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Vegetables and Pulses Outlook: April 2024

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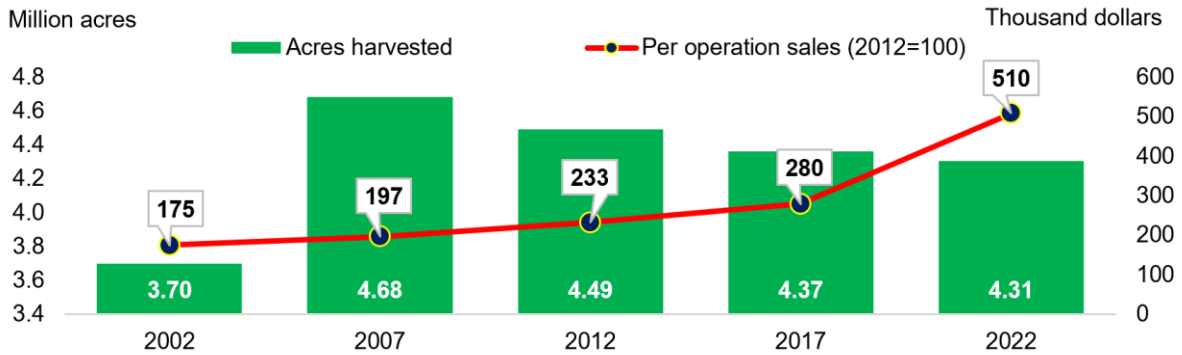
Vegetable Sales Soar by 82 Percent Amid Declines in Harvest Area and Farms

In this report:

According to the recently released Census of Agriculture, 69,452 farms reported the harvest of vegetables (including melons and potatoes, excluding mushrooms and dry pulses) in 2022—a 6.5 percent decrease from the 2017 Census. Area harvested declined 1.4 percent to 4.3 million acres with only 39 percent of the total in crops destined for processing (canning, freezing, and dehydration). Despite the drop in total vegetable farms and processing farm acres, from 2017 to 2022 real (inflation-adjusted) sales of vegetables (including seeds and transplants) per operation increased by 82 percent from about $280,000 to over $500,000 (in 2012 dollars). Real sales per operation increased steadily since the 2002 Census.

U.S. vegetable acres decline while inflation-adjusted per farm sales leap by 82 percent



Note: Sales are in 2012 dollars to adjust for inflation.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service, 2022 Census of Agriculture and previous issues and U.S. Bureau of Economic Analysis, Gross Domestic Product: Chain-type Price Index [GDPCTPI], retrieved from FRED, Federal Reserve Bank of St. Louis.

Approved by USDA's World Agricultural Outlook Board

Industry Overview

Per capita availability reflects the quantity available for consumption in the United States per person. It is often used to assess relative changes in the available consumption of agricultural products over time and among commodities, while controlling for changes in the population size.

Fresh vegetables: USDA, ERS preliminary per capita availability of fresh market vegetables for 2023 is 155.4 pounds—down 2.2 percent from the previous year. The 2023 preliminary fresh vegetable availability (excluding potatoes) is about 2 pounds less per person than the previous 3-year average. A slight increase in fresh market vegetable production in 2023 was not enough to offset lower import volumes of bell peppers, lettuce, and onions.

Processing vegetables: Estimated per capita availability of processing vegetables is 114.8 pounds per person in 2023—up 5 percent from a year earlier. This estimate is almost 2 pounds higher than the previous 3-year average (2020–22) of 112.9 pounds. The availability of major processing vegetables, such as tomatoes and sweet corn, increased year-over-year with higher domestic production and import volumes.

Potatoes: The USDA, ERS preliminary per capita availability of potatoes for calendar year 2023 is 118.1 pounds. This is a 5 percent increase from 2022 and reflects last year's larger domestic potato crop as well as increased import volumes of fresh, frozen, and potato chip products. The bigger 2023 crop has softened prices and increased stocks. ERS projects 2024 potato planted acreage in the top 13 potato-producing States to decline 3–4 percent from 2023. USDA, NASS will publish its planted acreage estimate for potatoes in the June *Acreage* report.

Mushrooms: The 2022/23 marketing year (July–June) per capita availability for all mushroom products (including truffles) is 3.4 pounds per person. A decrease in domestic production coupled with lower volumes of both fresh mushrooms and imported processed mushroom products (fresh-weight equivalent) resulted in a 7 percent decline from 2021/22. Per capita availability in 2023/24 may fall below 2022/23 levels if current trends in shipment volumes and imports persist through the final third of the marketing year (which started in July 2023 and ends in June 2024).

Pulses: The preliminary per capita availability of dry pulse crops for calendar year 2023 is 10.6 pounds per person. This is a 3.2 percent decrease from 2022. A significant increase in chickpea per capita availability in 2023 was not enough to offset per capita availability declines in lentils, dry peas, and dry beans (excluding chickpeas).

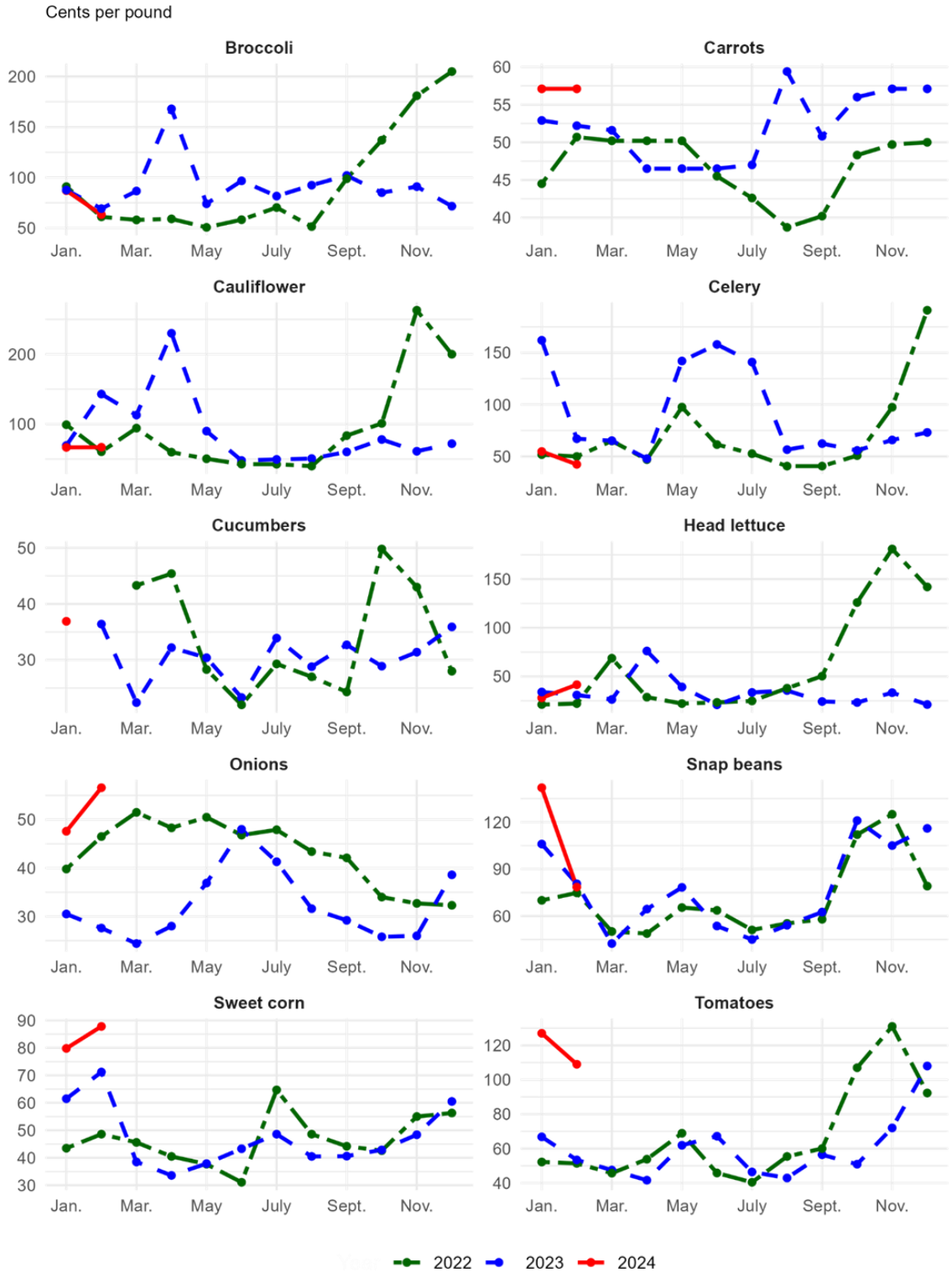
Table 1: U.S. vegetable and pulse industry at a glance/1, 2020–23

Item	Unit	2020	2021	2022	2023	Percent change 2022–23
Area harvested						
Vegetables, fresh and processing/2/7	1,000 acres	2,271	2,271	2,240	2,143	-4.3
Potatoes/8	1,000 acres	912	930	918	960	4.6
Dry beans, dry peas, lentils, and chickpeas/3	1,000 acres	3,421	3,140	3,068	2,980	-2.9
Mushrooms/4	1,000 acres	3.1	3.0	2.6	2.5	-4.1
Total	**1,000 acres**	**6,607**	**6,344**	**6,228**	**6,086**	**-2.3**
Production						
Vegetables fresh/2/7	Million cwt	320	304	309	313	1.4
Vegetables processing/2/5	Million cwt	355	339	338	363	7.5
Potatoes/8	Million cwt	420	413	402	441	9.6
Dry beans, dry peas, lentils, and chickpeas/3	Million cwt	66	38	51	52	3.7
Mushrooms	Million cwt	8.2	7.6	7.0	6.7	-5.1
Total	**Million cwt**	**1,169**	**1,102**	**1,106**	**1,176**	**6.3**
Crop value						
Vegetables fresh/2	$ millions	12,688	11,024	15,171	14,565	-4.0
Vegetables processing/2/5	$ millions	1,868	1,970	2,507	3,239	29.2
Potatoes/8	$ millions	3,902	4,204	5,166	5,647	9.3
Dry beans, dry peas, lentils, and chickpeas/3	$ millions	1,481	1,312	1,603	1,674	4.4
Mushrooms/4	$ millions	1,153	1,064	1,018	1,035	1.7
Total	**$ millions**	**21,093**	**19,573**	**25,466**	**26,160**	**2.7**
Imports/6						
Vegetables fresh	$ millions	9,523	10,004	10,687	11,434	7.0
Vegetables processing/5	$ millions	3,593	3,869	4,407	4,446	0.9
Potatoes (including seed)	$ millions	1,734	2,025	2,546	3,094	21.5
Dry beans, dry peas, lentils, and chickpeas/3	$ millions	315	355	404	417	3.2
Mushrooms	$ millions	502	595	665	629	-5.4
Total	**$ millions**	**15,667**	**16,847**	**18,709**	**20,019**	**7.0**
Exports/6						
Vegetables fresh	$ millions	2,307	2,397	2,488	2,380	-4.3
Vegetables processing/5	$ millions	2,038	2,254	2,390	2,411	0.8
Potatoes (including seed)	$ millions	1,675	1,869	2,084	2,287	9.7
Dry beans, dry peas, lentils, and chickpeas/3	$ millions	782	732	666	983	47.6
Mushrooms	$ millions	42	42	41	32	-22.3
Total	**$ millions**	**6,845**	**7,294**	**7,669**	**8,092**	**5.5**
Per capita availability						
Vegetables fresh	Pounds	157.6	156.0	158.9	155.4	-2.2
Vegetables processing/5	Pounds	117.7	111.2	109.6	114.8	4.7
Potatoes/8	Pounds	114.9	112.8	112.7	118.1	4.8
Dry beans, dry peas, lentils, and chickpeas/3	Pounds	11.1	9.4	10.9	10.6	-3.2
Mushrooms/9	Pounds	3.7	3.7	3.6	3.4	-7.0
Total	**Pounds**	**405.1**	**393.2**	**395.8**	**402.3**	**1.6**

Hundredweight (cwt) = 100 pounds. $ millions = million U.S. dollars.
1/ Total values rounded.
2/ Utilized production excluding melons.
3/ Includes Austrian winter and wrinkle seed peas where applicable.
4/ Mushroom area equals total fillings (multiple mushroom crops).
5/ Includes canned, frozen, and dried. Excludes potatoes, pulses, and mushrooms.
6/ All international trade data are expressed on a calendar year basis.
7/ Includes both fresh and processed sweet potatoes.
8/ Includes both fresh and processed.
9/ The mushroom crop year (July–June) ends with the year listed (e.g., 2023 = 2022/23).
Source: USDA, Economic Research Service calculations based on data from USDA, National Agricultural Statistics Service data and U.S. trade data from U.S. Department of Commerce, Bureau of the Census.

Figure 1

Grower prices for selected fresh-market vegetables, 2022–24



Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service.

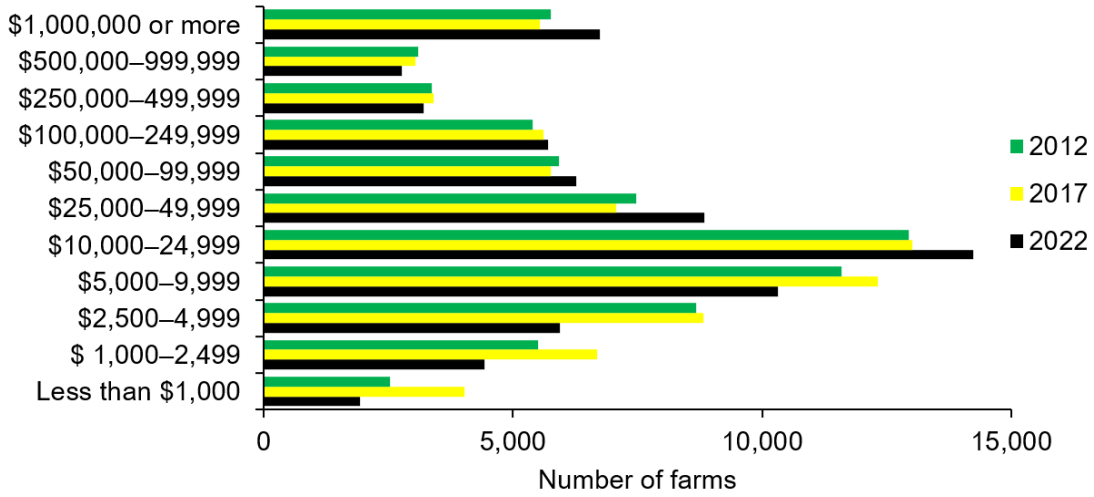
Fresh Market Vegetables

Vegetable Farms' Earnings Surge: Unpacking the 82 Percent Boom

Data from the 2022 Census of Agriculture indicates a notable shift in the agricultural landscape. Despite a reduction in the total number of vegetable and melon farms, real sales (2012=100) per operation experienced a noteworthy 82 percent surge, climbing from an average of approximately $280,000 in 2017 to over $500,000. This increase was driven by supply chain disruptions and higher input costs, which increased grower prices, and pushed many farms into higher sales brackets. From 2017 to 2022, operations with annual sales above $1 million rose by 22 percent, and those with sales between $25,000 and $49,999 expanded by 25 percent. In contrast, operations with lower earnings saw substantial decreases—52 percent for sales below $1,000; 34 percent for sales between $1,000 and $2,499; 33 percent for sales between $2,500 and $4,999; and 16 percent for sales between $5,000 and $9,999 (figure 2). These trends reflect higher costs of production and particularly high inflation in the vegetable sector.

Figure 2

Rise in high-earning vegetable and melon farms contrasts with declines in lower sales categories in 2022/1



1/ Vegetable totals encompass melons but exclude potatoes, mushrooms, and pulses.

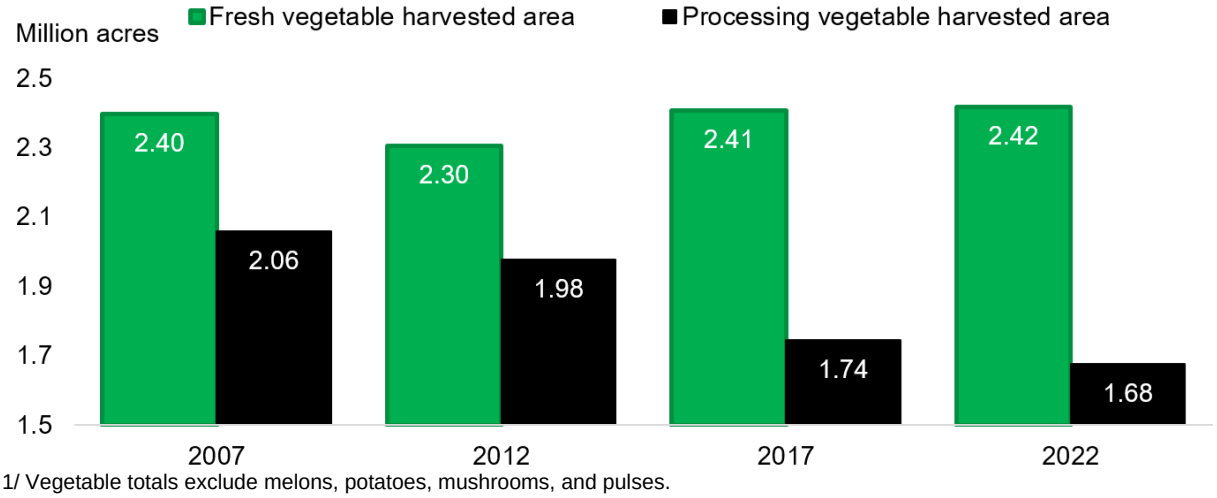
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service, 2022 Census of Agriculture and previous issues.

Marginal Gains in Fresh Market Vegetable Area Vs. Steep Losses in Processing Area

The 2022 Census of Agriculture indicates that some vegetable sectors have grown since 2017, while others have declined. Fresh market farms, excluding melons, potatoes, and pulses, accounted for 2.42 million acres in 2022, a marginal increase from the 2.41 million acres harvested in 2017. This small change reflects steady demand in the fresh market sector. By contrast, the area allocated to growing processing vegetables has been declining for decades, declining 4 percent from 1.74 million acres in 2017 to 1.68 million acres in 2022, and by 19 percent since 2007 (figure 3).

Figure 3

Fresh market vegetable areas see slight growth against a backdrop of processing area decline in 2022/1



1/ Vegetable totals exclude melons, potatoes, mushrooms, and pulses.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service, 2022 Census of Agriculture and previous issues.

Together, the top five vegetable producing States (California, Washington, Idaho, Florida, and Wisconsin) constitute 56 percent of the total U.S. vegetable harvested area. California remains the undisputed leader, accounting for 27.9 percent with 1.14 million acres. Washington and Idaho follow accounting for a combined 17 percent and 0.69 million acres. Florida and Wisconsin come in fourth and fifth with 0.47 million acres and 11.5 percent of the total.

Notably, the share of acreage produced in each State has changed since 2017. Washington's share of harvested acres increased by 10 percent from 2017 to 2022, while Idaho's share of acreage decreased by 5 percent. Florida and Wisconsin also exchanged places; Florida's share of harvested acreage increased 12 percent; Wisconsin's share decreased by 7 percent.

Vegetable Consumption Dips in 2023: Snapshot of U.S. Diet Changes

Preliminary USDA, ERS data indicates that the domestic availability (which is a proxy for consumption but does not account for food loss) was 155.4 million pounds, a 2.2 percent decrease from availability in 2022 (table A5).

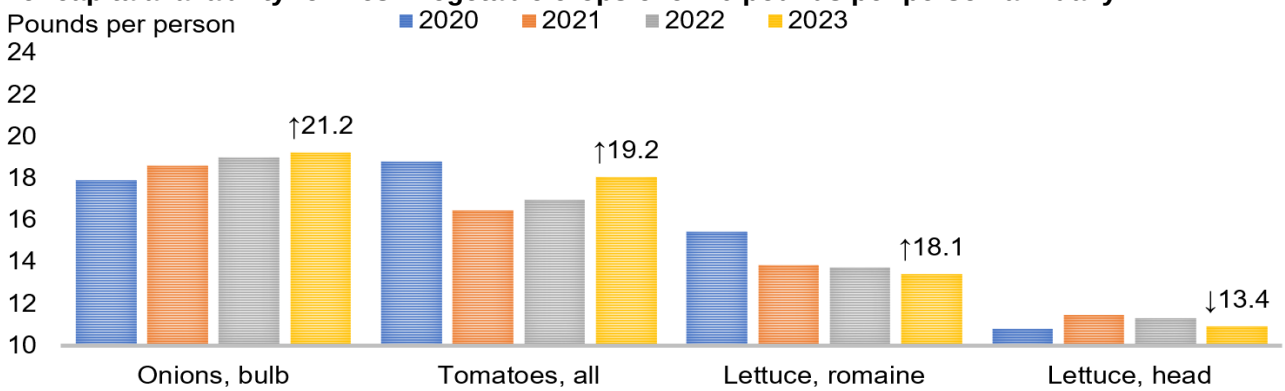
The per capita availability of lettuce (head and romaine) increased by 3 percent to 31.5 pounds in 2023. However, this increase masks offsetting changes in the per capita availability of lettuce varieties. For instance, while the per capita availability of field-grown leaf and romaine lettuces increased 6.4 percent to 18.1 pounds (approaching the record high set in 2020), the per capita availability of iceberg lettuce dropped 2.2 percent to a record low of 13.4 pounds. This shift may be due to the perception that leaf and romaine lettuces are more nutritious than iceberg lettuce.

From 2022 to 2023 there were significant decreases in the per capita availability of major Brassicas, with cauliflower, cabbage, and broccoli dropping by 19.2 percent, 2.8 percent, and 7.7 percent, respectively. The per capita availability of some non-Brassica crops increased, while others declined; celery reached a record low, declining by 5.3 percent from 2022 to 2023, while cucumbers reached a record high, increasing by 3.9 percent to 8.5 pounds per person. Other shifts include decreases in bell peppers (all uses, down 3.3 percent), carrots (down 2.4 percent), pumpkins (down 8.5 percent), and squash (down 2.4 percent), offset by slight increases in bulb onions (up 0.1 percent), tomatoes (up 1.3 percent), and sweet corn (up 2.9 percent).

These trends suggest that U.S. consumers are influenced by a combination of health considerations, culinary preferences, and environmental awareness.

Figure 4

Per capita availability for fresh vegetable crops over 10 pounds per person annually



Source: USDA, Economic Research Service.

Drought Is Out: California’s Water Supply Allocations Shape Crop Prospects in 2024

Following two wet winters, less than 1 percent of California was in drought in early April 2024. On average, 75 percent of California's annual precipitation occurs during the November through March wet season, with about 30 percent of California's water supply dependent on the annual snowpack. The California Bureau of Reclamation operates the Central Valley Project, which is the largest single source for irrigation water in the State. On April 24, Reclamation increased 2024 its water supply allocations for irrigation contractors serving the Central Valley (South-of-Delta) from 35 percent in March 2024 to 40 percent of their contract total. The California State Water Project (as of April 23) announced its 2024 forecast allocation was 40 percent of requested supplies. This follows a 2023 season where Central Valley Project irrigation contractors and California State Water Project allocations were 100 percent. However, 2024 allocations for both projects are still above levels set in 2020–22 when drought was prevalent. Based on the announced allocations, water will be less of a limiting factor in 2024 for California’s spring, summer, and fall fresh and processing vegetable crops than it has been in recent years.

