gate, of partial strawberrie
strawberries or a combinati
and that:

(2) With respect to slice
more than 50 percent, by
strawberries may consist, ir
gate, of mushy strawberries

(e) (*SStd.*) *classificati*
strawberries that fail to n
quirements of paragraph
section may be given a sco
points and shall not be gi
Substandard, regardless c
score for the product (this
rule).

[20 FR 1580, Mar. 16, 1955; 20
14, 1955. Redesignated at 42 F
27, 1977 and at 46 FR 63203.

EXPLANATION AND METHOD

§ 52.1990 Definition of terms

(a) *By weight of strau*
weight of strawberries"
strawberry ingredient excl
surrounding medium.

(b) *Area.* "Area" means
gate surface covered by t
stated when such materia
thereof are placed in a co
sition with no intervening

§ 52.1991 Explanation of ana

(a) "By weight of stra
frozen strawberries is de
the following method:

(1) *Equipment.*

Flat grading tray.
Table fork.
Two glass beakers.
Torsion or triple beam balan

(2) *Procedure.* (i) If the
16 ounces or less use
sample, but if the sampl
exceeding 16 ounces use
tive 16-ounce aliquot for
and a 32 ounce represent
for whole style.

(ii) Thaw the sample t
that the strawberries ma
ed easily and are free fr
tals.

(iii) Place the thawed
flat grading tray, raise or

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tray approximately one inch so the packing medium drains to the other end of the tray. For a given factor (viz., color defects or character) (a) separate those units (or that material) which fall into the categories specified in the standards. (A table fork or similar utensil may be used to facilitate the separation); (b) using the table fork remove that portion of the strawberry material which has been separated in paragraph (a)(2)(iii)(a) of this section and weight; (c) Using the table fork remove the remaining strawberry material exclusive of packing medium from the tray and weight; (d) The sum of the weights obtained in paragraph (a)(2)(iii) (b) and (c) of this section is the weight of strawberry ingredient; and (e) Calculate the percent, by weight, of the separated material and divide the weight of such material found in paragraph (a)(2)(iii)(b) of this section by the total weight of strawberry material.

Lot Inspection and Certification

§ 52.1992 Ascertaining the grade of a lot.

The grade of a lot of the processed product covered by these standards is determined by the procedures set forth in the regulations governing inspection and certification of processed fruits and vegetables, processed products thereof, and certain other processed food products (§§ 52.1 to 52.87).

[22 FR 3547, May 22, 1957. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981.]

Score Sheet

§ 52.1993 Score sheet for frozen strawberries.

Number size and kind of container _____
Label Style or pack Fruit sugar ratio (if shown) _____

Container mark or identification	Containers or sample: Cases	Average
Net weight (ounces)		
Style		
Size or sizes (whole)		
Under ¼" (percent by count)		

Factors		Score points	
Color	40	(A)	35–40
		(B)	*32–35
		(C)	*28–31
		(SSStd)	0–27
Defects	40	(A)	36–40
		(B)	*32–35
		(C)	*28–31
		(SSStd)	*0–27
Character	20	(A)	18–20
		(B)	*16–17
		(C)	*14–15
		(SSStd)	*0–13
Total score	100		

Flavor and odor _____
Grade _____

* Indicates limiting rule

Subpart—United States Standards for Grades of Frozen Succotash

Source: 18 FR 8063, Dec. 9, 1953, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981.

Product Description, Ingredients, and Grades

§ 52.2011 Product description.

Frozen succotash means the frozen product prepared from fresh, clean, sound, succulent kernels of sweet corn and the immature seed of varieties of lima beans, vegetable soybeans, or fresh immature pods of green beans or wax beans. The ingredients are mixed and properly drained and then frozen in accordance with good commercial practice and maintained at temperatures necessary for the preservation of the product. When soybeans or green beans or wax beans are used, the product is designated as "frozen soybean succotash" or "frozen green bean (or wax bean) succotash," as the case may be.

§ 52.2012 Kind, type, and style of ingredients.

(a) Corn, sweet, whole kernel:
(1) White.
(2) Golden (yellow).
(b) Lima beans:
(1) Thin-seeded.
(2) Thick-seeded.
(3) Thick-seeded baby potato.
(c) Soybeans, vegetable.

(d) Green beans or wax beans, Cut or Short Cut style.

§ 52.2013 Proportion of ingredients.

It is recommended that frozen succotash consist of a mixture of the vegetable ingredients in the following proportions.

	Proportions by weight (percent): Not more than—	Not less than—
Corn, white or golden	75	50
Lima beans, fresh	50	25
Soybeans, vegetable	50	25
Green or wax beans	50	25

§ 52.2014 Grades of frozen succotash.

(a) "U.S. Grade A" or "U.S. Fancy" is the quality of frozen succotash in which each vegetable possesses similar varietal characteristics; possesses a good flavor and odor; is tender; possesses a good color; is practically free from defects; and that for those factors which are scored in accordance with the scoring system outlined in this subpart the total score is not less than 90 points: *Provided*, That the frozen succotash may be reasonably tender and possess a reasonably good color if the total score is not less than 90 points.

(b) "U.S. Grade B" or "U.S. Extra Standard" is the quality of frozen succotash in which each vegetable possesses similar varietal characteristics; possesses a good flavor and odor; is reasonably tender; possesses a reasonably good color; is reasonably free from defects; and that scores not less than 80 points when scored in accordance with the scoring system outlined in this subpart.

(c) "U.S. Grade C" or "U.S. Standard" is the quality of frozen succotash in which each vegetable possesses similar varietal characteristics; possesses a fairly good flavor and odor; is fairly tender; possesses a fairly good color; is fairly free from defects; and that scores not less than 70 points when scored in accordance with the scoring system outlined in this subpart.

(d) "Substandard" is th
frozen succotash that fails
requirements of U.S. Gra
Standard.

