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Demand, Supply, and Trade: National and Northwest Raspberries, Blueberries, Strawberries, Sweet Corn, and Snap Beans

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In this report, we review principal trends during the past two decades in the national and Pacific Northwest markets for selected berries and vegetables, with particular attention to raspberries, blueberries, strawberries, sweet corn, and snap beans. We are particularly interested in the sources and types of apparent shifts in U.S. supply and demand for these products, and the apparent effects of import competition on domestic production and prices. In this way, we hope to gain a preliminary understanding of the types of financial stresses farmers may be facing, and how such stresses might be affected by imports.

Our review is based entirely on a visual examination of price, quantity, acreage, and yield data and has not yet been corroborated by statistical analysis. Hence, it should be regarded as provisional only, and merely as suggestive of future econometric work. Much of our effort was in collecting and integrating the relevant data. Data sources include the state Agricultural Statistics Services, the Economic Research Service, the Food and Agricultural Organization of the United Nations, the Department of Commerce, and the *Almanac of the Canning, Freezing, and Preserving Industries* (Edward E. Judge & Sons).

Red Raspberries (See also Appendix figures A.1 - A.6.)

Almost all U.S. red raspberry production is in Washington and Oregon. Per-capita frozen consumption of red raspberries has doubled, from 0.08 lb. in 1980 to 0.16 lb. in 2000, most of that growth occurring in the 1980s. U.S. production has been cyclical with an apparent two-year period, suggesting the presence of short yield cycles. Overall production has

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[1]We thank Pete Gonzalves, Director, Oregon Tilth Certified Organic, for providing us access to organic fruit and vegetable crops' data and Jun Ruan for research assistance.

trended strongly upwards, from approximately 11,000 tons in 1980 to 38,000 tons in 2000 (Figure 1). The production rise in raspberries for processing (IQF, preserves, and juices) has been stronger than that in the fresh market, and fresh utilization in 2000 stood at only 6% of total utilization. However, fresh utilization doubled between 1995 and 2000.

Raspberry imports, largely from British Columbia, Mexico, and Chile, were at 14,593 tons in 2000, 28% of total U.S. supply. Exports are negligible. Since 1995, imports have swung strongly toward the frozen market (Figure 2). Raspberry imports rose through the early 1980s and by 1986 were 40% higher than U.S. production. But imports have trended nearly sidewise since then and hence have represented an increasingly small proportion of U.S. consumption.

Nominal farm prices of fresh red raspberries have, except for cyclical swings, remained flat for the past twenty years (Figure 3). In real terms, therefore, they have trended strongly downward (Figure 4). Even nominal prices had by 2000 declined over 50% from their 1994 peak. Prices shown in Figures 6 and 7 are weighted averages of those received for the fresh and processed markets. Farm prices for processed raspberries are more volatile than for the fresh market, and fresh prices today are about three times higher than processed prices.

Declining raspberry prices in the face of strongly increasing production suggest that raspberry supply has risen even faster than demand. A major factor in supply growth has been the opening up of new, highly productive raspberry lands in the state of Washington. That is, part of the supply growth has been in input growth and part in productivity growth.

A look at yield data confirm this. Per-acre yields in Oregon have, at an average 5000 lbs, been flat since the early 1980s. In Washington by contrast, per-acre yields rose from an average 5000 lbs in 1980 to around 7800 lbs in 2001. As a result, Oregon production area was, at 2700 acres, little higher in 2001 than what it was in 1980, while Washington acreage rose from 2800 acres in 1980 to 6,300 acres in 1996 and 9,500 acres in 2001 (Figure 5). By 2001, the state of Washington dominated red raspberry production at 34,052 tons, compared to Oregon's 7,214 tons (Figure 6).

There seems, in summary, little reason to think import competition has injured U.S. red raspberry producers. Domestic demand growth has been high and most of this growth has been met by U.S. producers. Input growth, and apparent productivity improvements, have kept prices down in the face of rising demand. Although imports have risen slightly during the past few years, they have not kept pace with the steep rise in domestic production.

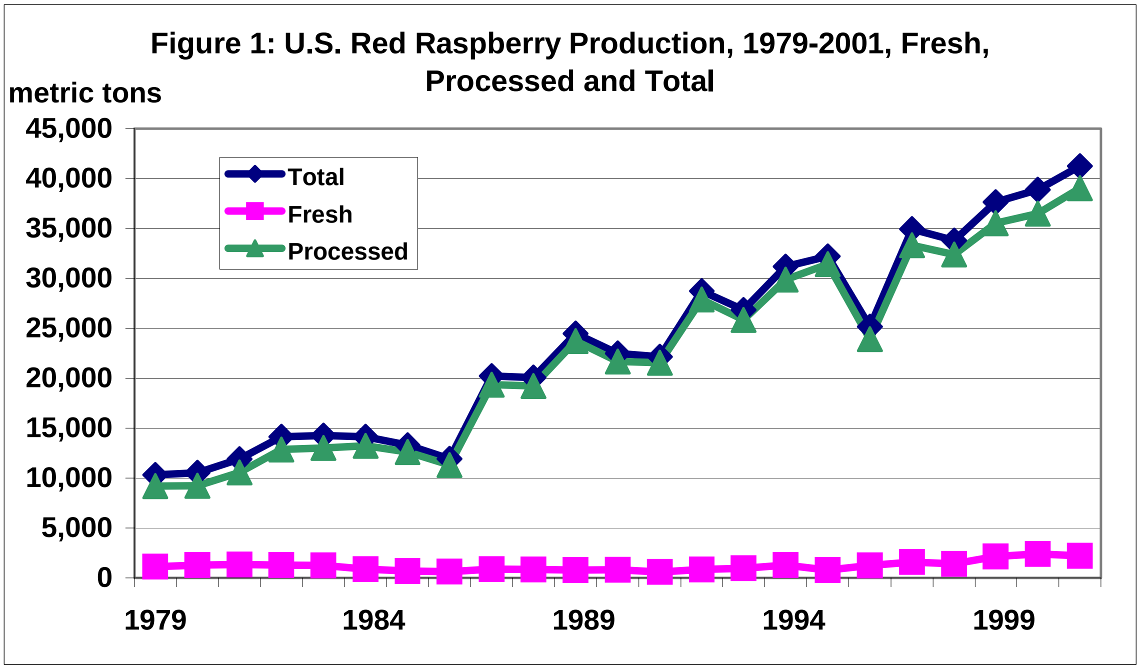


Figure 1: U.S. Red Raspberry Production, 1979-2001, Fresh, Processed and Total
metric tons
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Total
Fresh
Processed
1979
1984
1989
1994
1999

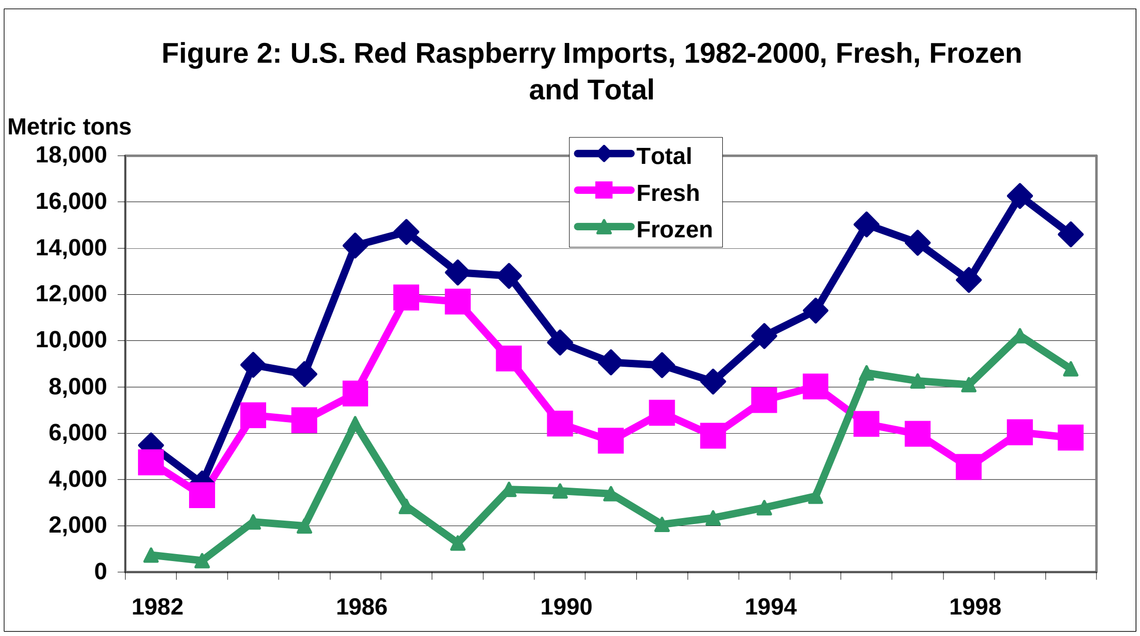


Figure 2: U.S. Red Raspberry Imports, 1982-2000, Fresh, Frozen and Total
Metric tons
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Total
Fresh
Frozen
1982
1986
1990
1994
1998

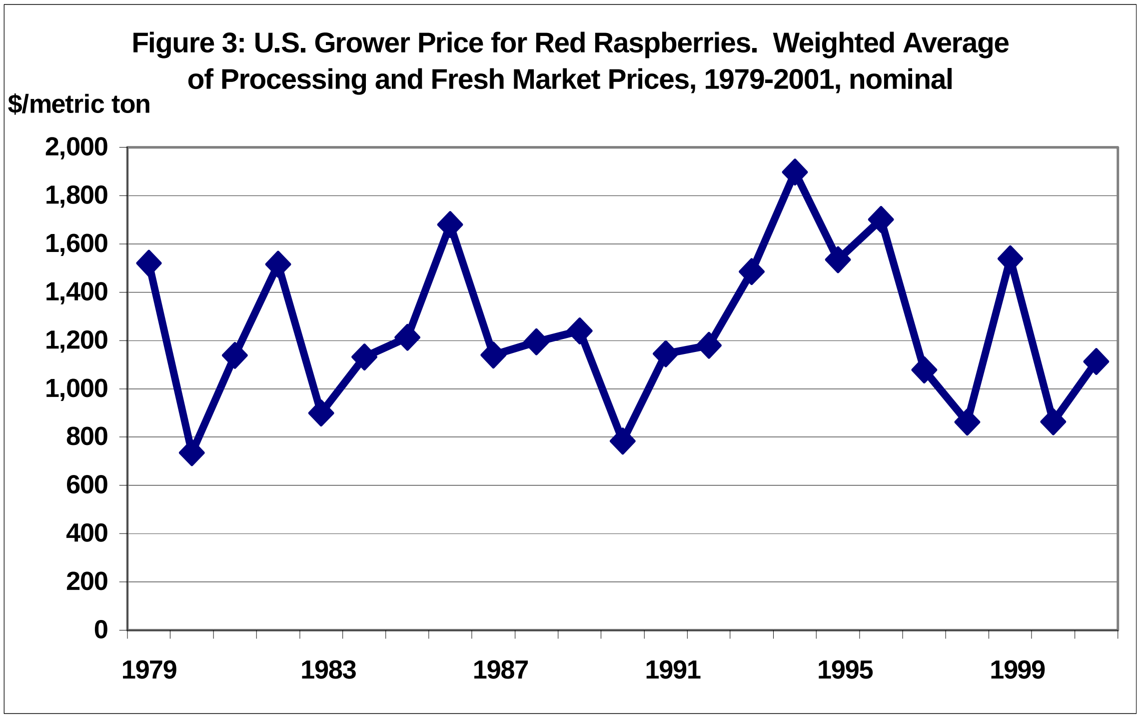


Figure 3: U.S. Grower Price for Red Raspberries. Weighted Average of Processing and Fresh Market Prices, 1979-2001, nominal
$/metric ton
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
1979
1983
1987
1991
1995
1999

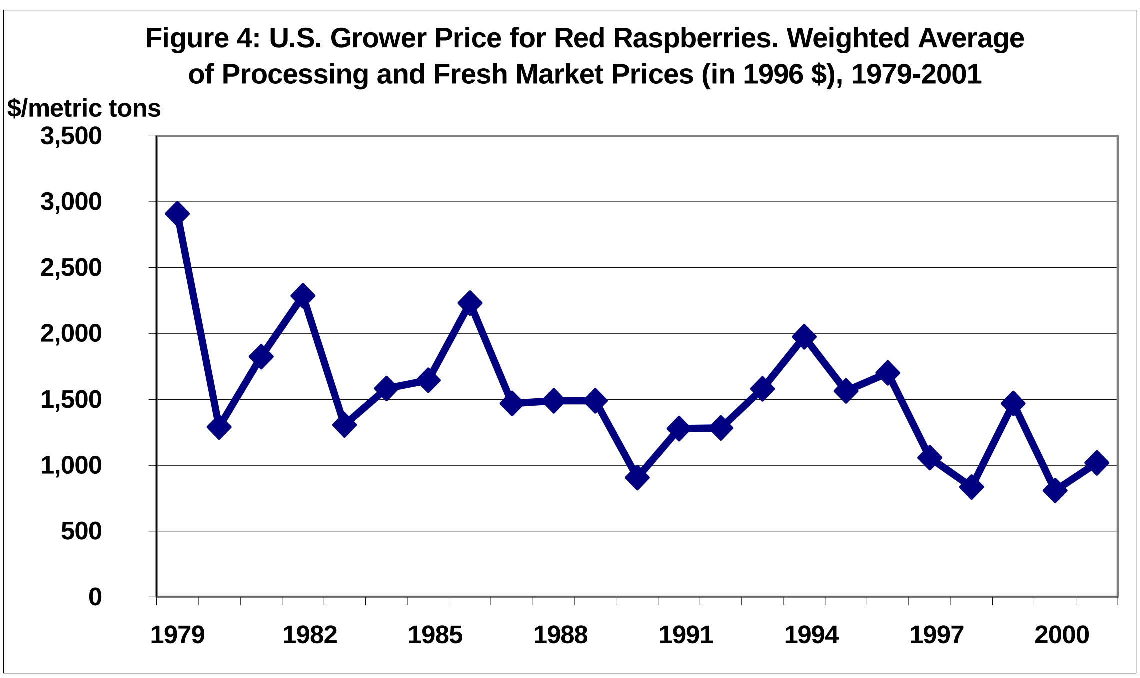


Figure 4: U.S. Grower Price for Red Raspberries. Weighted Average of Processing and Fresh Market Prices (in 1996 $), 1979-2001
$/metric tons
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1979
1982
1985
1988
1991
1994
1997
2000

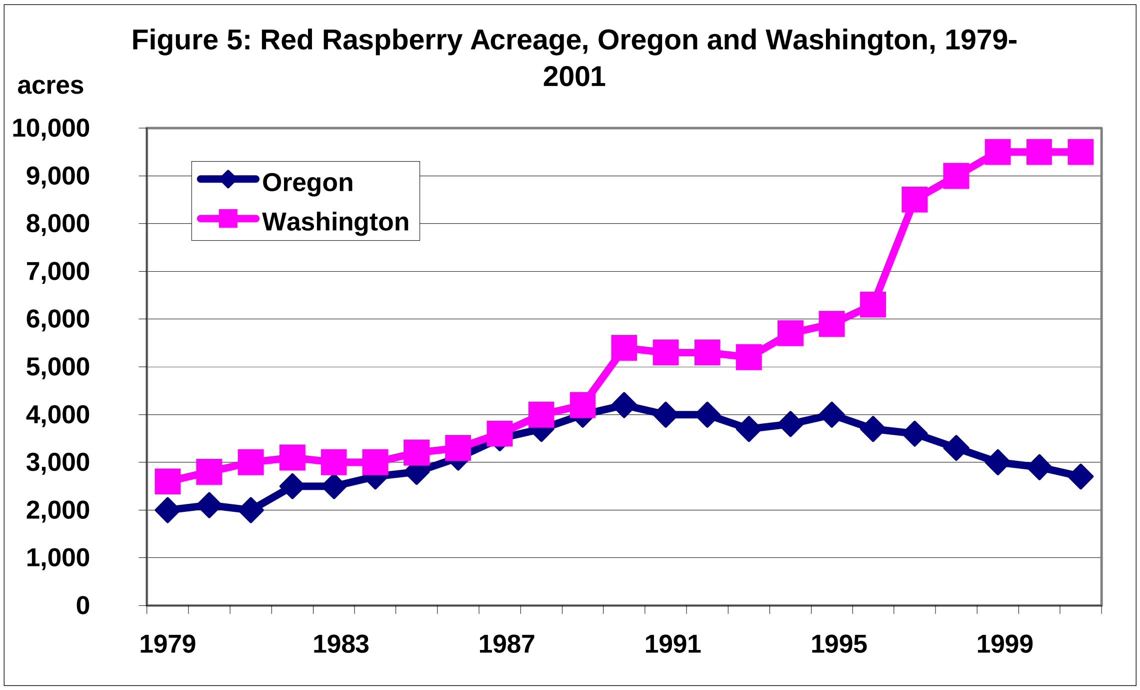


Figure 5: Red Raspberry Acreage, Oregon and Washington, 1979-2001
acres
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Oregon
Washington
1979
1983
1987
1991
1995
1999

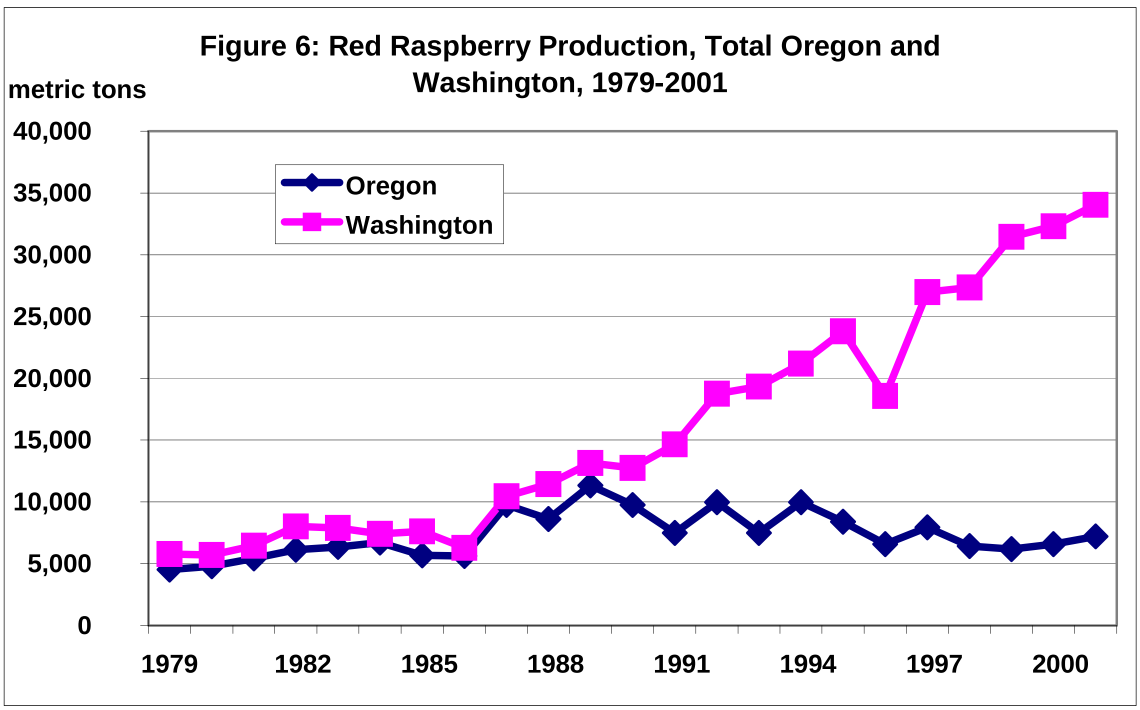


Figure 6: Red Raspberry Production, Total Oregon and Washington, 1979-2001
metric tons
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Oregon
Washington
1979
1982
1985
1988
1991
1994
1997
2000

Blueberries (See also Appendix figures A.11 - A.16.)

Blueberry production is spread across the United States, Maine having the largest share at 28%, followed by Michigan, New Jersey, North Carolina, Oregon, Georgia, and Washington. Most of the changes in the U.S. blueberry market during the past several decades parallel those in the red raspberry market. Per-capita U.S. consumption of frozen blueberries, for example, has doubled, from 0.18 lbs in 1980 to 0.35 lbs in 2000. By 2001, 63% of U.S. blueberry production was for processing, for either freezing, preserving, or juices (Figures 7 and 8). Total U.S. blueberry production has risen sharply and uniformly, with the exception of short-term cyclical movements, during the past two decades, from 41,000 metric tons in 1980 to 123,000 metric tons in 2001. Especially in proportionate terms, increases in processed blueberry output have greatly exceeded increases in fresh output.

Blueberry imports (Figure 9) have for the most part tracked exports (Figure 10), and each stood in 2000 at nearly 33,000 metric tons, 25% of domestic production. The composition of exports has varied greatly on a cyclical basis. Fresh exports tended to exceed processed exports in the early 1980s, fall well below them in the late ‘80s and early ‘90s, then exceed them again in the late 1990s. Principal export destinations are, in order of importance, Canada, the EU, and Japan. Exports to Canada have risen the fastest in the past several years and now dwarf those to any other destination.

Imports of frozen blueberries have risen approximately 50% during the past five years, with little cyclical fluctuation. After some decline in the early 1990’s, fresh imports recently have also risen dramatically, from around 8,000 tons in 1998 to around 16,000 metric tons in 2000. Fresh imports are now one-half the size of U.S. fresh blueberry production. By far the largest source is Canada, followed distantly by Chile.

Farm blueberry prices for both the fresh and processing markets generally rose through the mid-1990s, then declined, although fresh-market prices have recovered since 1998 (Figure 11). Fresh-market prices have trended upward during the past two decades and by 2001 were twice their 1980 levels. They also have risen strongly against processing-market prices; in 2001 they were more than double those in the processing market. Indeed, 2001 nominal processing-market blueberry prices were only slightly higher than they were at the beginning of the 1980s. As Figure 12 shows, processing-market real prices have correspondingly declined during that interval. Given the strongly increasing demand for blueberries noted earlier, the implication is that productivity growth has been especially strong in blueberry freezing, packing, and transportation. This has, as in the red raspberry industry, helped fuel rising blueberry utilization in frozen and puree form. Furthermore, processing-market blueberry prices have been much less volatile than have fresh-market prices.

Trends in Oregon and Washington production, which account for nearly all of West Coast blueberry output, have largely matched the national trends. In 2001, Oregon production area stood at 2800 acres (Figure 13) and Washington at 2000 acres (Figure 14). But Washington yields have lagged strongly behind those in Oregon. Although both have risen a significant 25% during the past five years, yields in Oregon stood in 2001 at 4.7 metric tons per acre, compared to Washington’s 3.4 tons per acre. This yield gap likely explains why Oregon acreage rose more than 500% from 1980 to 2001 (Figure 13), while Washington acreage rose by only 250% (Figure 14).

Despite the steep rise in imports from Canada in recent years, we would conclude, as with the red raspberry market, that there is little reason to believe foreign competition has greatly hurt domestic producers. Canadian demand for U.S. production has largely matched Canadian supplies to the U.S. market. With the exception of Canada, only Chilean producers have shown any ability to compete with U.S. producers. Rather, U.S. demand growth has brought significant benefits to U.S. agriculture.