Mixed Harvests: Gains in Key Crops Amidst Broader Declines in Fresh Vegetable Output

In 2023, the production of the top five fresh vegetables, excluding potatoes, increased 2 percent from the previous year (table 2). This increase was driven by expansions in planted acreage, improved weather conditions compared to the prior year, and higher yields. Increases in the production of lettuce, onions, and tomatoes helped offset decreases in the production of carrots and pumpkins. Despite these gains, the national supply of fresh-market vegetables dropped by 1.2 percent in 2023. Domestic production, which is predominantly field-grown, and which constitutes nearly two-thirds of the fresh-market supply, decreased by 1.6 percent in 2023 (table A6). Beyond the leading five vegetables, decreases in the production of cabbage, broccoli, celery, cauliflower, spinach, squash, sweet potatoes, and garlic offset gains in sweet corn, artichokes, and asparagus.

Table 2. Annual U.S. production of top fresh-market vegetables, 2020–23

Commodity	2020	2021	2022	2023p	Change 2022–23
	Million pounds				*Percent*
Lettuce, all	11,175	9,856	9,812	10,389	5.9
Lettuce, head	5,080	4,574	4,428	4,439	0.2
Lettuce, romaine	4,132	3,691	3,607	4,173	15.7
Lettuce, leaf	1,964	1,592	1,777	1,777	0.0
Onions, bulb 1/	6,933	6,341	6,233	6,369	2.2
Carrots	2,119	2,278	2,498	2,393	-4.2
Tomatoes 2/	1,997	2,076	2,139	2,188	2.3
Pumpkins 3/	1,726	2,186	2,292	2,106	-8.1
Top 5 fresh total	**23,950**	**22,737**	**22,974**	**23,445**	**2.1**

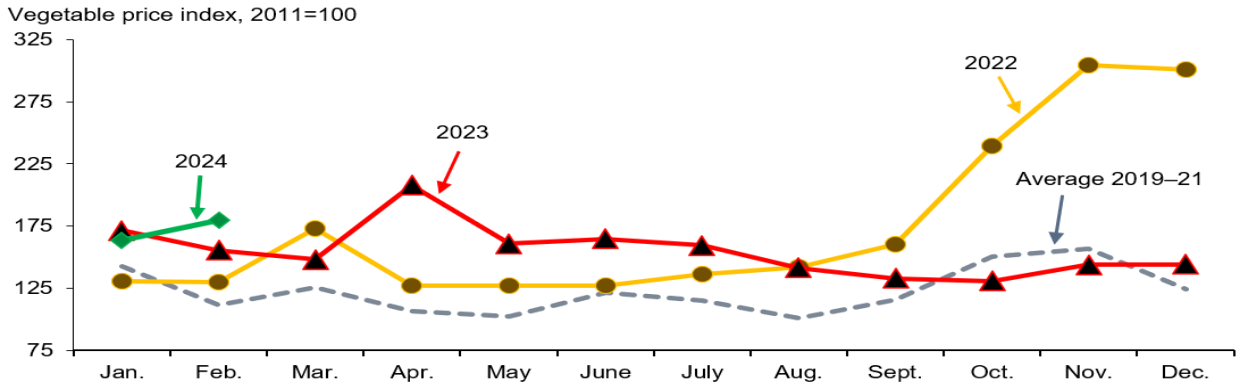
1/ USDA, Economic Research Service (ERS) projection of fresh production which deducts California dehydrated onions.
2/ USDA, ERS projection includes fresh greenhouse production (see special article on fresh market tomatoes).
3/ USDA, ERS projection includes projections for NASS annual program non-surveyed States.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service (NASS) annual estimates, USDA, NASS Census, and NASS, California County Agricultural Commissioners' data.

Vegetable Prices Dip in 2023 but Climb in Early 2024

In 2023, the domestic annual vegetable price index, computed by USDA, National Agricultural Statistics Service, dropped by 11 percent from the highs of 2022, settling at 156.1 (2011=100). This decrease was largely due to increased fall and winter production, which boosted supplies and lowered shipping-point prices for key vegetables like onions, lettuce, cucumbers, celery, and bell peppers. In contrast, the early months of 2024 saw mixed trends in vegetable prices. January’s index dropped by 5 percent year-over-year, but February’s index surged to 179.8, marking a 16 percent increase from the previous year (figure 5). Early in 2024, grower prices for tomatoes have shown significant increases (up 96 percent). Rising price trends year-over-year were also observed across other fresh vegetables with onions (up 79 percent), sweet corn (up 26 percent), snap beans (up 18 percent), and carrots (up 9 percent). These gains were tempered by decreases in celery (down 58 percent), cauliflower (down 37 percent), and broccoli (down 4 percent) (figure 1).

Figure 5

Monthly index insights: Tracking the vegetable price index, 2019–24



Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service, Agricultural Prices.

Shifts in Trade: Dominant Imports Decline While Modest Exports Gain

U.S. trade of fresh market vegetables, excluding sweet potatoes, is driven by trade with Canada and Mexico. In 2023, the volume of fresh vegetable imports (20.1 billion pounds) significantly exceeded that of exports (5.0 billion pounds), highlighting the United States's strong reliance on imported fresh vegetables (table A7). For calendar year 2023, fresh vegetable import volume (excluding potatoes) declined 0.8 percent, while exports recorded a 0.5 percent increase year-over-year.

From January–February 2024, imports (excluding potatoes) decreased 0.9 percent, primarily driven by significant decreases in cucumbers (down 7 percent), onions and shallots (down 21 percent), broccoli (down 8 percent), and lettuce (down 16 percent). However, imports of tomatoes increased by 3 percent, squash imports increased by 5 percent, chili pepper imports increased by 28 percent, carrots increased by 8 percent, and asparagus increased by 17 percent.

Fresh vegetable export volumes (excluding potatoes) rose by over 9 percent from January through February 2024 compared to the same period in 2023. This increase was driven by onions and shallots (up 89 percent), lettuce (up 3 percent), cauliflower (up 4 percent), celery (up 10 percent), carrots (up 16 percent), asparagus (up 11 percent), and broccoli (up 39 percent). These increases offset declines in the volume of sweet potatoes (down 22 percent), spinach (down 2 percent), sweet corn (down 32 percent), cucumbers (down 14 percent), and mushrooms (down 45 percent). Unlike the majority of U.S. fresh vegetable exports, which are primarily sent to Canada, more than 60 percent of annual sweet potato exports are destined for the European Union or United Kingdom.

Input Prices

Drops in Agrochemical Prices Drive Cost Reductions in 2023

In the April 2023 Vegetable and Pulse Outlook report, USDA, ERS reported that average input prices paid by vegetable producers grew by 14 percent from 2021 to 2022 (table 3). These increases, which were driven by extreme weather events, the Russia-Ukraine war, and supply chain disruptions associated with the Coronavirus (COVID-19) pandemic, outpaced an 8 percent increase in the U.S. Bureau of Labor Statistics (BLS) Consumer Price Index (CPI-U). Current estimates indicate that average annual prices dropped by 1.5 percent from 2022 to 2023, lagging the CPI-U, which increased by approximately 4 percent. This decrease was driven by large drops in the prices of agrochemicals, which fell by anywhere from 12 percent (herbicides) to 37 percent (nitrogen).

Table 3: Selected U.S. indices of prices paid by farmers, 2021–24/1

Input	Annual average			First quarter (Jan.-Mar.)		
	2021	2022	2023	2023	2024f	Change [1]
						Percent
Seeds and plants	117.3	131.7	131.7	131.7	131.7	0.0
Fertilizer, nitrogen	90.9	167.8	106.2	134.4	94.6	-29.7
Fertilizer, potash/phosphate	85.1	145.6	113.5	124.7	123.8	-0.7
Chemicals, insecticides	98.7	120.5	105.5	116.3	96.9	-16.7
Chemicals, herbicides	105.3	177.9	155.7	171.7	143.1	-16.7
Chemicals, fungicides/other	97.8	116.6	102.0	112.6	93.8	-16.7
Fuels, diesel	73.3	112.9	95.2	99.3	96.6	-2.7
Fuels, gasoline	78.5	104.4	93.4	89.7	91.1	1.6
Farm machinery	145.6	152.6	158.8	157.6	160.4	1.8
Farm supplies	127.5	142.1	144.4	144.5	143.1	-1.0
Custom services	114.7	126.0	141.2	141.2	141.2	0.0
Buliding materials	140.5	163.6	165.0	164.5	169.0	2.7
Cash rent	124.5	126.1	129.0	129.0	129.0	0.0
Interest	109.6	131.6	158.3	158.3	156.9	-0.9
Taxes	132.5	146.2	152.7	152.7	161.6	5.8
Wage rates	146.1	156.9	165.5	165.8	168.1	1.4
Crop sector [2]	119.7	139.3	138.7	141.2	137.4	-2.7
Vegetable sector [3]	121.2	142.3	140.3	143.6	140.3	-2.3

f = forecast.
1/ First quarter (January–March) change from 2023 to 2024.
2/ Input items common to the production of all crops (including food grains, feed grains and hay, tobacco, oil-bearing crops, fruits and nuts, commercial vegetables, and potatoes and dry beans).
3/ Input items common to vegetable production weighted by 2006 vegetable farm expenses derived from the 2006 Agricultural Resource Management Survey.
Source: USDA, National Agricultural Statistics Service except first quarter 2024 projections by USDA, Economic Research Service.

As of spring 2024, supply chain disruptions associated with COVID-19 have eased and inflation rates have dropped. However, inflation continues to exceed the rates observed from 2000–20 (which averaged approximately 2.1 percent annually). Though consumer price inflation tends to put upward pressure on farm costs, the prices of many farm inputs have not changed much from their 2023 levels. As of April 2024, NASS's published estimates of the costs of seeds and plants, custom services, and cash rents have not changed from the levels observed in early 2023. The prices of other inputs, like wages, have increased by small amounts. Preliminary ERS estimates suggest that the average input price paid by vegetable producers was 2.3 percent lower in Q1 2024 than in Q1 2023.

Data from the 2006 Agricultural Resource Management Survey (ARMS) suggest that wages are the largest cost faced by most commercial vegetable growers. In 2022 and 2023, average wage rates rose by 7.4 percent and 5.5 percent (respectively). Monthly data collected by NASS indicates that wage rates have increased approximately 1.0 percent since October 2023, and that average wages were 1.4 percent higher in Q1 2024 than they were in Q1 2023. In part, the large increase in wages from 2022 to 2023 may have been due to changes in the H-2A migrant worker program (which strengthened worker protections and updated wage calculations) that were implemented in November 2022, prior to the 2023 growing season.

The average annual price of diesel fuel increased by 54 percent in 2022 and the price of gasoline increased by 33 percent. These prices dropped by 16 percent and 11 percent (respectively) in 2023. Fuel prices have recently increased and may continue to rise. According to the Short-Term Energy Outlook published in April 2024 by the U.S. Energy Information Administration's (EIA), Brent crude oil prices are expected to increase by 9 percent in 2024. Retail gas prices are expected to increase by 3 percent. Growth in the supply of fossil fuels will be limited by the Organization of the Petroleum Exporting Countries (OPEC), which recently announced that it would extend production cuts first announced in late 2023 through Q2 2024. Demand for fossil fuels will be bolstered by a strong domestic and global economy.

Because fossil fuels are used to produce many agrochemicals, changes in fuel prices tend to be correlated with changes in the price of fertilizer. Average annual nitrogen and potash prices increased dramatically over the course of the pandemic, by 25 percent in 2021, and by over 71 percent in 2022. In 2023, nitrogen and potash/phosphate prices dropped by 37 percent and 22 percent, respectively, following a 61 percent drop in the price of natural gas (EIA Short-Term Energy Outlook). EIA projects that natural gas prices will continue to drop in 2024, which may put further downward pressure on fertilizer prices. Though nitrogen and potash/potassium prices remain elevated relative to their pre-pandemic levels, the price of nitrogen in Q1 2024 was 30

percent lower than it was in Q1 2023; the price of potash in Q1 2024 was approximately 1 percent lower, year-over-year.

Like fuel and fertilizer prices, pesticide (i.e., herbicide, insecticide, and fungicide) prices have decreased relative to their pandemic related highs in 2022. Throughout 2023 pesticide shortages eased as COVID-19 related restrictions and precautions loosened. On average, annual pesticide prices dropped by approximately 12.5 percent from 2022 to 2023. Thus far in 2024, pesticide prices are 17 percent lower than they were in Q1 2023.

On average, the prices of building materials rose by approximately 16 percent in 2021 and 2022. In 2023, prices of building materials rose by less than 1 percent, in part because high interest rates continued to decrease demand and put downward pressure on building supply prices. Monthly inflation rates were higher than expected in Q1 2024, lowering the probability that interest rates will be cut this spring. However, government spending on infrastructure projects may limit the extent to which prices of building supplies fall.

The recently released 2024 Iowa Farm Custom Rate Survey, which is administered every February by Iowa State University, suggested that the cost of custom services was flat relative to the large increases in costs observed from 2022 to 2023. Estimates from last year's survey indicate that the cost of miscellaneous services (which includes tasks like loading or spreading manure and scouting crops) had increased by 24 percent from 2022 to 2023. A variety of other custom service costs, including labor, preharvest operations, and the costs of harvesting/hauling had increased by 10 to 20 percent. This year, the largest change in custom costs was a 3.4 percent decrease in the cost of preharvest operations. The largest increase, 2.6 percent, was in the cost of harvesting/hauling. These results are consistent with data collected by NASS, which indicates that the average price of custom services did not change from January 2023 through February 2024.

If current trends in input prices persist, the prices paid by vegetable growers will increase more slowly in 2024 than in recent years. Increases in fuel prices throughout the 2024 growing season could put upward pressure on agrochemical prices, which may drive average costs for vegetable producers slightly higher.

Organic and Greenhouse Vegetables

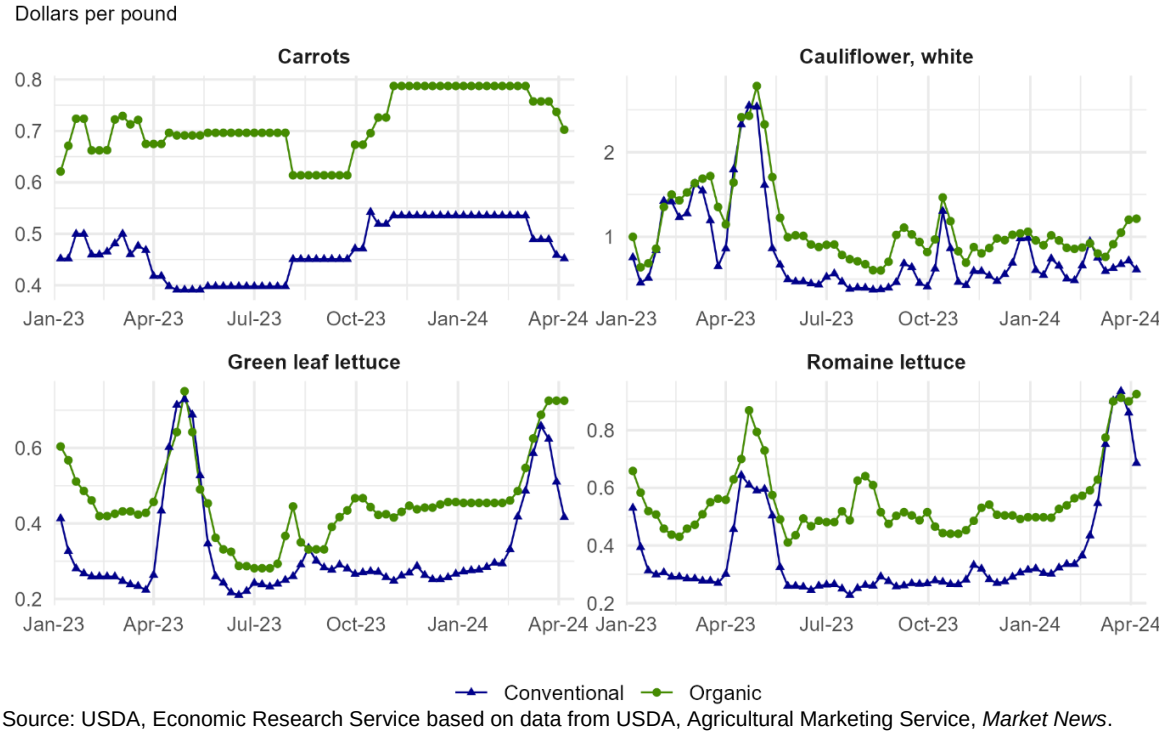
Spring Mix: Organic FOB Prices Vary in Early 2024

In the first 13 weeks of 2024, organic and conventional FOB prices for several fresh-market vegetables were mixed compared to prices observed during the same period last year (table A8). Notable changes in FOB vegetable prices this spring include:

- Domestic FOB prices for Romaine lettuce were higher compared to last season with prices spiking in mid-March as growing regions changed (figure 6). Leafy green production typically transitions from Western Arizona and Southern California to Central California (San Joaquin Valley and Salinas/Watsonville area) during March and April, but the exact timing depends on weather and market conditions. Unlike last year when California's cool rainy spring hampered regional production shifts, 2024 domestic leafy greens began shifting regions about 3 weeks earlier.
- Organic carrot FOB price premiums remained steady during the last several months. First quarter average organic and conventional carrot FOB prices were higher than last year, but domestic prices began to ease in late March from winter highs.
- Despite lower first quarter shipments (table A9), FOB prices for cauliflower in early 2024 remained well below the weather-induced highs last April.

Figure 6

Organic and conventional weekly average domestic FOB prices for selected vegetables



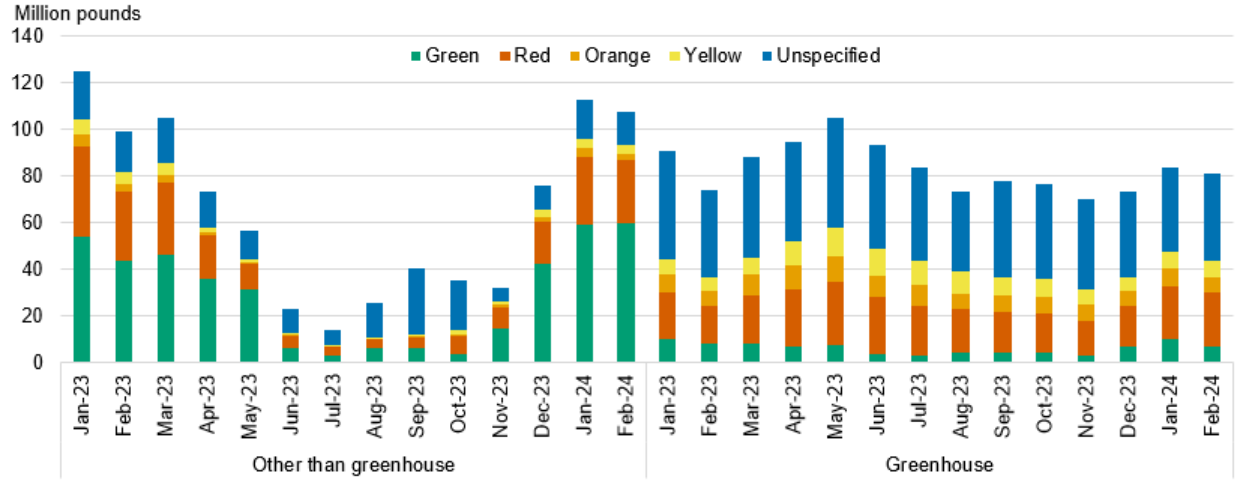
Source: USDA, Economic Research Service based on data from USDA, Agricultural Marketing Service, *Market News*.

Greenhouse Bell Pepper and Tomato Imports Up in 2023

The U.S. Department of Commerce, Bureau of the Census reports organic and greenhouse trade for some fresh vegetables and pulse crops (table A10 in the fresh vegetable appendix). Here are some highlights:

- In 2023, greenhouse bell pepper (organic and conventional) import volume was up 6.2 million pounds,1 percent higher than the previous year. Greenhouse bell pepper volume accounted for 59 percent of all fresh bell pepper imports in 2023. Monthly import volumes of greenhouse bell peppers remained steady from January 2023–February 2024 with red bell peppers accounting for about 25 percent of volume (figure 7). By contrast, imports of bell peppers (other than greenhouse-grown) peaked during the winter and spring with green bell peppers accounting for more than 40 percent of total volume.

Figure 7
Fresh bell pepper imports by color and greenhouse designation, January 2023–February 2024

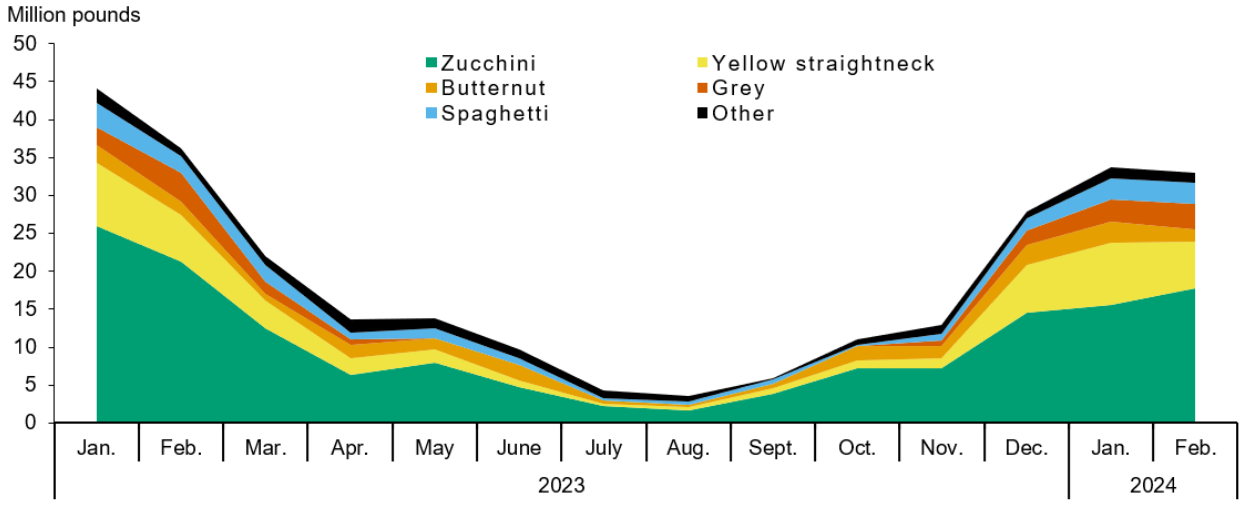


Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

- In 2023, organic bell pepper (greenhouse and other) import volume was up 5 percent (4.8 million pounds) from the previous year, accounting for 6 percent of all fresh bell pepper imports. Greenhouse organic bell pepper imports accounted for 75 percent of total organic bell pepper volume.
- In 2023, greenhouse tomatoes (organic and conventional) import volume was up 12 percent (298 million pounds) from the previous year, accounting for 65 percent of all fresh tomato imports. Between January 2023 and February 2024, import value for all organic fresh tomatoes was $223 million (5 percent of total fresh tomato import value).
- Import codes for both organic and conventional squash varieties were added to the Harmonized Tariff Schedule in January 2023. Organic squash imports in January 2023–

February 2024 totaled 143 million pounds, representing 10 percent of total fresh squash import volume. Zucchini was the top organic squash variety by import volume (52 percent), followed by yellow straight-necked (16 percent), butternut (8 percent), and spaghetti squash (7 percent) (figure 8). Zucchini was also the top conventional squash variety by import volume (41 percent). The majority of fresh squash imports (both organic and conventional) originate in Mexico with supplies usually peaking in the winter and spring months. In the first 2 months of 2024, total fresh zucchini import volume was 4 percent lower than the same period last year with import unit values up for organic (93 percent) and conventional zucchini (82 percent). Industry reports indicated weather-related production delays in key growing regions in Mexico led to higher squash prices and tighter supplies at the start of the year.