Factors of Qual

§ 52.2015 Ascertaining the gr

(a) The grade of frozen
ascertained by considering
tion with the requiremen
spective grade, the respe
for the factors of color, at
fects, and tenderness.

(b) The relative importa
factor which is scored is e
merically on the scale
maximum number of poi
be given each such factor

Factors	
Color	
Absence of defects	
Tenderness	
Total score	

(c) The scores for th
color, absence of defects,
ness (with respect to eac
vegetable prior to cookin
mined immediately after
the extent that the produ
tially free from ice crystal
handled as individual un
sentative sample is cook
mine the tenderness of t
ingredients collectively a
tain the flavor and odor
uct.

(d) "Good flavor and
that the product, after c
good, characteristic norm
odor and is free from
flavors and objectionable
kind.

(e) "Fairly good flavo
means that the product
may be lacking in good fla
but is free from objectio
and objectionable odors o

§ 52.2016 Ascertaining the factors which are scored.

The essential variations
factor which is scored are
that the value may be as
each factor and expresse

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is a limiting rule). "Reasonably good consistency" means that the jelly may lack firmness but it is not sirupy; and that it may be more than slightly firm but is not tough or rubbery.

(d) *Substandard (SStd).* Jelly that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 31 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.1089 Color.

(a) *Grade A.* Jelly that has a bright typical color may be given a score of 18 to 20 points. "Bright typical color" means that the color is characteristic of the juice ingredient(s) and that the jelly has a sparkling luster or may be not more than slightly cloudy, and is free from any dullness of color.

(b) *Grade B.* Jelly that has a reasonably bright typical color may be given a score of 16 or 17 points. Jelly that falls into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a limiting rule). "Reasonably bright typical color" means that the color is characteristic of the juice ingredient(s) and that the jelly may be more than slightly cloudy and may have a slight dullness of color.

(c) *Substandard (SStd).* Jelly that is definitely off-color for any reason and fails to meet the requirements of paragraph (b) of this section may be given a score of 0 to 15 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.1090 Flavor.

(a) *Grade A.* Jelly that has a distinct and normal flavor may be given a score of 36 to 40 points. "Distinct and normal flavor" means that the product has a good distinct flavor characteristic of the fruit or nonfruit ingredient(s) after preserving and is free from any caramelized flavor or any objectionable flavor of any kind.

(b) *Grade B.* Jelly that has a reasonably good and normal flavor may be given a score of 32 to 35 points. Jelly that falls into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a limiting rule). "Reasonably good and normal flavor" means that the product has a reasonably good flavor characteristic of the fruit or nonfruit ingredient(s) after preserving and may have a slightly caramelized flavor but is free from any bitter flavor or other objectionable flavor or off-flavor of any kind.

(c) *Substandard (SStd).* Jelly that fails to meet the requirements of paragraph (b) of this section may be given a score of 0 to 31 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.1091 Determining the grade of a lot.

The grade of a lot of jelly covered by these standards is determined by the procedures set forth in the "Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products" (§§ 52.1 through 52.83).

§ 52.1092 Score sheet for fruit jelly.

Size and kind of container _____
Container code or marking _____
Label _____
Net weight (in ounces) _____
Vacuum reading (in inches) _____
Type _____
Kind _____
Soluble solids _____

Factors			Points
Consistency	40	(A)	36–40
		(B)	[1] 32–35
		(SStd)	[1] 0–31
Color	20	(A)	18–20
		(B)	[1] 16–17
		(SStd)	[1] 0–15
Flavor	40	(A)	36–40
		(B)	[1] 32–35
		(SStd)	[1] 0–31
Total score	100		

Grade _____

[1] Indicates limiting rule.

Subpart—United States Standards for Grades of Fruit Preserves (or Jams)

SOURCE: 18 FR 7984, Dec. 9, 1953, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and at 46 FR 63203, Dec. 31, 1981.

IDENTITY, TYPES, KINDS, AND GRADES

§ 52.1111 Identity.

"Fruit preserves or jams" means preserves or jams as defined in the Definitions and Standards of Identity for Preserves, Jams (21 CFR 150.160) issued pursuant to the Federal Food, Drug, and Cosmetic Act. The solids content of the finished fruit preserves or jams shall be not less than 65 degrees Brix. No correction is made for water-insoluble solids.

(44 FR 69613, Dec. 4, 1979. Redesignated at 46 FR 63203, Dec. 31, 1981)

§ 52.1112 Types of fruit preserves (or jams).

(a) *Type I.* Fruit preserves (or jams) that are prepared from a single fruit (except apple) listed in Group I or Group II are "Type I."

(b) *Type II.* Fruit preserves (or jams) that are prepared from more than a single fruit listed in Group I and Group II are "Type II."[1]

§ 52.1113 Kinds of fruit preserves (or jams) according to Group I or Group II designations.

GROUP I

Any one singly or in combination with not more than four of the following:[1]

Blackberry (other than dewberry).
Black raspberry.
Blueberry.
Boysenberry.
Cherry.
Crabapple.
Dewberry (other than boysenberry, loganberry and youngberry).
Elderberry.
Grape.
Grapefruit.
Huckleberry.
Loganberry.
Orange.
Pineapple.
Raspberry, red raspberry.
Rhubarb.
Strawberry.
Tangerine.
Tomato.

[1] In accordance with the limits specified in the definitions and standards of identity for preserves, jams (21 CFR 150.160)

Yellow tomato.
Youngberry.

GROUP II

Any one singly or in combinati
more than four of the following
fruits in Group I:

Apple (type II only).
Apricot.
Cranberry.
Damson, damson plum.
Fig.
Gooseberry.
Greengage, greengage plum.
Guava.
Nectarine.
Peach (clingstone and freestone)
Pear.
Plum (other than greengage
damson plum).
Quince.
Red currant, currant (other tha
rant).

§ 52.1114 Grades of fruit pr
jams).