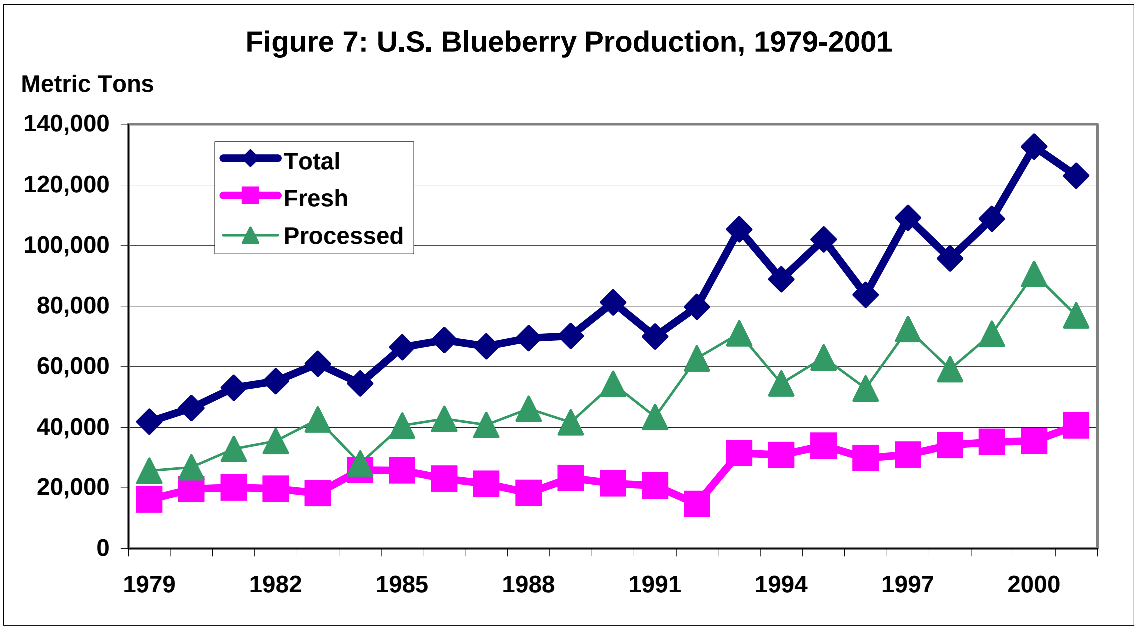


Figure 7: U.S. Blueberry Production, 1979-2001
Metric Tons
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
Total
Fresh
Processed
1979
1982
1985
1988
1991
1994
1997
2000

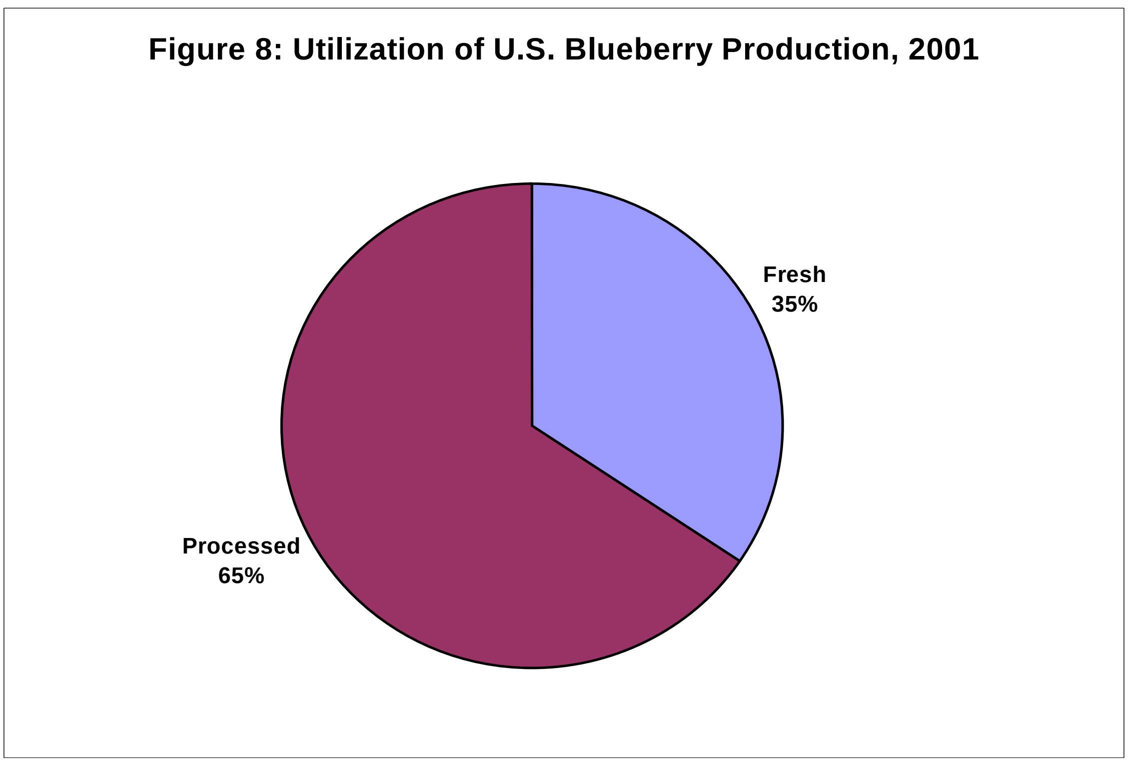


Figure 8: Utilization of U.S. Blueberry Production, 2001
Fresh
35%
Processed
65%

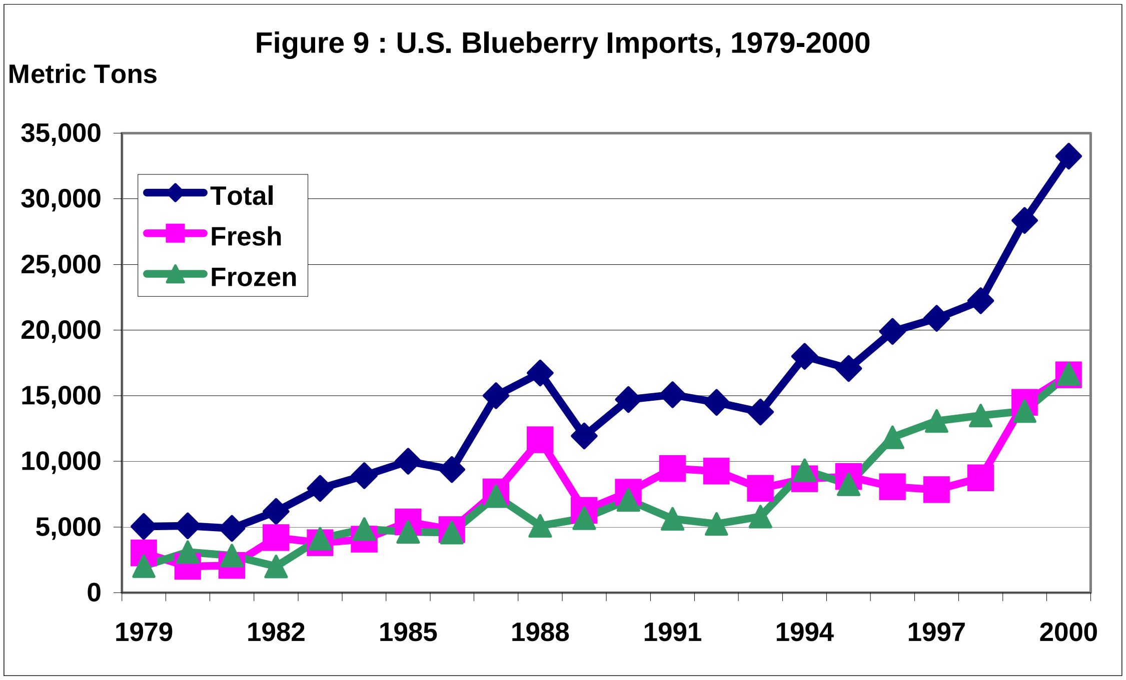


Figure 9 : U.S. Blueberry Imports, 1979-2000
Metric Tons
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Total
Fresh
Frozen
1979
1982
1985
1988
1991
1994
1997
2000

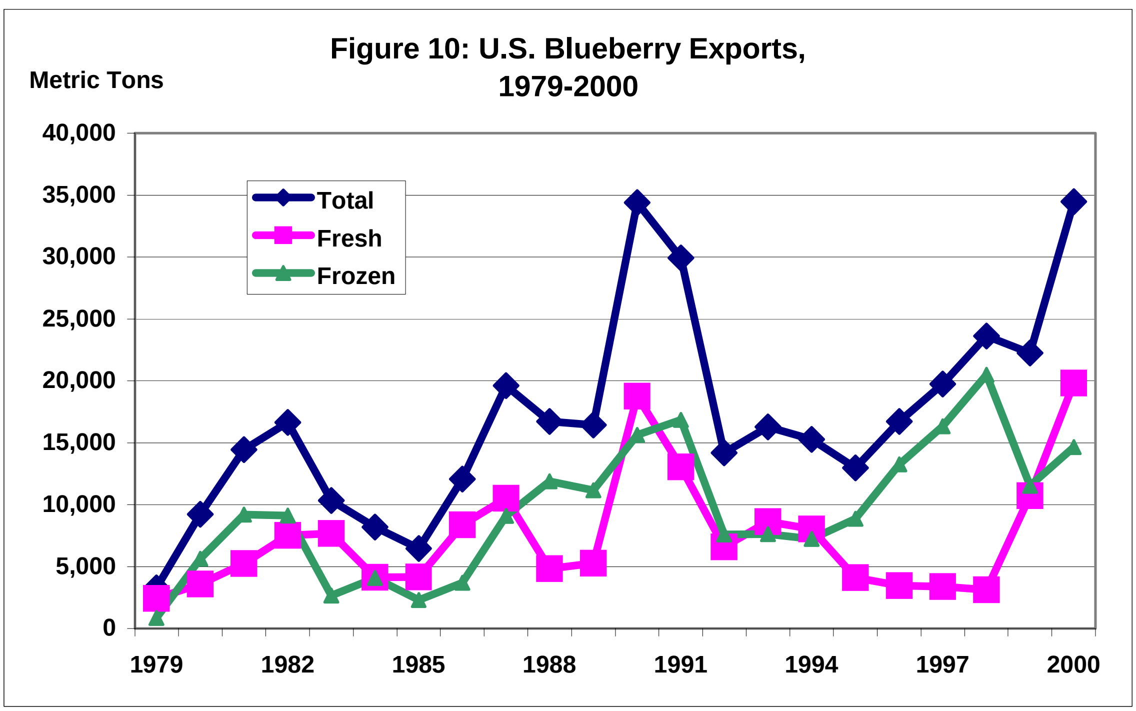


Figure 10: U.S. Blueberry Exports, 1979-2000
Metric Tons
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Total
Fresh
Frozen
1979
1982
1985
1988
1991
1994
1997
2000

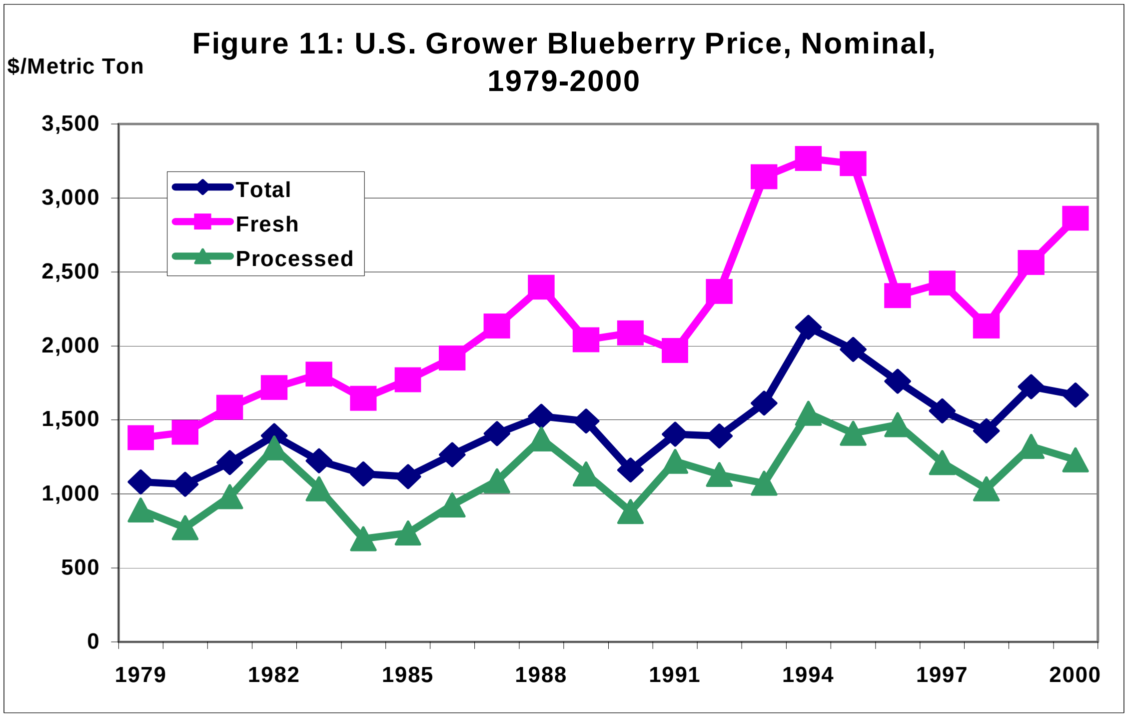


Figure 11: U.S. Grower Blueberry Price, Nominal, 1979-2000
$/Metric Ton
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Total
Fresh
Processed
1979
1982
1985
1988
1991
1994
1997
2000

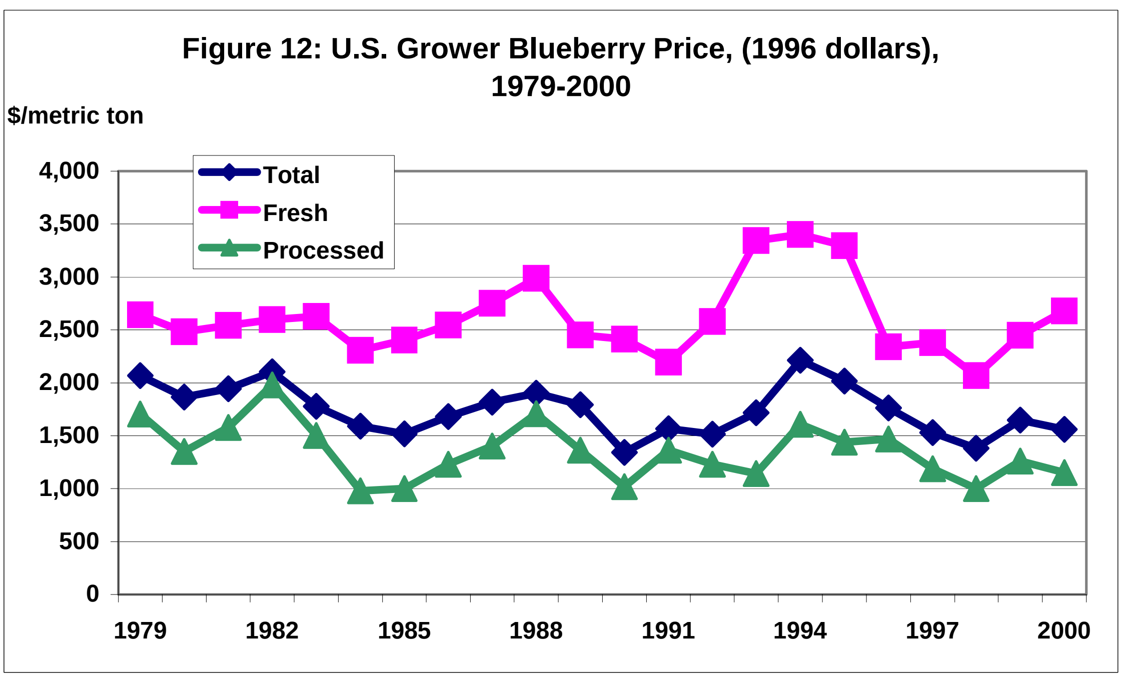


Figure 12: U.S. Grower Blueberry Price, (1996 dollars), 1979-2000
$/metric ton
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Total
Fresh
Processed
1979
1982
1985
1988
1991
1994
1997
2000

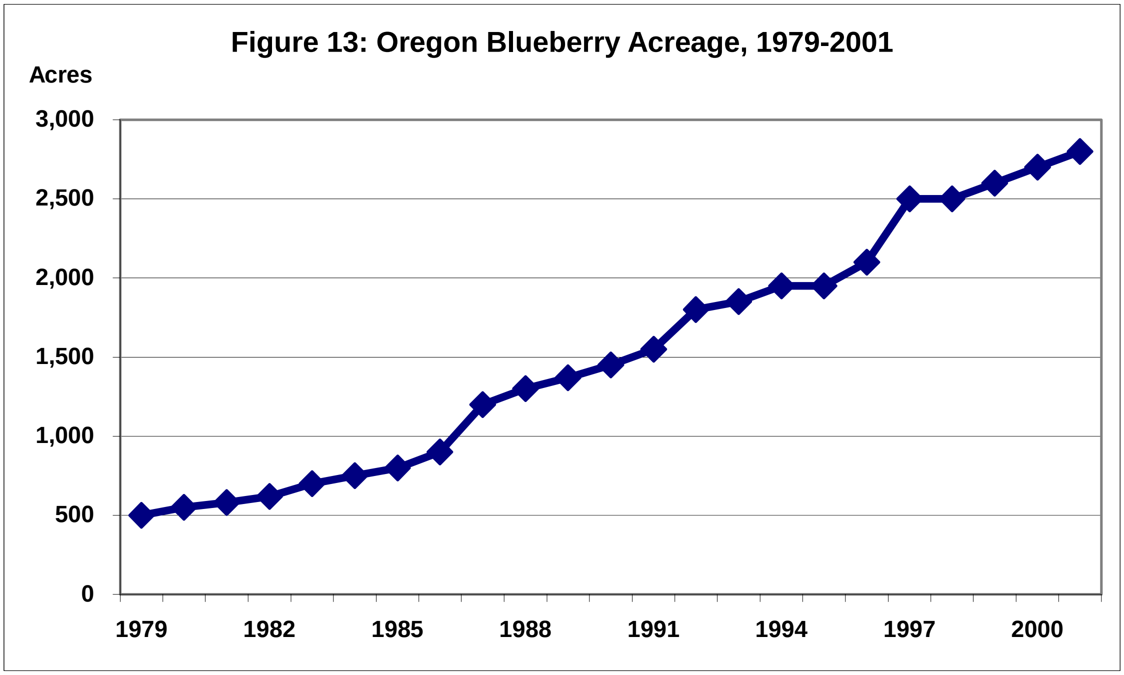


Figure 13: Oregon Blueberry Acreage, 1979-2001
Acres
3,000
2,500
2,000
1,500
1,000
500
0
1979
1982
1985
1988
1991
1994
1997
2000

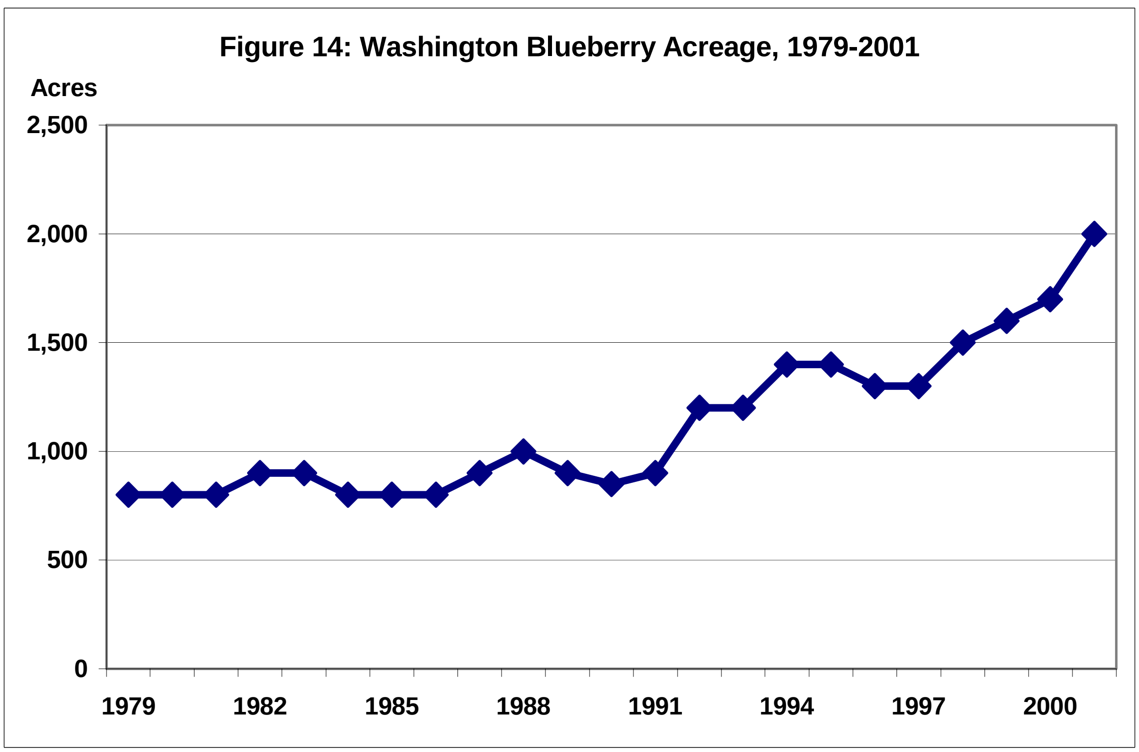


Figure 14: Washington Blueberry Acreage, 1979-2001
Acres
2,500
2,000
1,500
1,000
500
0
1979
1982
1985
1988
1991
1994
1997
2000

Strawberries (See also Appendix Figures A17-A-27.)

California has long dominated the U.S. strawberry industry, its market share rising from 74% of U.S. production in 1980 to 87% of production in 2001. Oregon's share in 2001 was 2.5%, putting it third in the nation after Florida, and Washington's share was 1.0%. Per-capita consumption of frozen strawberries has, unlike in the raspberry and blueberry market, remained flat for the last two decades, averaging around 1.4 lbs per person. Similar to raspberries and blueberries, however, total U.S. strawberry production rose by approximately 250% during the same period. The source of the apparent discrepancy is that most of the strawberry production rise has been in the fresh rather than processed market. Fresh-market production climbed steadily, and with only minor short-term cyclical fluctuations, from 198,000 tons in 1980 to 680,000 tons in 2000 (Figure 15). In contrast, processed-market production rose from just under 100,000 to only about 200,000 tons in the same period.

Exports of frozen strawberries have always been a minor part of the U.S. strawberry industry, and although increasing in the late 1980s from nearly zero, they have since remained largely flat and now are declining relative to U.S. production (Figure 16). In 2000, about 65% of exports were in fresh form and 35% were frozen, and together were one-tenth as large as U.S. output. During the past decade, both fresh and frozen exports have seemed to vary moderately on an approximate four-year cycle. About 60% of strawberry exports presently are to Canada and another 10% each to Mexico and Japan.

Strawberry imports, mostly from Mexico, have varied only in minor ways during the past few decades and account for just about 8% of total U.S. consumption. This proportion has remained remarkably constant since at least the early 1980s. Total imports have, as in the blueberry market, approximately equaled total exports. Furthermore, imports are about equally divided between processed and fresh markets, another relationship that has shown little sign of changing (Figure 17).

Strawberry prices have, as in the blueberry industry, risen gradually during the past two decades and are now approximately 40% higher than in 1980. Price cycles of a three- or four-year period have been evident, and have been as significant in the processed market as in the fresh (Figure 18). The aggregate strawberry price rise is accounted for entirely by increases in fresh-market prices because, with the exception of cyclical variations, processed strawberry prices have been flat. This matches our experience with both raspberry and blueberry prices. However, unlike raspberries and blueberries, it is fresh rather than processed strawberry production that has been rising in the United States.

Part of the reason for this difference is that most of the demand growth for strawberries has been in the fresh market. As fresh-market demand has shifted strongly rightward, input and productivity growth in strawberry farming, handling, and transportation have not been able to keep pace. In contrast, the same productivity growth in quick-freezing and refrigerated transportation technology that have helped moderate frozen raspberry and blueberry prices have done so for frozen and other processed strawberry prices. Thus, rising relative demand for fresh strawberries is being matched by rising fresh relative to processed strawberry prices.

Per-acre yields in California, at 24 metric tons per acre, are twice as high as in Florida and five to six times higher than in its other competitor states such as Oregon. California and Florida yields have risen slightly since the early 1980s. In the Northwest, in contrast, there has been little indication that the productivity of land resources in strawberry farming has improved. At 4.5 metric tons per acre, Oregon yields stood in 2001 exactly where they did in 1980. And at 4.0 metric tons per acre in 2001, Washington yields had risen only moderately from their 3.0-ton-per-acre level in 1980. Such technical dormancy explains why Oregon and Washington planted area has declined from 8,000 acres in the early 1980s to 4,700 acres in 2001, while California's has grown from 11,000 to 26,400 acres and Florida's from 2,500 to 6,500 acres during the same period. At 25,400 metric tons, Pacific Northwest production had fallen by 2001 to only 3.5% of U.S. production, compared to 6.3% in 1990 and 9% in 1980.

In sum, the U.S. strawberry industry seems to have been injured very little from foreign competition and indeed has enjoyed robust growth, predominantly in the fresh sector. California has asserted almost complete dominance in this industry on the basis of its commanding advantage in per-acre yields. Foreign competition is nearly entirely from neighboring Mexico. Northwestern berry producers are switching to blackberries, raspberries, and blueberries, where their comparative advantage is much stronger than in strawberries.