Figure 8
Zucchini is top organic squash by import volume, January 2023–February 2024



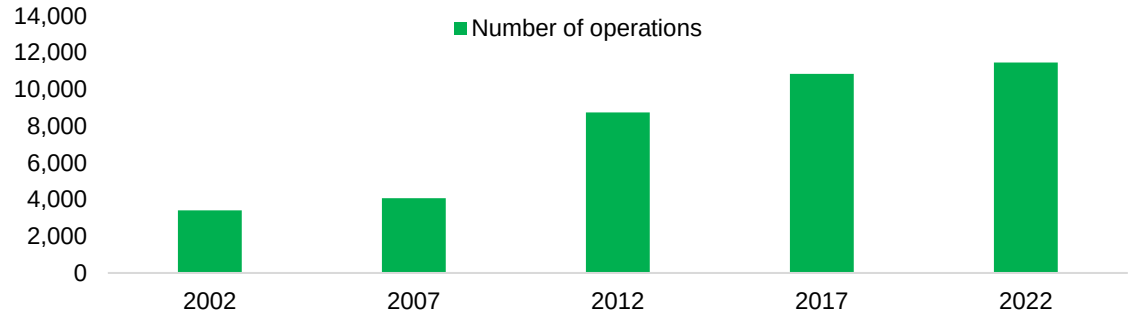
Note: "Other" category includes acorn, kabocha, and unspecified squash varieties.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

- For U.S. fresh organic vegetable exports in 2023, carrots were the leading commodity in terms of volume (49.5 million pounds) while lettuce (excluding head lettuce) led in terms of value ($62.3 million).
- Organic fresh potato export volume was 20.4 million pounds in 2023, down 9 percent from the previous year's record. Most of the export volume went to Canada (91 percent) and Mexico (6 percent). The United States was a net exporter of organic potatoes from May–August 2023, but a net importer during the rest of the year with all volume imported from Canada.

Census Snapshot of Greenhouse and Organic Vegetables

Greenhouse: The 2022 Census of Agriculture reports greenhouse vegetable and fresh cut herb production, including the number and size of operations and the value of sales. Greenhouse production includes vegetables and herbs grown under glass or other forms of protection. The number of operations growing greenhouse vegetables (including fresh cut herbs) totaled 11,465 farms in 2022 and has increased each Census since 2002 (figure 9). The top three States by number of operations were Pennsylvania, Michigan, and New York, accounting for 15 percent of total greenhouse vegetable farms. The most common enterprise size for greenhouse vegetable operations was between 1 and 999 square feet (4,197 farms, or 37 percent of farms).

Figure 9
Operations with area in greenhouse vegetable production



Note: Operations include those with area in greenhouse vegetable and fresh-cut herb production.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service, Census of Agriculture.

Greenhouse vegetable area totaled 133 million square feet and sales were valued at $982 million in 2022. The square footage of greenhouse vegetable area has more than doubled since the 2007 Census. The top three States by square footage in greenhouse vegetables and fresh-cut herbs were California (29 percent of total area), distantly followed by Ohio (7 percent) and Texas (6 percent).

Greenhouse tomatoes comprised over half of greenhouse vegetable area and just under half of greenhouse vegetable sales by value. California accounts for 15 percent of greenhouse tomato area, followed by Ohio (10 percent) and Kentucky (8 percent). Greenhouse tomato sales were valued at $470 million, with the top three States (California, Ohio, and New York) accounting for 38 percent of sales value.

Within greenhouse vegetable area (excluding tomatoes), California has the highest area by far with 27.7 million square feet in production, comprising 43 percent of production area. California added 7 million square feet of greenhouse vegetable area (excluding tomatoes) since the previous Census in 2017.

Organic: In addition to conducting the Census of Agriculture, USDA, NASS has surveyed organic agriculture since 2008. The latest report, the 2021 Certified Organic survey, provides data regarding organic acreage, production, and sales to help determine the economic impact of certified organic agriculture production on the Nation (table 4). The number of vegetable operations (including those with melons but excluding mushrooms) with organic harvested acreage increased to 3,347 farms, the largest number reported by the organic surveys to date.

The top organic vegetable by both harvested acreage and value of sales was lettuce, accounting for 14 percent of organic sales value and 19 percent of organic harvested acreage in 2021. Spinach ranked second by both sales and harvested acres (accounting for 11 percent of each category), just ahead of potatoes (10 percent for each). By production volume, organic tomatoes (in the open) were the top commodity at 5.57 million hundredweight (cwt), followed by potatoes (5.25 million cwt) and lettuce (3.9 million cwt).

Table 4. U.S. certified organic vegetable farms, harvested acreage, and sales, 2008–21

Commodity	2008	2011	2014	2015	2016	2019	2021
Number of operations with harvested acres							
All vegetables	2,499	1,998	3,315	2,999	3,121	3,300	3,347
Lettuce	939	810	934	806	819	1,129	1,140
Spinach	454	311	374	311	344	603	609
Potatoes	868	732	828	688	681	886	898
Broccoli	548	444	666	550	518	821	827
Acres harvested							
All vegetables	130,436	118,071	163,746	185,325	186,178	224,122	237,096
Lettuce	34,915	22,673	32,099	37,916	37,641	38,525	45,964
Spinach	7,668	9,162	17,994	22,843	17,547	23,018	26,165
Potatoes	7,848	9,088	12,046	13,281	17,244	23,612	24,526
Broccoli	4,733	6,461	8,561	7,415	7,785	11,945	14,799
Value of sales (million dollars, nominal)							
All vegetables	685	1,072	1,248	1,362	1,644	2,084	1,914
Lettuce	186	278	264	262	277	400	276
Spinach	37	72	117	154	118	179	215
Potatoes	30	51	62	66	151	155	183
Broccoli	33	48	79	71	71	109	135

Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service organic surveys.

Processing Vegetables

Many U.S. producers grow vegetables intended for canning, freezing, drying, or pickling. Vegetables grown for processing tend to have thick skins, uniform shapes, and other properties that make harvesting or processing easier. As reported in the USDA, ERS Vegetable and Pulses Outlook published in December 2023, tomatoes account for approximately 6 out of every 10 pounds of processed vegetables produced and almost 50 cents out of every dollar in value.

Large Inventories Depress Prices and Forecasted Production for Processing Tomatoes in 2024

Data from the 2022 Census of Agriculture indicates that processing tomatoes are grown in nearly every State. However, 94 percent of harvested acreage is in California, where the climate is warm and the risk of damage from freezing temperatures is low.

Processing tomato seeds can be planted from late January through June. Transplants, which are grown in greenhouses, can be planted in early March. Processing tomatoes are typically harvested from June through October. Virtually all processing tomatoes are irrigated.

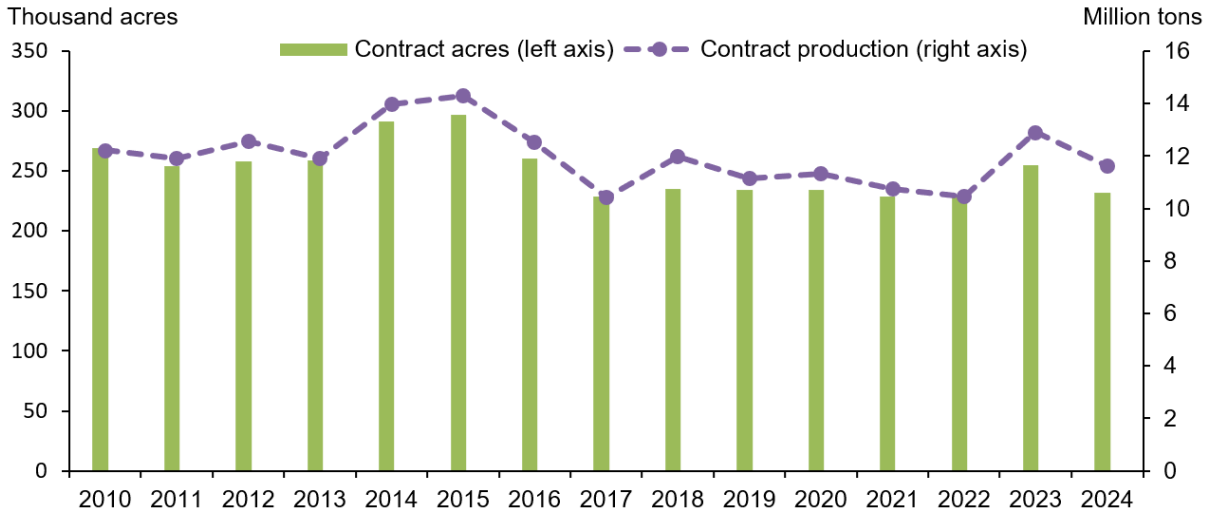
In 2023, the California Department of Water Resources (DWR) allocated 100 percent of the water requested by growers and residential customers for the first time since 2006. As of April 2024, DWR forecast that 40 percent of the water requested would be allocated in 2024.

Having less water available could impact domestic tomato production in 2024. However, water availability is one of many factors shaping growers' expectations about prices and profits, which drive decisions about (1) application rates of agricultural inputs like water, fertilizer, and pesticides (which affect yields), (2) the number of acres planted, and (3) how many tomatoes to commit to selling under contract.

The *California Processing Tomato Report* published by USDA, NASS in January 2024 indicated that contracted planted acres of processing tomatoes would drop from 255 thousand acres in 2023 to 232 thousand acres in 2024 (a 9 percent reduction), and that contract production would drop 10 percent, from 12.9 million to 11.6 million short tons (figure 10).

Figure 10

Contracted planted acreage and production for California processing tomatoes, 2010–24



1 ton = 2,000 pounds.
Note: Contract production for 2024 represents processor intentions.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service.

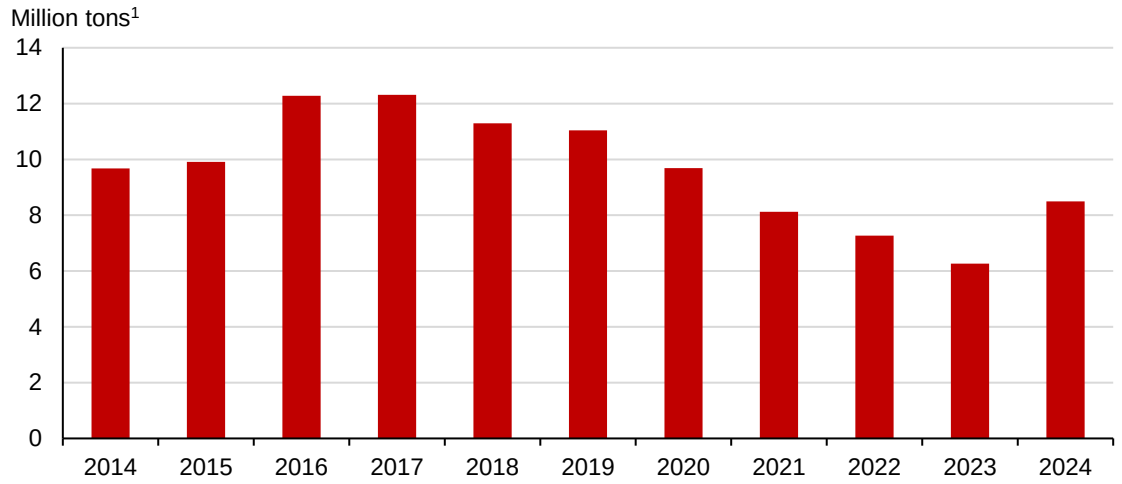
Changes in contract acreage tend to be driven by growers' expectations about prices. In early 2023, the California Tomato Growers Association (CTGA) and processors agreed to a base contract price of $138 per ton for conventionally grown tomatoes. As of early April 2024, the CTGA and processors had not agreed on a base price. However, the California Tomato Growers Association made an offer for the 2024 season of $127.50 per ton in December 2023, approximately 8 percent less than last year's price. This suggests that prices for processed tomatoes may be lower in 2024 than in 2023.

Currently, market prices advertised online by major tomato processors are lower than they were in 2023. In April 2024, bulk (55-gallon drum) tomato paste prices ranged from 74 cents to $1.12 per pound, depending on the percent of natural tomato soluble solids. This is lower than the prices reported in the April and December 2023 Vegetables and Pulses Outlooks, which reported prices ranging from 80 cents to $1.16 per pound in April and 85 cents to $1.22 per pound in December.

Another of the primary factors putting downward pressure on processing tomato prices and contracted acreage is the large amount of inventory carried from 2023 into calendar year 2024. From 2017 to 2023, the inventory of processed tomato products available on January 1 (measured on a fresh weight basis) decreased by approximately 50 percent, from 12.3 million to 6.3 million short tons (figure 11). Following a wet 2023 and an increase in domestic production of over 20 percent, inventories increased by over 35 percent, from 6.3 million to 8.5 million tons.

Figure 11

Inventories of processed tomato products decreased from 2017 to 2023, before increasing in 2024



[1] Inventories reflect estimated carry-in on January 1. Weights are reported on a fresh weight equivalent basis.

Source: USDA, Economic Research Service based on data from the California League of Food Processors.

Early indications suggest that increases in trade, driven partially by a large crop in 2023 and sustained global demand, may help limit decreases in domestic prices during the 2024 growing season. The most recent trade data available (through February 2024) from the U.S. Census Bureau indicates that net exports (i.e., exports minus imports) were approximately 314 thousand tons higher from January through February 2024 than the same period in 2023. Over the course of the last 5 years, net exports of processed tomatoes have ranged from approximately 1.3 million to 2 million tons, between 12–18 percent of domestic production.

Processed Vegetable Prices Increase Slowly in Early 2024

As with most agricultural prices, wholesale and retail prices for processed vegetables were higher in 2024 than in 2023 (figure 12). However, these increases have been small relative to those observed last year. For instance, the average price of processed fruit and vegetables was 13 percent higher in Q1 2023 than in Q1 2022. In Q1 2024, the price of processed fruit and vegetables were 1.6 percent higher than they had been in Q1 2023. Though there were large increases in the prices of certain commodities from 2023 to 2024, (e.g., frozen potato products and canned catsup), inflation has fallen since the COVID-19 pandemic. The following are other highlights for processed vegetables:

- The average price paid to domestic producers of frozen potato products was 37 percent higher in Q1 2023 than in Q1 2022. From Q1 2023 to Q1 2024, prices of these products increased 16 percent. Notably, increases in frozen potato products have outpaced both changes in consumer prices and increases in the average cost of vegetable production.

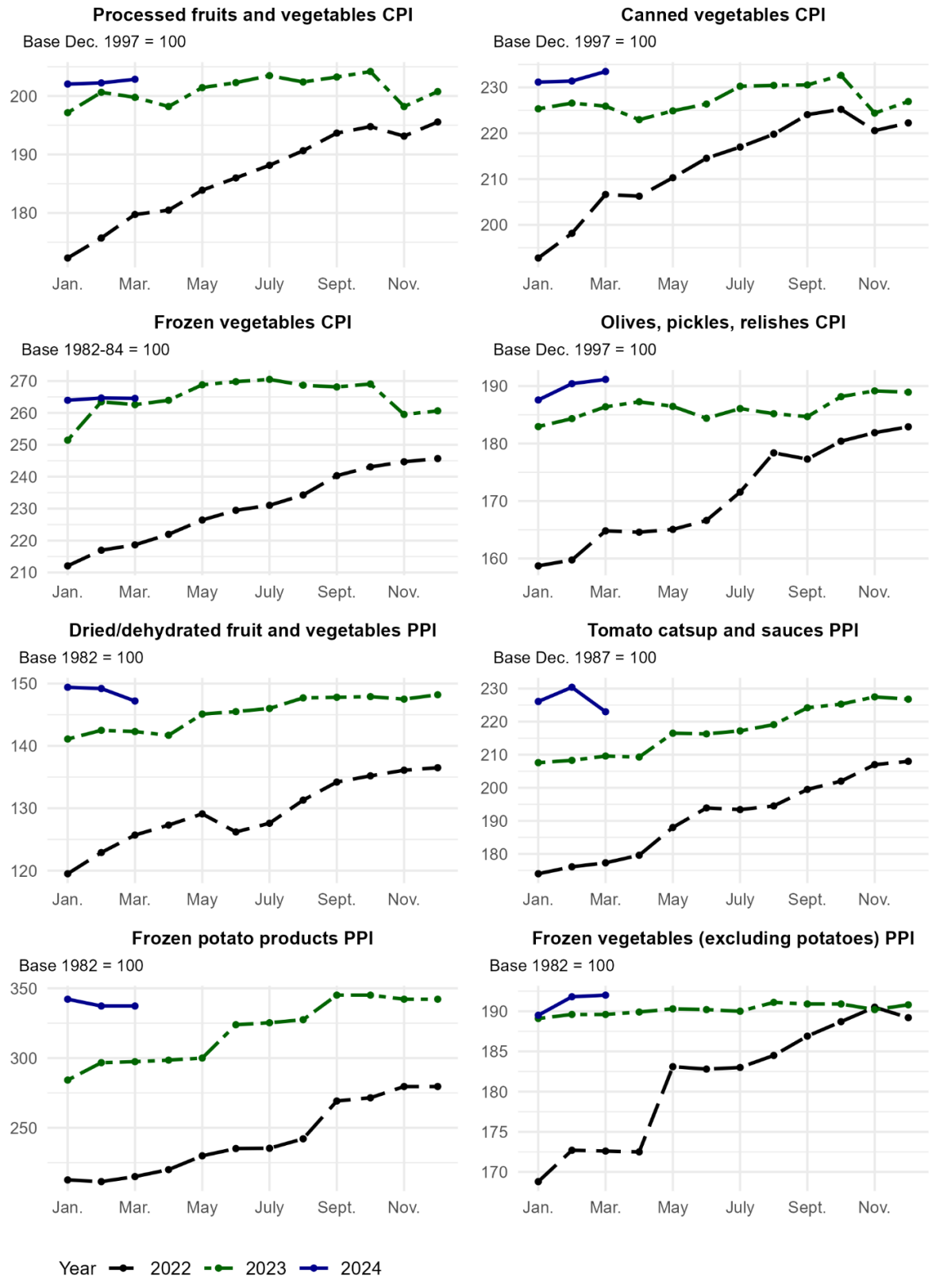
Generally, these higher prices are due to increased costs for labor and materials, as well as previous raw potato supply shortages.

- During the COVID-19 pandemic the demand for food consumed at home increased and a prolonged drought in California lowered yields of processed tomatoes. These factors, as well as breakdowns in global supply chain, put upward pressure on processed tomato prices in 2021 and 2022. For instance, from Q1 2022 to Q1 2023 the price of canned catsup and other tomato base sauces increased by nearly 20 percent. Following a large crop in 2023, global shortages of tomato paste have eased and processed tomato prices have fallen. Nonetheless, prices of canned catsup and tomato base sauces are still approximately 9 percent higher than they were in Q1 2023.
- The prices of olives and dried and dehydrated fruits continue to rise, but far more slowly than during the 2022 growing season. At the start of 2023, olive prices had risen by 15 percent year-over-year, and dried fruit had risen by 16 percent. In Q1 2024, the prices of olives and dried fruits are 3 percent and 5 percent higher, respectively, than they were in Q1 2023.
- The canned vegetable Producer Price Index (PPI), a measure of prices paid to domestic producers for their output, rose 9 percent from a year earlier during the first quarter of 2024. Much of the gain reflects higher prices for tomato products and pickled vegetables with moderate gains for other canned vegetables.
- The Consumer Price Index (CPI) for processed vegetables and fruit was up 2 percent during the first quarter of 2024 from a year earlier. Canned and frozen vegetable CPI rose 2 and 3 percent, respectively.

Though prices received by growers are expected to increase for many vegetables throughout the 2024 growing season, slowing inflation rates for inputs and consumer goods may limit growth in producer prices.

Figure 12

U.S. consumer and producer price indices for selected processed vegetables, 2022–24



Source: USDA, Economic Research Service based on data from U.S. Department of Labor, Bureau of Labor Statistics.

Processed Import and Export Values Up in 2023

From 2022 to 2023, the value of U.S. processed vegetable imports increased 8 percent, from $6.72 billion to $7.24 billion (table B11). In the first 2 months of 2024, processed vegetable import value was 13.6 percent higher than during the same period in 2023. Canada was the top exporter of processed vegetable products to the United States, accounting for over half of frozen vegetable imports by volume. The value of processed vegetable imports from Canada increased by 16 percent year-over-year, from approximately $2 billion to $2.3 billion. The value of processed vegetable imports from Mexico, the second largest exporter, increased 10 percent (from $1.22 billion to $1.35 billion). Other notable changes in import and export values follow:

- The value of frozen vegetable imports increased by 13 percent from $3.34 billion to $3.77 billion, driven by increases in shipments of potatoes (up 24 percent) and broccoli (up 12 percent). Frozen vegetable import volumes reached a record high in 2023 at 5.53 billion pounds, with the top two frozen vegetables, potatoes and broccoli, reaching record high volumes.
- The value of prepared or preserved vegetable imports increased 6 percent year-over-year from $2.5 billion to $2.66 billion despite a 10 percent decrease in volume. These increases were driven by higher value of imported tomato products (up 42 percent) and potato chips (up 48 percent), which more than offset lower value of imported artichokes, mushrooms, and truffles. Prepared or preserved vegetable product import volumes decreased for all commodities except potatoes, which rose 9 percent in 2023.
- Both the value and the volume of dried or dehydrated vegetable imports decreased in 2023. The value of imports fell 8 percent from $793 million to $732 million; the volume fell 15 percent from 1.31 billion pounds to 1.11 billion pounds. Dried or dehydrated potato products (e.g., flakes, granules, and starches) were a notable exception. A 6 percent decrease in the volume of imports was offset by a 19 percent increase in value.
- The value of vegetable juice dropped 13 percent from $94 million to $81 million, with volumes declining 33 percent. While the value of tomato juice increased 15 percent, mixed vegetable juices that make up most of the segment decreased by 15 percent.

The value of all processed vegetable exports increased 5 percent in 2023 to $3.57 billion from $3.41 in 2022 (table B12). In the first 2 months of 2024, processed vegetable export value rose by 5.4 percent compared to the same period in 2023. Canada is the top destination for U.S. processed vegetables, with almost 40 percent of frozen vegetables and almost 60 percent of vegetable juice exported to Canada annually on average over the last 5 years. U.S. exporters shipped $1.17 billion of processed vegetables to Canada in 2023, a 5-percent increase from

$1.12 billion exported in 2022. While the volume of processed vegetable exports headed to Mexico and Japan, the second- and third-largest markets, are down slightly from 2022, values are up 13 percent and 11 percent, respectively.

- The value of prepared or preserved vegetable exports increased 7 percent from $1.39 billion in 2022 to $1.49 billion in 2023. These increases were driven by increases in exports of tomatoes (value up 11 percent, volume up 5 percent) and potato products (value up 8 percent, volume up 9 percent).
- The value of frozen vegetable exports increased 5 percent year-over-year from $1.64 billion to $1.73 billion, driven by increases in the value of potato exports (up 8 percent). Frozen export volume was down 13 percent year-over-year, with potato products (which make up 85 percent of volume) down 12 percent.
- The value of dried and dehydrated vegetables decreased 2 percent in 2023 despite a 27 percent increase in the value of potato products, which comprised 40 percent of the annual value of dried and dehydrated vegetables on average over the last 5 years (2018–22). Dried and dehydrated garlic, mushrooms, and onions all had double digit declines in both export values and volumes.
- The value of vegetable juices dropped 25 percent from $37.6 million to $28.1 million in 2023, driven by year-over-year decreases in the value of mixed vegetable juices (down 28 percent). Tomato juice exports increased in both value (up 24 percent) and volume (21 percent) but are on par with the 3-year average (2020–22).