(a) "U.S. Grade A" or "U.S
for Manufacturing" is the
fruit preserves or jams th
good consistency; that hav
color; that are practically
defects; that have a good f
that score not less than
when scored in accordance
scoring system outlined in
part: *Provided,* That no frui
or jam shall be graded, insp
or certified as a manufactu
product unless it is suitably
and/or labeled. Manufactur
product shall not be packag
tainers smaller than the equ
a number ten (No. 10) metal
700).

(b) "U.S. Grade B" or "U.
is the quality of fruit pre
jams) that possess a reason
consistency; that possess a
good color; that are reaso
from defects; that possess
good flavor; and that scor
than 70 points when scored
ance with the scoring syste
in this subpart.

(c) "Substandard" is the
fruit preserves (or jams) t
meet the requirements of U
B or U.S. Choice.

(18 FR 7984, Dec. 9, 1953. Red
42 FR 32514, June 27, 1977, and

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which causes the berry to be badly misshapen.

§ 51.4425 Damage.

"Damage" means any defect, or any combination of defects, which materially detracts from the appearance, or the edible quality of the berry for manufacturing purposes. A berry showing dirt which will not wash off in the ordinary process of washing shall be considered as damaged.

§ 51.4426 Diameter.

"Diameter" means the greatest dimension measured at right angles to a straight line running from the stem to the apex.

Subpart—United States Standards for Grades of Washed and Sorted Strawberries for Freezing

SOURCE: 32 FR 8879, June 22, 1967, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GENERAL

§ 51.4435 General.

(a) These standards are intended for use only for strawberries which have been washed and sorted just prior to being placed in containers for freezing. Samples for the purpose of determining quality shall be taken immediately after washing and grading and before any other factory operations have taken place.

(b) Offered as companion grades to the U.S. Standards for Growers' Stock Strawberries for Manufacture, the U.S. Standards for Washed and Sorted Strawberries for Freezing may be used at a grading station either alone or in conjunction with other grades.

(c) There are several quality factors pertaining to frozen strawberries which may be most satisfactorily determined through inspection of samples of the fruit immediately after washing and grading. For this reason, the standards may be used to advantage as a basis for buying and selling of the finished product even though they are applied to the fruit before it is frozen, but obviously the standards do not apply to the finished product.

GRADE

§ 51.4436 U.S. No. 1.

"U.S. No. 1" consists of strawberries of one variety which are properly washed, well colored, free from mold and decay, and from soft, badly crushed or split, dried or undeveloped berries, and from damage caused by foreign matter, hail, sunscald, birds, disease, insects, mechanical or other means. Caps shall be entirely removed. unless otherwise specified, the minimum size shall not be less than ¾ inch in diameter.

(a) In order to allow for variations incident to proper grading and handling, not more than 5 percent, by weight, of the strawberries in any lot may be below the requirements of this grade: *Provided*, that less than 1 percent shall be affected by mold or decay.

UNCLASSIFIED

§ 51.4437 Unclassified.

"Unclassified" consists of strawberries which do not meet the requirements of the foregoing grade.

DEFINITIONS

§ 51.4438 Properly washed.

"Properly washed" means that the berries have been washed with fresh, clean water so as to remove all soil, dirt, or other foreign matter which may be detected by the taste or naked eye.

§ 51.4439 Well colored.

"Well colored" means that at least four-fifths of the surface of the berry is covered with red or pink color.

§ 51.4440 Soft.

"Soft" means that more than one-third of the volume of the whole berry is mushy or has been removed by washing. Berries showing moist surface bruises from the recent handling in washing and sorting shall not be considered as soft.

§ 51.4441 Dried.

"Dried" means appreciably lacking in juice. Dried berries are excessively seedy and often shriveled.

§ 51.4442 Undeveloped.

"Undeveloped" means lack of development due to frost or insect injury, lack of pollination or other means which causes the berry to be badly misshapen.

§ 51.4443 Damage.

"Damage" means any defect, or any combination of defects, which materially detracts from the appearance or the edible quality of the berry for manufacturing purposes.

§ 51.4444 Diameter.

"Diameter" means the greatest dimension measured at right angles to a straight line running from the stem to the apex.

Subpart—United States Standards for Grades of Asparagus Plumosus

SOURCE: 32 FR 8880, June 22, 1967, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.4455 U.S. Fancy.

"U.S. Fancy" consists of bunches of well trimmed sprays of Asparagus Plumosus which are mature and well shaped; free from shattering, second growths, and from damage by any cause. Unless otherwise specified, the foliage shall be of good green color. (See § 51.4458.)

(a) In order to allow for variations incident to proper grading and handling, not more than 10 percent, by count, of any lot may be below the requirements of this grade but not part of this tolerance shall be allowed for sprays which are shattering.

§ 51.4456 U.S. No. 1.

"U.S. No. 1" consists of bunches of well trimmed sprays of Asparagus Plumosus which are mature; free from shattering, second growths, and from damage by any cause. Not less than 60 percent, by count, of the sprays shall be fairly well shaped and the remainder shall be not badly misshapen. Unless otherwise specified, the foliage shall be of good green color. (See § 51.4458.)

(a) In order to allow for variations incident to proper grading and handling not more than 10 percent, by count, of any lot may be below the requirements of this grade but not part of this tolerance shall be allowed for sprays which are shattering.

§ 51.4457 U.S. Commercial.

"U.S. Commercial" consists of bunches of well trimmed sprays of Asparagus Plumosus which are mature; free from shattering, young second growths, and from serious damage by any cause. Unless otherwise specified, the foliage shall be of good green color. (See § 51.4458.)

(a) In order to allow for variations incident to proper grading and handling not more than 10 percent, by count, of any lot may be below the requirements of this grade but no part of this tolerance shall be allowed for sprays which are shattering.

SIZE

§ 51.4458 Size.