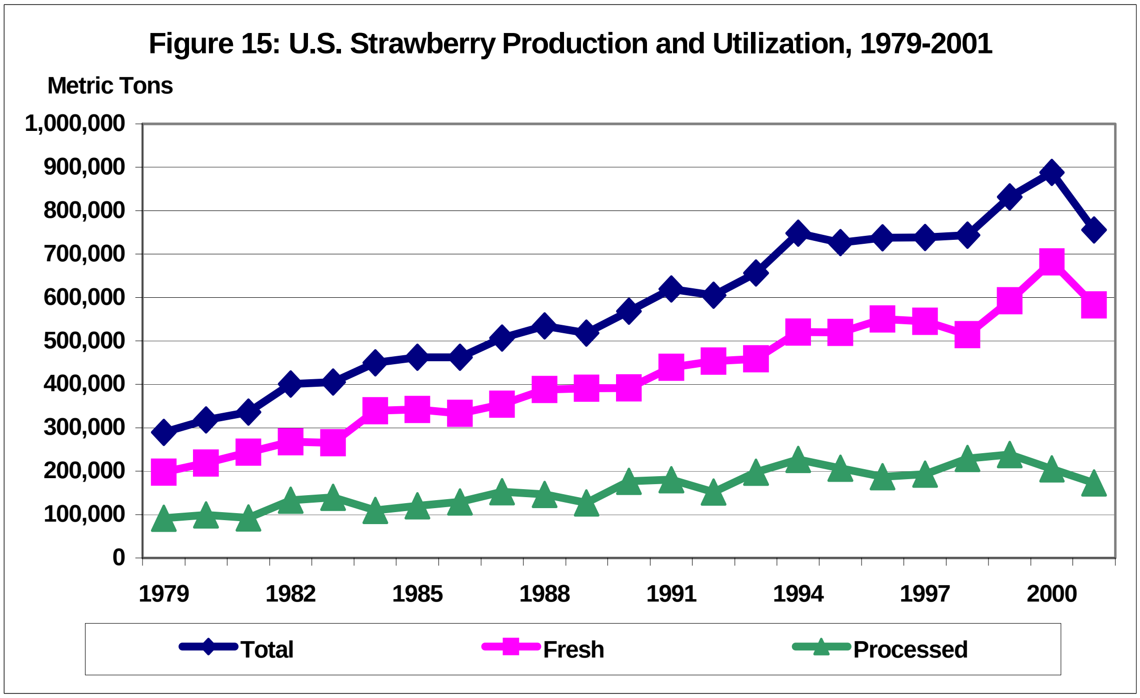


Figure 15: U.S. Strawberry Production and Utilization, 1979-2001
Metric Tons
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
1979
1982
1985
1988
1991
1994
1997
2000
Total
Fresh
Processed

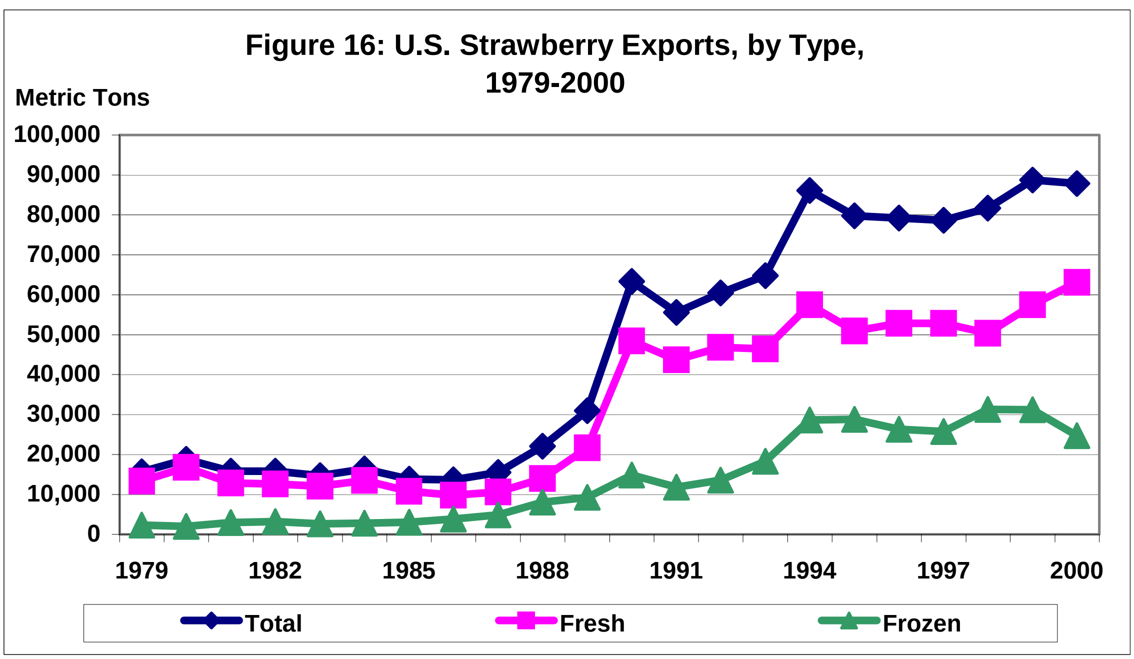


Figure 16: U.S. Strawberry Exports, by Type, 1979-2000
Metric Tons
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1979
1982
1985
1988
1991
1994
1997
2000
Total
Fresh
Frozen

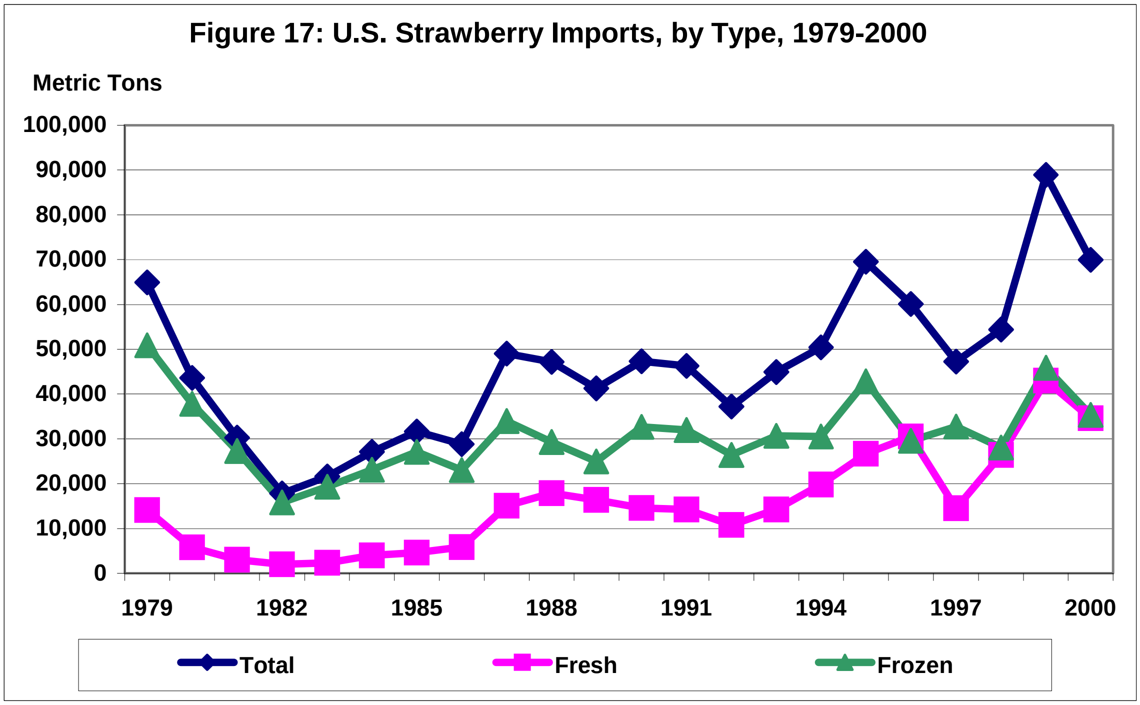


Figure 17: U.S. Strawberry Imports, by Type, 1979-2000
Metric Tons
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1979
1982
1985
1988
1991
1994
1997
2000
Total
Fresh
Frozen

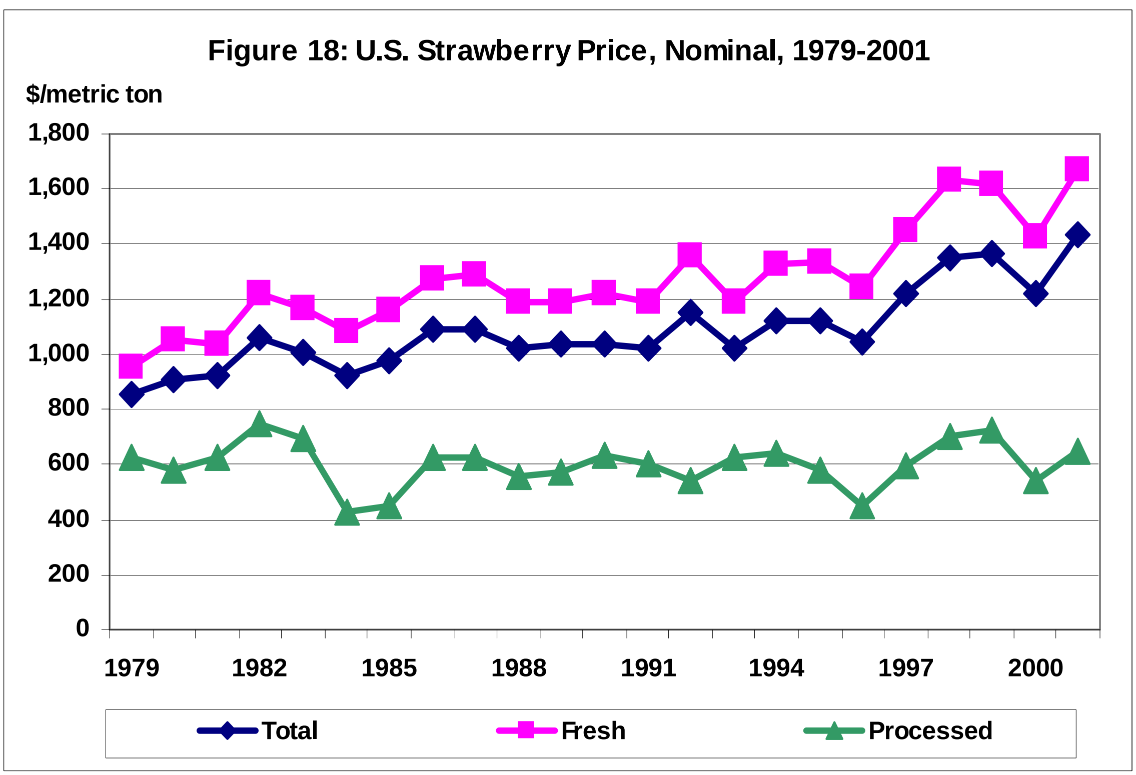


Figure 18: U.S. Strawberry Price, Nominal, 1979-2001
$/metric ton
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
1979
1982
1985
1988
1991
1994
1997
2000
Total
Fresh
Processed

Sweet Corn for Processing (See also Appendix figures A.28 - A.41.)

Production of sweet corn for processing is concentrated in the northern Midwest and Pacific Northwest. Minnesota, Wisconsin, and Illinois together account for about 50% of the nation's crop, and Washington, Oregon, and Idaho for roughly 40%. (In contrast, California, Florida, Pennsylvania, and New York lead in fresh-market production.) Approximately half of processing sweet corn goes into freezing and the other half into canning. U.S. production for processing was largely flat during the 1990s at an average 2.9 million metric tons per year (Figure 19). Distribution of production by state was, on average, stable as well, although annual yield and acreage fluctuations have been substantial. To place this in a broader context, aggregate per-capita consumption of processed vegetables was flat during the 1990's at about 130 lbs, implying that consumption has increased only with population growth.

Canned sweet corn exports rose substantially from the mid-1980s to mid-1990s, then began declining (Figure 20). They equaled 193,000 metric tons in 1997, dropping to 146,000 metric tons by 2002. These numbers closely track U.S. canned corn production (Figure 19), suggesting most U.S. canned output is exported. Principal export destinations were, in order, Japan, Taiwan, and South Korea. Canned corn imports, almost entirely from Canada, stayed below 10,000 metric tons until until 1999, although they recently have been on the rise (Figure 21).

Exports of frozen sweet corn hovered just above 50,000 metric tons in the early 1990s, rose to 73,600 tons in 1998, and by 2001 had fallen back to 66,511 tons (Figure 10). These numbers represent about 3% of U.S. frozen sweet corn output, and there is little indication of a trend in the export share of frozen output. The distribution of foreign sales has also been fairly constant. Between 57% and 61% have gone to Japan, between 6% and 15% to Canada, about 6% to Hong Kong, and 4% to Mexico. Exports to Canada have been the most variable. Nearly all imports of frozen sweet corn are from Canada, fluctuating since 1989 between 5,000 and 13,000 metric tons per year. These correspond to seasonal shipments only and have little impact on the U.S. market. The 9,162 tons of Canadian imports in 2000, for example, represented less than one percent of U.S. consumption.

Consistent with a rather stable supply and demand picture, grower prices for processing sweet corn have since 1992 trended largely sideways at an average U.S. price of $80 per metric ton (Figure 22). This stability contrasts with the mild sweet-corn price increases during the 1980s but is consistent with stable prices during the 1990s in the aggregate frozen vegetable industry.

At an average 8.2 metric tons per acre, processing sweet corn yields in the Pacific Northwest have, since at least the mid-1980s, been 50% higher than in its chief competitor-region, the northern Midwest. Yields in Washington and Oregon have been static for the past 15 years. Since these two states account for the majority of the region's output, Pacific Northwest processing corn production has varied mainly through changes in planted acreage. Acreages tended to rise during the early 1990s but have since declined. Oregon production area, for example, was 29,100 acres in 2001, only 59% of the level at which it had peaked in 1995 (Figure 23). Oregon farm receipts were down 31% during that same six-year interval. However, there is no indication that production is swinging to the northern Midwest, where per-acre yields, too, have been flat and Wisconsin acreage declining.

Overall, the processing sweet corn industry appears to be comparatively stable in terms of per-capita domestic demand, trade competition, and within-U.S. output distribution. Imports are small and, although rising, a stable percentage of domestic consumption. Most domestic demand increases are linked to population growth. Because production has been constant, this rising domestic demand has been met largely by declining exports. There is no evidence that domestic production is beginning to shift, as was once predicted, from the Pacific Northwest to the Northern Midwest.

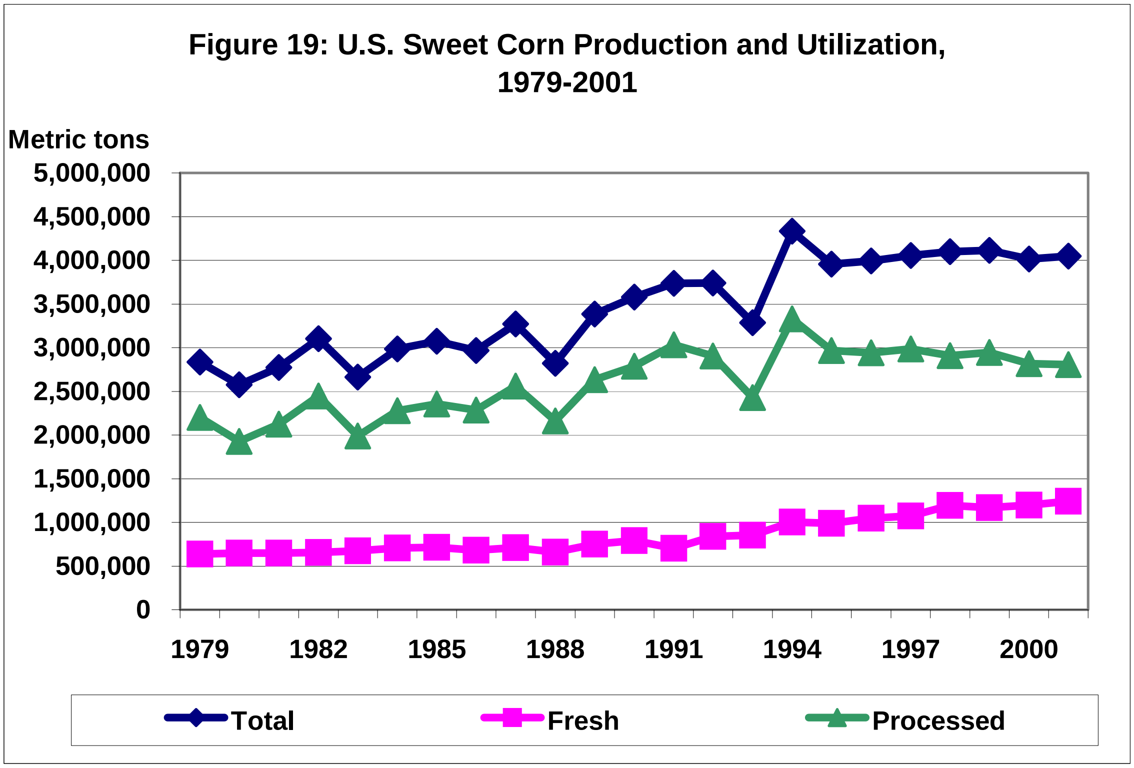


Figure 19: U.S. Sweet Corn Production and Utilization, 1979-2001
Metric tons
5,000,000
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
1979
1982
1985
1988
1991
1994
1997
2000
Total
Fresh
Processed

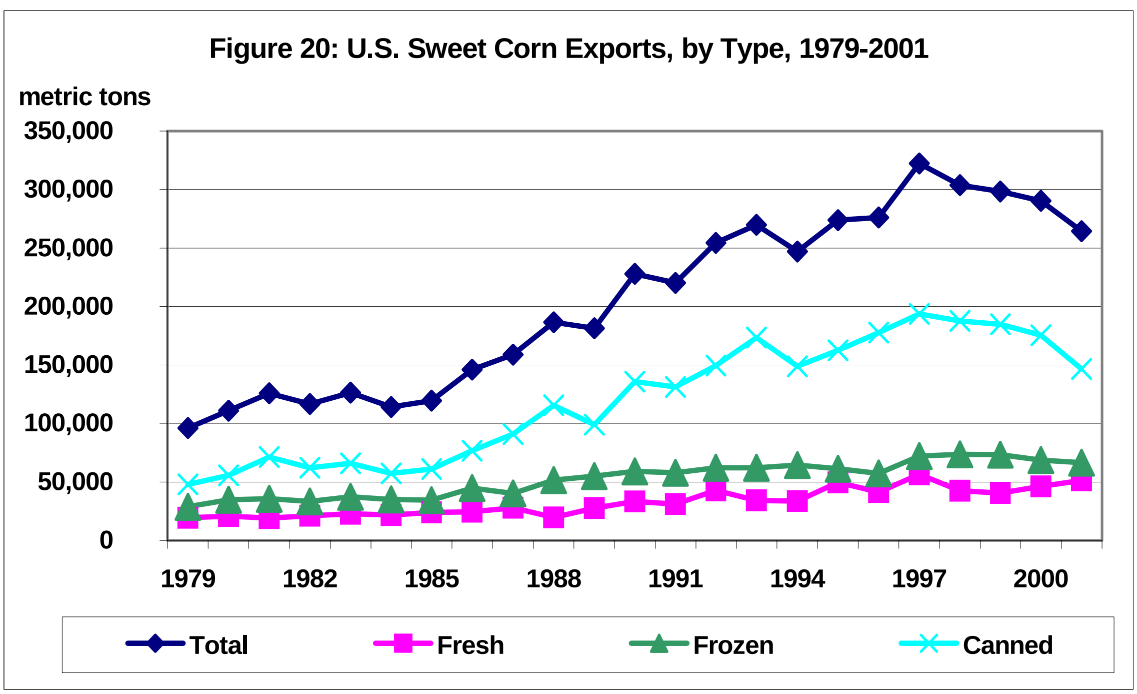


Figure 20: U.S. Sweet Corn Exports, by Type, 1979-2001
metric tons
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
1979
1982
1985
1988
1991
1994
1997
2000
Total
Fresh
Frozen
Canned

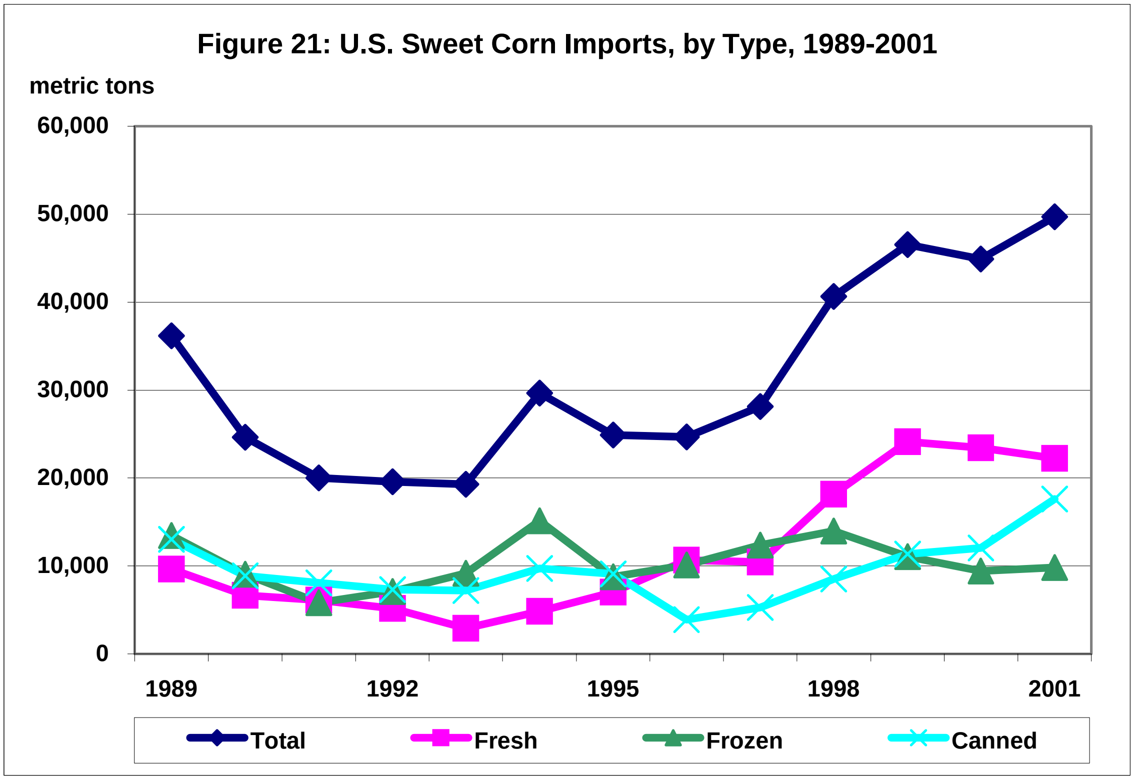


Figure 21: U.S. Sweet Corn Imports, by Type, 1989-2001
metric tons
60,000
50,000
40,000
30,000
20,000
10,000
0
1989
1992
1995
1998
2001
Total
Fresh
Frozen
Canned

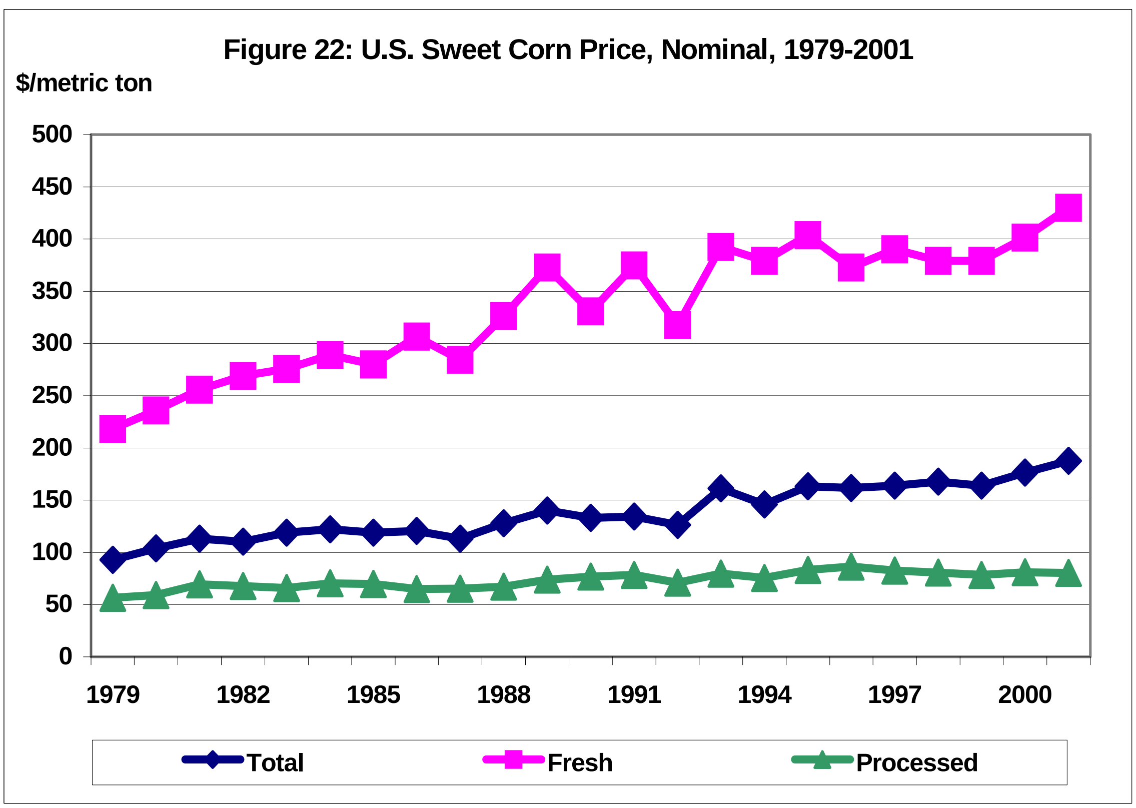


Figure 22: U.S. Sweet Corn Price, Nominal, 1979-2001
$/metric ton
500
450
400
350
300
250
200
150
100
50
0
1979
1982
1985
1988
1991
1994
1997
2000
Total
Fresh
Processed

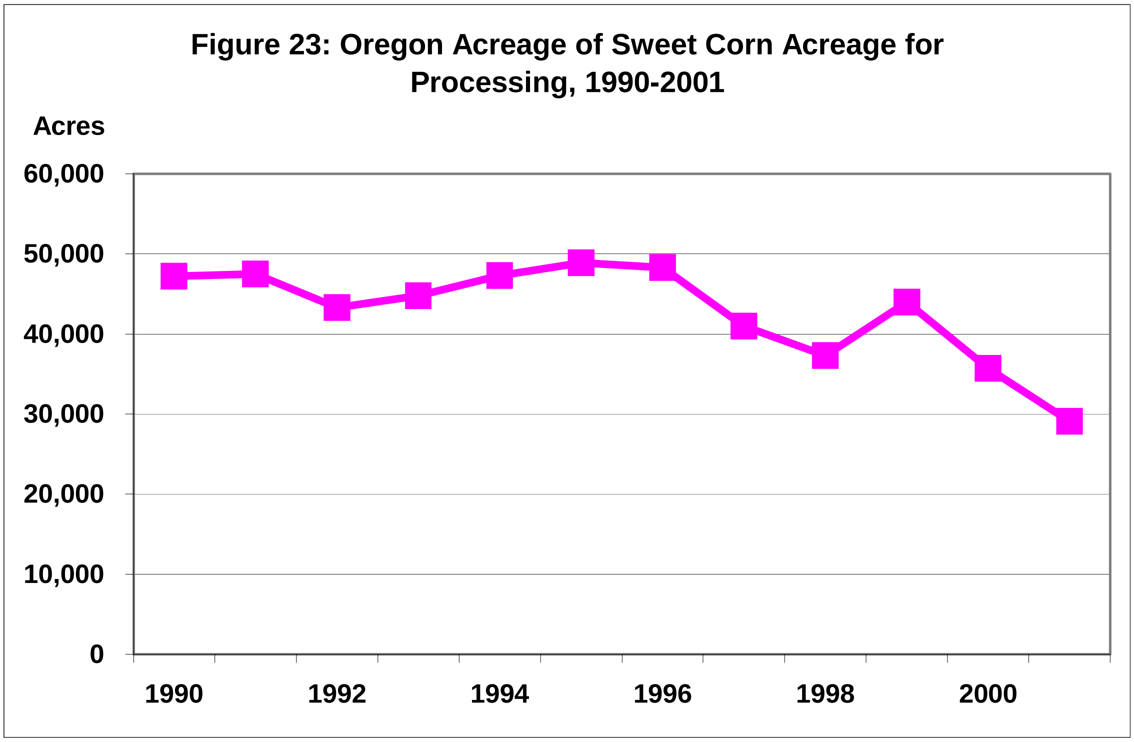


Figure 23: Oregon Acreage of Sweet Corn Acreage for Processing, 1990-2001
Acres
60,000
50,000
40,000
30,000
20,000
10,000
0
1990
1992
1994
1996
1998
2000

Snap ("Green") Beans for Processing (See also Appendix figures A.42 - A.49.)