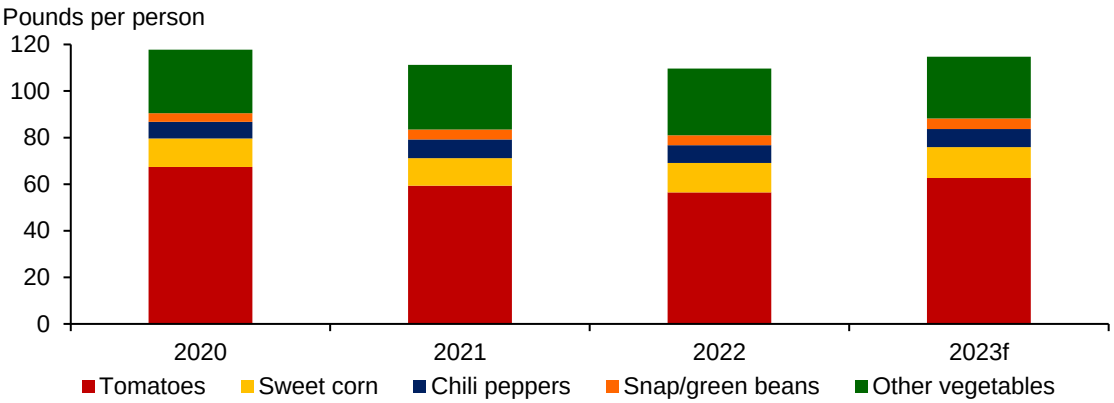
Processing Vegetable Per Capita Availability Increased in 2023

Preliminary data indicate that 114.8 pounds of processing vegetables on a fresh-weight basis (excluding mushrooms, potatoes, and sweet potatoes) were available per person in 2023 (figure 13). This is almost a 5-pound increase from 2022. However, it is not a substantive change from the 5-year average of 114.4 pounds per person. The per capita availability of the most popular processing vegetables (tomatoes, sweet corn, chili peppers, and snap/green beans) increased in 2023; the per capita availability of carrots, green peas, cabbage, beets, and spinach decreased. A few of the important changes to per capita availability in 2023 include:

- Tomatoes: Per capita availability of processing tomatoes was estimated at 62.6 pounds, an 11 percent increase from 2022. Domestic production of processed tomatoes increased 22 percent year-over-year, driven by a 13 percent increase in planted area.

- Sweet corn: Per capita availability of sweet corn was estimated at 13.3 pounds per person, up 5 percent from 2022. Domestic production of sweet corn increased 2 percent over 2022, and export volumes fell.
- Chili peppers (all uses): Per capita availability of chili peppers was estimated at 7.8 pounds per person, the second highest on record (0.2 of a pound lower than the 2021 record high). Imports, which made up approximately 95 percent of total availability in 2023, rose 4 percent from 2022 to 2023, more than offsetting the 11 percent decrease in domestic production.
- Snap/green beans: Per capita availability of snap/green beans was estimated at 4.6 pounds, up 9 percent from 2022.

Figure 13
Per capita availability of processing vegetables, 2020–23f



f = forecast.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service and U.S. Department of Commerce, Bureau of the Census.

Census of Agriculture 2022: Share of Area Used for Processing

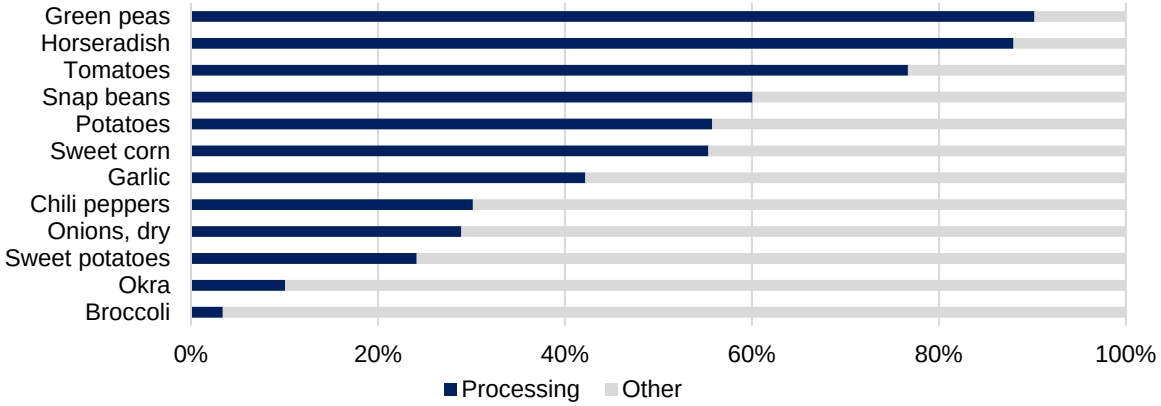
Data from the 2022 Census of Agriculture can be used to estimate the share of acreage devoted to fresh-market and processing production by commodity. For all vegetables and melons (excluding mushrooms and pulse crops), processing accounted for 39 percent (1.68 million acres) of total vegetable, potato, sweet potato, and melon harvested area in 2022 (4.31 million acres). Potato growers reported having the greatest number of acres devoted to processing (600,169 acres), followed by sweet corn growers (258,781 acres), and tomato growers (248,318 acres).

The share of harvested area for processing varies widely by crop (figure 14). Among all vegetables and herbs, farms producing green peas had the highest concentration of acreage destined for processing (90 percent), followed closely by horseradish (88 percent). Over half of potato (56 percent) and sweet corn (55 percent) acreage was devoted to processing. For crops

such as eggplants, Brussels sprouts, green onions, and artichokes, almost all acreage was in fresh-market production (with less than 3 percent devoted to processing).

Figure 14

Share of selected vegetable area destined for processing, 2022



Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service.

The 2022 Census data also indicated that 55 percent of the vegetable, potato, and melon harvested area devoted to processing was produced on farms growing over 1,000 acres of vegetables for processing, up 3 percent from the 2017 Census. This area was farmed by 4 percent (478 farms) of growers harvesting vegetables for processing. The most common enterprise size for processing vegetables was between 1.0 and 4.9 acres (3,619 farms, or 31 percent of farms with processing vegetable acreage).

Other notable changes in vegetable area devoted to processing include:

- The number of acres of vegetables, potatoes, and melons harvested by U.S. growers has decreased since the 2007 Census. With fresh-market acreage relatively flat, the declines have been concentrated in processing acreage. The per capita availability of processing vegetables has trended downward since 2007, despite an increase in the import share of consumption for processing vegetables and higher yields in commodities such as processing tomatoes.
- Sweet corn acreage has steadily fallen since the 1997 Census. Processing acreage has declined more quickly than fresh acreage, dropping from approximately 60 percent to 55 percent of sweet corn harvested acres.
- Tomato harvested acreage has declined since the 2002 Census. Processing acreage from the 2022 Census was similar to the 2017 Census and continued to make up about one-quarter of harvested acreage, while fresh acreage continued to decrease.
- Green pea harvested acreage increased slightly from the 2017 Census. Increases in harvested acreage for the fresh market more than offset decreases in harvested acreage for processing.

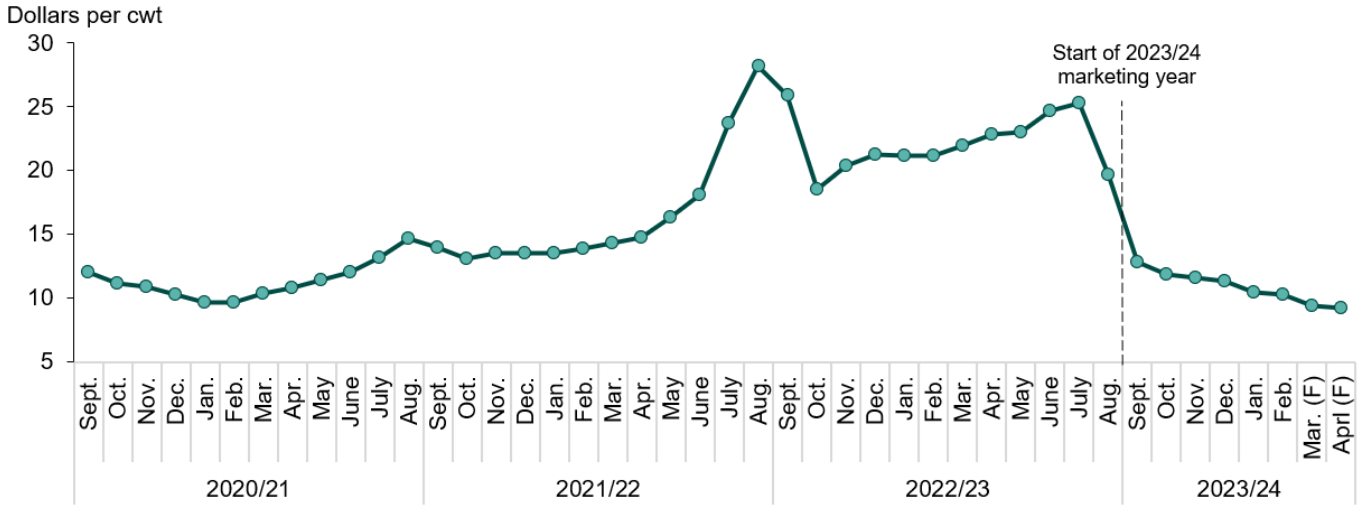
Potatoes

Lower Prices and Higher Stocks Weigh on 2024 Planting Decisions

USDA, ERS expects 2024 potato planted acres to decrease by 3 to 4 percent in the 13 NASS surveyed States[1] from 2023. If realized, this reduction in planted potato acreage would be approximately 30,000–40,000 acres less than last year's 965,000 planted acres. USDA, NASS will publish its planted acreage estimate for potatoes in the June. Other potato highlights follow:

- Heading into the 2024 spring planting season, potato prices are lower and storage volumes are higher than they were in 2023, when planted acreage was the highest since 2017. The increase in acres, coupled with the second highest yield on record, led to a 10 percent year-over-year increase in production.
- Following a large fall harvest in 2023, fresh potato prices fell sharply below prices observed during the previous 16 months. USDA, NASS reports monthly grower prices for fresh potatoes have ranged from $10.30 to $12.80 per hundredweight (cwt) since the beginning of the 2023/24 marketing year (MY) (September–February) (figure 15). In contrast, 2022/23 MY (September–February) fresh potato prices ranged from $18.50 to $25.90 per cwt. With ample supplies available, fresh potato grower prices for the rest of the 2023/24 MY (March–August) are expected to remain well below last season.

Figure 15
Monthly fresh potato grower prices fall after 2023/24 fall harvest



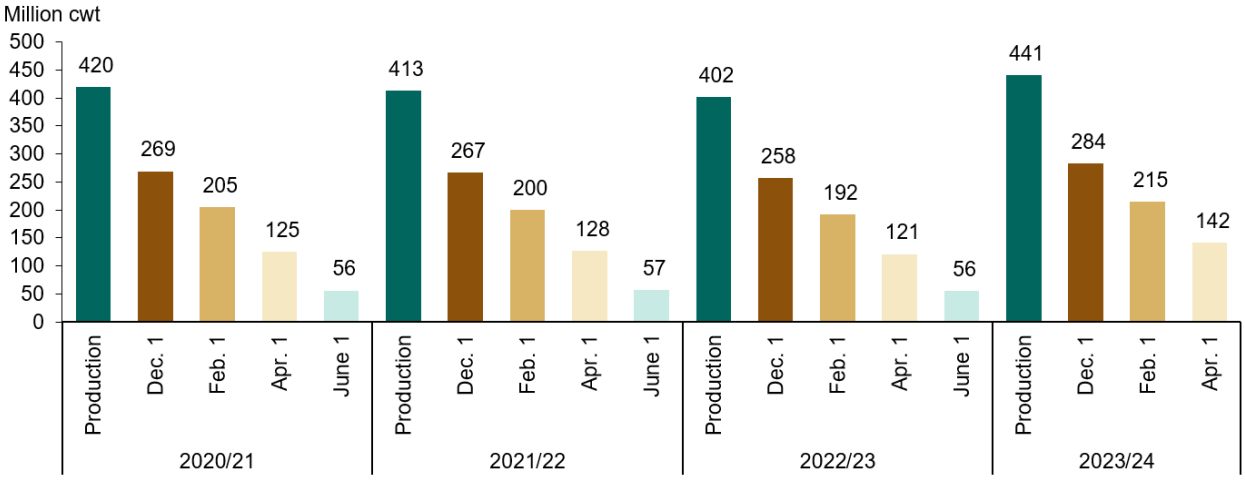
F = Forecast. Cwt = hundredweight.
Note. Potato marketing year starts in September and ends in August of the following year.
Source: USDA, Economic Research Service based on data from USDA, NASS, Agricultural Prices; March and April 2024 forecasts based on ERS calculations from USDA, AMS Market News shipping point data.

[1]The 13 NASS surveyed States include California, Colorado, Florida, Idaho, Maine, Michigan, Minnesota, Nebraska, North Dakota, Oregon, Texas, Washington, and Wisconsin.

- Potato stocks, which include processor holdings and most of the seed to plant the following year's crop, were 17 percent higher in April 2024 than in April 2023 (figure 16). As a percent of production, April stocks represented 32 percent of the total 2023/24 crop, 2 percent higher than the 3-year average.

Figure 16

Potato production and stocks: top 13 potato-producing States in the last 4 seasons



Cwt = hundredweight.
Note. Potato marketing year starts in September and ends in August of the following year.
Source: USDA, Economic Research Service based on data from USDA, NASS, *Potato Stocks.*

- Potato processors in the Pacific Northwest are expected to reduce contracted acres for the 2024/25 MY to try to balance supply with demand, according to industry reports. Last season, processors increased contracted acres after 2 years of shorter than expected processing potato crops and high open-market prices. Ultimately, planted acres and weather will determine changes in production for 2024/25 MY. If yields fall below trend as in 2021 and 2022, a large downward adjustment in planted acres could result in tighter supplies in the latter half of the 2024/25 marketing year.
- Weekly planting progress reports in April 2024 by the USDA, NASS Pacific Northwest office indicate that potato planting is ahead of the 5-year average in Washington and Oregon, but behind in Idaho. Normal planting progress and lower demand for early harvested processing potatoes (due to higher stocks from 2023/24), may help with increased potato sizing and yield. For the week ending April 21, 2024, the following States reported these potato plantings: 68 percent in Oregon (5-year average is 58 percent), 66 percent in Washington (5-year average is 41 percent), and 23 percent in Idaho (5-year average is 24 percent). Potato planting progress is expected to pick up in early May in Wisconsin, the Red River Valley (North Dakota and Minnesota), and Maine.

U.S. potato trade mixed by product type in first half of MY 2023/24: U.S. export volumes of fresh potatoes increased in the first half of marketing year 2023/24 but decreased for french fries and chips (table C13). Other potato trade highlights include:

- Driven by a large potato crop in 2023/24 MY, fresh potato export volume (excluding seed) increased by 13 percent in the first 6 months of the marketing year (September–February) relative to the same period last season. U.S. fresh potato export volume to Mexico rose 70 percent (122 million pounds) in the first half of the 2023/24 MY compared with 2022/23—the largest on record for that period. If current trends persist, the total export volume to Mexico for the current marketing year could surpass last season's record of 349 million pounds (September–August). These increases follow regulatory changes the USDA announced in mid-2022 that expanded market access for U.S. fresh potato exports to Mexico.
- U.S. frozen french fry export volume fell 8 percent in the first half of the 2023/24 MY, reaching its lowest year-to-date level in over a decade. Export volume declined to top destinations Japan (down 7 percent), Mexico (down 3 percent), and South Korea (down 18 percent).
- Import volume of frozen french fries in the first half of the 2023/24 MY increased 1 percent from 2022/23 MY, reaching 1.29 billion pounds. Canada (85 percent) and the European Union (13 percent) accounted for most of the volume. While the United States remained a net exporter of potato chips in 2022/23, imports reached a record high 90 million pounds. Import volume for potato chips in the first half of 2023/24 MY were higher than import volumes in 2022/2023 by 10 million pounds (up 24 percent). Most potato chip import volume during that period came from Canada (78 percent) and Mexico (14 percent).

Potato per capita availability up in 2023: The USDA, ERS preliminary per capita availability of potatoes for calendar year 2023 is 118.1 pounds (table C14). This is a 5-percent increase from 2022 and would be the highest potato per capita availability since 2008 if realized. The increased preliminary estimate reflects last year's larger domestic potato crop as well as increased import volumes of fresh, frozen, and potato chip products. The share of potato domestic availability in 2023 is expected to be 50 percent for frozen products and 25 percent for fresh products (table stock). The larger share of frozen potato products follows a multi-decade trend that reflects changing consumer preferences and the increased popularity of french fries at quick service restaurants.

Pulse Crops:
Dry Beans, Peas, Lentils, and Chickpeas

New July Vegetables and Pulses Outlook

The upcoming July *Vegetables and Pulses Outlook*, a new USDA, ERS addition in 2024, will primarily focus on potatoes and pulses. This represents a more targeted scope compared to the more comprehensive coverage typical of the April and December outlook editions.

Census High-Level Insights and 2024 Annual Survey Program Changes

A detailed analysis of the Agricultural Census will be published in July, but the following section provides a high-level summary of the pulse farm sector. It emphasizes changes to the annual survey programs in 2024 resulting from reviews completed after Census. The 2022 Census indicates there were 7,999 pulse crop farms, a decrease of 30 percent from 2017 with dry beans (excluding limas and chickpeas) representing 47 percent of total U.S. pulse crop farms, dry peas (29 percent), lentils (14 percent), and chickpeas (10 percent).

Pulse State coverage changes to the NASS annual survey program: USDA, NASS announced that in 2024 it will discontinue estimates for pulse crops in States where production does not represent a significant portion of the total. Explanations for these changes, such as internal considerations about confidentiality and budget constraints, are generally not publicly disclosed. As a result of this review, the following changes will occur:

- Estimates for dry beans will no longer be included for California and Wyoming.
- Dry pea estimates will cease in South Dakota.
- Chickpea estimates will end in California.
- Lentil estimates will cease in Idaho.

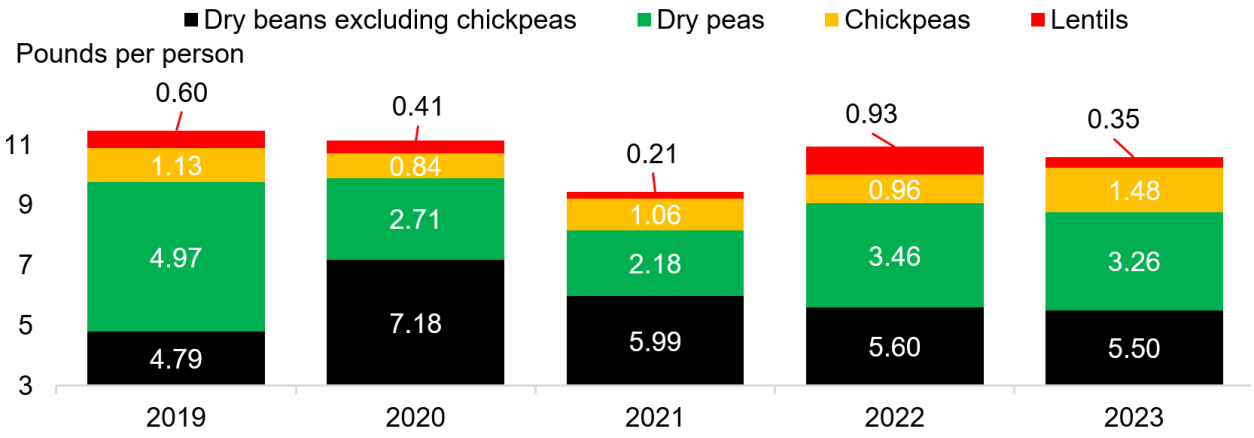
Pulse class type changes to the NASS annual survey program: The removal of wrinkled seed peas and Austrian winter peas from the dry edible pea class is not expected to change aggregate dry pea statistics. Additionally, in 2024, the annual survey program will adjust by adding the white kidney bean class, previously grouped under “other” dry edible beans, into its own class. Classifications for small whites, baby limas, and large limas will be discontinued. These changes reflect shifts in agricultural production and market demand.

Per Capita Availability Rises by 3 Percent in 2023 With Chickpeas Leading

Preliminary estimates for per capita availability in 2023 for pulses dropped by 3 percent to 11.02 pounds per person. This decrease was driven by (1) a 62 percent decrease in the per capita availability of lentils, which fell to 0.35 pounds per person, and (2) decreases in the per capita availabilities of dry peas and dry beans, which fell by 6 percent and 2 percent, respectively. These decreases offset the increase in chickpea per capita availability, which rose by 55 percent from almost 1 pound per person in 2022 to 1.48 pounds per person in 2023 (figure 17).

Despite the per capita availability of dry beans declining by 2 percent (to 5.5 pounds per person) in 2023, they remain the most available U.S. pulse type. However, the per capita availability of dry peas and chickpeas has been recovering in recent years, following a decrease in per capita consumption in 2020. In 2023 the per capita availability of chickpeas exceeded their pre-pandemic levels. The rise in chickpea demand in the United States is likely driven by their versatility in product offerings such as chickpea pasta, snacks, flour, and plant-based meats, which cater to growing consumer demand for gluten-free and high-protein options.

Figure 17
U.S. dry pulses: Per capita availability/1, 2019–23



1/ Calendar year annual domestic availability per person.
Source: USDA, Economic Research Service.

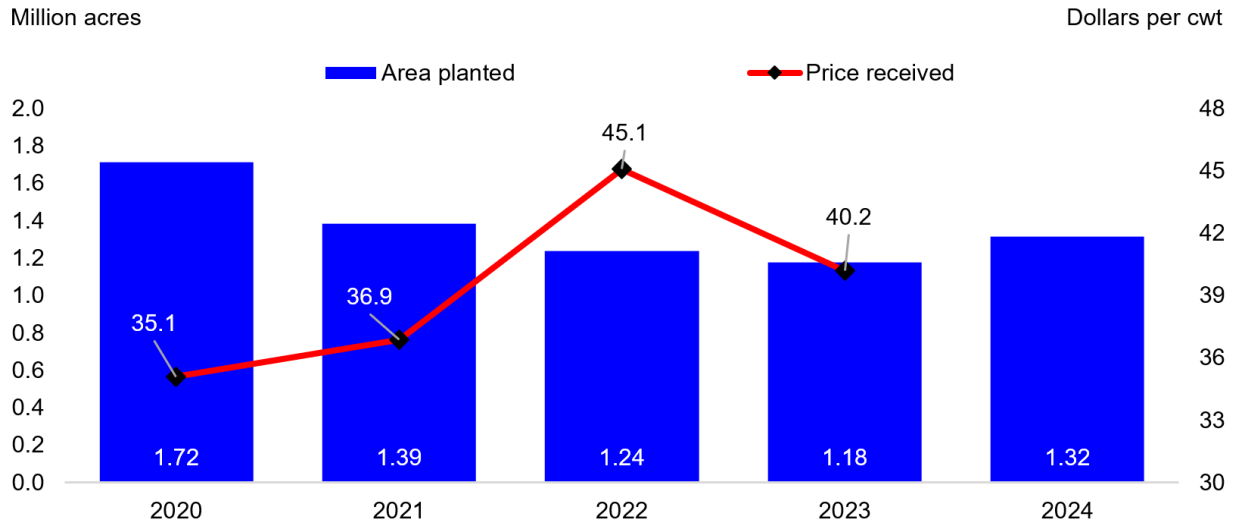
Acreage for All Pulse Classes in 2024 Are Expected To Increase

The USDA, NASS March 2024 *Prospective Plantings* report indicates that growers of all four pulse types (dry edible beans, peas, lentils, and chickpeas) in States other than California, Idaho, and Wyoming (which were removed from NASS's annual survey program) plan to seed more acres in 2024/25 than in 2023.