(a) The following terms are provided for general description of sizes. It is not the general practice to size Plumosus uniformly; therefore, lots should not be quoted as Corsage, Short, Medium, or Long unless they have been specifically sized to meet the specified requirements. Plumosus may be quoted as "Short to Medium", "Short to Long", or "Medium to Long" in accordance with the facts:

Corsage	Short	Medium	Long
10 to 18 in. inclusive	8 to 21 in. inclusive	22 to 32 in. inclusive	Over 33 in.

(b) For lots which have been sized in accordance with the provisions of the above classification, the following tolerance is provided:

(1) In order to allow for variations incident to proper sizing not more than 20 percent, by count, of any lot may not meet the size requirements:

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for each 12 ounces of units there may be present not more than two pieces of harmless extraneous vegetable material. The combined weight of all other defects and defective units must not exceed 12 percent of the weight of the units: *Provided*, That

(1) Not more than 8 percent, by weight, is of damaged units and of such 8 percent, not more than one-fourth thereof or 2 percent, by weight, of all the units consist of units that are seriously damaged.

(2) Not more than 10 percent, by weight, is of poorly cut units, or of units damaged by mechanical injury, or any combination thereof of not more than 10 percent, by weight.

(d) (*SSStd*) *classification.* Frozen squash that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 27 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.1968 *Character.*

(a) *General.* The factor of character refers to the fleshy texture, the tenderness, and the degree of development of the seeds.

(b) (*A*) *classification.* Frozen squash that possesses a good character may be given a score of 24 to 40 points. "Good character" means that the units are practically intact, are fleshy and tender, that the seeds are in the immature stage, and that not more than 5 percent, by weight of the units may be of reasonably good character.

(c) (*B*) *classification.* If the frozen squash possesses a reasonably good character, a score of 28 to 33 points may be given. Frozen squash that falls into this classification shall not be graded above U.S. Grade B or U.S. Extra Standard, regardless of the total score for the product (this is a limiting rule). "Reasonably good character" means that the units may show slight disintegration, may have lost to a considerable extent their fleshy texture, may be reasonably tender, and that the seeds may have passed the immature stage of maturity, but are not hard and that not more than 10 percent, by weight, of the units fails to meet the requirements for reasonably good character.

(d) (*SSStd*) *classification.* Frozen squash that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 27 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

LOT INSPECTION AND CERTIFICATION

§ 52.1969 Ascertaining the grade of a lot.

The grade of a lot of the processed product covered by these standards is determined by the procedures set forth in the regulations governing inspection and certification of processed fruits and vegetables, processed products thereof, and certain other processed food products (§§ 52.1 to 52.87).

(22 FR 3547, May 22, 1957. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981)

SCORE SHEET

§ 52.1970 Score sheet for frozen squash (summer type).

Number, size, and kind of container _____
Container marks or identification _____
Label _____
Net weight (ounces) _____
Style (sliced, cut) _____

Factors		Score points	
Color	20	(A)	17-20
		(B)	[1] 14-16
		(SSStd)	[1] 0-13
Absence of defects	40	(A)	34-40
		(B)	[1] 28-33
		(SSStd)	[1] 0-27
Character	40	(A)	34-40
		(B)	[1] 28-33
		(SSStd)	[1] 0-27
Total score	100		

Flavor and odor _____
Grade _____

[1] Indicates limiting rule.

Subpart—United States Standards for Grades of Frozen Strawberries

SOURCE: 20 FR 1580, Mar. 18, 1955, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977 and at 46 FR 63203, Dec. 31, 1981.

PRODUCT DESCRIPTION, STYLES, SIZES, AND GRADES

§ 52.1981 Product description.

Frozen strawberries means the frozen product prepared from sound, properly ripened fresh fruit of the strawberry plant by stemming, proper washing, sorting, and proper draining, may be packed with or without packing medium, and are then frozen in accordance with good commercial practice and maintained at temperatures necessary for the preservation of the product.

§ 52.1982 Styles of frozen strawberries.

(a) "Whole" or "whole strawberries" means frozen strawberries that retain approximately their original conformation.

(b) "Slices" or "sliced strawberries" means frozen strawberries produced by slicing whole strawberries into two or more slices.

§ 52.1983 Sizes of whole frozen strawberries.

Except with respect to U.S. Grade A or U.S. Fancy, the size of the whole frozen strawberry is not incorporated in the grades of the finished product since size, as such, is not a factor of quality for the purpose of these grades. When used in connection with the following sizes of whole frozen strawberries, the term "diameter" means the greatest dimension measured at right angles to a straight line running from the stem to the apex:

(a) "Small size" means whole frozen strawberries that measure less than ¾ inch in diameter.

(b) "Medium size" means whole frozen strawberries that measure ¾ inch to 1¼ inches, inclusive, in diameter.

(c) "Large size" means whole frozen strawberries that measure more than 1¼ inches in diameter.

§ 52.1984 Grades of frozen strawberries.

(a) "U.S. Grade A" or "U.S. Fancy" is the quality of frozen strawberries that possess similar varietal characteristics; that possess a good flavor; that possess a good color; that are practically free from defects; that possess a good character; that score not less than 90 points when scored ance with the scoring syste in this subpart and that wi to whole style contain not m percent, by count, of whole ries that are "small size," (1 inch in diameter).

(b) "U.S. Grade B" or "U. is the quality of frozen st that possess similar varietal istics; that possess a good f possess a reasonably good are reasonably free from de possess a reasonably good and that score not less tha when scored in accordanc scoring system outlined in part.

(c) "U.S. Grade C" or " ard" is the quality of froze ries that possess similar va acteristics; that possess a flavor; that possess a fairly that are fairly free from d possess a fairly good cha that score not less than when scored in accordanc scoring system outlined in part.

(d) "Substandard" is the frozen strawberries that f the requirements of "U.S. ("U.S. Standard."

FACTORS OF QUALI

§ 52.1985 Ascertaining the gra

(a) *General.* The grade strawberries is determined ly after thawing to the ext units may be separated ea free from ice crystals. In a grade of frozen strawberr tained by considering the quality which are not score which are scored as follows

(1) *Factors which are not*

(i) Varietal characteristic

(ii) Flavor and odor.