Wisconsin and Oregon are the two largest U.S. producers of snap beans for processing. In 2000, Wisconsin accounted for 31% of U.S. production and Oregon for 16%. Michigan and New York were third at 10% each. These percentages have recently remained fairly stable, although Oregon's share has declined from around 20% of production in the early 1990s. U.S. production of snap beans for processing (Figure 24) rose from 576,000 metric tons in 1992 to 744,00 metric tons in 2000, while Oregon's remained flat. Aggregate U.S. farm value of processing snap beans in 2000 was $142.5 million. Approximately two-thirds of processing snap beans are canned and one-third frozen.

Exports of canned snap beans, about 75% going to Mexico, have always been negligible and even after recent increases are still just over 5,000 metric tons per year (Figure 25). Imports of canned snap beans, approximately 75% from Canada, rose dramatically in the 1990s but even since 1998 have averaged only about 20,000 metric tons per annum. Frozen snap beans exports from the U.S. have risen only gradually, from near-zero in the late 1980s to around 10,000 tons per annum in 2000. Frozen imports (not shown in the figures) have been quite variable but never in recent decades have they exceeded 1% of U.S. production. Canadian imports, negligible in the early 1990s, rose to only 836 metric tons in 2001. A few frozen snap beans are imported from France, which at only 1,660 metric tons was the leading U.S. import source in 2001.

Average U.S. farm-level prices of processing snap beans were remarkably constant, at around $194 per metric ton, from 1992 to 2002 (Figure 26). In the early 1980s, average prices had stood near $133 per metric ton.

Oregon's per-acre yields of processing snap beans have dominated those in the rest of the nation. Throughout the 1990s, for example, Oregon yields averaged 6.4 metric tons per acre, about two-thirds higher than in its main competitor states, Michigan, Wisconsin, and New York. Yield growth appears to have been mild in most parts of the nation. The Midwest and New York showed no long-run yield improvements during the 1990s, although yields fluctuate annually in apparent response to weather conditions. In Oregon, yields grew only about 20% from 1980 to 2002, that is from 5.7 tons to 6.9 metric tons per acre. But Oregon planted acreage declined 38% during the same period. The drop in planted acreage proportionately has matched the per-acre revenue increases, so that Oregon farm receipts have remained about constant. Oregon planted acreages since 1995 are shown in Figure 27.

The processing snap bean market reveals, in summary, the same mature and static qualities discussed above in the processing sweet corn market. U.S. production has been rising roughly in tandem with U.S. population growth, varying annually in response to weather and recent relative price changes. Both exports and imports are small and do not indicate much sign of changing. Long-run per-acre yields have risen only slightly in Oregon and have been flat elsewhere. Oregon's recently declining share of the U.S. market likely reflects the rising opportunity cost of its acreage, perhaps in grass seed production, and may not indicate any long-run trend.

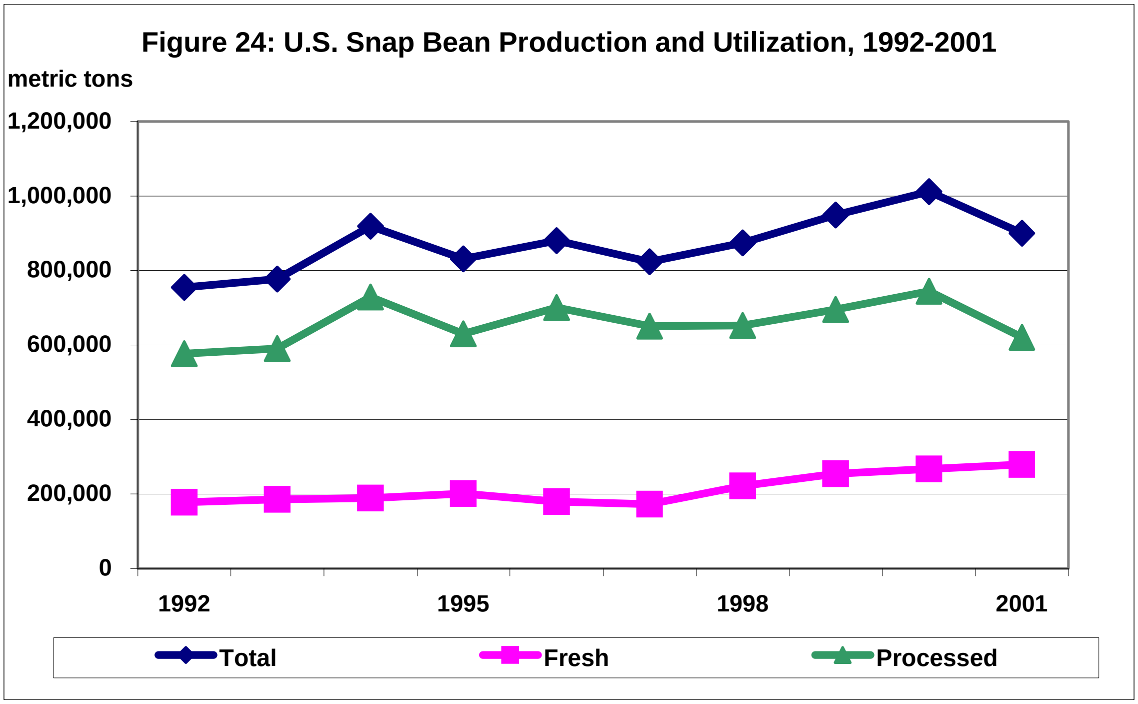


Figure 24: U.S. Snap Bean Production and Utilization, 1992-2001
metric tons
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1992
1995
1998
2001
Total
Fresh
Processed

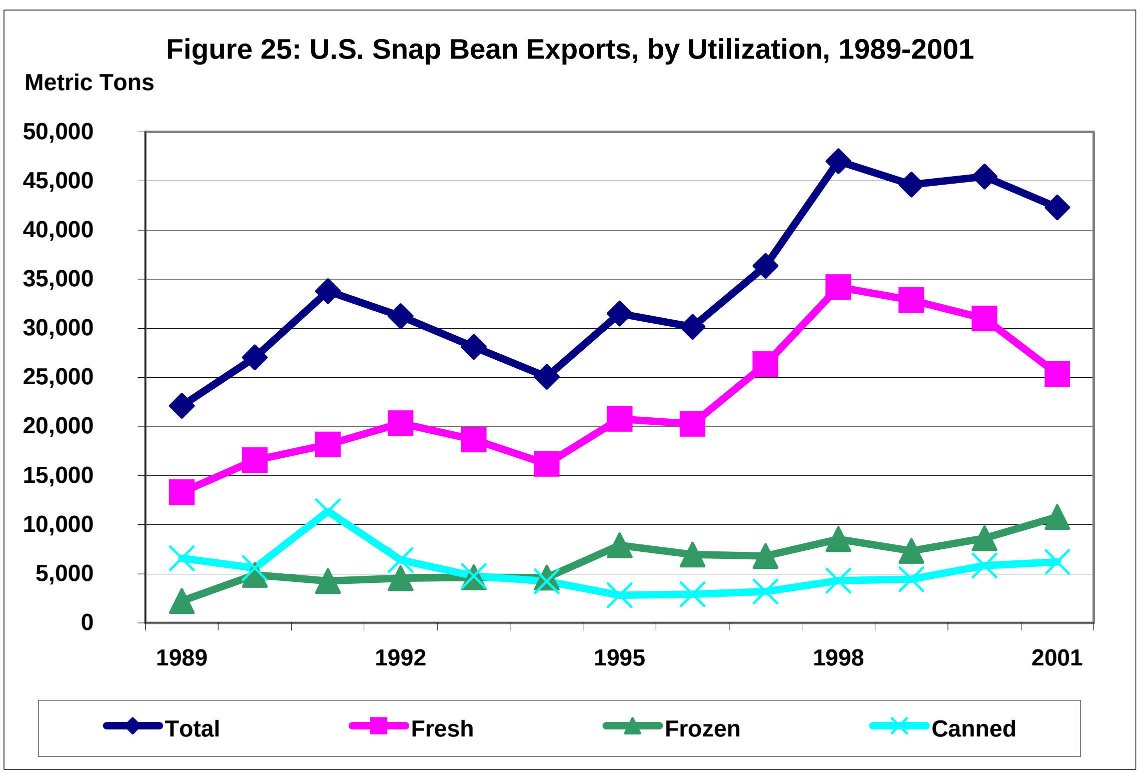


Figure 25: U.S. Snap Bean Exports, by Utilization, 1989-2001
Metric Tons
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1989
1992
1995
1998
2001
Total
Fresh
Frozen
Canned

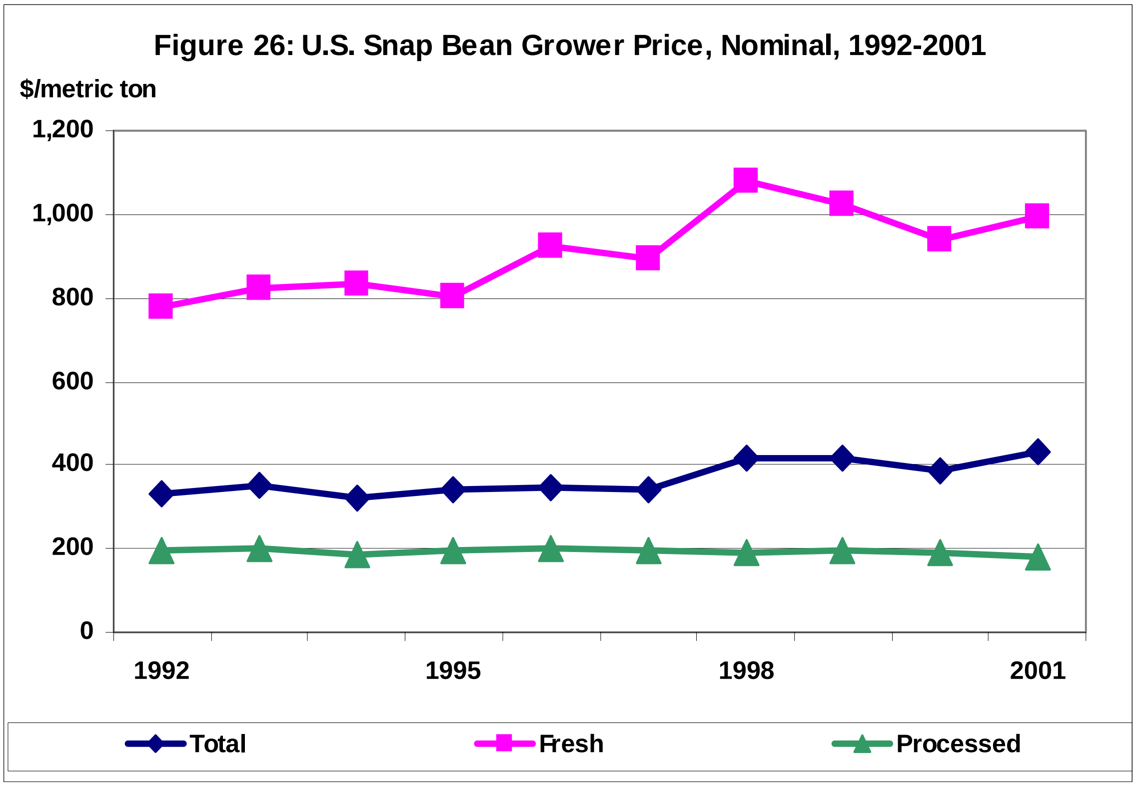


Figure 26: U.S. Snap Bean Grower Price, Nominal, 1992-2001
$/metric ton
1,200
1,000
800
600
400
200
0
1992
1995
1998
2001
Total
Fresh
Processed

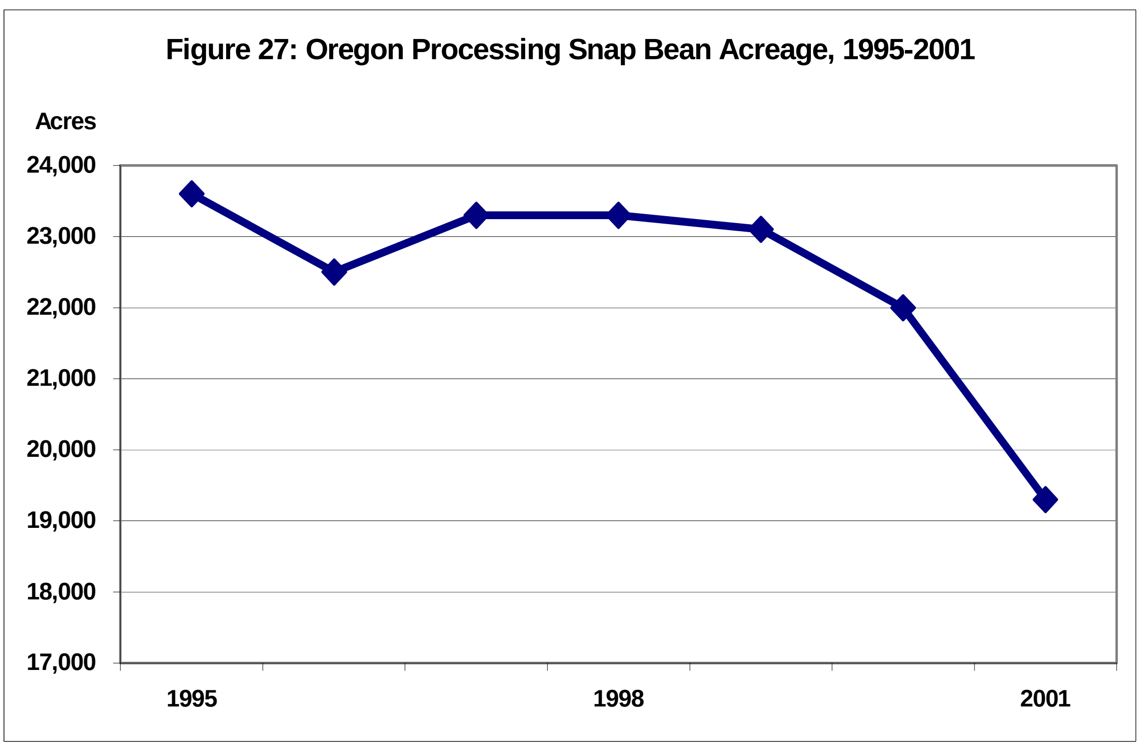


Figure 27: Oregon Processing Snap Bean Acreage, 1995-2001
Acres
24,000
23,000
22,000
21,000
20,000
19,000
18,000
17,000
1995
1998
2001

Oregon's Organic Fruit and Vegetable Sector

The U.S. organic food products industry has witnessed tremendous growth over the past decade. Certified organic cropland, pasture, and rangeland doubled between 1992 and 1997 to reach 1.35 million acres (Dmitri and Greene, 2002). In 1997, there were 850,177 acres of certified cropland and 496,385 acres of certified pasture and rangeland in the United States. Idaho has the most certified cropland (107,955 acres), followed by California (96,851 acres) and North Dakota (88,581 acres). Idaho's organic acreage comes mostly from barley, alfalfa, and herbs. California's organic agriculture is more diverse, with almost equal shares in grains, vegetables, and fruits. Organic wheat, soybeans, and hay account for a large share of North Dakota's organic acreage. Colorado accounts for about 45% of total organic pasture and rangeland.

Sales of organic food products increased from $3.3 billion in 1990 to $7.8 billion in 2000 (Dmitri and Greene, 2002). Fresh produce (fruits and vegetables) is the largest segment of the organic food products industry, accounting for 180,000 certified organic acres and about $2.2 billion in sales. California, Arizona, Washington, and Oregon together accounted in 2002 for 63% and 84% of the certified organic acres in vegetables and fruits, respectively.

Data from Oregon's only organic certifying agency, Oregon Tilth, show that certified organic acres in Oregon increased from 15,446 in 1999 to 39,724 in 2003. During that same period, the number of Oregon certified organic farms increased from 200 to 244. The average growth rate in organic acres is 30.1%, and in number of farms 5.1%, per year during the 2000 - 2003 interval. These growth rates likely reflect conversion of additional land on existing organic farms as growers realize the benefits of organic production.

Although a breakdown of Oregon's organic acreage is not readily available, we collected data on Oregon farms growing the five commodities discussed earlier. Acreage, production, and farm numbers in red raspberries, blueberries, and strawberries are drawn from Oregon Tilth. About 90 farms have grown one or more of the five commodities, their combined acreage falling from 614 in 2000 to 429 in 2003. On average, 575 organic acres were used each year to produce the five commodities during the 2000 - 2003 interval. Sales from these 90 farms, including other crops grown on them, averaged $3.73 million per year. The sales trend was positive. In all, however, organic sales account for less than 1% of the value of all fruit and vegetable production in Oregon.

Table 1 presents estimates from Oregon Tilth of organic acreage, farm numbers, and production of red raspberries, blueberries, strawberries, sweet corn, and snap beans. Sweet corn has the largest number of certified organic acres and the greatest production of any, averaging 340 acres and 1,017 tons per year between 2000 and 2003. On average, 41 organic farms have produced snap beans in Oregon during this time period, using 95 acres and producing 455 tons each year. Average organic production area in berry crops ranged from a high of 59 acres in blueberries to 40 acres in red raspberries. Organic strawberry production averaged 139 tons per year, followed by blueberries (56 tons) and red raspberries (26 tons). Organic acreage and production have declined in four of the five commodities –

red raspberries, blueberries, strawberries, and snap beans. Organic sweet corn acreage and production have risen, but data from recent years suggest a decline in this industry as well.[2]

Comparing organic with total acreage and production in these five commodities suggests organic products account for a rather small share of the Oregon industry. Similar to national averages in fruits, the share of organic berries in total Oregon berry acreage and production has hovered around 1% and 2%, respectively, during the 2000 - 2001 period. Blueberry and strawberry production enjoyed the highest organic acreage and production shares, at 2.68% and 1.29% respectively. In the sweet corn sector, organic acreage constituted only seven-tenths of a percent of total acreage, and organic production only three-tenths of a percent of total production, between 2000 and 2001. Organic snap beans had an acreage share similar to that in sweet corn, and a production share averaging only five-tenths of a percent of total Oregon production. Thus, Oregon data suggest organic production still is substituting very weakly for conventional production.

[2]Some of the falling acreage is probably due to operators switching to another certifier. Hence, sweet corn acreage may have fallen according to Oregon Tilth's records in the absence of an actual decline in Oregon organic production acreage.

Table 1. Organic Acreage, Farm Numbers, and Production in Oregon

Commodity	2000	2001	2002	2003*	2000-2003 Average
Red Raspberries					
Number of farms	36	32	31	33	33
Acres	102	25	21	12	40
Production (tons)	58	19	12	15	26
Blueberries					
Number of farms	32	30	39	34	34
Acres	92	56	47	44	59
Production (tons)	60	72	57	34	56
Strawberries					
Number of farms	29	32	28	30	30
Acres	111	28	9	15	41
Production (tons)	364	78	45	68	139
Sweet Corn					
Number of farms	45	42	42	43	43
Acres	98	429	526	307	340
Production (tons)	686	1262	95	2024	1017
Snap Beans					
Number of farms	42	37	41	45	41
Acres	211	75	43	51	95
Production (tons)	1180	194	209	239	455

*Preliminary data

Summary

The U.S. berry industries present a picture remarkably different from that in processing sweet corn and snap beans. Raspberry, blueberry, and strawberry demand has been rising significantly in the United States, in raspberry and blueberry markets principally in processed form and in strawberry markets principally in fresh form. U.S. producers have benefited correspondingly, because foreign trade in both goods shows little net change. Raspberry imports are declining and, although blueberry and strawberry imports are growing, exports are keeping pace. Indeed, much of the berry trade in North America appears to represent seasonal adjustments. Rising productivity in berry production and processing has helped hold price increases down in the face of rising demand.

In contrast, U.S. demand for processing sweet corn and snap beans seems to be increasing only with population growth. Aggregate U.S. production has risen only gradually, varying annually with short-term weather and price changes. Prices largely have been static in the face of modest demand growth, likely because of modest productivity improvements. Yet signs of substantial changes in land productivity are absent. Import competition has been even smaller than in the berry markets, and presumably is seasonal in nature.

The above observations are based on a preliminary view of the data we have collected. Validation will have to await a more careful statistical analysis.

Reference

Dimitri, C. and C. Greene. "Recent Growth Patterns in the U.S. Organic Foods Market." Agricultural Information Bulletin No. AIB777, Economic Research Service, USDA, September 2002, http://www.ers.usda.gov/publications/aib777/.

Edward E. Judge & Sons, Inc. *Almanac of the Canning, Freezing, and Preserving Industries*. Westminster, Md., annual issues.

Demand, Supply, and Trade: National and Northwest Raspberries, Blueberries, Strawberries, Sweet Corn, and Snap Beans

Appendix

Figure A.1: U.S. Red Raspberry Acreage, 1979-2001

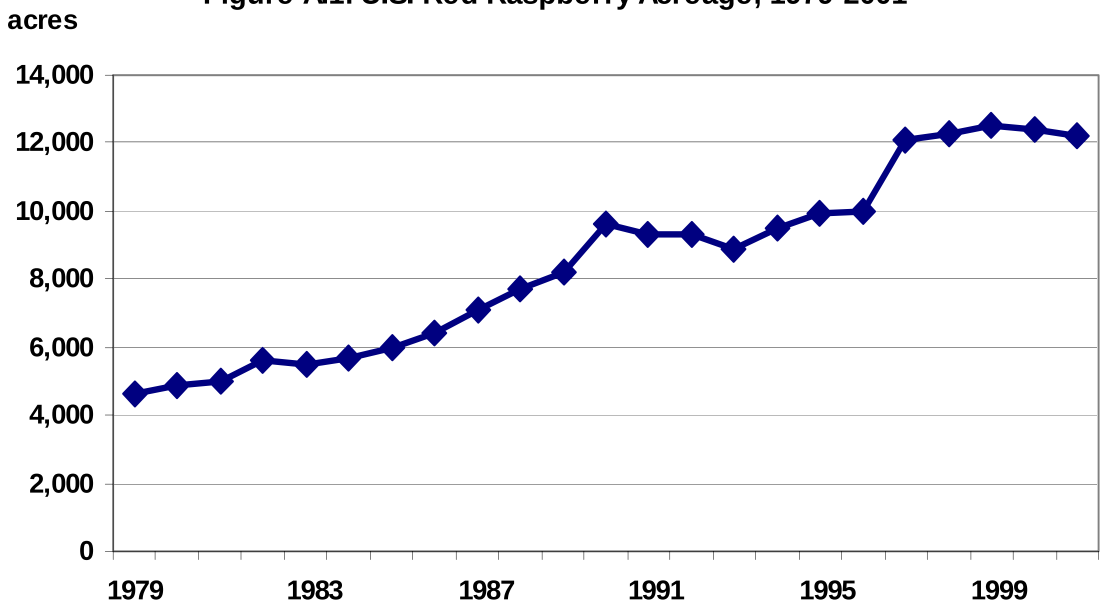


Figure A.2: U.S. Production of Fresh and Processed Red Raspberries, 2001

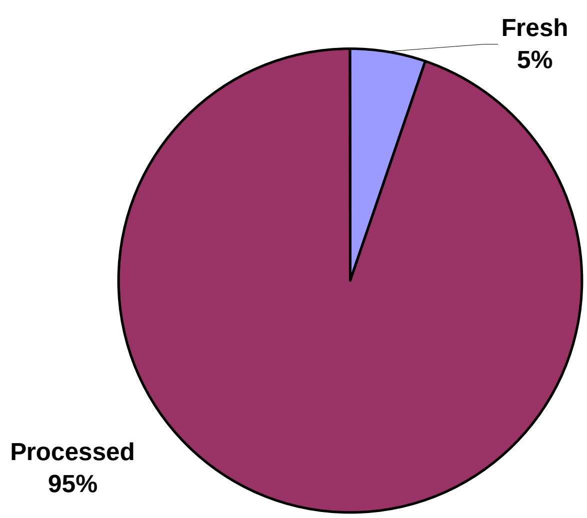


Figure A.3: Composition of U.S. Red Raspberry Imports, Average for 1996-2000

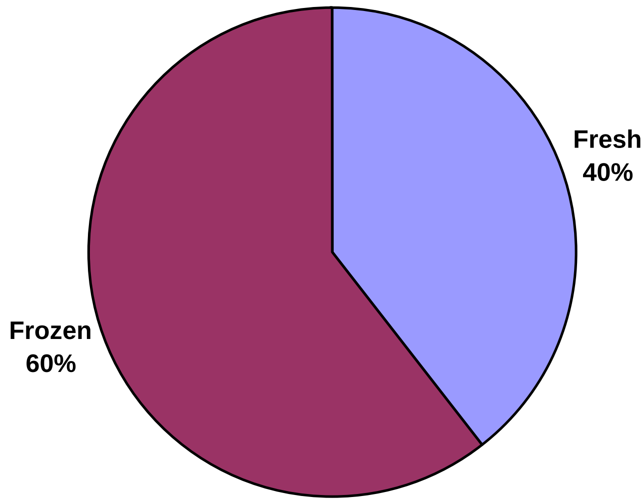
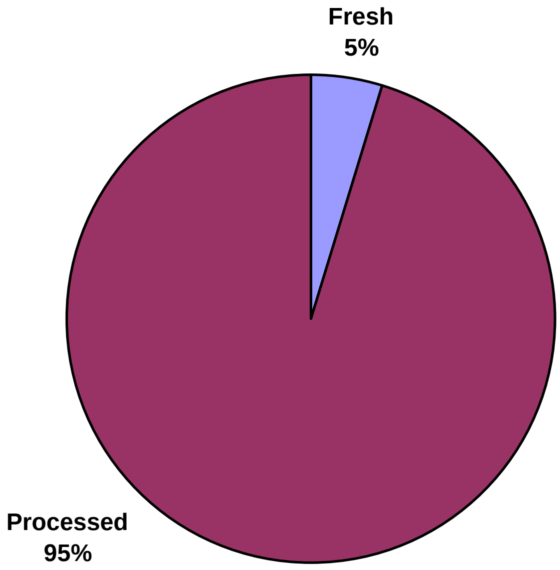