Dry edible bean acreage: Dry edible bean growers intend to plant 1.32 million acres in 2024, a 14 percent increase from 2023 (in comparable States, i.e. in States other than those removed

from NASS's annual survey program). Reported planted acreage for the past 5 years indicate that dry bean acreage has not changed much in recent years (figure 18 and table D15).

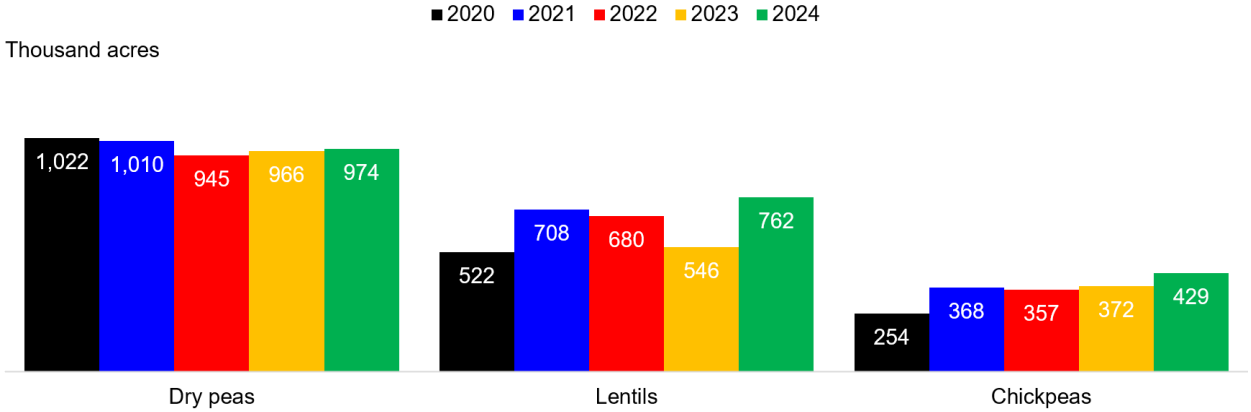
Figure 18
U.S. dry edible bean planted area and season-average price/1, 2020–24



Cwt = hundredweight, a unit of measure equal to 100 pounds.
1/Acreage in 2024 represent prospective planting acres.
Source: USDA, Economic Research Service based on data from National Agricultural Statistics Service, *QuickStats.*

Chickpeas, lentils, and dry edible pea acreage: In 2024 chickpea acreage is expected to increase by 17 percent to 429,000 acres in comparable States. Lentil area is anticipated to increase by 44 percent to 762,000 acres in comparable States. Dry edible peas are expected to increase by 2 percent in comparable States to 974,000 acres (figure 19 and tables 16–20).

Figure 19
U.S. dry pea, lentil, and chickpea planted acres/1, 2020–24



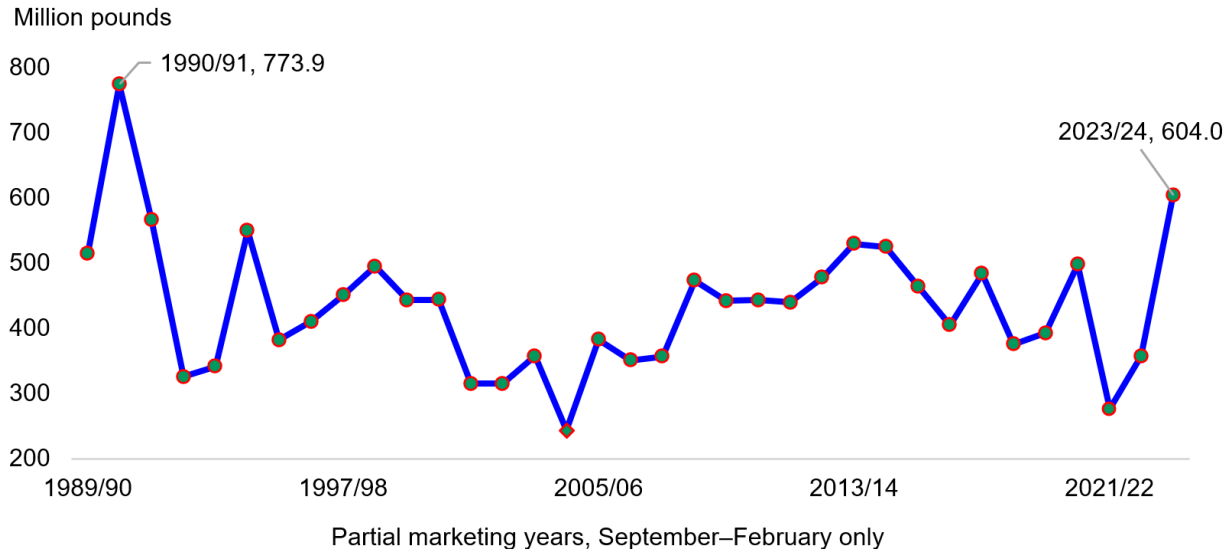
1/Acreage in 2024 represent prospective planting acres.
Source: USDA, Economic Research Service based on data from National Agricultural Statistics Service, *QuickStats.*

Trade Highlights for Pulses in 2023/24

The United States is typically a net exporter of three out of the four pulse crops. In some years, more chickpeas are exported than imported; in others, imports exceed exports. The dry bean and chickpea marketing year spans September–August of the following year while dry pea and lentil marketing year spans July–June. Below are the pulse crop trade highlights for all four pulse crop types from the start of their respective marketing months in 2023 through February 2024 (tables D21–D26 in the appendix).

Dry bean export volume rose by 69 percent, from 357 million pounds in 2022/2023 to 604 million pounds in 2023/24. Dry bean import volume rose by 14 percent, from 157 million pounds to 179 million pounds. Net exports rose from 200 million to 425 million pounds. Dry bean export volumes during this period were the second highest since the 1990/91 marketing year (figure 20).

Figure 20
U.S. dry bean export volume: 2023/24 marketing YTD second highest since 1990/91



Source: USDA, Economic Research Service based on data from the U.S. Department of Commerce, Bureau of the Census.

Chickpea export volume rose by 27 percent to 1,151 thousand cwt in 2023/24. Import volume declined by 1 percent, from 688 thousand cwt to 684 thousand cwt. Net exports rose by 111 percent, from 222 thousand cwt in 2022/23 to 467 thousand cwt.

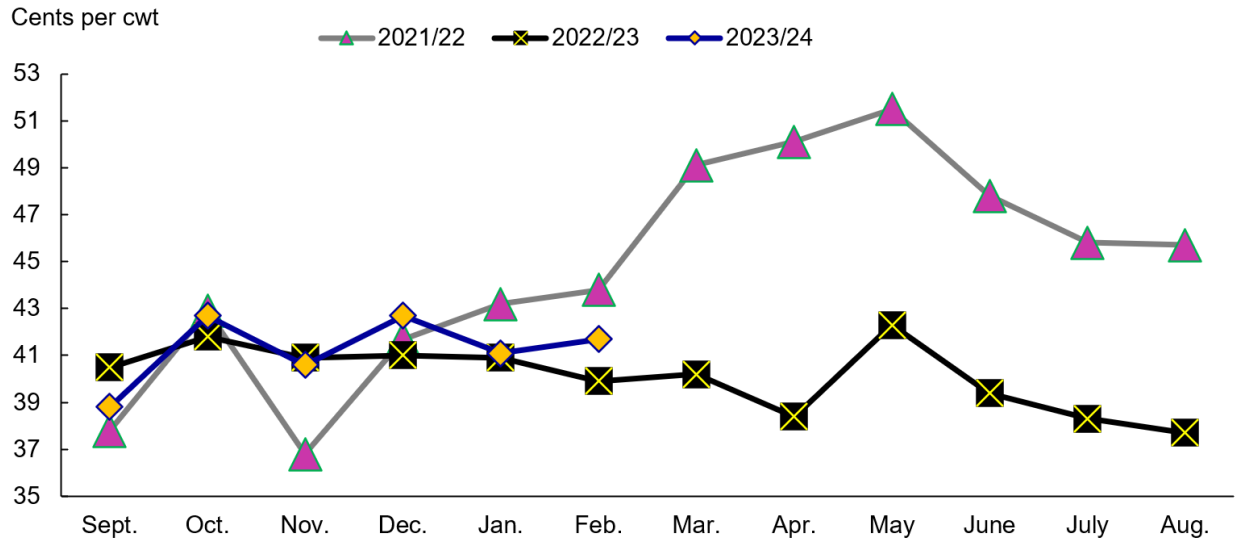
Dry pea export volume rose by 21 percent to 4,275 thousand cwt in 2023/24. Import volume declined substantially by 81 percent, from 1,593 thousand cwt to 308 thousand cwt. Net exports rose by 105 percent, from 1,934 thousand cwt in 2022/23 to 3,967 thousand cwt.

Lentil export volume rose by 58 percent to 3,962 thousand cwt in 2023/24. Import volume declined by 60 percent, from 821 thousand cwt to 331 thousand cwt. Net exports rose by 116 from 1,681 thousand cwt to 3,632 thousand cwt.

Price Highlights and Outlook

Production, yield, and world demand influence markets for pulse crops. The all-dry bean nominal grower price, excluding chickpeas, for the 2023/24 marketing year through February 2024 averaged just 1 percent above the 2022/23 crop year (figure 21). With planting expectations up for the 2024/25 crop year and elevated stock levels, domestic supplies of dry beans may increase. However, increases in export levels, which are already at near record levels at 69.1 percent above the previous crop year (table D21), could decrease supply and support grower prices.

Figure 21
U.S. dry edible beans: Average monthly grower price



Source: USDA, Economic Research Service based on data from National Agricultural Statistics Service, *QuickStats.*

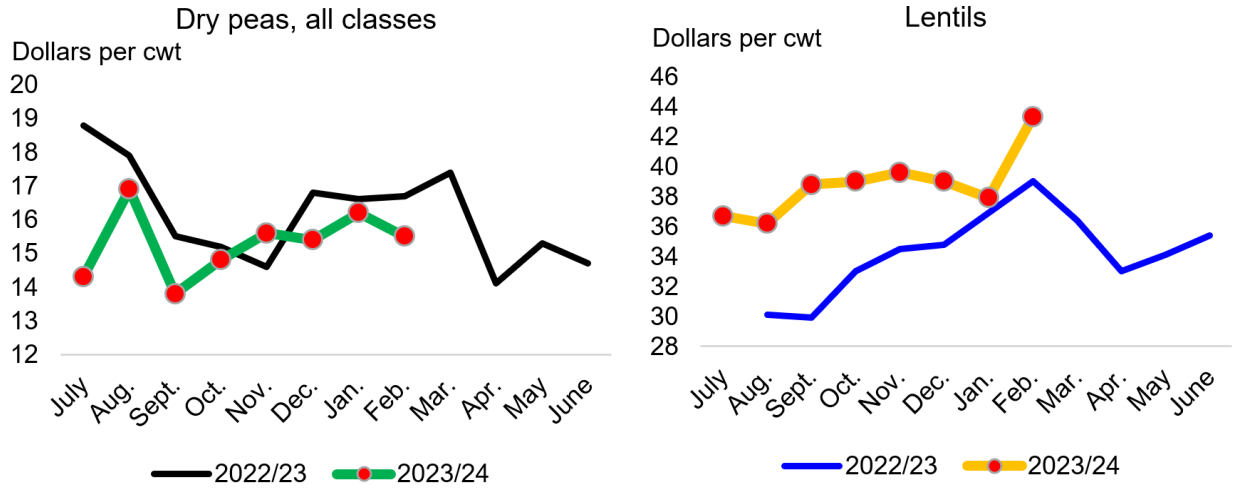
The all-chickpea nominal monthly grower prices for the 2023/24 marketing year through February 2024 averaged 11 percent above the 2022/23 crop year. Increases in planted acres could drive all-chickpea domestic supplies upward and put downward pressure on prices. Assuming trade through February is indicative of remainder of the year, net chickpea exports are not expected to have a significant effect on domestic availability or prices.

Dry pea nominal grower prices for the 2023/24 marketing year through February 2024 averaged 7 percent below the 2022/23 crop year (figure 22). ERS estimates that the dry pea domestic supply will decrease slightly in 2023/24. However, increases in net exports may put downward pressure on domestic availability, pushing prices marginally upward from 2022/23 levels.

Lentil nominal grower prices for the 2023/24 marketing year through February 2024 averaged 14 percent above the 2022/23 crop year (figure 22). ERS forecasts that the domestic supply of lentils will increase in 2023/24. However, increases in net exports are expected to decrease domestic availability further elevating prices in 2023/24.

Figure 22

U.S. dry edible pea and lentils: Average monthly grower price



Source: USDA, Economic Research Service based on data from National Agricultural Statistics Service, QuickStats.

Special Article

Ripe for Fresh Market Insight: Filling the Gaps in Greenhouse Tomato Production and Trade

Wilma V. Davis, Catharine Weber, Gary Lucier, and Seth Wechsler

Building on the *"Fill the Gaps: Supplementing Annual Domestic Specialty Crop Production Estimates*" article published in the April 2022 Vegetables and Pulses Outlook report, this article discusses U.S. fresh tomato production and trade, with an emphasis on the growing importance of greenhouse production. It includes an explanation of how the annual fresh market tomato production estimates published in the Vegetables and Pulses Yearbook Tables are calculated and describes the methodology USDA, ERS uses to estimate the production of greenhouse tomatoes.

Over the last several decades the specialty crop production and trade landscape has changed dramatically. For instance, technological advancements and changes in consumer preferences have made greenhouse production increasingly profitable. Among specialty crops, tomatoes have emerged as a key player.

Data published in the ERS Vegetables and Pulses Yearbook indicates that tomatoes accounted for 13 percent of the total U.S. fresh vegetable supply in 2022, second only to fresh bulb onions, which make up 16 percent of supply. In 2022, tomatoes had the highest import volume—nearly 25 percent—of all vegetables in the fresh market.

The import share of availability is the ratio of total imports to domestic availability, where domestic availability is calculated as total supply minus exports. The import share of availability for tomatoes is nearly 75 percent. This indicates that a significant portion of domestic tomatoes available for consumption is imported.

Greenhouse-produced tomatoes began to gain a foothold in U.S. markets in the late 1980s and early 1990s as ever-widening supermarket produce displays showcased imported greenhouse tomatoes, largely from the Netherlands. With sales of imported greenhouse tomatoes expanding rapidly, North American enterprises, led first by firms based in Canada and later in Mexico,

began developing new protected culture facilities, focused largely on tomatoes. Today, Mexico is the top source for greenhouse tomatoes sold in the United States, followed by Canada and U.S. producers.

NASS Tomato Acreage and Production Reporting Overview

Data from the Census of Agriculture suggests that almost 90 percent of all (fresh and processing) tomatoes grown in the open field were grown in Florida or California from 1997 to 2022. This share has changed very little over time. In 1997, 74 percent of acreage was grown in California, 9 percent was grown in Florida, 3 percent was in Ohio, and the remainder was grown in Indiana (2 percent), Michigan (2 percent), Pennsylvania (1 percent), New Jersey (1 percent), and a variety of other states. In 2022, 77 percent of acreage was grown in California, 9 percent was grown in Florida, 3 percent was grown in Indiana, and the remainder was grown in Michigan (1 percent), Ohio (1 percent), and a variety of other states.

Because most open field tomato production occurs in California and Florida, NASS has focused on those states when surveying tomato growers. In 2002, NASS annual survey data provided data for 17 tomato producing states (excluding the “Other States” group). By 2017, NASS reported data for 10 states. As of 2022, data was provided for only two states, California and Florida.

There are explanations for this decrease in data availability, including the need to comply with confidentiality rules that protect data on individual operations, budget, and a strategic shift to target the most commercially significant areas in the context of an evolving industry. Every five years, following the completion of the Census of Agriculture, NASS reviews their annual survey programs to ensure they target commodities and States most relevant to commercial-scale U.S. agriculture. These reviews incorporate available information and public input to decide on the inclusion or exclusion of specific programs, including those for State-level tomato production.

Notably, though California and Florida produce most tomatoes grown in the open, they do not produce most tomatoes grown in protected culture systems[2]. In 2022, less than 17 percent of the tomatoes grown in controlled environments were grown in California and Florida. Approximately half of the square footage devoted to protected culture tomato production was in Ohio, Kentucky, New York, Texas, Michigan, Pennsylvania, and Minnesota.

[2] Protected culture encompasses a wide range of agricultural technologies ranging from simple row covers to advanced controlled environment agriculture (CEA). Greenhouse technology is a form of protected culture which itself ranges from large plastic hoop-houses to computer-controlled hydroponic systems. The 1998 Census of Horticulture was the last to use the term “greenhouse.” The term “protected culture” was introduced in the 2009 census and was used in the 2014 and 2019 censuses. In this article, the terms protected culture and greenhouse are used depending on the data source being referenced (Davis et al., 2021).

Methodology for Tomato Production Estimates

Currently, NASS conducts the Census of Agriculture every 5 years. Since 1959, NASS has used responses to the Census to estimate the square footage devoted to tomato production in greenhouses. A supplement to the Census of Agriculture, the Census of Horticultural Specialties, has reported statistics related to hydroponic systems and other protected culture practices (including production volume and sales value) since 1998.

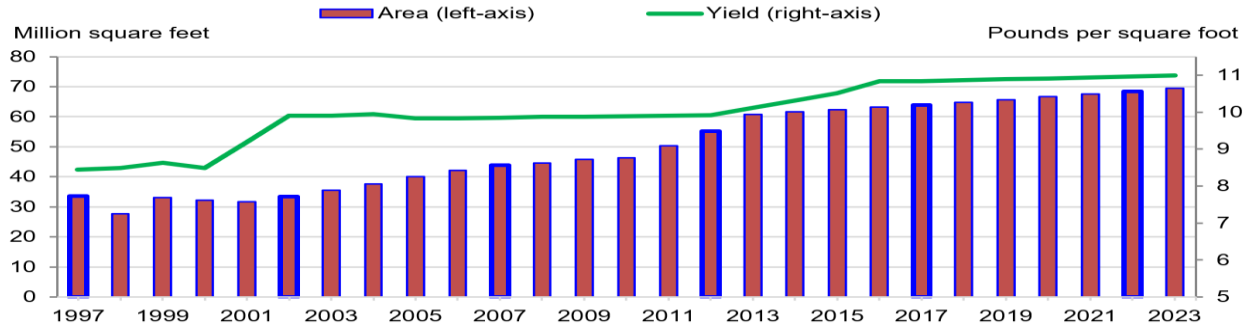
Statistics related to the annual production, supply, and availability of fresh tomatoes are published in the USDA, ERS Vegetables and Pulses Yearbook Table. Since the 1990s, these statistics have reflected estimates of the quantity of fresh tomatoes produced in the open (reported by NASS) and estimates of the quantity of fresh tomatoes produced in greenhouses (generated by ERS). This article is the first to discuss ERS's approach to estimating the area, yield, and production of greenhouse tomatoes.

Estimating Domestic Production of Greenhouse Tomatoes

To estimate changes in the area produced, ERS assumes that area increases by a constant annual amount between census years[3]. For instance, if the area cultivated in 2017 was 64 million square feet, and the area cultivated in 2022 was 68 million square feet, then it would be assumed that there was a 0.8-million-square foot annual increase in area from 2017 to 2022.

Prior to 2012, initial estimates of area in off-census years were revised upward or downward based on information from industry sources, academic articles, or new articles. After 2012, ERS relied strictly on the annual interpolations. Figure SA1-1 illustrates how ERS estimates of fresh tomatoes grown in greenhouses have changed over time.

Figure SA1-1
Fresh tomato greenhouse area and yield estimates, 1997–2023



Note: The Agricultural Census was administered in 1997, 2002, 2007, 2012, 2017, and 2022; these years are highlighted in the figure above. Estimates of area in other years are interpolated by USDA, ERS.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service, 2022 Census of Agriculture and previous issues.

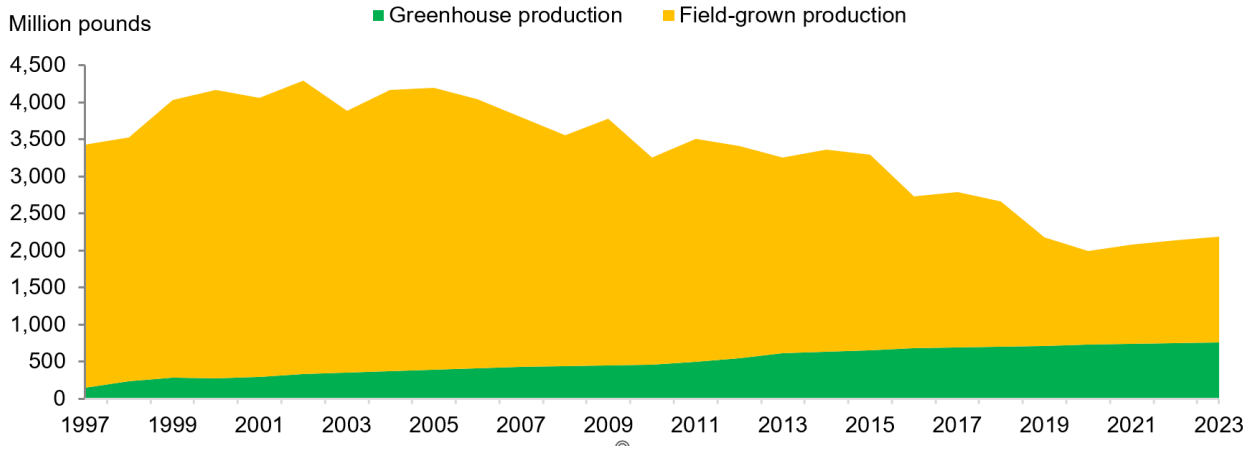
[3] The annual growth is determined through a linear interpolation technique which divides the total growth over the period by the number of years.

After estimating greenhouse acreage, ERS estimates yield. Yield depends on factors including location, number of crops/months in production, production technology, varieties grown, the spacing between plants, the spacing between rows, light availability, and pest pressure. Given this complexity, ERS uses several sources to establish yield estimates, including industry estimates of the average output per square foot in Canada (and later in Mexico), academic articles, and news articles on the greenhouse tomato sector. Early estimates of yields (in the 1990s) reflected a greater proportion of area utilizing lower technology practices such as simple hoop houses and other plasti-culture structures covering soil-based planting media (which ERS assumed had lower yields than more sophisticated/modern greenhouses). More recent yield estimates reflect the greater adoption of permanent high-technology glass structures utilizing computer-controlled environments in soilless hydroponic culture.

U.S. domestic greenhouse tomato production is estimated by multiplying the estimated area in production by the estimated output per acre. ERS estimates that U.S. growers produced 763 million pounds of tomatoes within protected structures in 2023. This is a 67 percent increase from 2010 and a 180 percent increase from 2000. As of 2023, domestic output of field-grown fresh-market tomatoes has declined 49 percent from 2010 and 63 percent since 2000.

Figure SA1-2 suggests that greenhouse tomatoes accounted for roughly one-third of U.S. fresh-market tomato production in 2023. Despite this growth, domestic greenhouse output accounts for just 12 percent of available greenhouse tomato supply. Imports, largely from Mexico and Canada, dwarf domestic greenhouse tomato output.