(iii) Size relative to U.S. U.S. Fancy.

(2) *Factors which are* relative importance of which is scored is expres cally on the scale of 100 mum number of points t given such factors are:

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(2) *For off-size.* Not more than 5 percent for strawberries in any lot which are below the specified minimum size.

UNCLASSIFIED

§ 51.3118 Unclassified.

"Unclassified" consists of strawberries which have not been classified in accordance with any of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards but is provided as a designation to show that no grade has been applied to the lot.

APPLICATION OF TOLERANCES

§ 51.3119 Application of tolerances.

(a) The contents of individual packages (cups or baskets) in the lot, based on sample inspection, are subject to the following limitations:

(1) For a tolerance of 10 percent or more, individual packages (cups or baskets) in any lot shall have not more than one and one-half times the tolerance specified, except that when the package contains 25 specimens or less, individual packages shall have not more than double the tolerance specified: *Provided,* That the averages for the entire lot are within the tolerance specified for the grade.

(2) For a tolerance of less than 10 percent, individual packages (cups or baskets) in any lot shall have not more than double the tolerance specified, except that at least one defective and one off-size specimen may be permitted in any package: *Provided,* That the averages for the entire lot are within the tolerances specified for the grade.

DEFINITIONS

§ 51.3120 Overripe.

"Overripe" means dead ripe, becoming soft, a condition unfit for shipment and necessitating immediate consumption.

§ 51.3121 Undeveloped.

"Undeveloped" means that the berry has not attained a normal shape and development due to frost injury, lack of pollination, insect injury, or other causes. "Button" berries are the most common type of this condition.

§ 51.3122 Damage.

"Damage" means any defect or any combination of defects, which materially detracts from the appearance, or the edible or shipping quality of the strawberries.

§ 51.3123 Serious damage.

"Serious damage" means any specific defect described in this section, or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which seriously detracts from the appearance, or the edible or shipping quality of the strawberries. The following specific defects shall be considered as serious damage:

(a) Soft berries;

(b) Badly deformed berries;

(c) Badly bruised berries;

(d) Decayed or leaky berries;

(e) Berries badly caked with dirt; and,

(f) Berries with less than one-half of surface showing pink or red color.

§ 51.3124 Diameter.

"Diameter" means the greatest dimension measured at right angles to a straight line running from the stem to the apex.

Subpart—United States Standards for Grades of Nectarines[1]

SOURCE: 31 FR 6243, Apr. 23, 1966, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.3145 U.S. Fancy.

"U.S. Fancy" consists of nectarines of one variety which are mature but not soft or overripe, which are well formed, clean, and free from decay, broken skins which are not healed, worms, worm holes, and free from injury caused by bruises, growth cracks, hail, sunburn, sprayburn, scab, bacterial spot, scale, scars, russeting, other disease, insects, or mechanical or other means.

(a) In the case of the John Rivers variety each nectarine shall show some blushed or red color. In the case of other varieties each nectarine shall have not less than one-third of its surface showing red color characteristic of the variety. (See § 51.3150.)

§ 51.3146 U.S. Extra No. 1.

"U.S. Extra No. 1" consists of nectarines of one variety which are mature but not soft or overripe, which are well formed, clean, and free from decay, broken skins which are not healed, worms, worm holes and free from injury caused by split pit and free from damage caused by bruises, growth cracks, hail, sunburn, sprayburn, scab, bacterial spot, scale, scars, russeting, other disease, insects or mechanical or other means.

(a) In the case of John Rivers variety at least 50 percent of the nectarines in any lot shall show some blushed or red color. In the case of other varieties at least 75 percent of the nectarines in any lot shall show some blushed or red color including therein at least 50 percent of the nectarines with not less than one-third of the fruit surface showing red color characteristic of the variety. (See § 51.3150.)

§ 51.3147 U.S. No. 1.

"U.S. No. 1" consists of nectarines of one variety which are mature but not soft or overripe, which are well formed, clean, and free from decay, broken skins which are not healed, worms, worm holes, and free from injury caused by split pit and free from damage caused by bruises, growth cracks, hail, sunburn, sprayburn, scab, bacterial spot, scale, scars, russeting, other disease, insects, or mechanical or other means.

(a) At least 75 percent of the nectarines in any lot shall show some blushed or red color, except that there are no color requirements for nectarines of the John Rivers variety in this grade. (See § 51.3150.)

§ 51.3148 U.S. No. 2.

"U.S. No. 2" consists c
one variety which are r
soft or overripe, which
misshapen, which are
from decay, broken sk
not healed, worms, wo
free from serious dam
bruises, growth cracks,
sprayburn, scab, bacter
split pit, scars, russeti
ease, insects, or mecha
means.

(a) There are no colo
for nectarines in thi
§ 51.3150.)

UNCLASSIFI

§ 51.3149 Unclassified.

"Unclassified" consist
which have not been c
cordance with any of
grades. The term "uncl
a grade within the me
standards but is provide
tion to show that no g
applied to the lot.

TOLERANCE

§ 51.3150 Tolerances.

In order to allow for
dent to proper grading
in each of the foregoi
following tolerances, by
vided as specified:

(a) *U.S. Fancy, U.S. E*
U.S. No. 1 grades—(1)
shipping point[1] 8 perc
ines which fail to mee
ments of the specified g
That included in this
more than 4 percent sl
for defects causing seric
cluding in this latter ar
than one-half of 1 perc
ines which are affected

(2) *For defects en rout*
tion. 12 percent for ne
fail to meet the requir

[1] Packing of the product in conformity with the requirements of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act or with applicable State laws and regulations.

[1] Shipping point, as use
ards, means the point of o
ment in the producing ar
loading for ship stores or o
or, in the case of shipme
the continental United St
entry into the United State

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UNCLASSIFIED

§ 51.4402 Unclassified.