Figure A.4: Washington Production Share of Fresh and Processed Red Raspberries, 2001



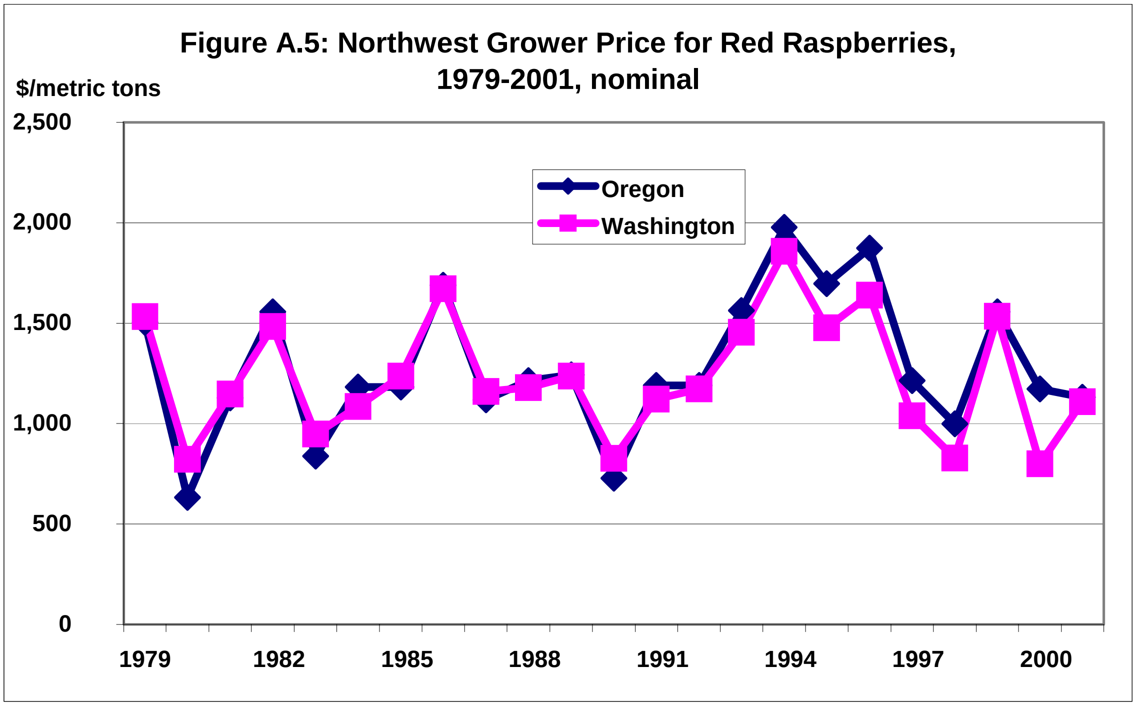


Figure A.5: Northwest Grower Price for Red Raspberries, 1979-2001, nominal
$/metric tons
2,500
2,000
1,500
1,000
500
0
Oregon
Washington
1979
1982
1985
1988
1991
1994
1997
2000

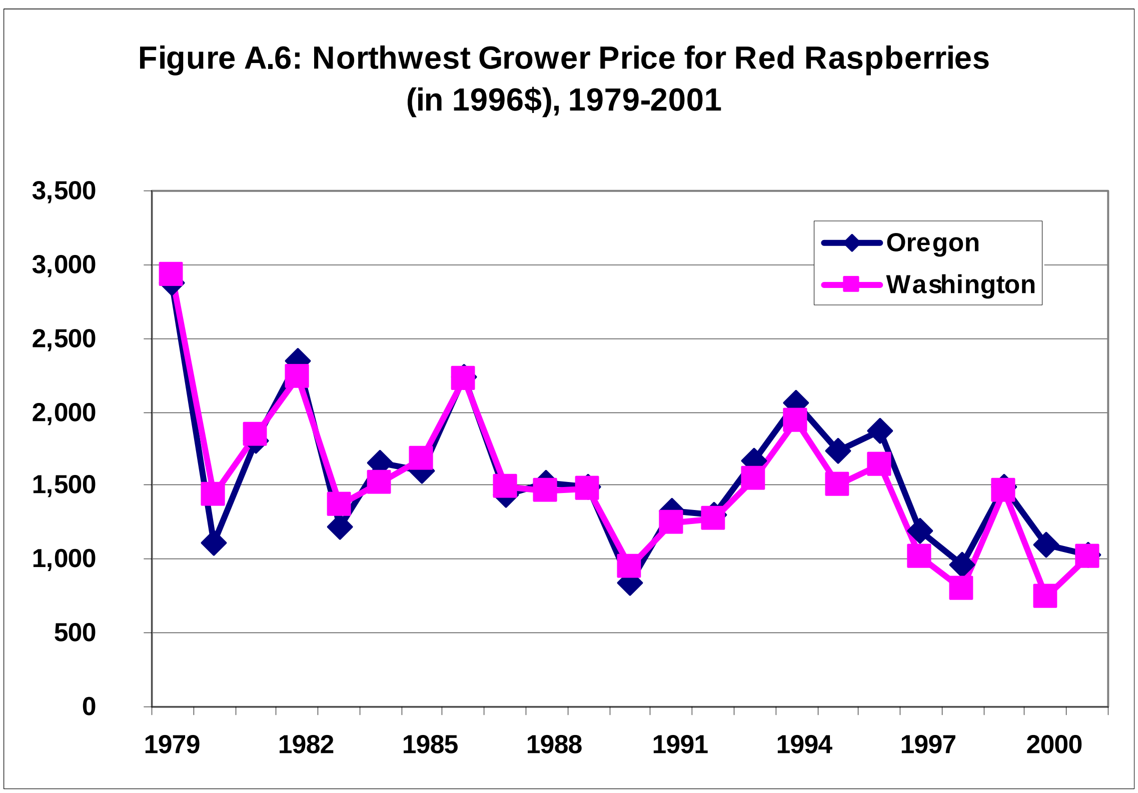


Figure A.6: Northwest Grower Price for Red Raspberries (in 1996$), 1979-2001
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Oregon
Washington
1979
1982
1985
1988
1991
1994
1997
2000

Figure A.7: Average Composition of U.S. Blueberry Imports, 1996-2000

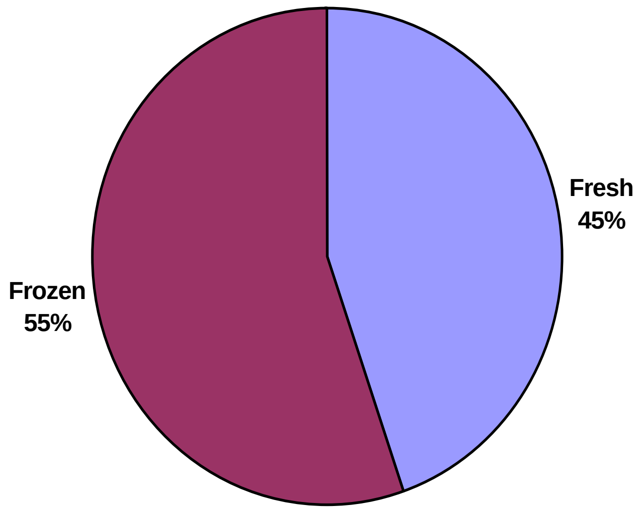


Figure A.8: Average Composition of U.S. Blueberry Exports, 1996-2000

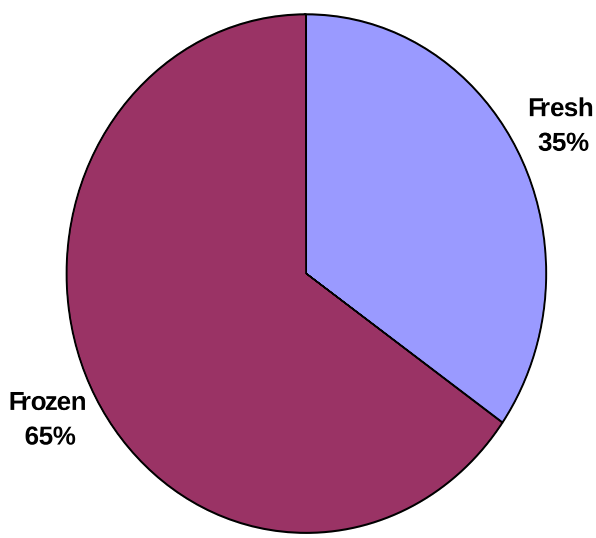


Figure A.9: Oregon Blueberry Production and Utilization, 1993-2001

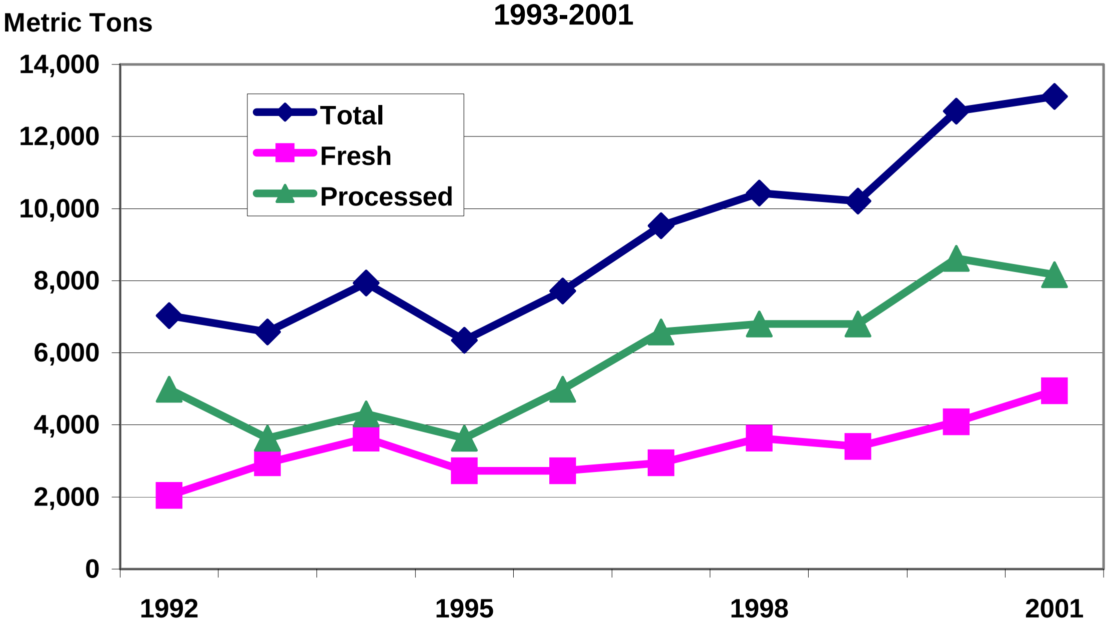
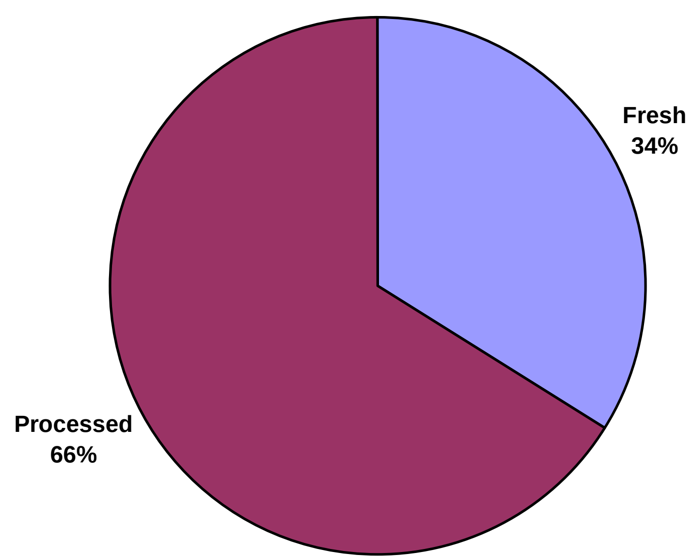


Figure A.10: Average Utilization of U.S. Blueberry Production, 1997-2001



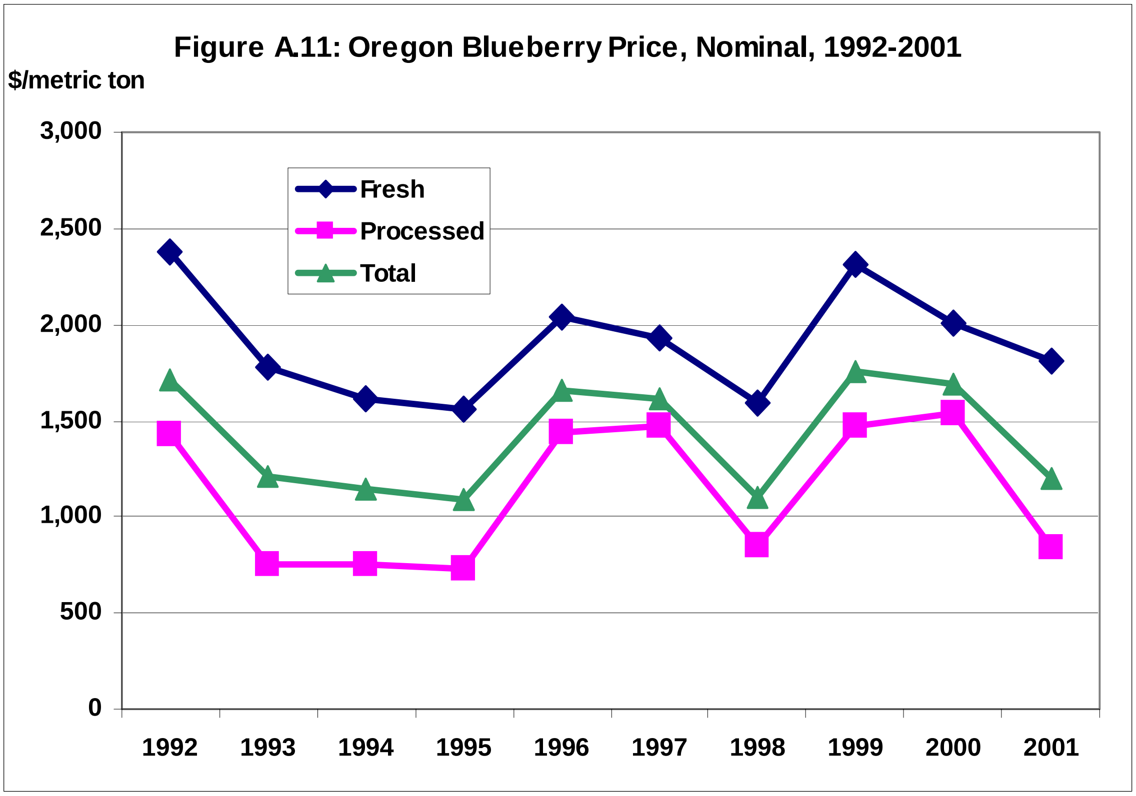


Figure A.11: Oregon Blueberry Price, Nominal, 1992-2001
$/metric ton
3,000
2,500
2,000
1,500
1,000
500
0
Fresh
Processed
Total
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001

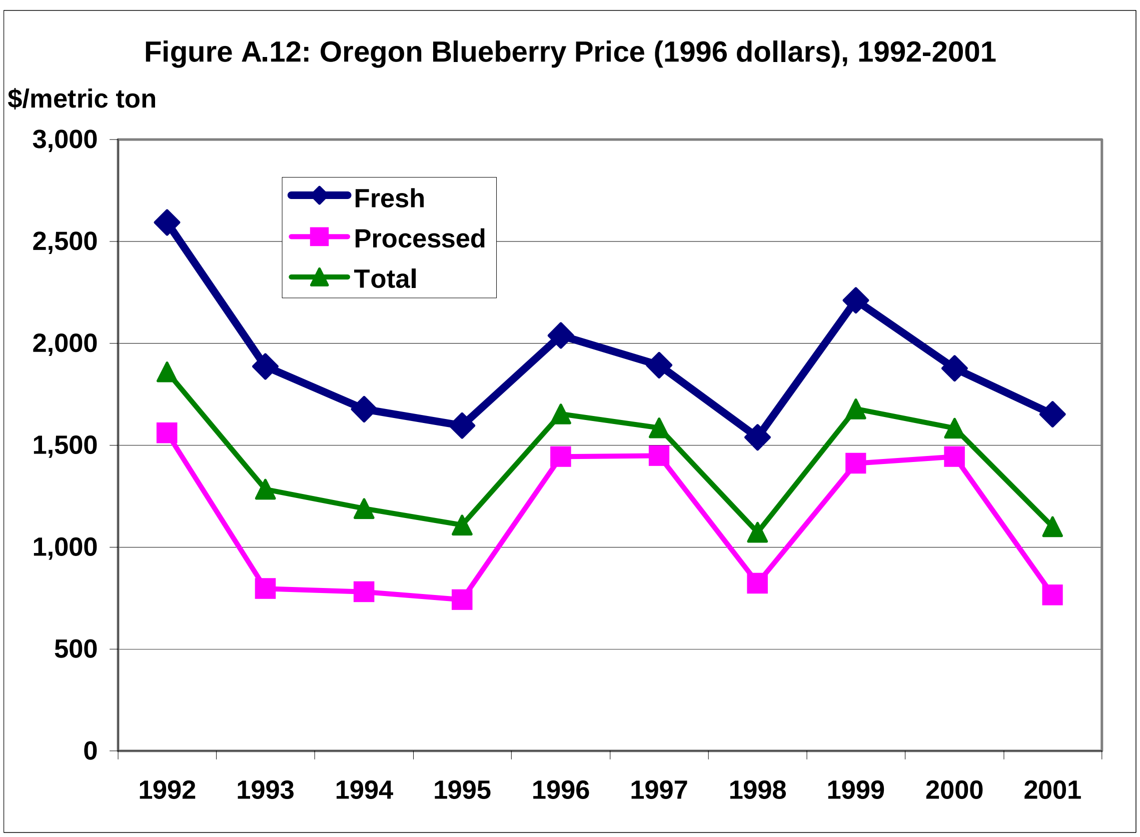


Figure A.12: Oregon Blueberry Price (1996 dollars), 1992-2001
$/metric ton
3,000
2,500
2,000
1,500
1,000
500
0
Fresh
Processed
Total
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001

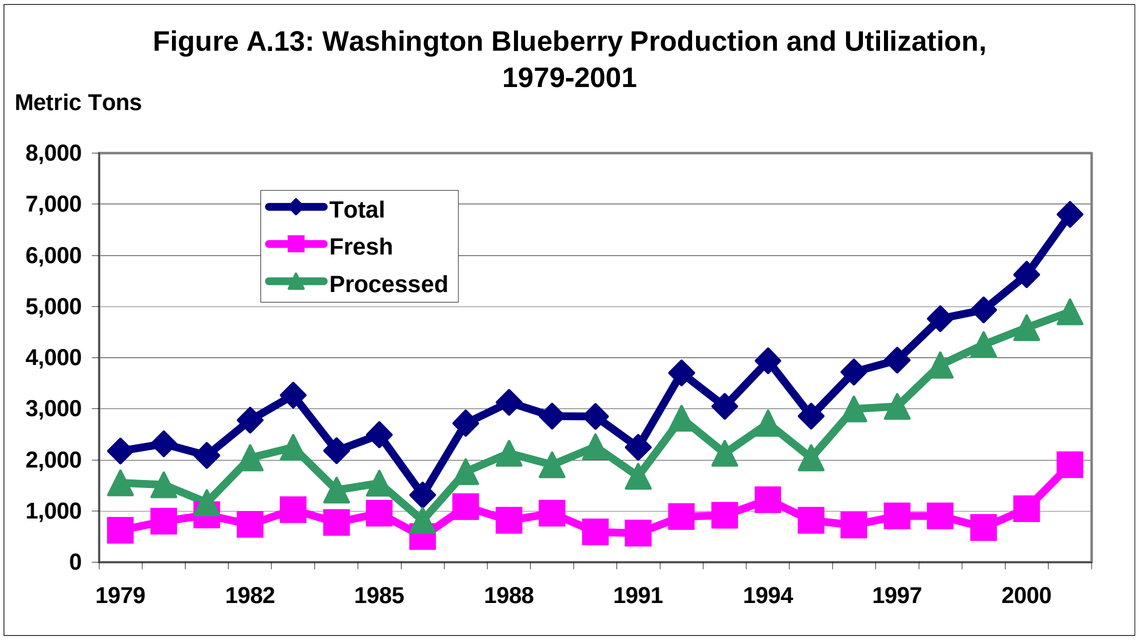


Figure A.13: Washington Blueberry Production and Utilization, 1979-2001
Metric Tons
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Total
Fresh
Processed
1979
1982
1985
1988
1991
1994
1997
2000

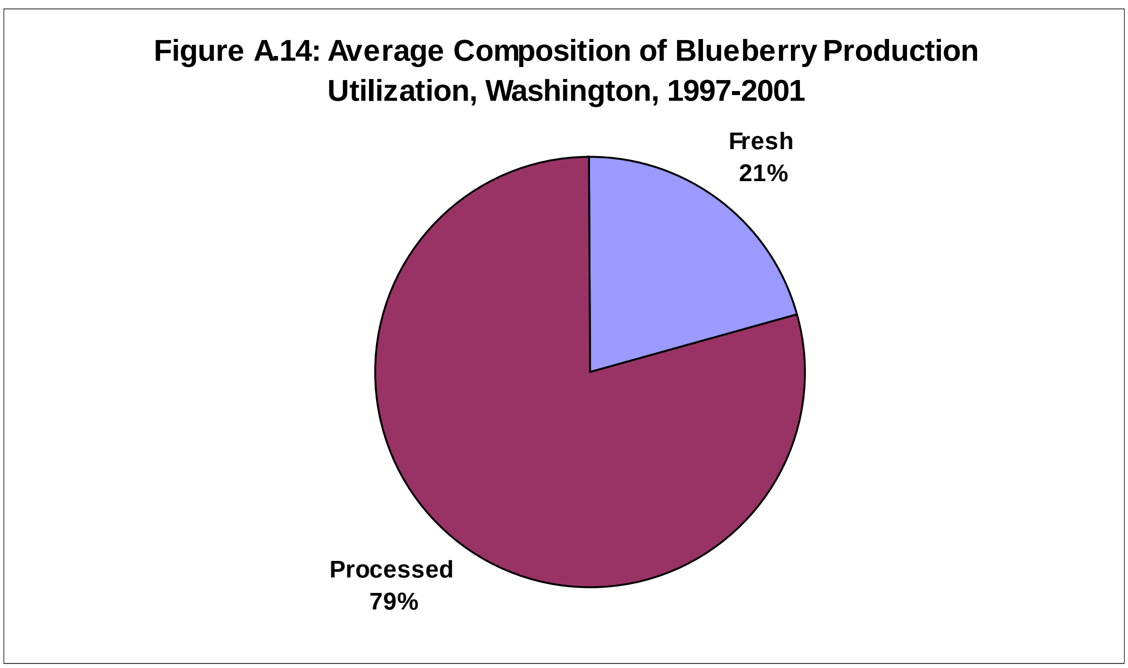


Figure A.14: Average Composition of Blueberry Production Utilization, Washington, 1997-2001
Fresh
21%
Processed
79%