Figure SA1-2
U.S. fresh field-grown and greenhouse tomato production, 1997–2023



Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service, 2022 Census of Agriculture and previous issues.

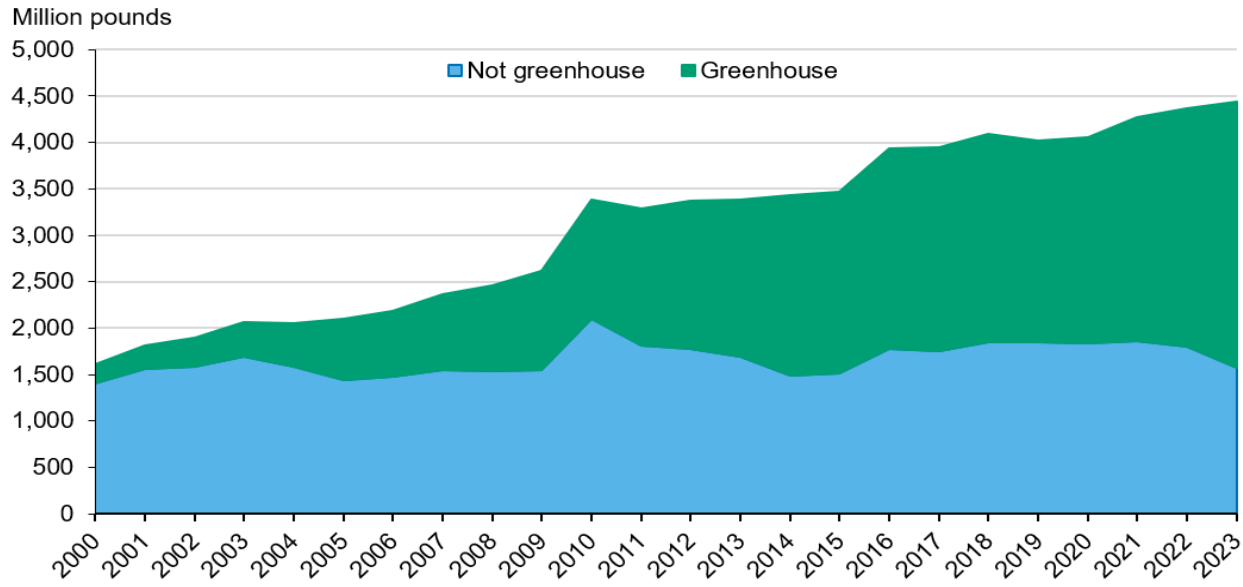
Tomato Trade Dynamics

Imports

The United States first added greenhouse fresh tomato import codes to its Harmonized Tariff Schedule (HTS) in 1999. Between 1999 and 2021, the greenhouse fresh tomato import codes did not specify the type of tomato (e.g., grape or cherry) or indicate whether it was grown organically. Since 2021, multiple greenhouse fresh tomato import codes have been added that include commodity detail like tomato type and organic status. Table SA1-1 at the end of this article lists all greenhouse-specific fresh tomato import codes applicable from 1999 to February 2024. All of these greenhouse codes are associated with a certain time period (e.g., July 15 through August), which corresponds to a specific tariff rate. Figure SA1-3 indicates that almost all growth in fresh tomato import volume to the United States in the past 20 years is due to greenhouse production. In the early 2000s, greenhouse fresh tomatoes represented about 14 percent of fresh tomato import volume and 23 percent of value. By the early 2020s, greenhouse tomatoes represented 60 percent of total fresh tomato import volume and 59 percent of value.

Figure SA1-3

Fresh tomato import growth driven by greenhouse production

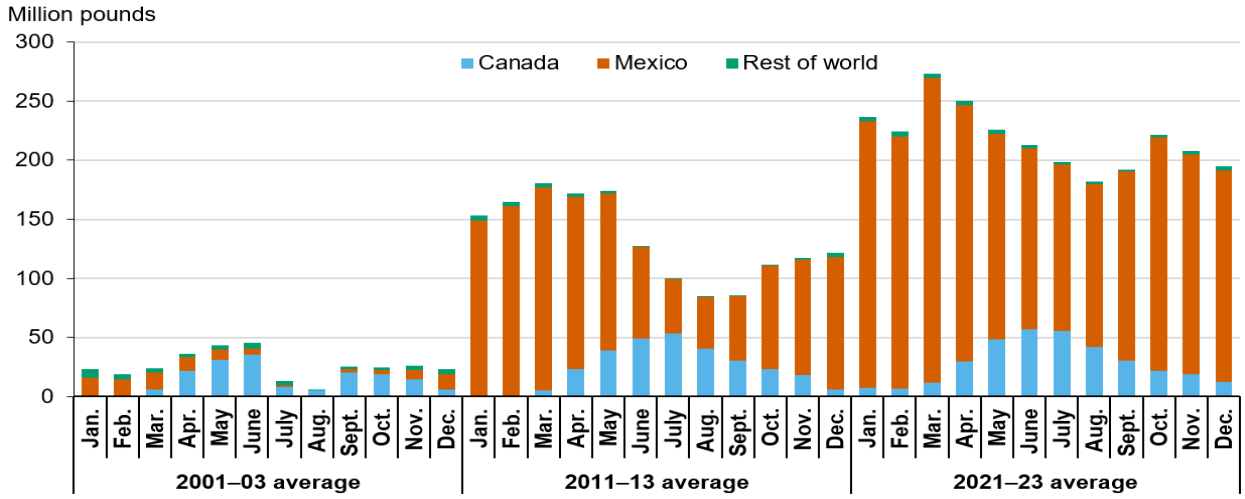


Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Figure SA1-4 shows that increases in imports have been driven by greenhouse production in Mexico (figure SA1-4). Monthly import volumes continue to reflect a seasonal pattern with greenhouse imports from Canada peaking in the summer months and year-round imports from Mexico higher in winter and spring.

Figure SA1-4

Greenhouse tomato imports from Mexico trend upward in the 21st century

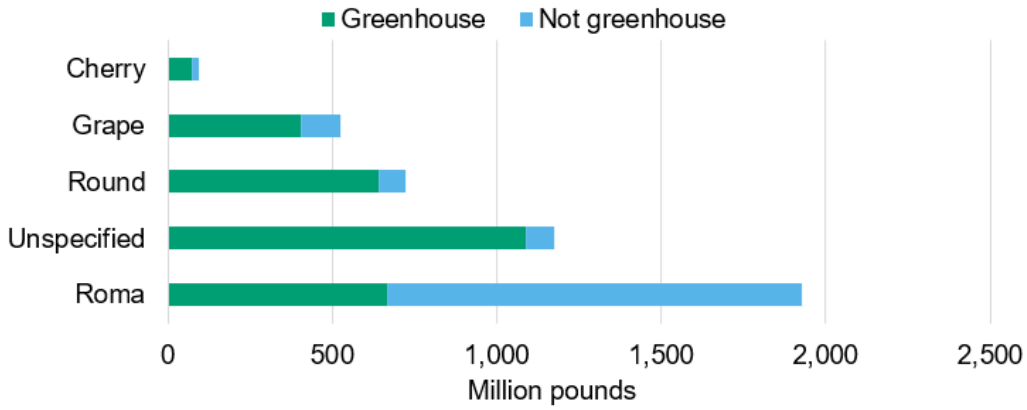


Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

The 2023 calendar year marked the first-time greenhouse and “not greenhouse” tomato imports could be analyzed by tomato type using official U.S. trade data. The 62 percent of greenhouse import volume in 2023 was comprised of Roma (665 million pounds), round (642 million pounds), grape (406 million pounds), and cherry (71 million pounds) (figure SA1-5). The round and unspecified tomato categories had the highest share of greenhouse to “not greenhouse” volume by type (89 and 93 percent, respectively), followed by cherry and grape tomatoes (both 77 percent). Roma tomatoes represented the largest fresh tomato import volume by type overall, but only one-third of total Roma import volume was identified as greenhouse.

Figure SA1-5

Comparison of greenhouse vs. non-greenhouse tomato import volumes by type, 2023



Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Exports

USDA, ERS provides comprehensive estimates about the annual supply and availability of fresh tomatoes from 1970 through 2022. As there are no HS codes for fresh greenhouse tomato exports, ERS economists used shipment data from the Agricultural Marketing Service, and trade information from Canada, the primary recipient of U.S. fresh tomato exports, to estimate the volume of greenhouse tomatoes exported. Specifically, ERS economists cross-referenced U.S. shipment data with Canadian import records. This approach allowed for a comparative analysis, aiming to align U.S. estimates closely with Canadian reported imports.

Conclusion

This article provides an examination of the U.S. fresh tomato market, highlighting the evolution of tomato production and trade, and the increased relevance of greenhouse or protected agriculture.

The investigation into trade dynamics, enhanced by the introduction of specific greenhouse tomato import codes, offers perspectives on how global trade shapes the U.S. fresh tomato market. These codes provide a granular view of the variety of tomato products entering the United States, each defined by distinct characteristics.

Additionally, this report highlights an array of data products available from USDA, such as the ERS Vegetables and Pulses Yearbook Tables, ERS trade data products, and FAS GATS.

The ERS specialty crops team will continue to provide data and analysis as the tomato industry changes with technological advancements, consumer demands, and the ebbs and flows of international trade.

USDA Resources for Stakeholders

The analysis of the U.S. tomato market with a trade emphasis provides a foundation for deeper exploration of the sector. This section guides stakeholders through a few USDA data products. An understanding of the information available in each resource will support stakeholders in tailoring their research and analysis endeavors.

USDA Economic Research Service's Vegetables and Pulses Yearbook Tables

- Updated annually, this data product includes comprehensive annual estimates and historical supply and availability statistics on tomatoes such as production (including greenhouse), trade, prices, per capita availability, and prices from 1970–2022 for both the fresh and processing tomato markets.

USDA Foreign Agricultural Service's Global Agricultural Trade System (GATS)

- Provides monthly detailed and current U.S. trade statistics for understanding global trade flows and trends, including for greenhouse and organic tomatoes.

ERS Data by Commodity and Data by Category

- Provides monthly U.S. import and export data, producer and retail price indexes, and selected monthly retail prices.

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Table SA1-1: Fresh greenhouse tomato import code information, July 1999–February 2024

HS code and description	Type	Month first appeared
(0702002010) Greenhouse tomatoes, entered 3/1–7/14 & 9/1–11/14 fresh	Unspecified	July-1999
(0702006010) Greenhouse tomato entered 11/15 to last day of Feb.	Unspecified	October-1999
(0702004010) Greenhouse tomatoes, entered 7/15 – 8/31, fresh/chilled	Unspecified	July-2005
(0702002015) Roma greenhouse tomatoes, 3/1–7/14 & 9/1–11/14 fresh	Roma	July-2021
(0702002025) Round greenhouse tomatoes 3/1–7/14 & 9/1–11/14 fresh	Round	July-2021
(0702002031) Greenhouse tomatoes, 3/1–7/14 & 9/1–11/14 fresh NESOI	Unspecified	July-2021
(0702004015) Roma greenhouse tomatoes entered 7/15 – 8/31 fresh/chilled	Roma	July-2021
(0702004025) Round greenhouse tomatoes, entered 7/15 – 8/31, fresh/chilled	Round	July-2021
(0702004031) Greenhouse tomatoes, entered 7/15 – 8/31, fresh/chilled, NESOI	Unspecified	July-2021
(0702006015) Roma greenhouse tomatoes 11/15–last day Feb., fresh/chilled	Roma	November-2021
(0702006025) Round greenhouse tomatoes 11/15–last day Feb. fresh/chilled	Round	November-2021
(0702006031) Greenhouse tomato, 11/15–last day Feb., fresh/chilled NESOI	Unspecified	November-2021
(0702002016) Greenhouse tomato, certified organic, 3/1–7/14 & 9/1–11/14 fresh	Unspecified	July-2022
(0702002019) Cherry greenhouse tomato, 3/1–7/14 & 9/1–11/14 fresh	Cherry	July-2022
(0702002026) Grape greenhouse tomatoes, 3/1–7/14 & 9/1–11/14 fresh	Grape	July-2022
(0702002032) Roma greenhouse tomatoes, 3/1–7/14 & 9/1–11/14 fresh	Roma	July-2022
(0702002036) Round greenhouse tomatoes 3/1–7/14 & 9/1–11/14 fresh	Round	July-2022
(0702002042) Greenhouse tomatoes, 3/1–7/14 & 9/1–11/14 fresh NESOI	Unspecified	July-2022
(0702004016) Greenhouse tomatoes, certified organic, 7/15–8/31 fresh	Unspecified	July-2022
(0702004019) Cherry greenhouse tomatoes,7/15–8/31, fresh/chilled	Cherry	July-2022
(0702004021) Grape greenhouse tomatoes, 7/15–8/31, fresh/chilled	Grape	July-2022
(0702004023) Roma greenhouse tomatoes entered 7/15 – 8/31 fresh/chilled	Roma	July-2022
(0702004027) Round greenhouse tomatoes, enter 7/15 – 8/31, fresh/chilled	Round	July-2022
(0702004032) Greenhouse tomatoes, enter 7/15 – 8/31, fresh/chilled, NESOI	Unspecified	July-2022
(0702006016) Greenhouse tomato, certified organic,11/15–last day Feb., fresh/chilled	Unspecified	November-2022
(0702006019) Cherry greenhouse tomato 11/15–last day Feb. fresh/chilled NESOI	Cherry	November-2022
(0702006021) Grape greenhouse tomato 11/15–last day Feb. fresh/chilled NESOI	Grape	November-2022
(0702006023) Roma greenhouse tomatoes 11/15–last day Feb., fresh/chilled	Roma	November-2022
(0702006027) Round greenhouse tomatoes 11/15–last day Feb. fresh/chilled	Round	November-2022
(0702006032) Greenhouse tomato, 11/15–last day Feb., fresh/chilled NESOI	Unspecified	November-2022
(0702002008) Greenhouse tomato, certified organic, 3/1–7/14 & 9/1–11/14 fresh, NESOI	Unspecified	January-2024
(0702006002) Grape greenhouse tomato, certified organic, 11/15–last day Feb., fresh/chilled	Grape	January-2024
(0702006004) Roma greenhouse tomato, certified organic, 11/15–last day Feb., fresh/chilled	Roma	January-2024
(0702006006) Round greenhouse tomato, certified organic, 11/15–last day Feb., fresh/chilled	Round	January-2024
(0702006008) Greenhouse tomato, certified organic, 11/15–last day Feb., fresh/chilled, NESOI	Unspecified	January-2024
(0702002002) Grape greenhouse tomato, certified organic, 3/1–7/14 & 9/1–11/14 fresh	Grape	February-2024
(0702002004) Roma greenhouse tomato, certified organic, 3/1–7/14 & 9/1–11/14 fresh	Roma	February-2024
(0702002006) Round greenhouse tomato , certified organic, 3/1–7/14 & 9/1–11/14 fresh	Round	February-2024

NESOI = Not elsewhere specified or included. NES = Not elsewhere specified. NA = not applicable.
Note: Round types may also include tomatoes commonly called “globe,” “slicing,” or “beefsteak.”
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Special Article

Trade Related Data Products for Specialty Crops

Seth Wechsler, Helen Wakefield, Catharine Weber, and Wilma V. Davis

USDA's Economic Research Service (ERS) publishes four online dashboards that summarize international trade in specialty crops. This special article starts by discussing the importance of domestic specialty crop production and international trade. Next, it discusses data products that can be found on the ERS website. The final section covers when, how, and why the ERS trade data products are updated and revised.

U.S. Specialty Crop Production and International Trade

In 2022, the sale of agricultural crops by U.S. growers generated $278 billion in cash receipts (ERS 2024a). Approximately 20 percent of these receipts ($52 billion) were due to sales of specialty crops—fruits, tree nuts, vegetables, and pulse crops.

Table SA2-1 - Changes in production, trade, and availability of specialty crops from 2012 to 2022 (billions of pounds)

Year	Production[1]	Availability[2]	Implied net imports[3]
2012	192.7	172.5	-20.2
2013	188.6	174.8	-13.8
2014	190.4	174.7	-15.7
2015	188.1	172.8	-15.3
2016	191.9	181.4	-10.5
2017	183.8	181.4	-2.4
2018	179.0	181.4	2.4
2019	172.7	177.9	5.2
2020	171.9	176.9	5.0
2021	161.2	176.1	14.9
2022	154.9	176.2	21.3

[1] Aggregate specialty crop production was calculated by adding total utilized production of fruits and tree nuts (table A-3, ERS 2023a) with total production of vegetables and pulses (table 3, ERS 2023b).
[2] "Availability" is an upper bound on the amount of specialty crops available for consumption by U.S. consumers. It does not account for food spoilage, losses incurred while shipping produce, or waste. ERS economists calculate availability by summing production, net imports (i.e., imports-exports), and changes in stocks of nonperishable products. For many commodities, particularly fresh fruit and vegetables, the average annual net change in stocks is zero. Aggregate availability of specialty crops was calculated by adding the aggregate per capita availability of fruits and tree nuts (table A-1, ERS 2023a) with aggregate per capita availability of vegetables and pulses (table 1, ERS 2023b). This sum was multiplied by the population of the United States (table G-45, ERS 2023a).
[3] Implied net imports was calculated by subtracting production from availability.
Source: USDA, Economic Research Service, (2023a, 2023b).

Given the millions of acres of field crops cultivated, specialty crops' share of cash receipts may seem high. In fact, this share has decreased since 2015 when it reached 26 percent of cash receipts for agricultural crops. In part, reductions in specialty crops' share of cash receipts are due to decreases in specialty crop production.

From 2012 to 2022, the volume of fruits, tree nuts, vegetables, and pulses produced by U.S. specialty crop producers dropped by almost 20 percent, from approximately 193 billion to 155 billion pounds (table 1). However, the volume of fruits and vegetables available to U.S. consumers increased over this period, from approximately 172.5 billion to 176 billion pounds.

Increases in the availability of produce during a period of declining domestic production would not be possible without international trade. From 2012 to 2022, the volume of specialty crop imports rose, and the volume of exports fell. The United States went from exporting approximately 20 billion more pounds than it imported to running a 21-billion-pound trade deficit.

Trade data products published by the ERS Specialty Crop Team

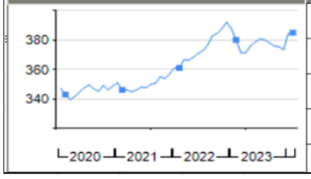
The USDA ERS Specialty Crop Team publishes monthly trade and price data to help ensure that stakeholders have up-to-date information about international trade and market prices for specialty crops. These online data dashboards, the "Trade and Prices by Category" and "Trade Data by Commodity" data products, use a combination of data visualizations and tables to show how consumer prices, producer prices, and the volume and value of trade change from commodity to commodity, and from market segment to market segment.

Figure SA2-1

U.S. monthly consumer and producer price indexes

U.S. Monthly Consumer Price Index

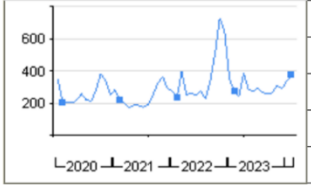
Fresh vegetables
Base 1982-84=100



Year	Jan	Feb	% chg.	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
2024	384.3	385	1.30%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2023	387.8	380	5.30%	371.6	371.3	375.9	378.6	380.6	380.2	378.1	376	375.6	373.3	377.4
2022	361	361	4.30%	366.5	366.3	368.4	370.8	372.9	376.6	382.8	384.5	387.7	392.2	374.2
2021	351	346.1	0.90%	346.1	344.8	346.1	348.1	347.6	350	350.7	355.1	353.9	357.2	349.7
2020	347.1	342.9	0.00%	339.5	341.7	344.8	347.6	349.6	346.8	345.2	349.2	346.2	348.8	345.8

U.S. Monthly Producer Price Index

All fresh vegetables
Base year 1982=100



Year	Jan	Feb	% chg. Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
2024	335.3 P	377.8 P	36.20%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2023	352.8	277.4	16.80%	239.6	384.2	284.6	274.9	292.7	265.7	256.4	265.3	309.6 P	289.3 P	291 P
2022	275.7	237.5	8.50%	394	251.1	262.4	248.9	277.4	226.7	336.1	509.7	729.6	640.6	365.8
2021	283.8	218.8	5.20%	197.5	172.4	188	184.5	175.7	191.6	251	323.5	366.6	291.5	237.1
2020	350	208	-12.80%	203.3	200.8	220.9	256.9	220.3	213.4	276.9	381.3	342.6	254	260.7

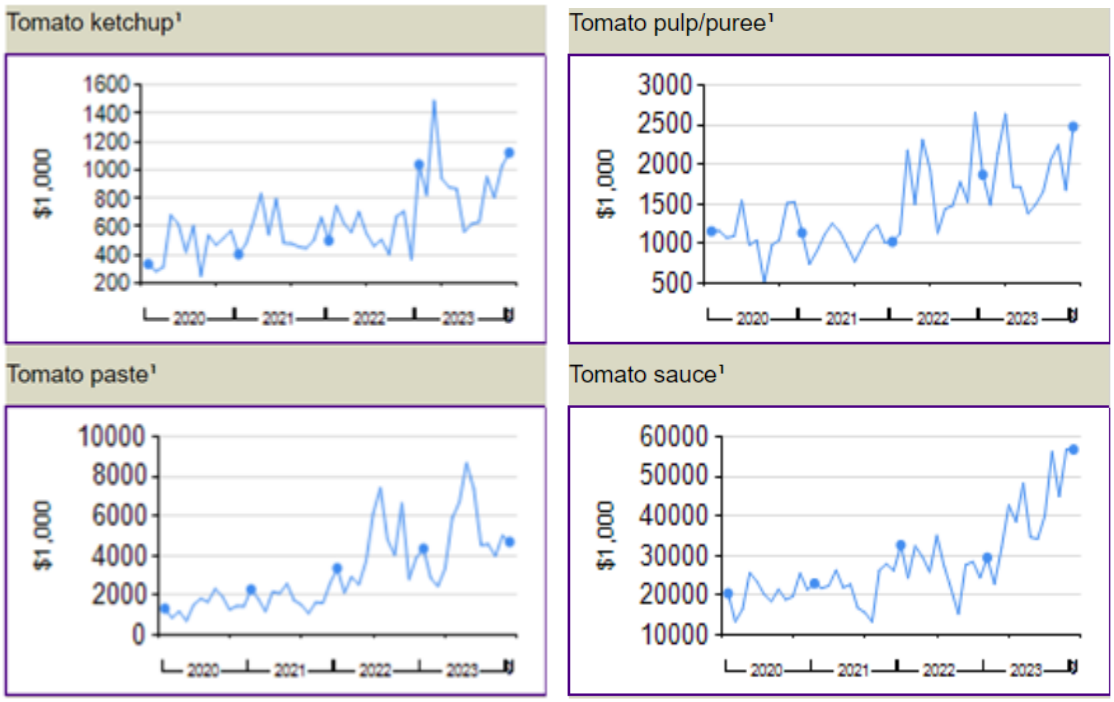
Source: USDA, Economic Research Service (2023a, 2023b).

For example, the Trade and Prices by Category data product indicates that the monthly producer price index for fresh vegetables (which measures the average change in selling prices received by domestic producers), was 36 percent higher in February 2024 than in February 2023 (figure SA2-1). The monthly consumer price index for fresh vegetables (which measures the average change in prices paid by consumers) was up only 1.3 percent year-over- year. Generally, this data visualization illustrates the extent to which the prices received by fresh vegetable producers are more volatile than the prices paid by consumers. To generate tables and visualizations like figure SA2-1, ERS analyzes price indices developed by the U.S. Department of Labor, Bureau of Labor Statistics.