"Unclassified" consists of grapes which have not been classified in accordance with any of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards but is provided as a designation to show that no grade has been applied to the lot.

DEFINITIONS

§ 51.4403 Mature.

"Mature" means that the grapes are juicy, palatable, and have reached the stage of devlopment at which the skin of the berry easily separates from the pulp. Frozen or slightly frosted stock should not be confused with mature stock.

§ 51.4404 Well colored.

"Well colored" means that not less than 90 percent, by weight, of the berries show full color characteristic of the variety. Ten percent may show partially or poorly colored berries which are not characteristic of immature berries.

§ 51.4405 Serious damage.

"Serious damage" means any defect, or any combination of defects, which seriously detracts from the processing or freezing quality of the grapes.

§ 51.4406 Fairly well colored.

"Fairly well colored" means that not less than 75 percent, by weight, of the berries show full color characteristic of the variety. Twenty-five percent may show partially or poorly colored berries which are not characteristic of immature berries.

Subpart—United States Standards for Grades of Growers' Stock Strawberries for Manufacture

SOURCE: 32 FR 8879, June 22, 1967, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GENERAL

§ 51.4415 General.

(a) These standards are intended for use only as a basis for determining the quality of strawberries as they are delivered by the growers to the manufacturing plant. The requirements of the standards are not applicable nor is it intended that they shall apply to strawberries which have been washed and graded for barreling or packaging for market.

(b) Buying and selling on the basis of uniform standards encourages better production and better handling methods. The practice of paying a flat price for all strawberries which are accepted discriminates against the best growers. The grower should be paid a suitable premium for strawberries which will make a high quality manufactured product. Likewise the grower should be penalized for the delivery of low quality berries.

(c) It should be understood at the outset that in the application of these standards the only sorting required of the grower is the removal of cull berries. The standards provide a basis for sampling lots as they are delivered by the growers.

(d) There are two methods suggested for applying the standards as a measure of quality of growers deliveries. The manufacturer may contract with growers to pay a certain price per pound according to the actual percentage of U.S. No. 1 berries delivered, or at a certain price per pound for strawberries of each grade with the respective tolerances. In the first method the contract would disregard all tolerances and also U.S. No. 2, U.S. No. 2, and U.S. No. 4 grades.

(e) To illustrate the first method of applying the standards, suppose the contract specifies that the manufacturer agrees to pay at the rate of 6 cents per pound according to the actual percentage of U.S. No. 1 berries delivered. The inspector takes a representative sample from a 300 pound lot of strawberries and finds that 93 percent of the berries, by weight, meet U.S. No. 1 requirements. Therefore, the lot would be settled for at the rate of 6 cents per pound for 93 percent of

300 pounds (279 pounds) or $16.74 for the 300-pound lot. Similarly a 300-pound lot having 85 percent of U.S. No. 1 berries would be settled for at the rate of 6 cents per pound for 85 percent of 300 pounds (255 pounds) or $15.30 for the 300-pound lot.

(f) To illustrate the second method, suppose the contract specified that the manufacturer agrees to pay 6 cents per pound for U.S. No. 1 berries, 5 cents per pound for U.S. No. 2 berries, 4½ cents per pound for U.S. No. 3 berries, and 4 cents per pound for U.S. No. 4 berries. The inspector takes a representative sample from a 300-pound lot of strawberries and finds that 96 percent of the berries, by weight, meet U.S. No. 1 requirements. Since a tolerance of 5 percent is allowed for this grade such a lot would grade U.S. No. 1 and would be paid for at the rate of 6 cents per pound. Therefore, the 300-pound lot would bring $18.

(g) If the inspector found the lot to contain 11 percent defective berries it would grade U.S. No. 2 and would be paid for at the rate of 4½ cents per pound. In this case the 300-pound lot would bring $13.50.

(h) The foregoing prices are used for illustrative purposes only.

(i) The application of these standards requires the services of private or official inspectors to determine and report the grade of each lot of strawberries delivered to the factory. Such inspectors must be capable, efficient, and above all they must be absolutely neutral.

GRADES

§ 51.4416 U.S. No. 1.

"U.S. No. 1" consists of strawberries of one variety which are well colored, free from mold and decay and from soft, badly crushed or split, dried or undeveloped berries and from damage caused by dirt or other foreign matter, hail, sunscald, birds, disease, insects, mechanical or other means. Unless otherwise specified, the minimum size shall be not less than ½ inch in diameter and the caps shall be entirely removed.

(a) In order to allow for variations incident to proper handling, not more than 5 percent, by weight, of the strawberries in any lot may be below the requirements of this grade.

§ 51.4417 U.S. No. 2.

"U.S. No. 2" consists of strawberries which meet all the requirements of U.S. No. 1 grade except that a tolerance of 10 percent, by weight, of the strawberries in any lot shall be permitted for grade defects.

§ 51.4418 U.S. No. 3.

"U.S. No. 3" consists of strawberries which meet all the requirements of U.S. No. 1 grade except that a tolerance of 15 percent, by weight, of the strawberries in any lot shall be permitted for grade defects.

§ 51.4419 U.S. No. 4.

"U.S. No. 4" consists of strawberries which meet all the requirements of U.S. No. 1 grade except that a tolerance of 20 percent, by weight, of the strawberries in any lot shall be permitted for grade defects.

UNCLASSIFIED

§ 51.4420 Unclassified.

"Unclassified" consists of strawberries which do not meet the requirements of any of the foregoing grades.

DEFINITIONS

§ 51.4421 Well colored.

"Well colored" means that at least four-fifths of the surface of the berry is covered with red or pink color.

§ 51.4422 Soft.

"Soft" means that more than one third of the volume of the whole berry is mushy or will be removed in the ordinary process of washing.

§ 51.4423 Dried.

"Dried" means appreciably lacking in juice. Dried berries are excessively seedy and often shriveled.

§ 51.4424 Undeveloped.