Figure A.15: Grower Price for Washington Blueberries, Nominal, 1979-2001

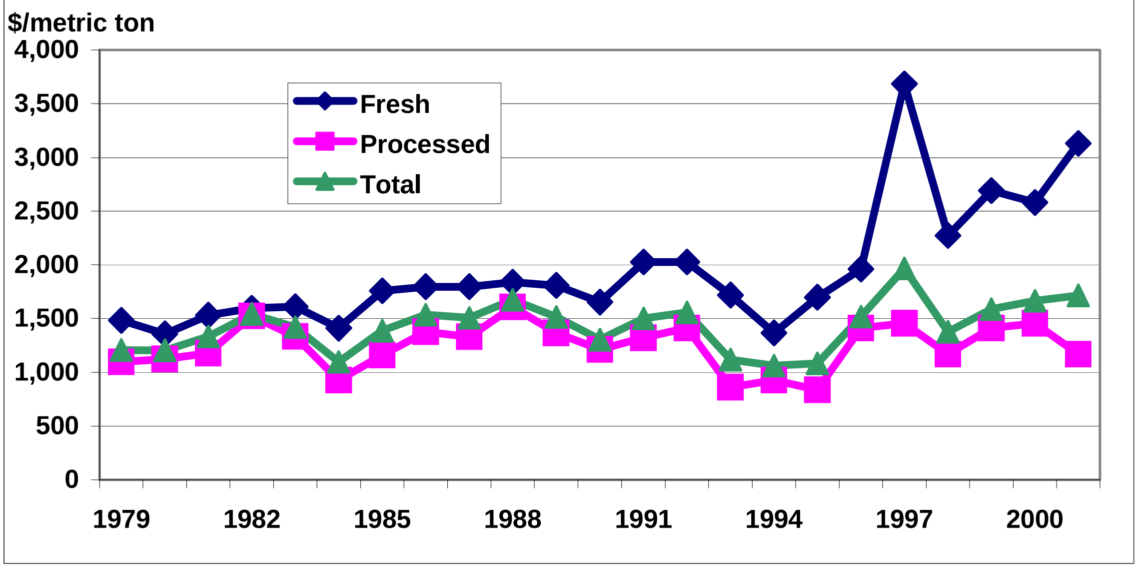
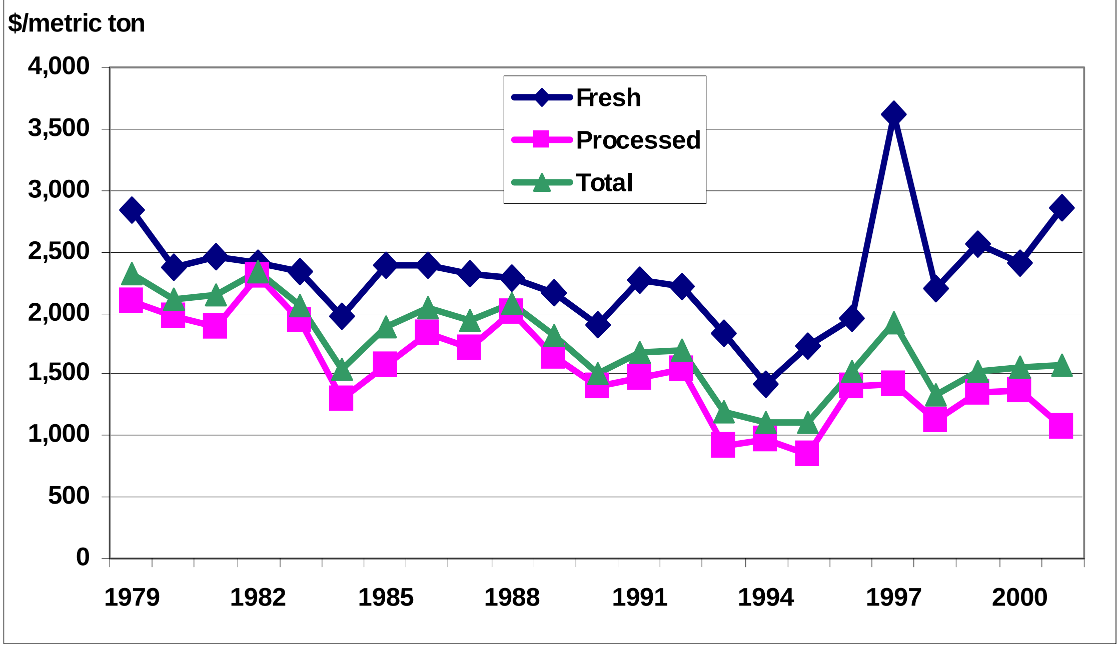


Figure A.16: Grower Price for Washington Blueberries (1996 dollars), 1979-2001



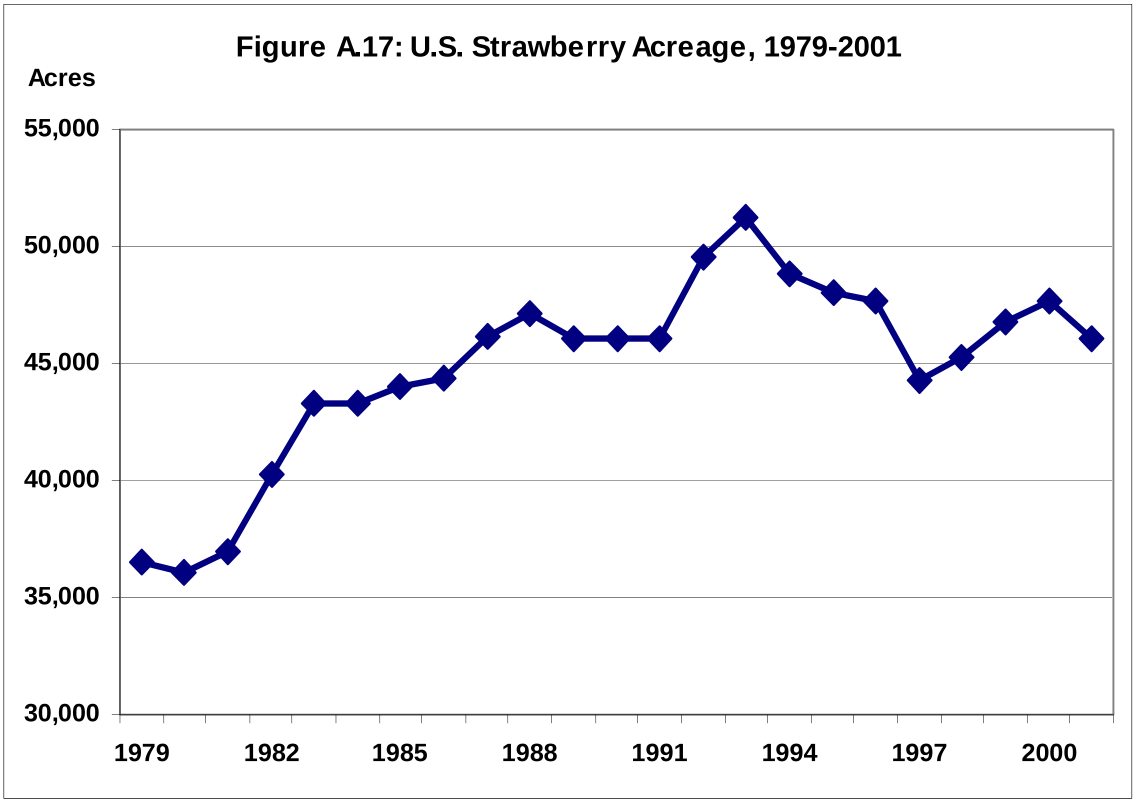


Figure A.17: U.S. Strawberry Acreage, 1979-2001
Acres
55,000
50,000
45,000
40,000
35,000
30,000
1979
1982
1985
1988
1991
1994
1997
2000

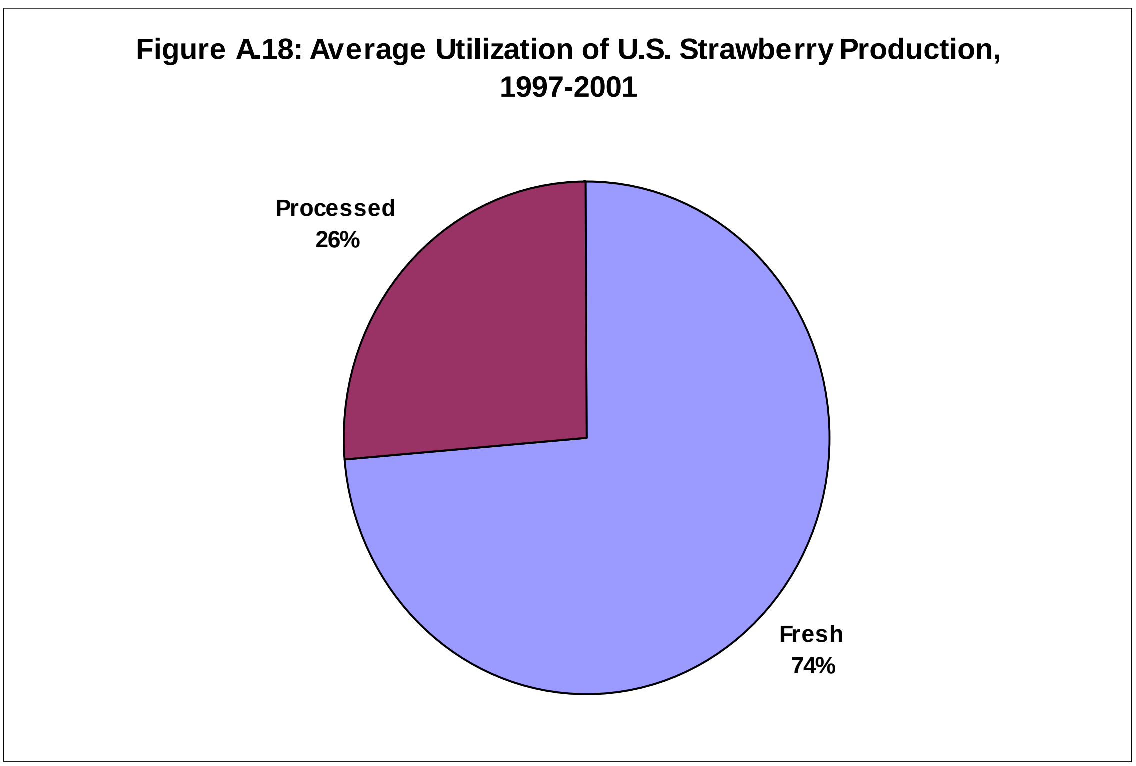


Figure A.18: Average Utilization of U.S. Strawberry Production, 1997-2001
Processed 26%
Fresh 74%

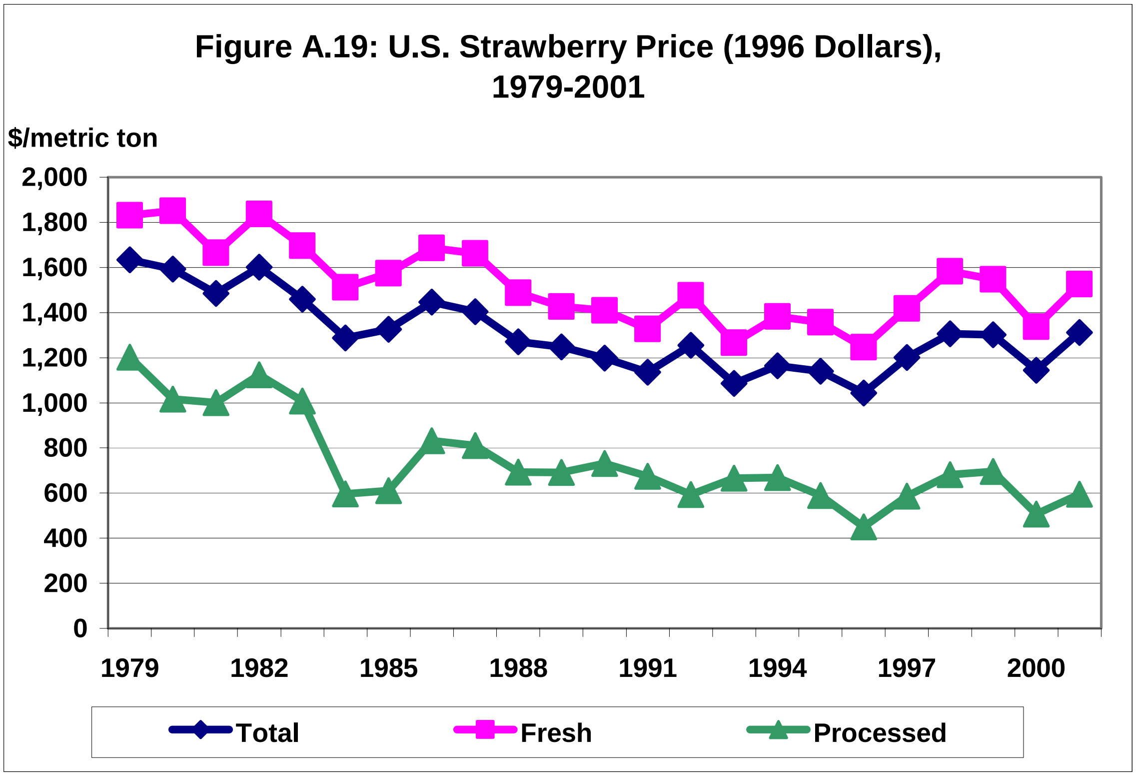


Figure A.19: U.S. Strawberry Price (1996 Dollars), 1979-2001
$/metric ton
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
1979
1982
1985
1988
1991
1994
1997
2000
Total
Fresh
Processed

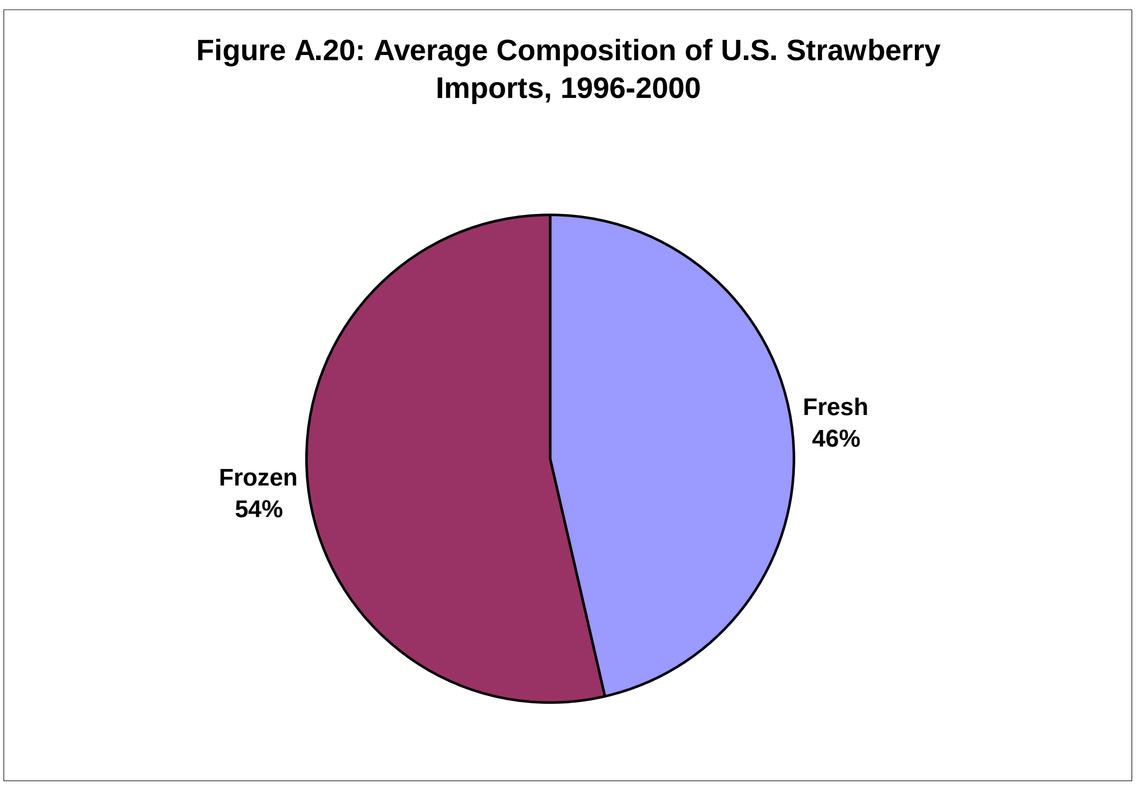


Figure A.20: Average Composition of U.S. Strawberry Imports, 1996-2000
Fresh
46%
Frozen
54%

Figure A.21: Average Composition of U.S. Strawberry Exports, 1996-2000

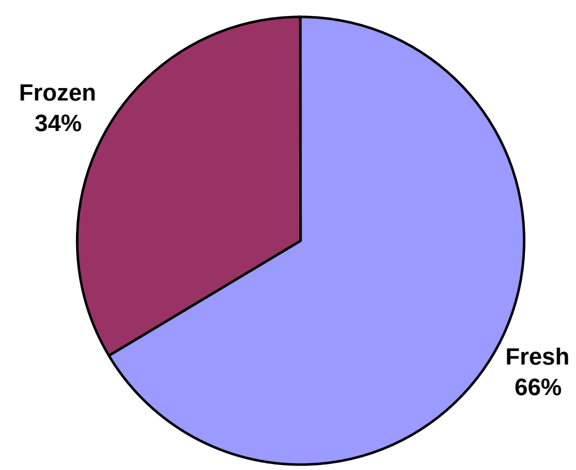
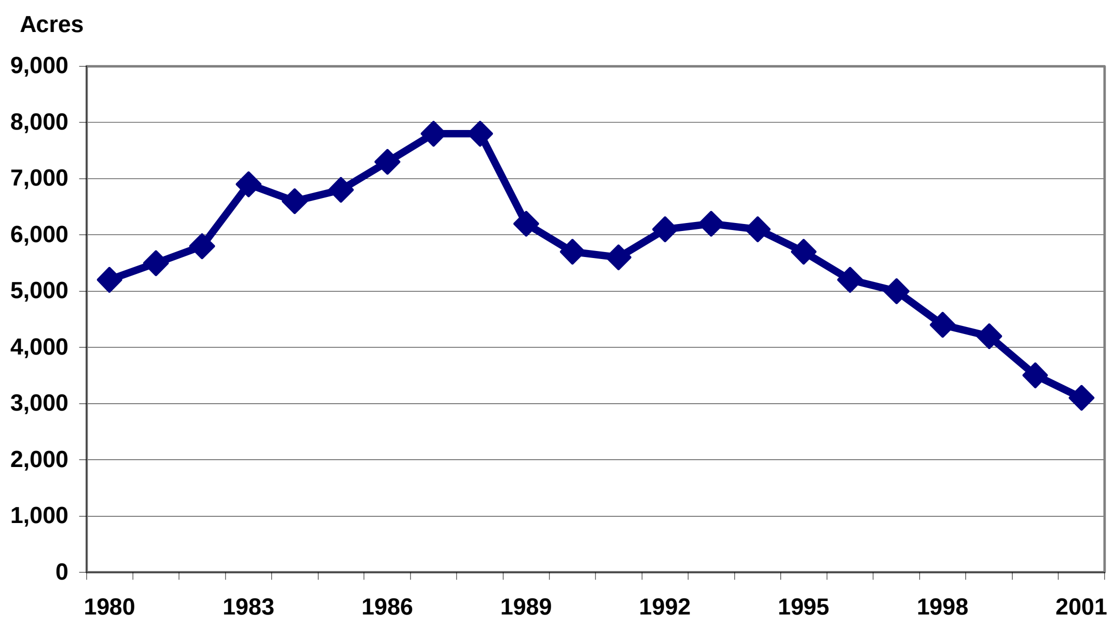


Figure A.22: Oregon Total Strawberry Acreage, 1980-2001



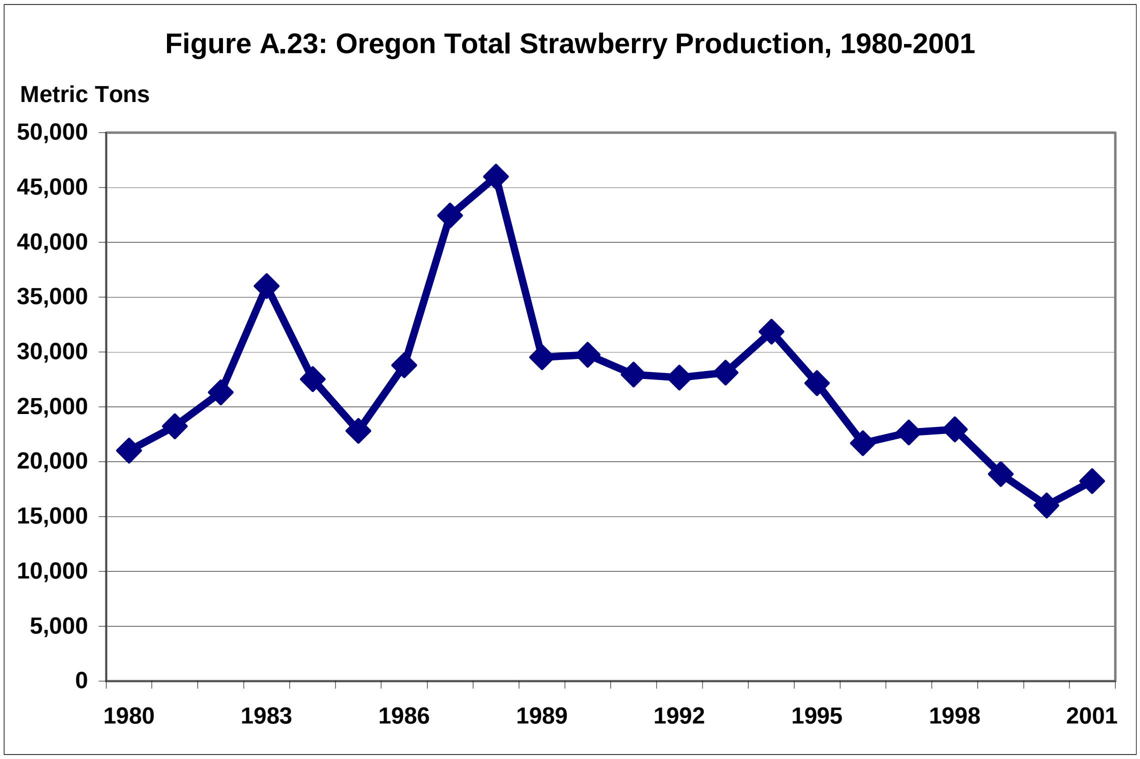


Figure A.23: Oregon Total Strawberry Production, 1980-2001
Metric Tons
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1980
1983
1986
1989
1992
1995
1998
2001

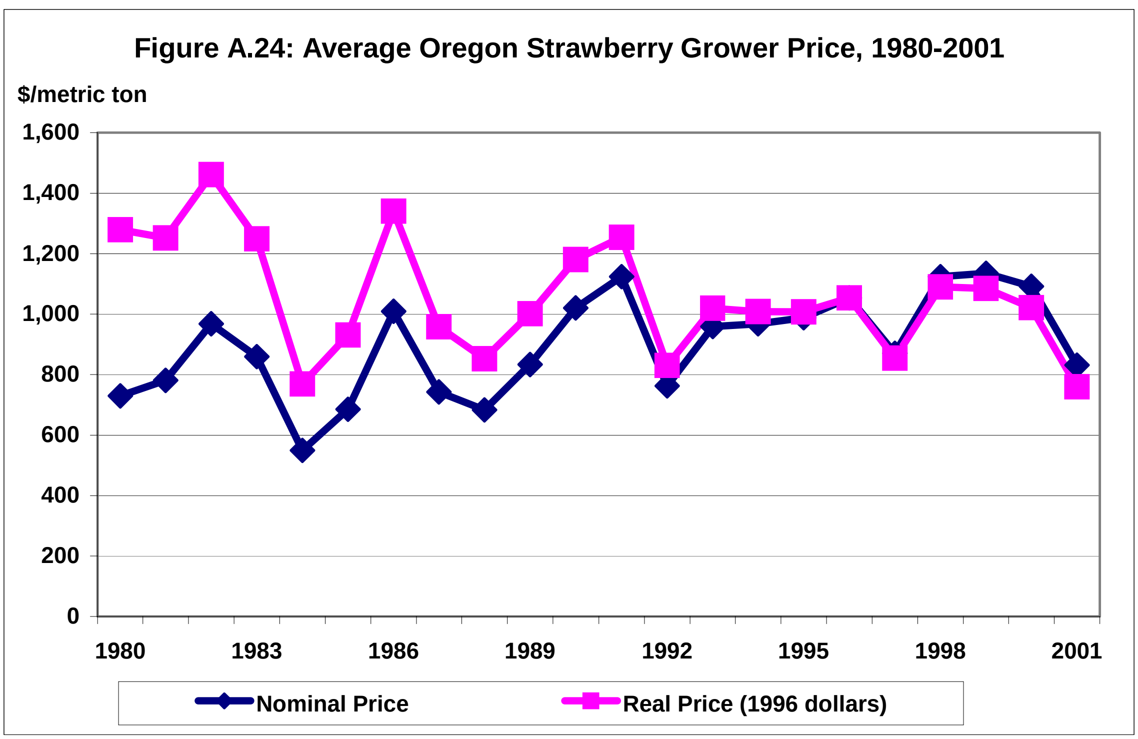


Figure A.24: Average Oregon Strawberry Grower Price, 1980-2001
$/metric ton
1,600
1,400
1,200
1,000
800
600
400
200
0
1980
1983
1986
1989
1992
1995
1998
2001
Nominal Price
Real Price (1996 dollars)