The Trade Data by Commodity visualizations for tomatoes illustrate large increases in imports of tomato pastes, sauces, pulps, and purees from 2020 through 2023 (figure SA2-2). In part, these shifts stemmed from large increases in demand for “food at home” during the Coronavirus (COVID-19) pandemic, shortages of pastes, pulps, purees, and sauces, and high import prices.

Figure SA2-2

Tomatoes: U.S. imports by value (in $1,000 U.S. dollars)



Source: USDA, Economic Research Service (2024): Data by Commodity, Imports and Exports.

To generate tables and visualizations like figure SA2-2, ERS analyzes trade data reported to the U.S. Department of Commerce, Bureau of the Census, and the U.S. Department of Homeland Security, U.S. Customs and Border Protection (ERS 2023c). These visualizations summarize

trade data reported using the Harmonized Tarif Schedule (HTS) of the United States, a system that uses detailed 10-digit commodity codes to categorize imports and exports. The HTS codes follow the convention of the International Harmonized Commodity Coding and Classification System (HS) that was established by the World Customs Organization. The first 6 digits of the 10-digit code provide a level of detail that is an international standard for world trade. The last 4 digits represent additional product details such as package size, color, and variety.

For example, the trade code for ketchup imports is 2103.20.20.00. The first four digits (2103) indicate that the imported product is a sauce. The next two digits (20) indicate that the imported product is a tomato ketchup or sauce. The sixth and seventh digits (20) indicate that the imported product is ketchup. The final digits (00) are not used for this product.

HTS trade codes are categorized differently by different organizations. The Foreign Agricultural Trade of the United States (FATUS) data set, which was developed in 1926, is one such categorization. FATUS reflects an effort by USDA, ERS, and USDA's Foreign Agricultural Service (FAS) to categorize trade codes for agricultural products using definitions that are broad, simple, and intuitive. Other trade code categorizations used by agencies in USDA include the Bulk, High-Value, Intermediate, and Consumer-Oriented (BICO) grouping and the Foreign Agricultural Services (FAS) grouping.

The USDA, ERS specialty crop trade data product differs from FATUS in its focus on fruits, nuts, vegetables, and pulses. This focus allows the specialty crop team to provide detail that FATUS does not. For instance, FATUS groups over a dozen HTS codes into a "prepared/preserved tomato products" category. The USDA, ERS Specialty Crop Trade by Commodity and Trade by Category data products disaggregate the FATUS category into sub-categories like tomato paste, pulp/puree, and sauce.

Updates and Revisions to Specialty Crop Team Data Products

Each year, new trade codes are added to the Harmonized Tarriff Schedule, outdated codes are retired, and existing codes are reassigned. When these changes occur, the ERS specialty crop team incorporates these changes into the trade data product. Sometimes updates to the HTS trade codes require adjustments to the categories used by the specialty crop teams. These updates tend to be applied retroactively.

If substantial changes are made to the data products, ERS posts a note to the launch pages for the data products recommending that users download the revised data. Changes may include adding or revising trade codes, altering the marketing segments based on data availability,

updating conversion ratios, or correcting discrepancies between visualizations. For example, in March 2024, ERS corrected a unit conversion issue that led to the misreporting of fresh grape import volume and added market segments for prepared or preserved papayas. Updates such as these, which are discussed in more detail on the data product documentation pages, reflect an ongoing effort to confirm the accuracy and improve the quality of the Trade by Category and Trade by Commodity data products.

ERS continues to explore new methods of generating data visualizations that make specialty crop trade and price data accessible to stakeholders.

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U.S. Department of Agriculture, Economic Research Service. (2024c). *Vegetable and pulses data, documentation.*

U.S. Department of Agriculture, Economic Research Service. (2023a). *Fruit and tree nuts yearbook,* tables A1, A3, G45.

U.S. Department of Agriculture, Economic Research Service. (2023b). *Vegetables and pulses yearbook,* tables 1 and 3.

U.S. Department of Agriculture, Economic Research Service. (2023c). *Foreign agricultural trade of the United States (FATUS)*.

Appendix A: Fresh Vegetables

Return to fresh vegetable section

Table A5: Fresh market vegetables: Per capita availability/1, 2019–23

Commodity	2019R	2020R	2021R	2022R	2023P	Change 2022–23
	---------- Pounds per capita ----------					*Percent*
Artichokes, all	1.3	1.2	1.2	1.5	1.2	-23.8
Asparagus	1.8	1.8	2.0	1.7	1.5	-9.5
Bell pepper	10.9	10.8	11.5	11.3	10.9	-3.3
Broccoli	6.6	6.5	5.6	6.6	6.1	-7.7
Cabbage	5.8	5.8	5.8	6.1	5.9	-2.8
Carrots	8.1	7.2	7.8	8.7	8.5	-2.4
Cauliflower	3.0	2.9	2.4	2.5	2.0	-19.2
Celery	5.2	5.1	4.9	4.8	4.6	-5.3
Cucumbers	7.7	7.6	8.0	8.2	8.5	3.9
Eggplant	0.8	1.0	1.0	1.0	1.0	0.2
Garlic, all	1.6	1.7	1.7	2.3	2.1	-8.0
Leafy greens/2	2.3	3.0	3.3	3.3	3.0	-8.3
Lettuce, head	14.5	15.5	13.9	13.7	13.4	-2.2
Lettuce, romaine/leaf	15.7	18.8	16.5	17.0	18.1	6.4
Onions, bulb	20.8	22.3	22.1	21.2	21.2	0.1
Pumpkins, all	5.0	5.0	6.2	6.4	5.9	-8.5
Snap beans	1.4	1.4	1.4	1.4	1.4	-4.5
Spinach	2.7	2.1	2.0	2.4	2.4	-0.2
Squash, all	5.8	5.6	5.7	5.4	5.3	-2.4
Sweet corn	4.9	4.7	5.0	4.7	4.9	2.9
Sweet potatoes, all	6.7	6.7	6.6	6.2	5.4	-12.8
Tomatoes/3	18.3	17.9	18.6	19.0	19.2	1.3
Others/4	2.3	3.0	2.9	3.6	3.1	-11.7
Total	**153.3**	**157.6**	**156.0**	**158.9**	**155.4**	**-2.2**

Note: R = revised. P = preliminary, final estimates provided in ERS Vegetable and Pulses Yearbook (August 2024).
1/ Availability is a proxy for calendar-year consumption.
2/ Collards, kale, mustard greens, and turnip greens.
3/ Includes both domestic and imported hothouse tomatoes.
4/ Includes brussels sprouts, escarole, endive, okra, radishes, and lima beans.
Source: USDA, Economic Research Service, Vegetables and Pulses Yearbook (August 2023).

Fresh Vegetables (continued)

Return to fresh vegetable section

Table A6: Annual U.S. production of selected fresh-market vegetables, 2020–23

Commodity	2020	2021	2022	2023p	Change 2022–23
	Million pounds				*Percent*
Lettuce, all	11,175	9,856	9,812	10,389	5.9
Lettuce, head	5,080	4,574	4,428	4,439	0.2
Lettuce, romaine	4,132	3,691	3,607	4,173	15.7
Lettuce, leaf	1,964	1,592	1,777	1,777	0.0
Onions, bulb 1/	6,933	6,341	6,233	6,369	2.2
Carrots	2,119	2,278	2,498	2,393	-4.2
Tomatoes 2/	1,997	2,076	2,139	2,188	2.3
Pumpkins 1/	1,726	2,186	2,292	2,106	-8.1
Cabbage	1,777	1,763	1,889	1,792	-5.1
Sweet corn	1,525	1,617	1,500	1,579	5.3
Broccoli	1,741	1,458	1,639	1,427	-12.9
Celery	1,610	1,529	1,471	1,385	-5.8
Bell peppers	1,075	1,071	1,120	1,063	-5.1
Spinach	747	732	860	848	-1.4
Cauliflower	962	843	910	792	-13.0
Squash	660	702	656	603	-8.1
Greens, collards 1/	364	399	403	420	4.2
Garlic	356	354	459	402	-12.4
Cucumbers	344	382	337	337	0.0
Radishes 1/	230	243	393	275	-30.0
Beans, snap/green	314	289	286	273	-4.5
Greens, kale 1/	286	311	276	258	-6.5
Brussel sprouts 1/	215	199	253	245	-3.2
Greens, mustard 1/	216	248	255	193	-24.3
Eggplant 1/	160	153	154	156	1.30
Greens, turnip 1/	115	114	131	110	-16.03
Artichokes	82	79	76	77	1.32
Endive and escarole 1	42	61	61	63	3.28
Okra 1/	48	51	71	58	-18.31
Asparagus	45	44	33	47	42.42
Rhubarb 1/	27	30	31	30	-3.2
Beans, lima green 1/	2	1	1	1	0.0
Sweet potatoes 3/	3,083	3,005	2,774	2,509	-9.6
Selected fresh total	**39,977**	**38,416**	**39,013**	**38,388**	**-1.6**

1/ USDA, Economic Research Service (ERS) projection of fresh production.
2/ Includes USDA, ERS projection of fresh greenhouse production.
3/ Includes processed production.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service (NASS) annual estimates, USDA, NASS Census, and NASS, California County Agricultural Commissioners' data.

Fresh Vegetables (continued)

Return to fresh vegetable section

Table A7: Selected fresh-market vegetable trade volume, 2021–24/1

Commodities	2021 Annual	2022 Annual	2023 Annual	January–February 2023	January–February 2024	Change 2023–24
Imports, fresh:		----- Million pounds -----				-- Percent --
Tomatoes, all	4,276	4,370	4,441	807	833	3.2
Cucumbers, all	2,315	2,419	2,537	518	481	-7.2
Peppers, bell	1,843	1,794	1,703	388	385	-0.9
Squash, all	1,220	1,157	1,173	272	287	5.4
Peppers, chili	1,098	999	1,057	161	206	28.1
Onions and shallots	1,463	1,455	1,381	217	172	-20.8
Broccoli, all	553	611	659	170	156	-8.3
Lettuce, all	930	1,113	841	185	155	-16.2
Carrots, all	525	600	633	110	119	8.3
Asparagus, all	665	580	511	95	111	16.9
Sweet corn	194	203	202	67	68	2.8
Mushrooms, all	195	202	192	32	37	13.0
Sweet potato	92	144	92	50	28	-43.7
Cauliflower, all	237	222	177	24	25	4.8
Vegetables, other	3,030	3,142	3,268	635	635	-0.1
Subtotal, excluding potatoes	**18,636**	**19,012**	**18,866**	**3,732**	**3,698**	**-0.9**
Potatoes (excluding seed)	892	1,205	1,234	272	201	-26.0
	19,527	**20,217**	**20,100**	**4,004**	**3,899**	**-2.6**
Exports, fresh:						
Onions and shallots	694	634	658	75	141	88.5
Lettuce, all	740	702	702	105	108	2.8
Sweet potato	590	507	550	111	87	-21.8
Cauliflower, all	274	297	291	56	58	3.8
Celery	222	189	178	35	38	10.2
Carrots, all	209	190	174	28	33	16.1
Tomatoes, all	166	178	182	28	28	-0.2
Asparagus, all	58	59	54	13	15	11.1
Spinach	106	104	94	15	14	-2.4
Sweet corn	147	128	153	9	6	-32.2
Broccoli, all	155	36	32	4	6	38.8
Cucumbers, all	50	31	28	4	4	-13.7
Mushrooms, all	16	13	9	2	1	-45.1
Vegetables, other	760	738	717	109	112	2.4
Subtotal, excluding potatoes	**4,187**	**3,804**	**3,823**	**594**	**650**	**9.4**
Potatoes (excluding seed)	1,234	1,121	1,190	156	196	25.4
Total	**5,421**	**4,925**	**5,013**	**751**	**846**	**12.7**

1/ Excludes melons, olives, and dry pulses.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Fresh Vegetables (continued)

Return to fresh vegetable section

Table A8: Domestic organic and conventional vegetables FOB prices per pound, 2023–24

Selected commodities	2023 January–March[1]		2024 January–March[2]		2023–2024 Change[3]	
	Conventional	Organic	Conventional	Organic	Conventional	Organic
	Dollars per pound[4]				*Percent*	
Broccoli, crown cut	0.88	1.02	0.83	1.14	-5.2	11.7
Broccoli, unspecified	0.67	0.78	0.63	0.84	-6.5	7.0
Cabbage, red	0.52	0.57	0.42	0.46	-17.7	-18.9
Cabbage, round green	0.31	0.56	0.26	0.42	-17.3	-24.5
Carrots, baby peeled	0.68	0.93	0.69	0.98	1.9	6.0
Carrots, unspecified	0.47	0.69	0.52	0.78	10.8	12.6
Cauliflower, white	1.08	1.26	0.66	0.94	-38.9	-25.4
Celery, hearts	1.17	1.34	0.62	1.00	-47.1	-25.1
Celery, unspecified	0.46	0.70	0.22	0.45	-51.8	-35.8
Kale greens, lacinato (Tuscan)	0.85	0.92	0.72	0.86	-15.3	-6.9
Kale greens, unspecified	0.70	0.92	0.66	0.85	-6.6	-7.1
Lettuce, green leaf	0.27	0.47	0.42	0.51	53.0	8.7
Lettuce, iceberg	0.34	0.49	0.50	NA	49.0	NA
Lettuce, romaine, hearts	0.69	0.97	0.96	1.20	39.0	23.2
Lettuce, romaine, unspecified	0.32	0.52	0.53	0.61	67.0	17.4
Peppers, bell, green	0.65	NA	0.77	NA	17.8	NA
Spinach, flat	0.68	0.77	NA	NA	NA	NA
Sweet potatoes, Japanese	0.89	1.05	1.03	NA	15.6	NA
Sweet potatoes, orange	0.38	1.03	0.42	NA	9.7	NA
Sweet potatoes, red	0.54	1.03	0.62	NA	15.6	NA
Sweet potatoes, white	0.65	1.03	0.70	NA	7.2	NA
Tomatoes, grape	0.88	1.72	2.85	4.16	222.5	141.9

NA = Not available.
1/ Includes average weekly FOB prices for weeks ending Jan. 7, 2023, through Apr. 1, 2023.
2/ Includes average weekly FOB prices for weeks ending Jan. 6, 2024, through Mar. 30, 2024.
3/ Change in average shipping-point prices from 2023 to 2024.
4/ Per pound conversions based on container approximate net weights in USDA, Agricultural Marketing Service Fresh Fruit and Vegetable Shipments, 2023.
Source: USDA, Economic Research Service based on data from USDA, Agricultural Marketing Service, *Market News*.

Fresh Vegetables (continued)

Return to fresh vegetable section

Table A9: Selected U.S. fresh market shipment volumes, January–March 2023–24

Selected commodities	2023[1]		2024[2]		Change[3]	
	Domestic	Total	Domestic	Total	Domestic	Total
	Thousand hundredweight[4]				*Percent*	
Artichokes	199	239	176	220	-11.6	-7.9
Beans, snap	413	1,280	354	1,164	-14.3	-9.1
Broccoli	1,463	4,047	1,473	3,737	0.7	-7.7
Brussels sprouts	178	842	145	775	-18.5	-8.0
Cabbage, Chinese	103	203	118	267	14.6	31.5
Cabbage, multiple varieties	2,630	3,531	2,618	3,194	-0.5	-9.5
Cauliflower	1,323	1,685	1,289	1,644	-2.6	-2.4
Celery (hearts/unspecified)	3,844	4,570	3,384	4,026	-12.0	-11.9
Cucumbers	254	8,152	149	7,570	-41.3	-7.1
Greens, multiple varieties	564	713	172	317	-69.5	-55.5
Lettuce, iceberg	5,216	5,847	5,183	5,773	-0.6	-1.3
Lettuce, romaine	5,177	5,177	5,166	5,976	-0.2	15.4
Lettuce, unspecified	780	2,987	910	1,838	16.7	-38.5
Onions, dry (multiple varieties)	9,468	12,433	10,511	12,645	11.0	1.7
Peppers, bell	999	6,927	1,051	6,831	5.2	-1.4
Peppers, chile (multiple varieties)	60	2,832	90	3,712	50.0	31.1
Spinach	412	597	466	634	13.1	6.2
Squash (multiple varieties)	394	4,214	282	3,262	-28.4	-22.6
Sweet corn	1,261	2,364	1,033	2,182	-18.1	-7.7
Sweet potatoes (multiple varieties)	1,563	1,578	1,240	1,252	-20.7	-20.7
Tomatoes (cherry/grape)	280	2,062	196	1,804	-30.0	-12.5
Tomatoes (multiple varieties)	2,280	7,425	1,906	6,354	-16.4	-14.4
Tomatoes (plum/roma)	813	5,986	757	6,438	-6.9	7.6
Selected total	**39,674**	**85,691**	**38,669**	**81,615**	**-2.5**	**-4.8**

1/ Includes weekly shipment totals FOB prices for weeks ending Jan. 7, 2023, through Apr. 1, 2023.
2/ Includes weekly shipment totals FOB prices for weeks ending Jan. 6, 2024, through Mar. 30, 2024.
3/ Percent change from January–March 2023–24.
4/ Thousand hundredweight = 100,000 pounds.
Source: USDA, Economic Research Service based on data from USDA, Agricultural Marketing Service, Fruit and Vegetable Market News, Movement Reports.

Fresh Vegetables (continued)

Return to fresh vegetable section

Table A10: Selected organic vegetable and pulses commodity trade volume, 2021–24

Commodity	2021 Annual	2022 Annual	2023 Annual	January–February 2023	January–February 2024	Change 2023–24[1]
Imports:			*Million pounds*			*Percent*
Bell pepper, conventional, greenhouse	892.4	917.4	922.2	151.2	149.3	-1.3
Bell pepper, organic	16.0	22.3	25.7	7.1	8.2	16.4
Bell pepper, organic, greenhouse	74.9	75.3	76.7	13.2	15.3	15.9
Cucumber, conventional, greenhouse[2]	434.5	533.2	525.1	NA	156.0	NA
Chili pepper, conventional, greenhouse	8.9	5.8	11.2	1.7	2.5	49.3
Cucumber, organic	NA	NA	58.8	18.7	10.7	-42.9
Cucumber, organic, greenhouse[2,3]	NA	NA	89.7	NA	30.4	NA
Dried chickpeas, organic	NA	NA	7.8	1.1	1.0	-3.3
Dried lentils, organic	4.6	4.9	11.0	2.4	1.8	-23.5
Dried yellow peas, organic	44.7	49.2	49.9	0.6	0.4	-31.9
Garlic, organic	4.1	4.6	2.1	0.7	1.0	47.2
Onions and shallots, organic	NA	NA	39.4	9.1	7.1	-22.1
Potato, organic	NA	NA	69.7	16.8	14.8	-11.8
Tomato, conventional, greenhouse[4]	2,252.0	2,178.5	2,564.2	481.6	489.1	1.6
Tomato, organic	NA	5.0	37.7	21.3	12.7	-40.4
Tomato, organic, greenhouse[4]	NA	393.0	305.5	37.9	10.8	-71.5
Exports:						
Asparagus, organic	1.6	1.5	1.7	0.4	0.4	-10.0
Beets, organic	1.9	1.4	1.3	0.2	0.3	40.2
Broccoli, organic	12.9	4.4	3.6	0.1	1.6	2747.5
Cabbage, organic	12.2	15.6	14.0	1.9	1.8	-2.6
Carrots, organic	52.0	46.2	49.5	9.0	9.0	0.0
Cauliflower, organic	28.7	24.1	17.5	3.6	3.3	-9.4
Celery, organic	24.4	19.6	13.5	1.8	1.9	5.1
Green peas, organic	9.3	2.4	1.3	0.5	0.3	-40.2
Head lettuce, organic	8.0	3.8	7.2	0.7	0.7	11.5
Onions, organic	13.4	22.1	23.3	2.6	2.6	-0.8
Other lettuce, organic	65.7	71.1	59.9	6.0	4.9	-19.0
Peppers (Capsicum or Pimenta), organic	2.9	4.5	4.0	1.0	0.9	-2.3
Potato, organic	15.8	22.3	20.4	2.0	2.5	25.4
Spinach, organic	30.6	36.5	31.0	2.6	2.4	-6.4
Tomato sauce, organic	50.5	64.9	70.1	11.4	10.6	-6.7
Tomato, fresh, cherry, organic	3.5	1.6	1.7	0.3	0.3	-10.9
Tomato, fresh, roma, organic	2.0	8.9	1.7	0.3	0.3	-12.7
Tomatoes, fresh, unspecified, organic	5.5	4.2	3.8	1.0	1.0	4.7

NA = Not available.
1/ Percent change from January–February 2023 to 2024.
2/ Organic greenhouse cucumber import trade codes added in July 2022. Before July 2022, conventional greenhouse cucumber imports represent both organic and conventional production.
3/ Organic greenhouse-specific cucumber import trade code for Dec.–Feb. period added in January 2024.
4/ Organic greenhouse tomato import trade codes added in July 2022. Before July 2022, conventional greenhouse tomato imports represent both organic and conventional production.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Processed Vegetables (continued)

Return to processed vegetable section

Table B11: Selected processed vegetable import value, 2021–24

Item	2021 Annual	2022 Annual	2023 Annual	January–February 2023	January–February 2024	Change 2023–24
	---------- *Million dollars* ----------					*--- Percent ---*
Imports						
Vegetables, prepared or preserved	**2,163.3**	**2,499.8**	**2,655.2**	**376.5**	**493.6**	**31.1**
Tomato	333.2	434.9	619.4	70.2	148.3	111.2
Potato chips	149.9	176.4	260.5	34.0	47.4	39.5
Artichokes	133.6	183.5	142.7	24.8	27.7	11.9
Mushrooms	145.8	163.5	142.2	20.1	20.8	3.5
Onions	77.9	98.5	91.2	9.5	16.9	78.0
Cucumber	94.3	99.4	105.2	17.1	15.6	-8.5
Snap beans	38.2	40.2	36.4	5.3	7.4	41.3
Green peas	19.6	22.8	19.7	3.1	3.2	4.0
Sweet corn	30.4	37.0	35.6	4.6	2.8	-39.9
Sauerkraut	8.3	8.9	8.0	1.2	1.6	36.2
Asparagus	21.3	18.7	13.3	3.6	1.3	-62.8
Other	1,110.8	1,216.1	1,180.9	183.2	200.6	9.5
Vegetable juice	**77.4**	**93.6**	**81.3**	**11.0**	**17.1**	**55.8**
Tomato	2.4	4.9	5.7	1.0	1.0	4.8
Other	75.0	88.6	75.7	10.0	16.1	60.8
Frozen vegetables	**2,859.9**	**3,336.8**	**3,771.8**	**636.9**	**663.7**	**4.2**
Potatoes	1,303.9	1,629.1	2,015.0	329.3	355.6	8.0
Broccoli	384.5	412.1	461.0	88.2	83.1	-5.7
Cauliflower	80.5	94.3	88.4	17.4	15.4	-11.6
Snap beans	78.2	89.4	91.5	16.0	15.1	-5.3
Spinach	42.2	47.1	43.9	10.1	10.8	6.8
Green peas	46.5	53.9	55.5	9.6	10.3	7.3
Sweet corn	49.9	51.9	57.0	12.0	9.2	-23.6
Mushrooms	22.3	25.0	20.8	3.4	5.2	54.8
Brussels sprouts	27.2	27.6	21.2	3.4	4.0	17.3
Okra	15.1	13.2	15.1	1.4	1.3	-10.2
Sweet potato	3.1	4.0	5.1	0.6	0.6	8.4
Other	806.3	889.3	897.4	145.5	153.0	5.2
Dried and dehydrated/1	**674.2**	**793.2**	**731.5**	**117.0**	**122.3**	**4.5**
Potato flakes/granules/dried/starch	194.0	234.3	277.8	44.2	47.2	6.9
Tomato	28.4	35.9	32.6	5.2	6.5	26.4
Carrots	28.2	36.3	32.3	4.5	6.4	41.7
Mushrooms	32.7	35.5	32.5	4.5	4.5	1.0
Spinach	12.3	14.3	14.5	3.4	3.1	-8.7
Garlic	16.6	18.6	16.7	3.0	2.7	-10.2
Onions	18.8	29.9	17.4	4.1	2.4	-42.3
Celery	3.6	4.1	2.3	0.6	0.6	-4.7
Broccoli	6.6	7.1	4.7	1.3	0.4	-65.6
Other	332.9	377.3	300.8	46.3	48.4	4.6
Selected processed imports	**5,774.8**	**6,723.3**	**7,239.8**	**1,141.4**	**1,296.7**	**13.6**