"Undeveloped" means lack of development due to frost or insect injury, lack of pollination, or other means

ance, or the edible or shipping quality of the individual fruit, or the general appearance of the avocados in the container. Any one of the following defects, or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as serious damage:

(a) Anthracnose when any spot exceeds the area of a circle one-fourth inch in diameter, or when more than 3 spots each of which exceeds the area of a circle three-sixteenths inch in diameter;

(b) Cuts or other skin breaks when not healed and penetrating into the flesh of the fruit, or the aggregate area exceeds that of a rectangle 1 inch in length and one-fourth inch in width, or when healed and the appearance is seriously affected;

(c) Pulled stems when the skin surrounding the exposed stem cavity is torn more than an aggregate area of a circle one-fourth inch in diameter, or when the flesh is torn;

(d) Russeting or similar discoloration when the appearance of the avocado is affected to a greater extent than that of an avocado which has light brown surface discoloration aggregating 25 percent of the fruit surface;

(e) Scars or scab when the appearance of the avocado is affected to a greater extent than that of an avocado which has light brown superficial fairly smooth scars aggregating 25 percent of the fruit surface;

(f) Sunburn when the appearance of the avocado is affected to a greater extent that that of an avocado which has greenish-yellow colored sunburn aggregating 25 percent of the fruit surface;

(g) Sunscald or sprayburn when not well healed, or when soft, or when the appearance of the avocado is affected to a greater extent than that of an avocado which has light brown superficial, fairly smooth scars aggregating 25 percent of the fruit surface; and

(h) Cercospora spot when any spot exceeds the area of a circle one fourth inch in diameter, or when more than 3 spots each of which exceeds the area of a circle three-sixteenths inch in diameter, or when the aggregate area of all spots exceeds the area of a circle 1 inch in diameter.

§ 51.3068 Badly misshapen.

"Badly misshapen" means that the avocado is so badly curved, constricted, pointed or otherwise deformed that the appearance is very seriously affected.

§ 51.3069 Very serious damage.

"Very serious damage" means any defect which very seriously affects the appearance, or the edible or shipping quality of the avocado. Any one of the following defects, or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as very serious damage:

(a) Cuts or other skin breaks when not healed and penetrating into the flesh of the fruit, or any skin break very seriously affecting the appearance, or the edible or shipping quality;

(b) Pulled stems when the skin surrounding the exposed stem cavity is torn more than an aggregate area of a circle one-half inch in diameter, or when the flesh is torn;

(c) Russeting or similar discoloration when the appearance of the avocado is affected to a greater extent than that of an avocado which has light brown surface discoloration aggregating 50 percent of the fruit surface;

(d) Scars or scab when the appearance of the avocado is affected to a greater extent than that of an avocado which has light brown superficial, fairly smooth scars aggregating 50 percent of the fruit surface;

(e) Sunburn when the appearance of the avocado is affected to a greater extent than that of an avocado which has greenish-yellow colored sunburn aggregating 50 percent of the fruit surface; and,

(f) Sunscald or sprayburn when not well healed, or when the appearance of the avocado is affected to a greater extent than that of an avocado which has light brown superficial, fairly smooth scars aggregating 50 percent of the fruit surface.

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Subpart—United States Standards for Grades of Christmas Trees

SOURCE: 34 FR 39979, Sept. 29, 1969, unless otherwise noted.

GENERAL

§ 51.3085 General.

The standards contained in this subpart are applicable to sheared or unsheared trees of the coniferous species which are normally marketed as Christmas trees. The majority of the Christmas trees marketed are of the following species:

Douglas Fir (Pseudotsuga Menziesii); Balsam Fir (Abies Balsamea); Red Fir (Abies Magnifica); White Fir (Abies Concolor); Fraser Fir (Abies Fraseri); Grand Fir (Abies Grandis); Noble Fir (Abies Procera); White Spruce (Picea Glauca); Blue Spruce (Picea Pungens); Eastern Red Cedar (Juniperus Virginiana); Red Pine (Pinus Resinosa); White Pine (Pinus Strobus); Virginia Pine (Pinus Virginiana); Scotch Pine (Pinus Sylvestris).

GRADES

§ 51.3086 U.S. Premium.

"U.S. Premium" consists of trees which meet the following requirements:

(a) Characteristics typical of the species;

(b) Butt trimmed; except for trees graded "on the stump";

(c) Normal taper;

(d) Fresh;

(e) Clean;

(f) Healthy;

(g) Well shaped;

(h) Not less than heavy density;

(i) Handle length, unless otherwise specified, shall be not less than 6 inches, or more than 1½ inches for each foot of tree height. For trees graded "on the stump", handle length will not be a requirement of the grade;

(j) Three faces with not more than 1 minor defect. Remaining face may not have more than 1 minor defect;

(k) For size see § 51.3090;

(l) For tolerances see § 51.3091.

§ 51.3087 U.S. No. 1.

"U.S. No. 1" consists of meet the following require

(a) Characteristics typica cies;

(b) Butt trimmed; excep graded "on the stump";

(c) Normal taper;

(d) Fresh;

(e) Fairly clean;

(f) Healthy;

(g) Well shaped;

(h) Not less than medium

(i) Handle length, unless specified, shall be not le inches, or more than 1½ each foot of tree length. graded "on the stump", ha will not be a requirement o

(j) Three faces with not r minor defect. Remaining fa have more than 1 noticeabl

(k) For size see § 51.3090;

(l) For tolerances see § 51.

§ 51.3088 U.S. No. 2.

"U.S. No. 2" consists of t meet the following requirem

(a) Characteristics typical cies;

(b) Butt trimmed; excep graded "on the stump";

(c) Normal taper;

(d) Fresh;

(e) Fairly clean;

(f) Healthy;

(g) Well shaped;

(h) Not less than light den

(i) Handle length, unless specified, shall be not le inches, or more than 1½ each foot of tree length. graded "on the stump", han will not be a requirement of

(j) Two adjacent faces with than 3 minor defect. Remai may not have more than 2 defects;

(k) For size see § 51.3090;

(l) For tolerances see § 51.3

CULLS

§ 51.3089 Culls.