Figure A.25: Washington Total Strawberry Acreage, 1993-2001

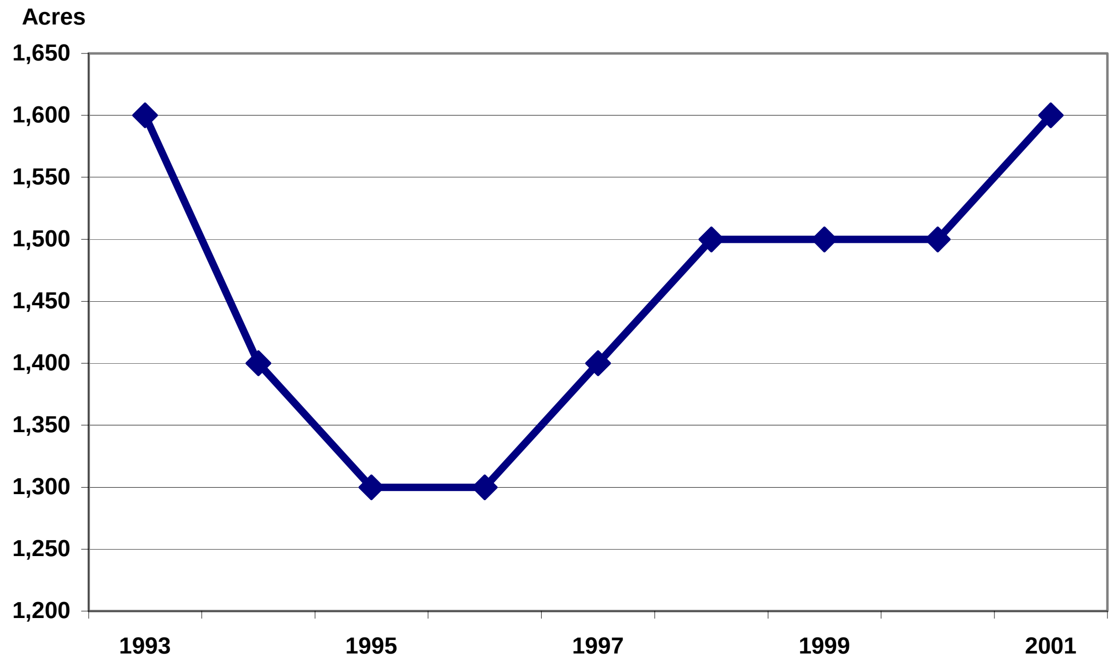


Figure A.26: Washington Total Strawberry Production, 1993-2001

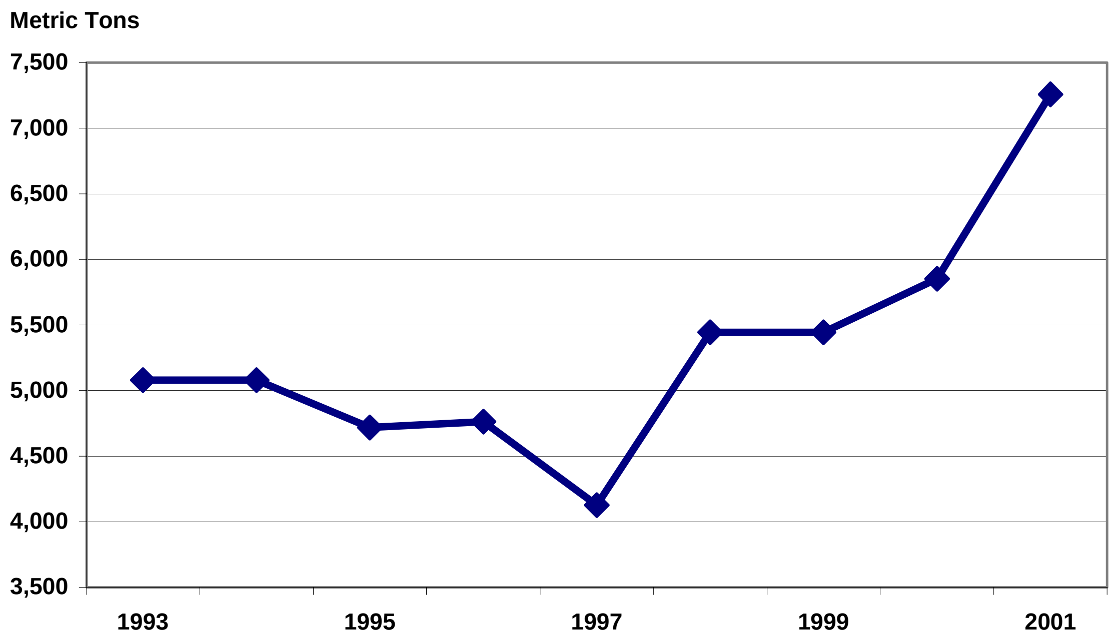


Figure A.27: Average Washington Strawberry Grower Price, 1993-2001

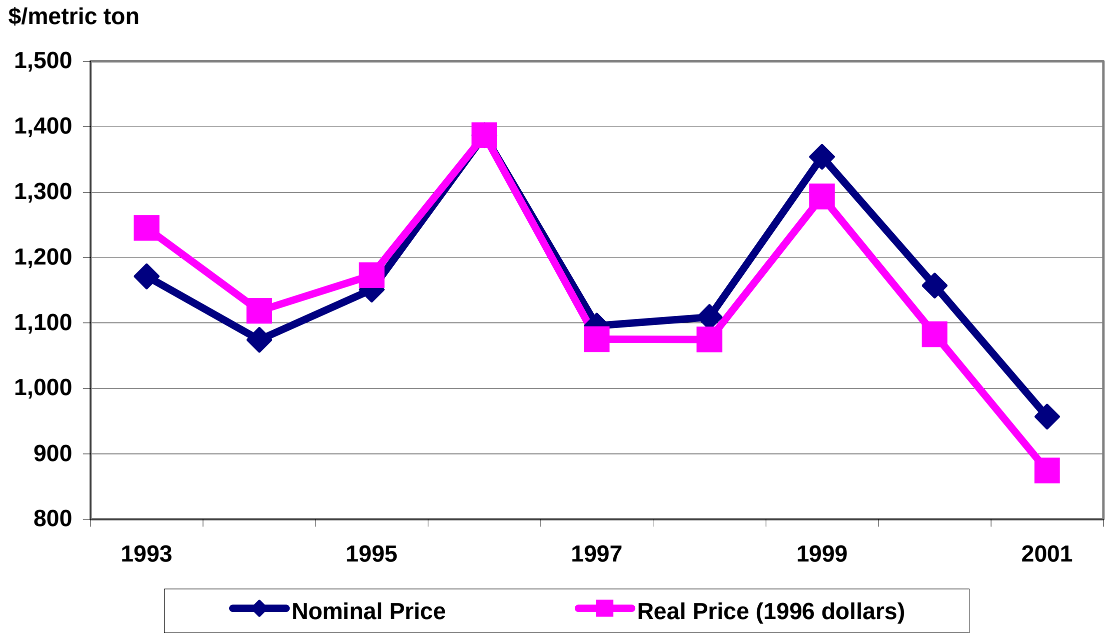


Figure A.28: U.S. Sweet Corn Acreage and Utilization, 1979-2001

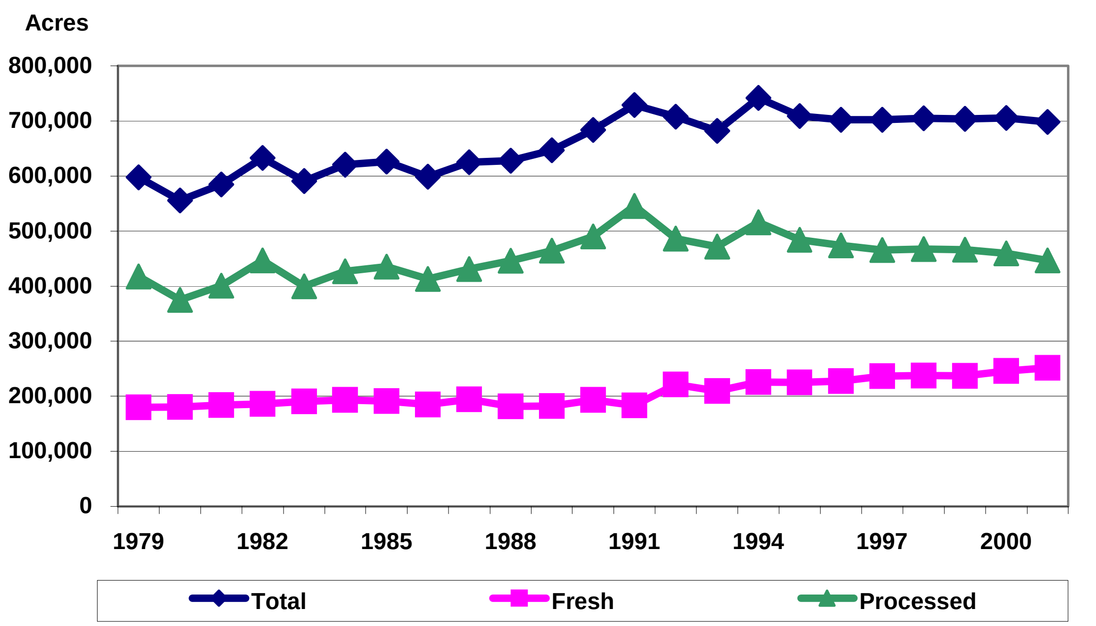


Figure A.29: Average Utilization of U.S. Sweet Corn Acreage, 1997-2001

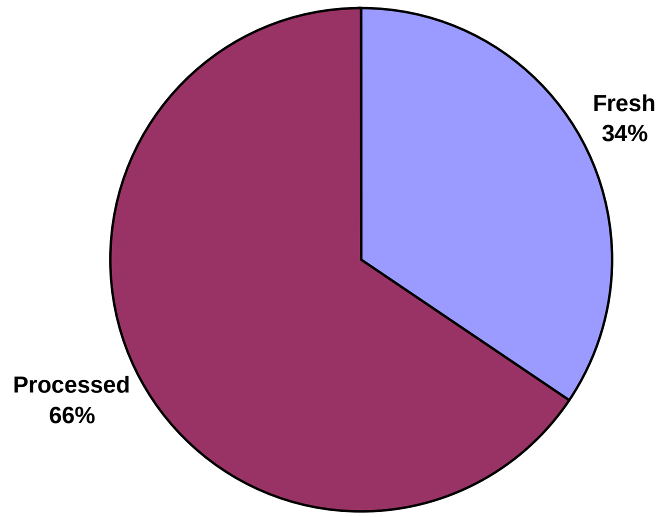
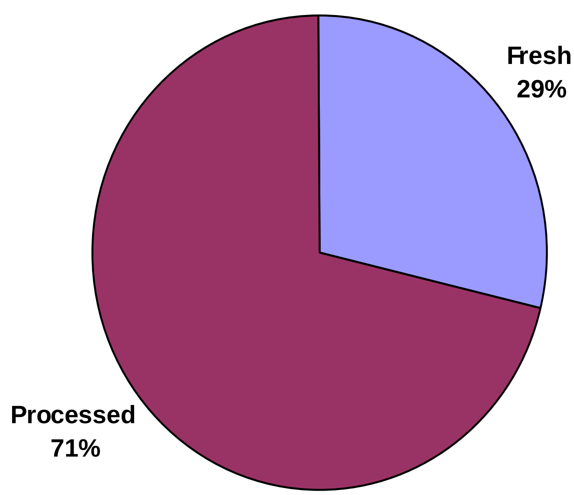


Figure A.30: Average Utilization of U.S. Sweet Corn Production, 1997-2001



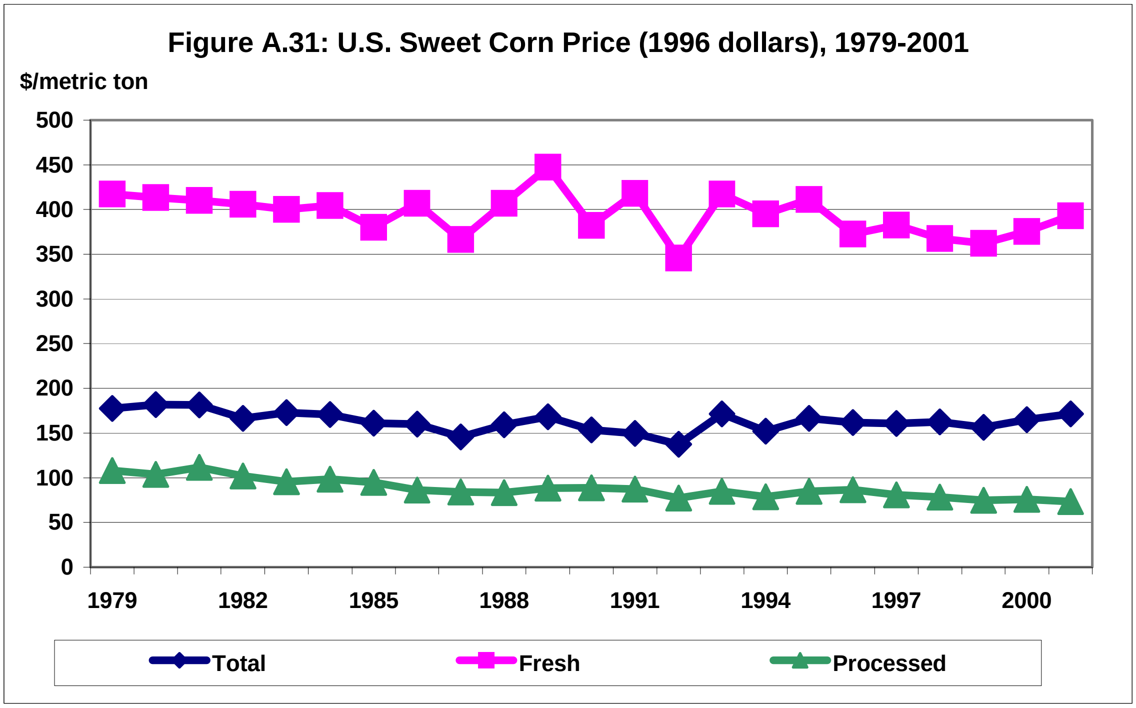


Figure A.31: U.S. Sweet Corn Price (1996 dollars), 1979-2001
$/metric ton
500
450
400
350
300
250
200
150
100
50
0
1979
1982
1985
1988
1991
1994
1997
2000
Total
Fresh
Processed

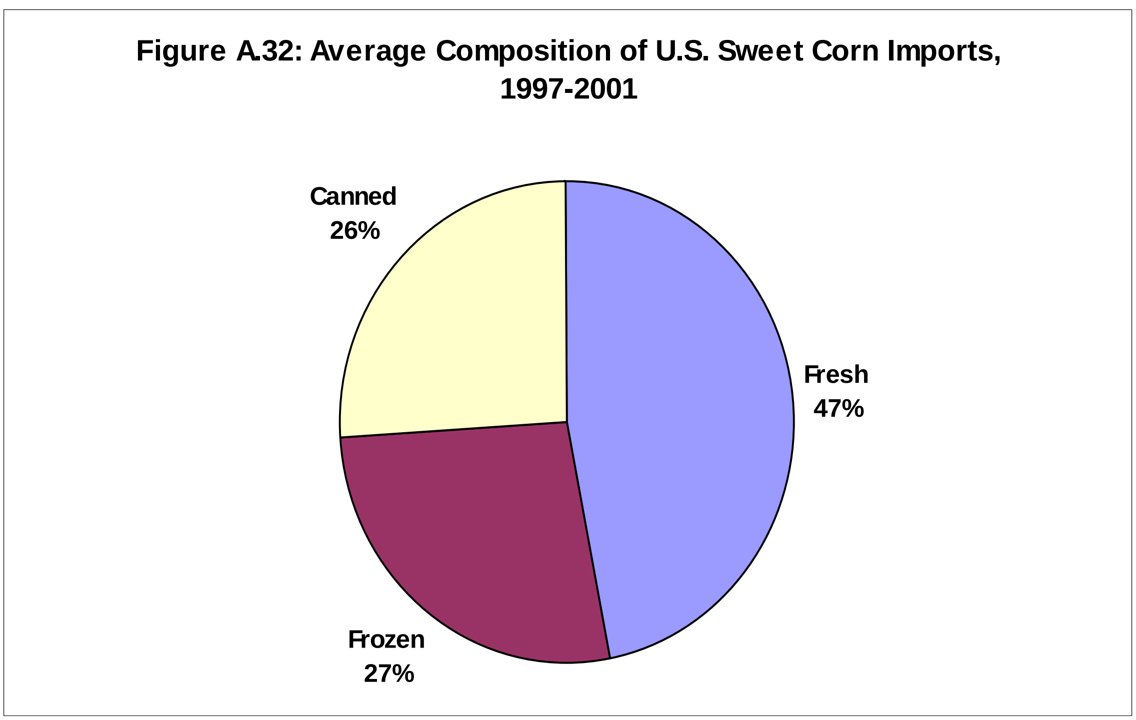


Figure A.32: Average Composition of U.S. Sweet Corn Imports, 1997-2001
Canned
26%
Fresh
47%
Frozen
27%

Figure A.33: Average Composition of U.S. Sweet Corn Exports, 1997-2001

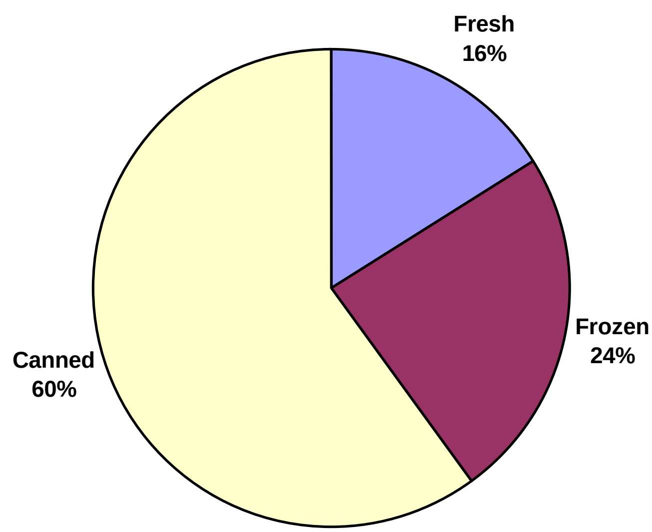
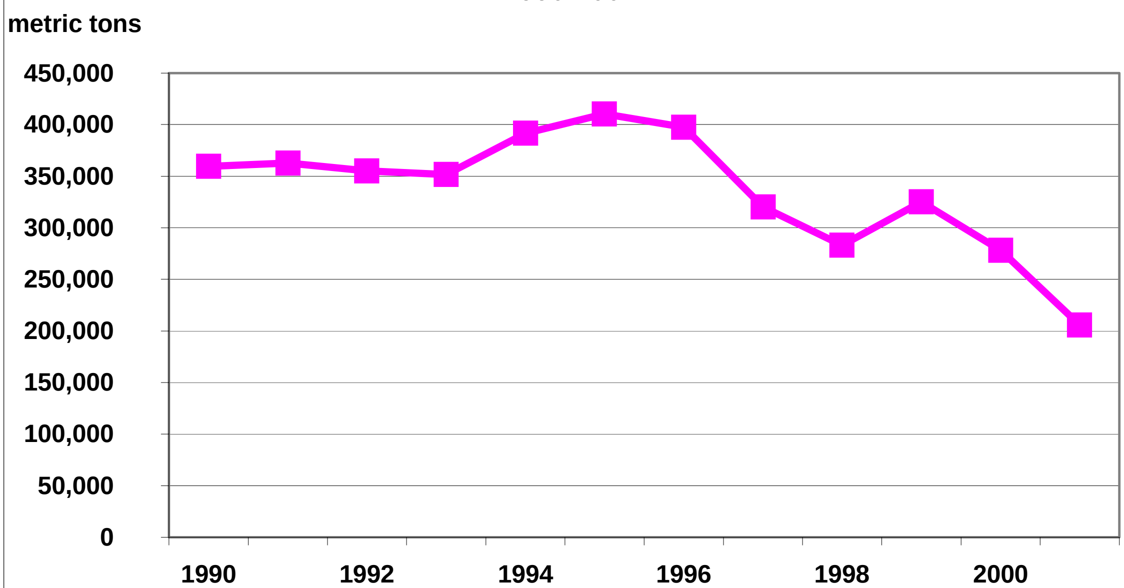


Figure A.34: Oregon Production of Sweet Corn for Processing, 1990-2001



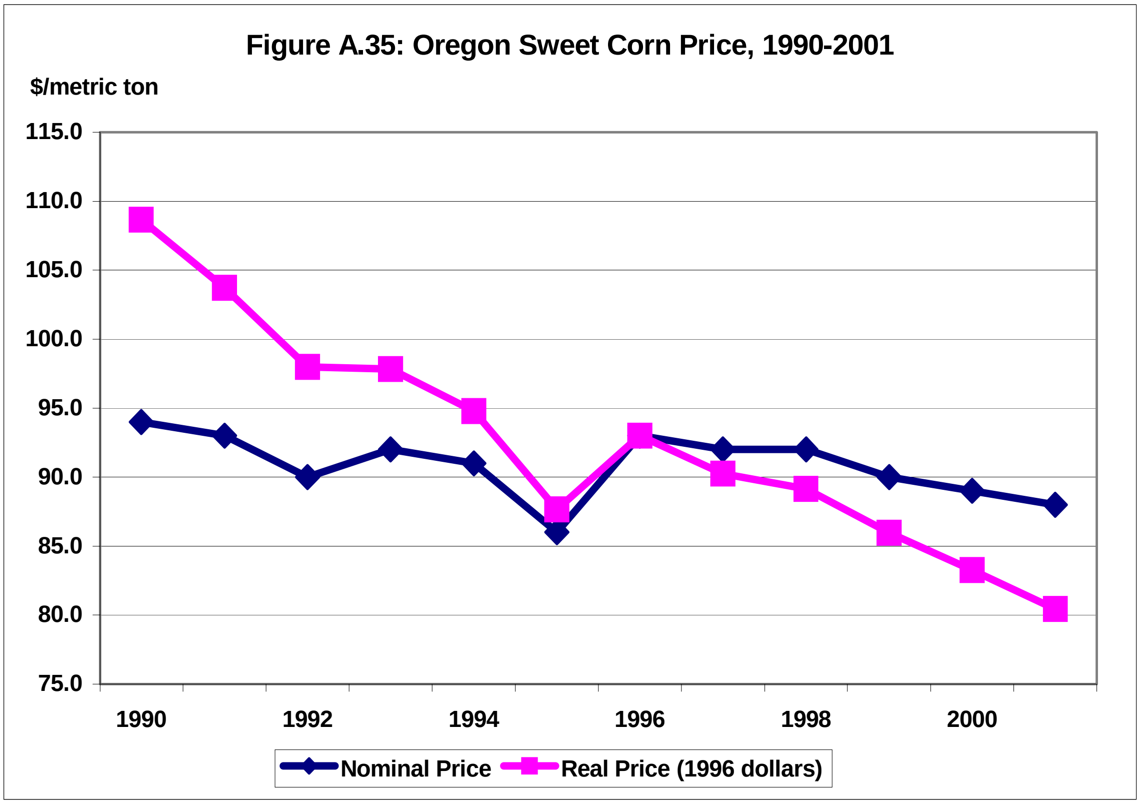


Figure A.35: Oregon Sweet Corn Price, 1990-2001
$/metric ton
115.0
110.0
105.0
100.0
95.0
90.0
85.0
80.0
75.0
1990
1992
1994
1996
1998
2000
Nominal Price
Real Price (1996 dollars)

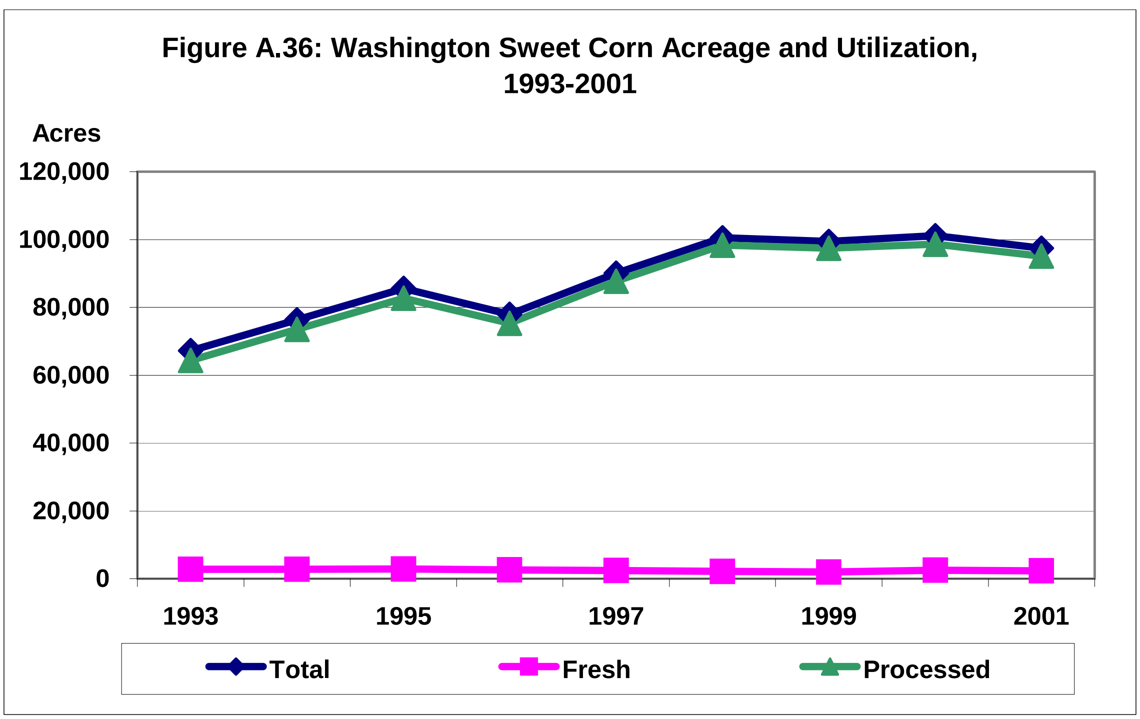


Figure A.36: Washington Sweet Corn Acreage and Utilization, 1993-2001
Acres
120,000
100,000
80,000
60,000
40,000
20,000
0
1993
1995
1997
1999
2001
Total
Fresh
Processed