Note: This table includes vegetables, potatoes, and mushrooms, but excludes processed olives.
1/ Dried and dehydrated excludes vegetables processed and sold as spices such as paprika and other peppers.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Processed Vegetables (continued)

Return to processed vegetable section

Table B12: Selected processed vegetable export value, 2021–24

Item	2021 Annual	2022 Annual	2023 Annual	January–February 2023	January–February 2024	Change 2023–24
	---------- *Million dollars* ----------				--- *Percent* ---	
Exports						
Vegetables, prepared or preserved	**1,293.6**	**1,389.7**	**1,488.0**	**225.7**	**251.0**	**11.2**
Tomato	655.5	690.6	766.2	124.6	143.9	15.5
Potato (chips and other)	295.3	318.0	343.9	46.9	49.3	5.2
Cucumber	63.3	76.7	81.7	9.9	10.7	8.0
Sweet corn	83.0	94.1	83.0	12.2	8.3	-32.2
Onions	3.8	5.2	4.5	0.5	2.4	369.7
Snap beans	7.8	4.8	7.1	1.3	1.5	19.6
Sauerkraut	7.7	7.3	8.8	1.4	1.5	12.1
Green peas	5.6	7.0	3.9	1.0	0.5	-46.1
Mushrooms	2.4	2.7	3.3	0.8	0.4	-45.2
Asparagus	0.4	0.2	0.5	0.1	0.0	-7.2
Other	169.0	182.9	185.2	27.1	32.3	19.2
Vegetable juice	**48.6**	**37.6**	**28.1**	**4.8**	**4.4**	**-8.0**
Tomato	3.2	2.0	2.5	0.4	0.4	1.4
Other	45.4	35.5	25.5	4.4	4.1	-8.7
Frozen vegetables	**1,469.5**	**1,643.6**	**1,731.4**	**275.6**	**290.1**	5.3
Potato	1,174.5	1,340.4	1,449.1	230.1	239.1	3.9
Sweet corn	100.7	97.2	86.8	14.4	17.3	20.8
Green peas	15.4	16.6	19.2	3.7	3.0	-17.8
Snap beans	7.8	11.5	15.9	2.5	2.9	20.1
Sweet potato	2.2	16.2	2.8	0.5	1.0	108.4
Spinach	2.4	4.2	2.4	0.5	0.7	41.2
Asparagus	2.4	2.2	3.1	0.4	0.2	-36.1
Carrots	0.5	1.3	0.6	0.2	0.0	-87.1
Other	163.6	154.0	151.6	23.4	25.7	9.8
Dried and dehydrated/1	**325.7**	**334.8**	**326.9**	**54.3**	**57.0**	**4.9**
Potato	123.0	122.2	155.1	27.8	24.7	-11.1
Onions	81.7	88.3	66.6	9.8	10.3	4.6
Garlic	13.6	15.3	13.0	1.7	2.8	66.1
Mushrooms	4.0	4.6	3.8	0.6	0.7	13.4
Other	103.4	104.3	88.4	14.3	18.4	28.7
Total processed exports	**3,137.5**	**3,405.6**	**3,574.3**	**3,466.4**	**3,653.0**	**5.4**

Note: This table includes vegetables, potatoes, and mushrooms, but excludes processed olives.
1/ Dried and dehydrated excludes vegetables processed and sold as spices such as paprika and other peppers.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Appendix C: Potatoes

Return to potato section

Table C13: U.S. potato trade volume, September–August 2020/21–2023/24

	----- September–August -----			-- September–February --		Change
	2020/21	2021/22	2022/23	2022/23	2023/24	2022/23–2023/24
Exports	----- Million pounds -----					-- Percent --
Fresh	1,208	1,097	1,163	522	589	12.8
Frozen, all	2,294	2,179	2,019	1,025	946	-7.7
French fries	1,987	1,922	1,760	899	829	-7.7
Other frozen	308	257	259	126	116	-8.1
Chips	112	107	117	58	56	-3.3
Dried and dehydrated	190	165	235	112	110	-2.0
Other prep/preserved	100	95	101	41	52	25.0
Seed	76	92	80	24	29	21.1
Starch	14	14	16	7	7	-4.1
Total exports	**3,993**	**3,750**	**3,730**	**1,789**	**1,787**	**-0.1**
Imports						
Fresh	898	1,112	1,306	687	545	-20.7
Frozen, all	2,596	2,927	3,179	1,563	1,572	0.6
French fries	2,177	2,443	2,617	1,277	1,290	1.0
Other frozen	419	484	562	286	282	-1.4
Chips	70	71	90	40	50	24.4
Dried and dehydrated	156	141	170	86	71	-17.7
Other prep/preserved	75	74	62	30	26	-15.3
Seed	161	131	155	54	61	14.2
Starch	323	337	334	160	145	-9.6
Total imports	**4,278**	**4,793**	**5,296**	**2,621**	**2,469**	**-5.8**

Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Appendix C: Potatoes

Return to potato section

Table C14. U.S. per capita domestic availability of potatoes[1]

Item	2016–2020 average	2021	2022	2023P
	-----Pounds per person, fresh weight-----			
Fresh	32.4	28.5	28.3	29.7
Processing	82.2	84.2	84.4	88.4
Freezing	51.9	53.7	54.9	58.9
Chipping	17.5	17.5	17.9	18.0
Dehydrating	12.3	12.4	11.2	11.1
Canning	0.5	0.6	0.5	0.4
Total	**114.6**	**112.8**	**112.7**	**118.1**

P = Preliminary.
1/ Availability is a proxy for calendar year consumption.
Source: USDA, Economic Research Service.

Appendix D: Pulse Crops

Return to pulse crops section

Table D15. U.S. dry edible beans: Area, yield, production, crop value, and price, 2020–24

Year	Planted area	Harvested area	Production	Crop value	Yield per acre	Season average price
	-------- 1,000 acres --------		*1,000 cwt*	*Million dollars*	*Cwt per acre*	*Dollars per cwt*
2020	1,715	1,654	32,380	1,035.76	19.6	31.20
2021	1,386	1,320	22,407	922.95	17.0	41.30
2022	1,241	1,219	25,734	1,053.71	21.1	40.50
2023	1,180	1,157	23,910	999.56	20.7	40.90
2024p	1,316	N/A	N/A	N/A	N/A	N/A

Cwt = hundredweight, a unit of measure equal to 100 pounds. NA = not available
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service.

Table D16. U.S. dry edible peas: Area, yield, production, crop value, and price, 2020–24

Year	Planted area	Harvested area	Production	Crop value	Yield per acre	Season average price
	-------- 1,000 acres --------		*1,000 cwt*	*Million dollars*	*Cwt per acre*	*Dollars per cwt*
2020	1,022	1,001	22,389	220.11	22.4	9.84
2021	1,010	894	9,161	161.47	10.3	16.20
2022	945	888	15,517	231.56	17.5	16.00
2023	966	941	18,086	275.64	19.2	15.30
2024p	974	N/A	N/A	N/A	N/A	N/A

Cwt = hundredweight, a unit of measure equal to 100 pounds. NA = not available
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service.

Table D17. U.S. lentils: Area, yield, production, crop value, and price, 2020–24

Year	Planted area	Harvested area	Production	Crop value	Yield per acre	Season average price
	-------- 1,000 acres --------		*1,000 cwt*	*Million dollars*	*Cwt per acre*	*Dollars per cwt*
2020	522	515	7,473	136.34	14.5	18.20
2021	708	577	3,470	125.32	6.0	35.60
2022	680	619	5,650	189.51	9.1	34.40
2023	546	523	5,742	221.97	11.0	38.60
2024p	762	N/A	N/A	N/A	N/A	N/A

Cwt = hundredweight, a unit of measure equal to 100 pounds. NA = not available
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service.

Pulse Crops (continued)

Return to pulse crops section

Table D18. U.S. chickpeas, all: Area, yield, production, crop value, and price, 2020–24

Year	Planted area	Harvested area	Production	Crop value	Yield per acre	Season average price
	-------- 1,000 acres --------		*1,000 cwt*	*Million dollars*	*Cwt per acre*	*Dollars per cwt*
2020	254	251	4,093	88.71	16.3	22.20
2021	368	349	2,848	102.31	8.2	36.20
2022	357	342	3,686	128.13	10.8	35.00
2023	372	359	4,722	172.17	13.2	36.70
2024p	429	N/A	N/A	N/A	N/A	N/A

Cwt = hundredweight, a unit of measure equal to 100 pounds. NA = not available.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service.

Table D19. U.S. chickpeas, large: Area, yield, production, crop value, and price, 2020–24

Year	Planted area	Harvested area	Production	Crop value	Yield per acre	Season average price
	-------- 1,000 acres --------		*1,000 cwt*	*Million dollars*	*Cwt per acre*	*Dollars per cwt*
2020	213	210	3,402	75.05	16.2	23.30
2021	308	296	2,444	89.27	8.3	36.50
2022	276	264	2,601	92.94	9.9	35.60
2023	267	261	3,319	121.05	12.7	36.50
2024p	322	N/A	N/A	N/A	N/A	N/A

Cwt = hundredweight, a unit of measure equal to 100 pounds. NA = not available.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service.

Table D20. U.S. chickpeas, small: Area, yield, production, crop value, and price, 2020–24

Year	Planted area	Harvested area	Production	Crop value	Yield per acre	Season average price
	-------- 1,000 acres --------		*1,000 cwt*	*Million dollars*	*Cwt per acre*	*Dollars per cwt*
2020	42	41	691	13.66	16.9	20.20
2021	59	54	404	13.04	7.6	33.30
2022	82	78	1,085	35.19	13.9	32.70
2023	105	98	1,403	51.11	14.3	39.00
2024p	107	N/A	N/A	N/A	N/A	N/A

Cwt = hundredweight, a unit of measure equal to 100 pounds. NA = not available.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service.

Pulse Crops (continued)

Return to pulse crops section

Table D21. U.S. dry edible bean crop-year export volume, 2020/21–2023/24

Commodity	------- September–August -------			---- September–February----		Change/1
	2020/21	2021/22	2022/23	2022/23	2023/24	2022/23–2023/24
	---------- *Million pounds* ----------					----- *Percent* -----
By class/2						
Kidney, all	**302.64**	**183.03**	**255.26**	**117.85**	**198.98**	**68.8**
Kidney, dark red	151.86	103.38	97.55	47.49	63.09	32.9
Kidney, light red	27.61	13.10	27.24	9.26	26.39	185.0
Kidney, other	123.17	66.55	130.47	61.11	109.50	79.2
Navy	118.69	129.01	132.54	79.08	96.19	21.6
Black	194.67	109.09	157.72	69.56	118.37	70.2
Pinto	183.56	45.99	102.73	37.48	125.68	235.4
Beans, other	17.56	34.31	17.02	10.85	16.32	50.3
Small red	54.27	25.52	32.92	18.28	16.04	-12.2
Cranberry	6.92	24.31	11.97	4.36	10.05	130.8
Lima, all	**13.01**	**13.85**	**13.65**	**8.65**	**5.41**	**-37.5**
Lima, baby	1.17	1.89	1.41	1.06	0.36	-66.5
Lima, large	11.84	11.96	12.23	7.58	5.05	-33.4
Great Northern	16.80	11.15	8.87	4.02	5.33	32.4
Mung	5.74	5.22	12.72	4.81	6.78	41.1
Pink	4.56	3.58	3.10	1.27	3.50	176.7
Blackeye	2.35	1.84	0.39	0.29	0.31	8.1
White	4.99	1.63	2.09	0.70	1.05	49.3
Total exports	**925.74**	**588.53**	**750.98**	**357.19**	**604.00**	**69.1**
All by destination country						
Canada	91.12	107.89	110.25	47.58	49.49	4.0
Mexico	345.96	104.89	229.31	25.22	95.55	278.9
Italy	88.92	98.77	98.64	15.94	22.51	41.3
Dominican Republic	87.01	60.55	91.16	3.00	9.50	217.0
United Kingdom	62.06	44.94	37.56	9.49	9.29	-2.1
Costa Rica	36.76	23.19	38.59	5.03	6.54	30.1
Haiti	30.39	14.82	10.50	1.57	1.56	-0.9
Other countries	183.52	133.47	134.98	249.37	409.57	64.2
Total exports	**925.74**	**588.53**	**750.98**	**357.19**	**604.00**	**69.1**

1/ Percent change from September–February 2023/24 to September–February 2023/24.
2/ Excludes garbanzo beans.
3/ Beans, other includes pigeon pea, bambara, broad and horse bean, and other general bean classes.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Pulse Crops (continued)

Return to pulse crops section

Table D22. U.S. dry bean crop-year import volume, 2020/21–2023/24

Commodity	September–August 2020/21	September–August 2021/22	September–August 2022/23	September–February 2022/23	September–February 2023/24	Change/1 2022/23–2023/24
	Million pounds					*Percent*
By class/2						
Beans, other	79.90	82.69	73.38	32.49	36.06	11.0
Mung	79.26	68.74	57.28	35.97	31.79	-11.6
Kidney, all	**47.22**	**53.39**	**63.50**	**26.25**	**40.29**	**53.5**
Kidney, dark red	5.05	8.24	10.80	2.84	6.73	136.7
Kidney, light red	19.30	21.43	35.44	15.83	26.39	66.7
Kidney, other	22.88	23.72	17.27	7.58	7.16	-5.5
Pinto	22.56	37.58	32.79	15.05	22.62	50.2
Black	32.75	30.64	38.50	17.35	24.09	38.8
Small red	16.07	18.76	21.79	10.41	8.20	-21.2
Blackeye	13.24	12.80	15.40	9.12	6.26	-31.3
Lima, all	**8.85**	**9.73**	**12.66**	**6.03**	**4.74**	**-21.4**
Lima, baby	1.25	1.34	3.53	2.38	1.44	-39.4
Lima, large	7.61	8.38	9.13	3.64	3.29	-9.6
Navy	3.05	3.98	7.57	2.41	3.57	48.4
Great Northern	2.98	3.32	1.77	1.22	0.90	-26.2
White	2.21	2.19	2.19	1.02	0.84	-17.8
Total imports	**308.10**	**323.83**	**326.84**	**157.30**	**179.34**	**14.0**
All by origination country						
Canada	77.82	86.88	83.96	36.85	55.12	49.6
Nicaragua	34.01	36.82	52.49	20.70	29.16	40.8
India	40.25	35.79	41.73	23.24	25.92	11.5
Mexico	29.81	49.69	29.72	14.91	9.68	-35.0
Peru	20.83	23.36	27.23	16.02	8.90	-44.5
Thailand	13.31	21.74	15.27	10.91	7.39	-32.3
China (Mainland)	28.90	15.76	16.41	9.25	6.58	-28.8
Other countries	63.16	53.78	60.01	25.43	36.59	43.9
Total imports	**308.10**	**323.83**	**326.84**	**157.30**	**179.34**	**14.0**

1/ Percent change from September–February 2022/23 to 2023/24.
2/ Excludes garbanzo beans.
3/ Beans, other includes pigeon pea, bambara, broad and horse bean, and other general bean classes.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Pulse Crops (continued)

Return to pulse crops section

Table D23. U.S. dry peas and lentils: Export volume by class/1, 2020/21–2023/24

Commodity	July–June 2020/21	July–June 2021/22	July–June 2022/23	July–February 2022/23	July–February 2023/24	Change/2 2022/23–2023/24
	Thousand cwt					*Percent*
Exports by class						
Peas, all	**9,717**	**5,002**	**5,880**	**3,528**	**4,275**	**21.2**
Peas, split	2,337	1,942	3,507	2,035	1,748	-14.1
Peas, green	3,123	1,379	1,356	733	1,894	158.5
Peas, other	1,183	925	697	462	279	-39.6
Peas, yellow	3,058	739	308	286	352	22.9
Peas, Austrian winter	15	17	12	11	2	-81.0
Lentils, all	**6,716**	**3,158**	**4,133**	**2,501**	**3,962**	58.4
Lentils, other	6,716	3,158	4,133	2,501	3,962	58.4
Total exports	**16,433**	**8,161**	**10,013**	**6,029**	**8,237**	**36.6**
All by destination country						
Peas, all	**9,717**	**5,002**	**5,880**	**3,528**	**4,275**	**21.2**
Ethiopia	680	1,304	1,923	1,199	278	-76.8
Canada	1,846	579	538	316	1,142	261.5
Yemen (Sana)	757	527	529	386	303	-21.4
China (Mainland)	2,627	197	516	265	1,276	382.4
Philippines	501	326	205	113	162	44.1
Other countries	3,307	2,069	2,169	1,250	1,113	-10.9
Lentils, all	**6,716**	**3,158**	**4,133**	**2,501**	**3,962**	**58.4**
Canada	2,365	1,100	1,685	943	1,759	86.5
Mexico	571	319	451	296	333	12.5
Spain	513	344	392	261	355	36.2
Sudan	725	198	315	180	42	-76.7
Colombia	318	302	198	120	277	130.4
Other countries	2,223	896	1,091	702	1,197	70.6
Total exports	**16,433**	**8,161**	**10,013**	**6,029**	**8,237**	**36.6**

Note: Cwt = hundredweight which equals 100 pounds.
1/ This table excludes planting seed trade.
2/ Dry pea and lentil percent change from July–February 2022/23 to July–February 2023/24.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Pulse Crops (continued)

Return to pulse crops section

Table D24. U.S. dry peas and lentils: Import volume by class/1, 2020/21–2023/24

Commodity	July–June 2020/21	July–June 2021/22	July–June 2022/23	July–February 2022/23	July–February 2023/24	Change/2 2022/23–2023/24
	Thousand cwt					*Percent*
Imports by class						
Peas, all	**1,460.0**	**4,423.3**	**2,301.5**	**1,593.2**	**902.9**	**-43**
Peas, yellow	704.1	3,134.3	926.3	704.4	400.3	-43
Peas, split	259.9	548.1	760.0	479.9	286.6	-40
Peas, other	427.8	615.9	362.7	213.0	103.3	-52
Peas, green	66.6	123.8	249.9	193.2	112.7	-42
Peas, Austrian winter	1.6	1.2	2.6	2.6	-	N/A
Lentils, all	**945.7**	**1,232.6**	**1,194.0**	**820.5**	**712.0**	**-13**
Lentils, other	532.9	728.2	507.4	436.6	145.9	-67
Lentils, red	251.4	285.6	387.0	260.2	263.8	1
Lentils, green	161.4	218.8	299.6	123.6	302.3	145
Total imports	**2,405.7**	**5,655.9**	**3,495.5**	**2,413.6**	**1,614.9**	**-33**
All by origin country						
Peas, all	**1,460.0**	**4,423.3**	**2,301.5**	**1,593.2**	**902.9**	**-43**
Canada	789.8	2,991.4	1,517.0	371.3	230.4	-38
Russia	420.4	366.9	568.2	123.3	-	N/A
New Zealand	128.1	84.8	34.7	11.2	14.2	27
Turkey	0.2	392.6	0.6	0.1	0.0	-97
Ukraine	0.6	447.6	0.1	0.1	-	N/A
Other countries	120.9	140.1	181.0	1,087.2	658.2	-39
Lentils, all	**945.7**	**1,232.6**	**1,194.0**	**820.5**	**712.0**	**-13**
Canada	783.3	1,068.8	1,024.8	303.9	259.9	-15
India	56.0	73.2	99.5	40.7	46.1	13
Turkey	63.8	52.8	37.7	8.7	13.3	54
Mexico	14.7	11.4	12.3	2.9	3.7	27
United Kingdom	6.6	8.3	1.4	0.4	2.1	406
Other countries	21.2	18.1	18.4	463.8	386.9	-17
Total imports	**2,405.7**	**5,655.9**	**3,495.5**	**2,413.6**	**1,614.9**	**-33**

Cwt = hundredweight which equals 100 pounds. N/A = not available.
1/ This table excludes planting seed trade.
2/ Dry pea and lentil percent change from July–February 2022/23 to July–February 2023/24.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Pulse Crops (continued)

Return to pulse crops section

Table D25. U.S. chickpeas: Export volume by class/1, 2020/21–2023/24

Commodity	September–August 2020/21	September–August 2021/22	September–August 2022/23	September–February 2022/23	September–February 2023/24	Change/2 2022/23–2023/24
	Thousand cwt					*Percent*
Exports by class						
Chickpea, all	**2,812**	**1,182**	**1,713**	**910**	**1,151**	**26.5**
Chickpeas, garbanzo	2,812	1,182	1,713	910	1,151	26.5
Total exports	**2,812**	**1,182**	**1,713**	**910**	**1,151**	**26.5**
All by destination country						
Chickpea, all	**2,812**	**1,182**	**1,713**	**910**	**1,151**	**26.5**
Canada	580	352	589	303	486	60.5
Spain	290	209	455	226	205	-9.5
Pakistan	925	121	149	88	59	-33.3
Turkey	64	78	93	62	26	-58.0
United Arab Emirates	151	37	83	43	71	63.5
Peru	49	20	48	16	21	28.2
Italy	188	79	25	19	33	75.3
Algeria	80	63	17	14	55	281.1
South Korea	48	27	14	5	13	159.7
Sri Lanka	125	36	8	4	35	867.8
Other countries	312	160	232	129	148	14.7
Total exports	**2,812**	**1,182**	**1,713**	**910**	**1,151**	**26.5**

Cwt = hundredweight which equals 100 pounds.
1/ This table excludes planting seed trade.
2/ Chickpea percent change from September–February 2022/23 to September–February 2023/24.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Pulse Crops (continued)

Return to pulse crops section

Table D26. U.S. chickpeas: Import volume by class/1, 2020/21–2023/24

Commodity	September–August 2020/21	September–August 2021/22	September–August 2022/23	September–February 2022/23	September–February 2023/24	Change/2 2022/23–2023/24
	Thousand cwt					*Percent*
By class						
Chickpea, all	**1,020**	**1,171**	**1,827**	**688**	**684**	-1
Chickpeas, garbanzo	633	711	1,627	537	630	17
Chickpeas, kabuli	387	460	200	150	54	-64
Total imports	**1,020**	**1,171**	**1,827**	**688**	**684**	**-1**
All by origination country						
Mexico	539	632	804	152	251	66
Canada	69	82	442	398	245	-38
Australia	200	261	395	52	73	41
India	83	72	98	43	70	62
Argentina	21	36	68	36	22	-40
Turkey	99	70	10	4	13	233
Trinidad and Tobago	0.1	3	2	0.03	3	13,453
Other countries	8	14	8	4	6	74
Total imports	**1,020**	**1,171**	**1,827**	**688**	**684**	**-1**

Cwt = hundredweight which equals 100 pounds.
1/ This table excludes planting seed trade.
2/ Chickpea percent change from September–February 2022/23 to September–February 2023/24.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

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