"Culls" consist of indivi which fail to meet the requi the U.S. No. 2 grade. (See Table II).

seriously affect the appearance of the tree. While many noticeable defects may be visible from more than 1 face: a given defect shall be scored only once. (See § 51.3106 Table I).

§ 51.3105 Classification of defects.

TABLE I

Factor	Minor defects	Noticeable defects
1. Density	Slight uneven density	Moderately uneven density.
2. Curvature of main stem	Slight, visible crook in the main stem (4 inches or less from vertical).	Main stem wavy curved more than 4 but less than 8 inches from vertical.
3. Insect or disease damage.	Slight insect or disease damage.	Moderate insect or disease damage
4. Broken branches.	1 broken short branch near the main stem.	Broken leader or more than 1 broken short branch adjacent main stem.
5. Physical damage.	Slight physical damage	Moderate physical damage.
6. Foreign material and/or vines.	Slight amount of foreign material or vines.	Moderate amount of foreign material or vines
7. Multiple leader stems.	Multiple leaders	Crown rent.
8. Extra long branches.	Branch over 10 inches longer than other branches on corresponding whorl.	N/A.
9. Abnormal curling of needles.	Slightly abnormal curling of needles.	Moderately abnormal curling of needles
10. Weak lower branches.	Free from	Weak lower branches affecting up to ½ of branches on bottom whorl
11. Handle not proportionate to height.	Free from	Handle not proportionate to height of tree
12. Incomplete whorl of branches.	Less than ½ of branches are missing in a given whorl.	½ but less than ½ of branches are missing in a given whorl.

TABLE I—Continued

Factor	Minor defects	Noticeable defects
13. Holes or gaps in tree.	Free from	Hole in the tree or space considerably out of proportion with the uniform branch characteristics of the balance of the tree.
14. Gooseneck	Free from	Free from.
15. Loss of needles.	Slight loss of needles	Moderate loss of needles.

TABLE II

Factor	Cuts
1. Density	Severely uneven density
2. Curvature of main stem	Main stem curved more than 8 inches.
3. Insect or disease damage	Severe insect or disease damage or abnormal curling of needles.
4. Broken branches	Main stem broken below top whorl or more than three branches broken near trunk.
5. Physical damage	Severe physical damage
6. Foreign material and/or vines.	Heavy amounts of foreign material or vines.
7. Multiple stems	Multiple main stems (not leaders).
8. Extra long branches	N/A.
9. Abnormal curling of needles.	Severely abnormal curling of needles.
10. Weak lower branches	Weak lower branches affecting more than ½ of branches on bottom whorl.
11. Handle not proportional to height.	N/A.
12. Incomplete whorl of branches.	More than ½ of branches missing in a given whorl or when missing branches create a shelf.
13. Holes or gaps in tree	Shelf or a decided gap or space between whorls of branches noticeable on 2 or more leaves.
14. Gooseneck	Any gooseneck.
15. Abnormal loss of needles	Severe loss of needles.

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METRIC CONVERSION TABLE

§ 51.3106 Metric conversion table.

Feet	Centimeters (cm)
1	30.48
2	60.96
3	91.44
4	121.92
5	152.40
6	182.88
7	213.36
8	243.84
9	274.32
10	304.80

Subpart—United States Standards for Grades of Strawberries

Source: 30 FR 6711, May 18, 1965, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.3115 U.S. No. 1.

"U.S. No. 1" consists of strawberries of one variety or similar varietal characteristics with the cap (calyx) attached, which are firm, not overripe or undeveloped, and which are free from mold or decay and free from damage caused by dirt, moisture, foreign matter, disease, insects, or mechanical or other means. Each strawberry has not less than three-fourths of its surface showing a pink or red color.

(a) *Size.* Unless otherwise specified, the minimum diameter of each strawberry is not less than three-fourths inch.

(b) *Tolerances.* In order to allow for variations incident to proper grading and handling the following tolerances, by volume, are provided as specified:

(1) *For defects.* Not more than 10 percent for strawberries in any lot which fail to meet the requirements of this grade, but not more than one-half of this tolerance, or 5 percent, shall be allowed for defects causing serious damage, including therein not more than two-fifths of this latter amount, or 2 percent, for strawberries affected by decay.

(2) *For off-size.* Not more than 5 percent for strawberries in any lot which are below the specified minimum

§ 51.3116 U.S. Combination.

"U.S. Combination" co
combination of U.S. No. 1
2 strawberries, except for
ed. That at least 80
volume, of the strawberrie
requirements of U.S. No. 1

(a) *Size.* Unless otherwis
the minimum diameter of
berry is not less than th
inch.

(b) *Tolerances.* In order t
variations incident to prop
and handling the following t
by volume, are provided as sp

(1) *For defects.* Not more
percent for strawberries in
which are seriously damage
ing therein not more than on
this tolerance, or 2 percent, f
berries affected by decay. No
any tolerance shall be all
reduce for the lot as a whole,
centage of U.S. No. 1 strawbe
quired in the combination, and
ual containers (cups or baske
have not less than 65 percent
1 strawberries: *Provided.* Th
entire lot averages within the r
percentage.

(2) *For off-size.* Not more than
cent of the strawberries in any l
be below the specified minimum

§ 51.3117 U.S. No. 2.

"U.S. No. 2" consists of strawb
which are free from decay and
from serious damage caused by
disease, insects, mechanical or
means. Each strawberry has not
than one-half of its surface show
pink or red color.

(a) *Size.* Unless otherwise speci
the minimum diameter of each st
berry is not less than five-eig
inch.

(b) *Tolerances.* In order to allow
variations incident to proper grad
and handling the following toleranc
by volume, are provided as specified:

(1) *For defects.* Not more than
percent for strawberries in any
which are seriously damaged, inclu
ing therein not more than
tenths of