Figure A.37: Average Utilization of Washington Sweet Corn Acreage, 1997-2001

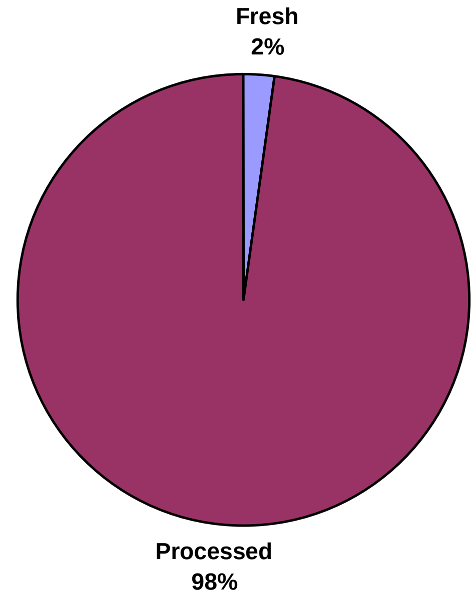
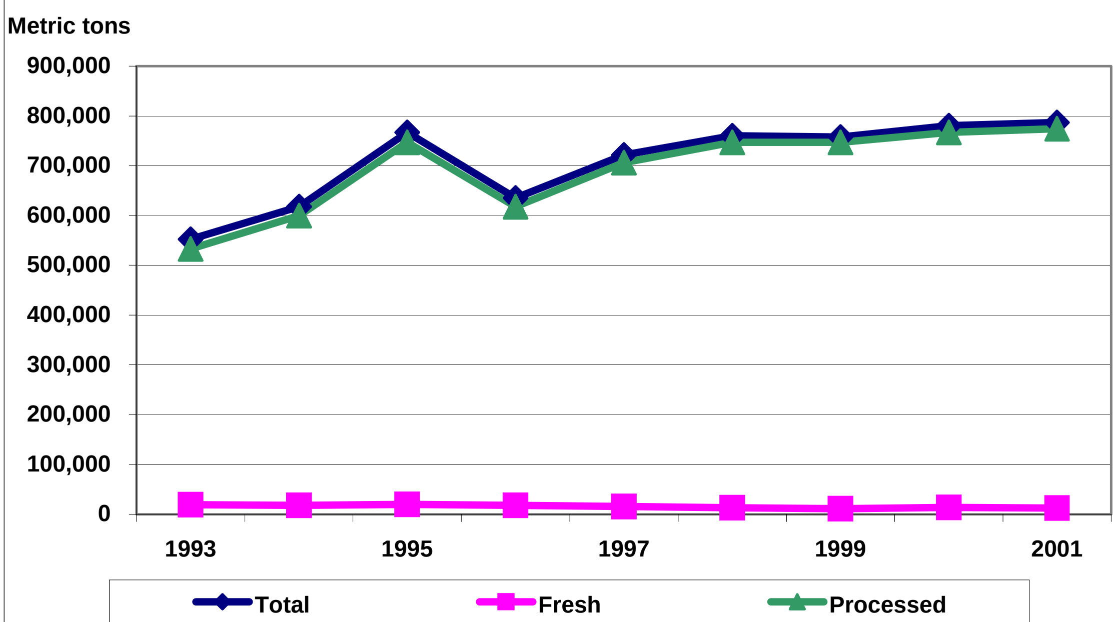


Figure A.38: Washington Sweet Corn Production and Utilization, 1993-2001



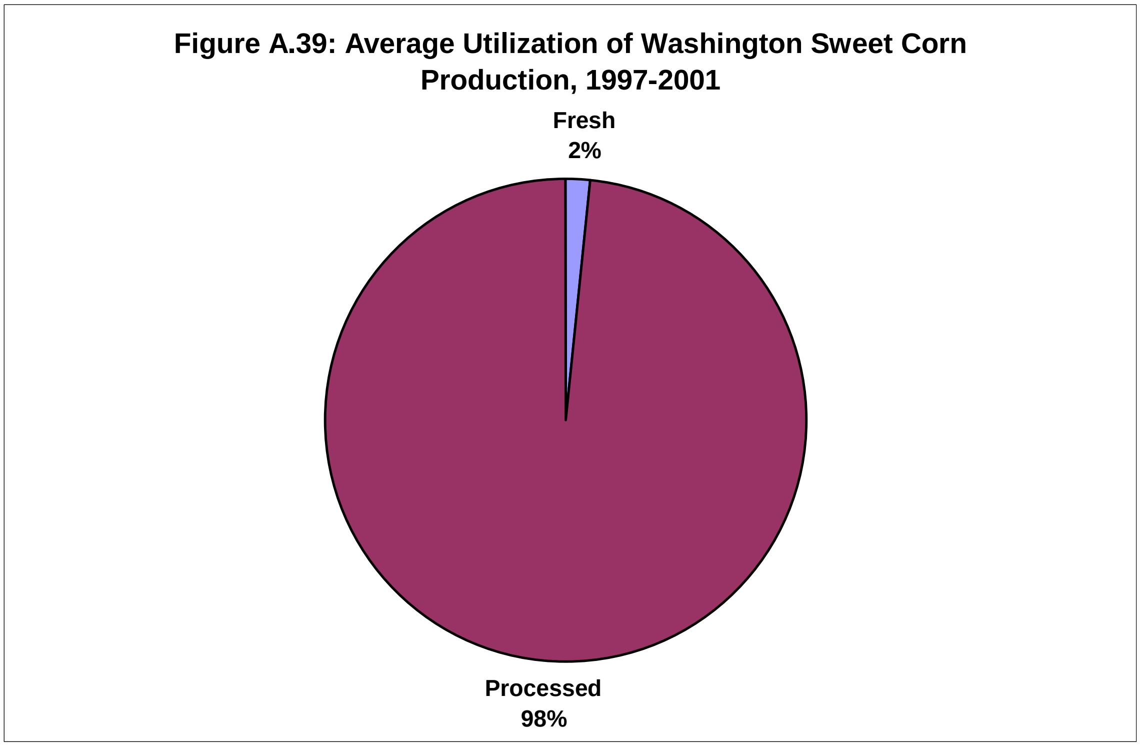


Figure A.39: Average Utilization of Washington Sweet Corn Production, 1997-2001
Fresh
2%
Processed
98%

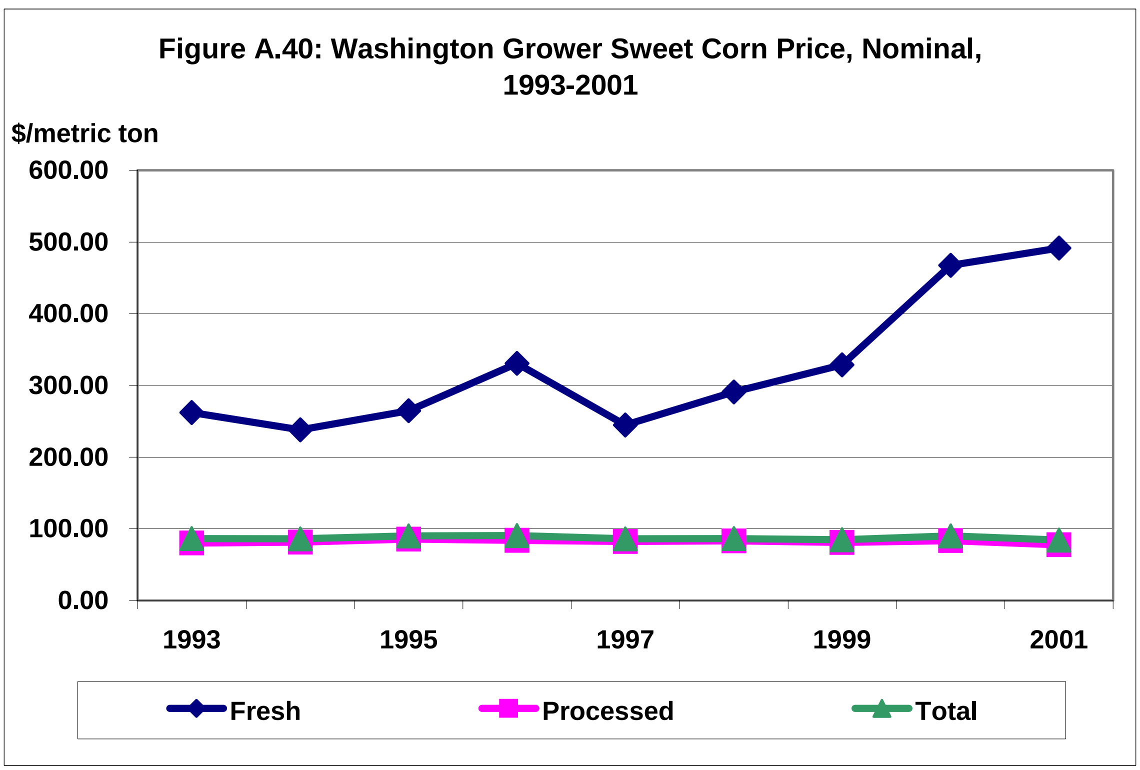


Figure A.40: Washington Grower Sweet Corn Price, Nominal, 1993-2001
$/metric ton
600.00
500.00
400.00
300.00
200.00
100.00
0.00
1993
1995
1997
1999
2001
Fresh
Processed
Total

Figure A.41: Washington Grower Sweet Corn Price (1996 dollars), 1993-2001

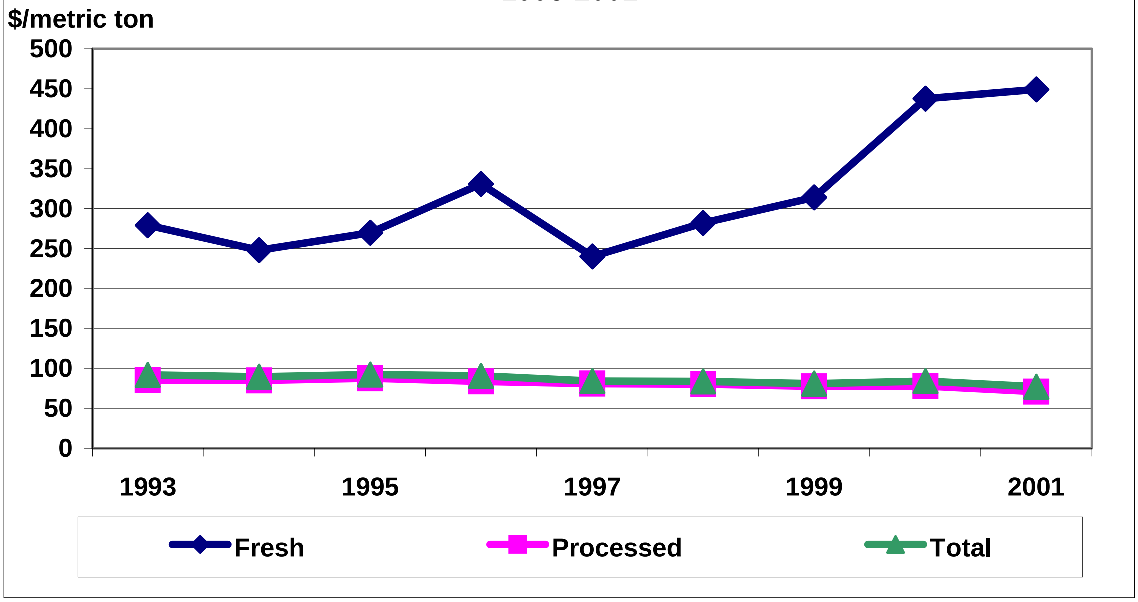


Figure A.42: U.S. Snap Bean Acreage and Utilization, 1992-2001

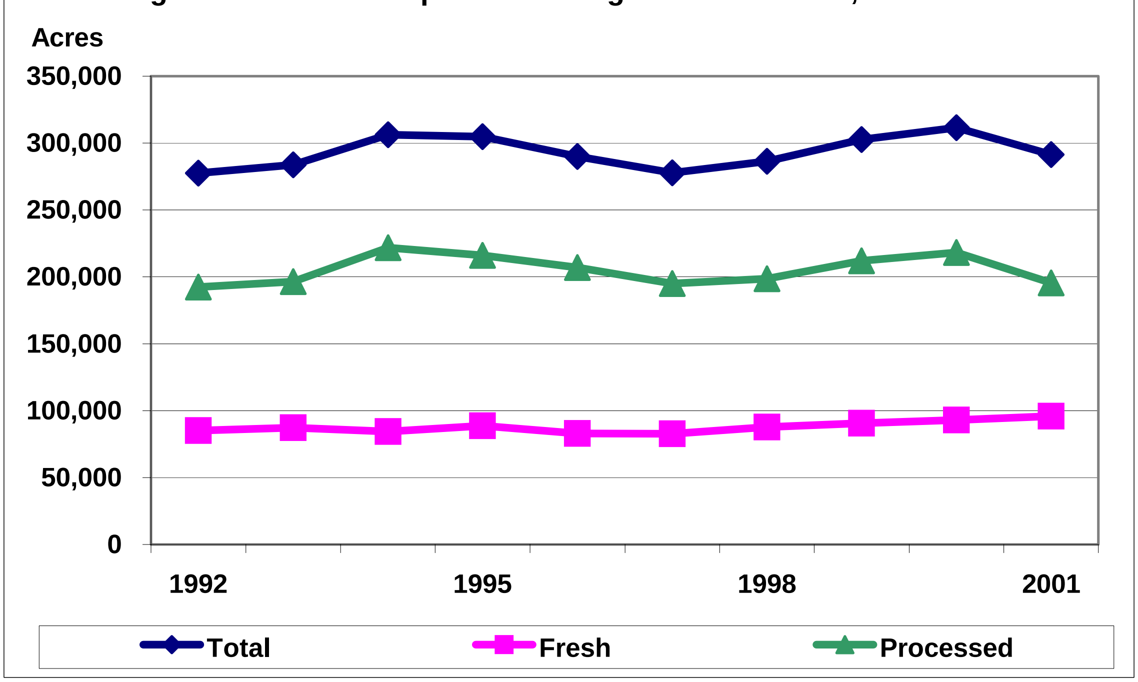


Figure A.43: Average Utilization of U.S. Snap Bean Acreage 1997-2001

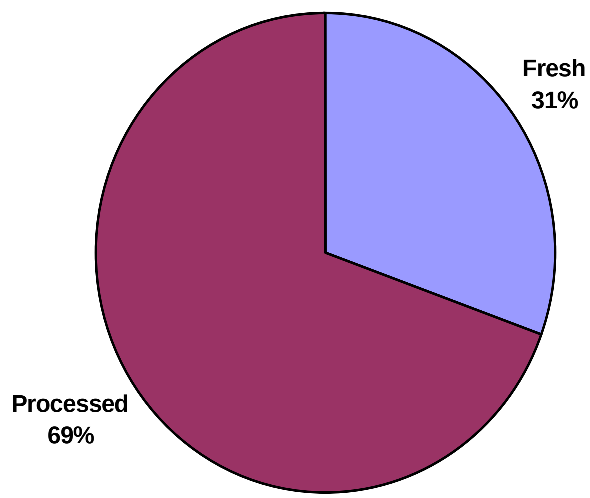
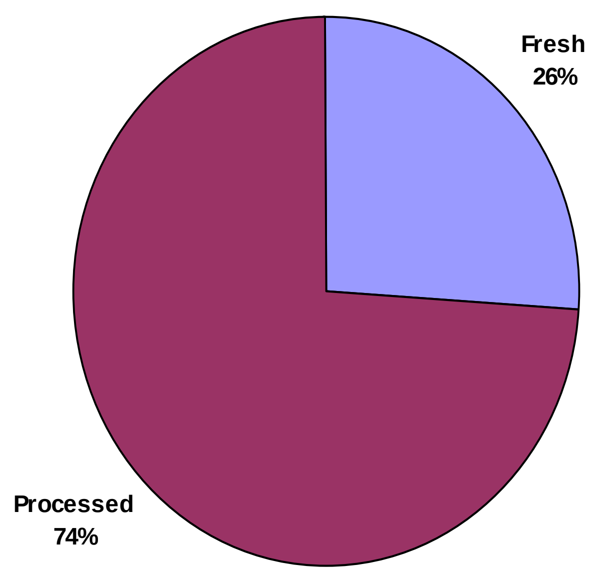


Figure A.44: Average Utilization of U.S. Snap Bean Production, 1997-2001



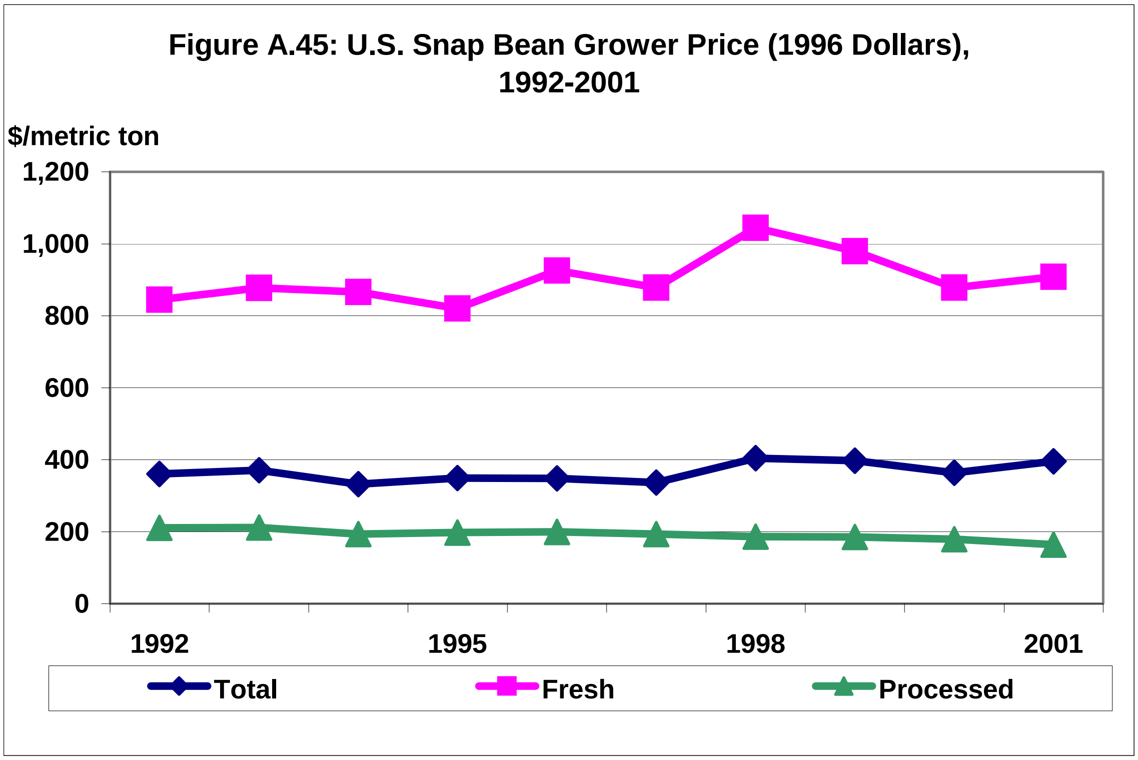


Figure A.45: U.S. Snap Bean Grower Price (1996 Dollars), 1992-2001
$/metric ton
1,200
1,000
800
600
400
200
0
1992
1995
1998
2001
Total
Fresh
Processed

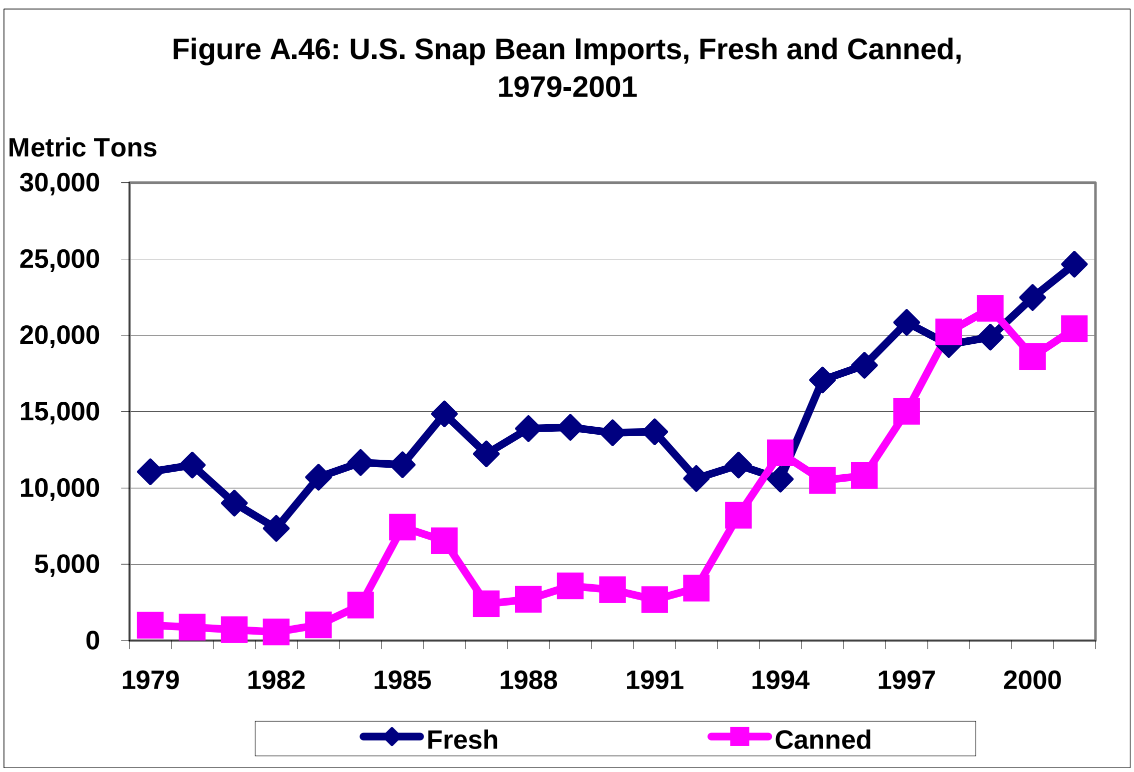


Figure A.46: U.S. Snap Bean Imports, Fresh and Canned, 1979-2001
Metric Tons
30,000
25,000
20,000
15,000
10,000
5,000
0
1979
1982
1985
1988
1991
1994
1997
2000
Fresh
Canned

Figure A.47: Average Composition of U.S. Snap Bean Exports, 1997-2001

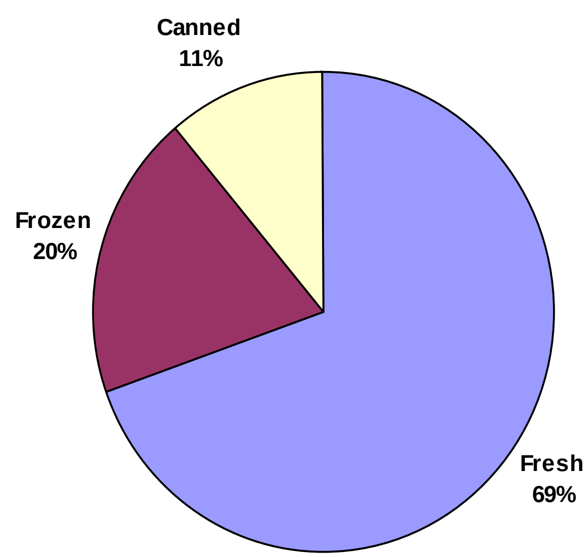


Figure A.48: Oregon Processing Snap Bean Production, 1995-2001

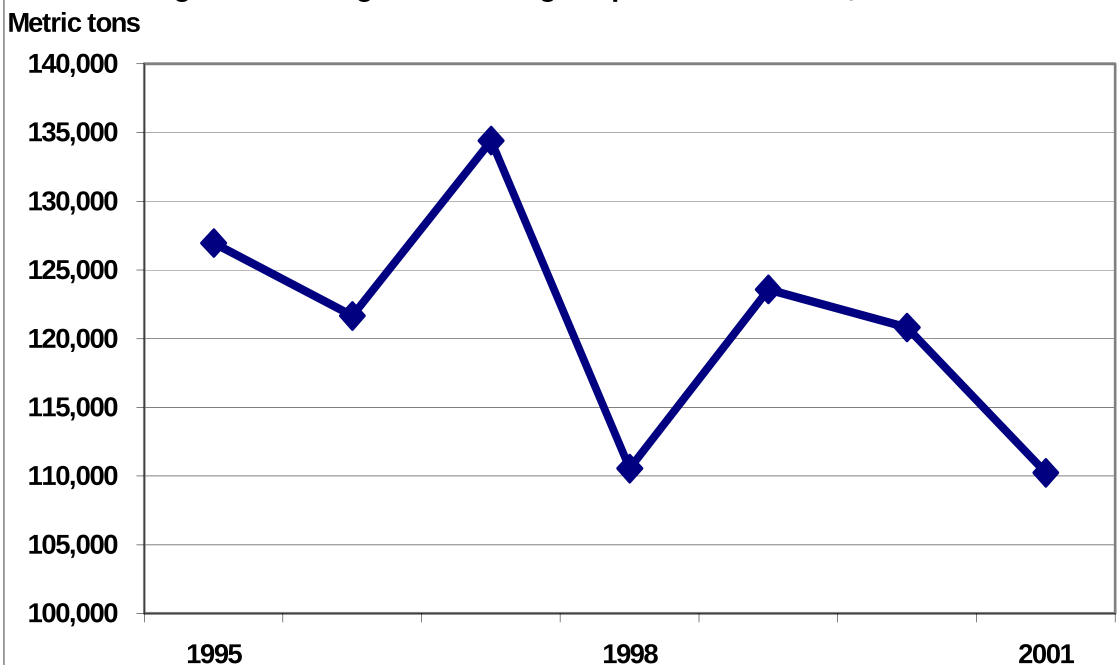


Figure A.49: Oregon Processing Snap Bean Price, 1995-2001