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Vegetables and Pulses Outlook: December 2022

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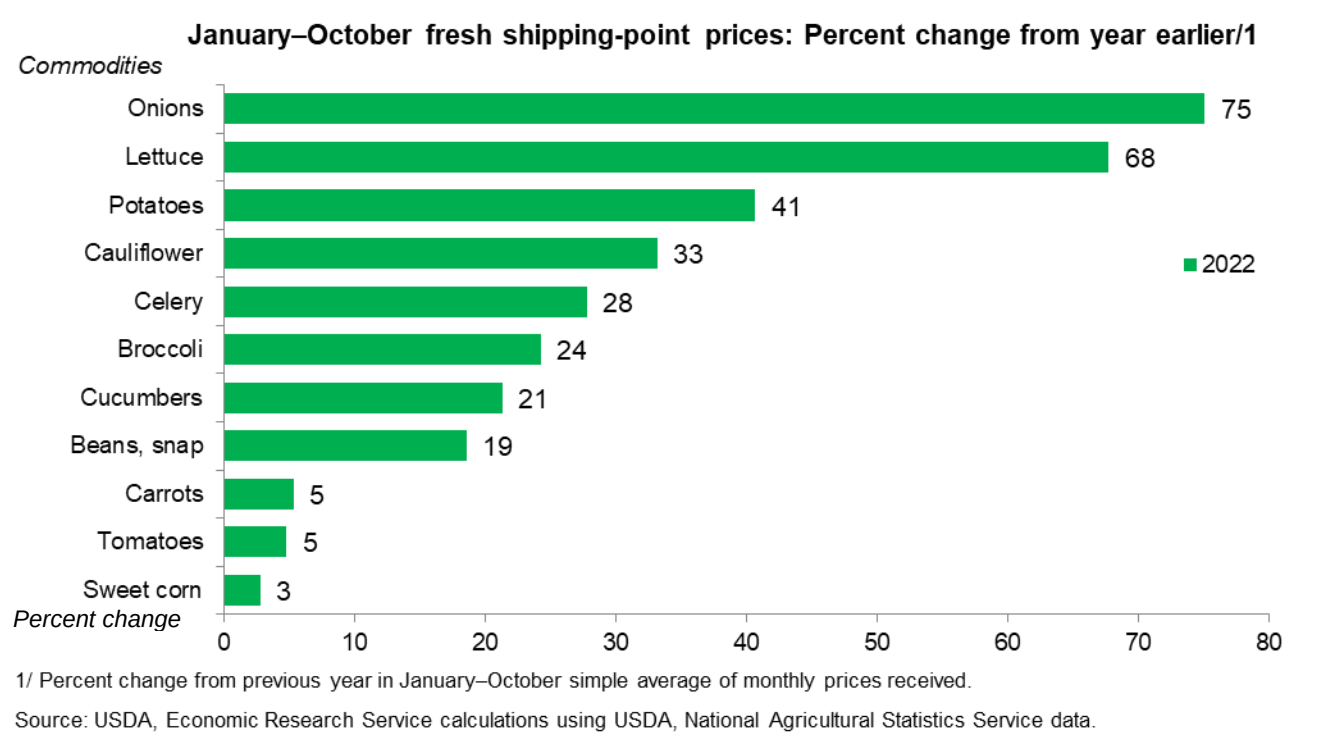
Vegetable Prices Spike in 2022

Fresh-market vegetable crops in California, Florida, and Mexico were hit with a variety of inclement weather this summer and fall which reduced supplies and contributed to higher shipping-point prices. Shipping-point prices for fresh vegetables are expected to remain above seasonal norms until new or replanted fields are harvested in late December or early January.

In this report:



1/ Percent change from previous year in January–October simple average of monthly prices received.

Source: USDA, Economic Research Service calculations using USDA, National Agricultural Statistics Service data.

Industry Overview

Vegetable and Pulse Impacts—Weather Woes in 2022

In Florida, growers of key winter vegetables such as tomatoes, bell peppers, and squash were forced to replant fields following Hurricanes Ian and Nicole. In California, impacts from the long-term drought, above normal temperatures, an unusual late summer rainstorm, and heavy pest pressure sliced into marketable fall-season supplies of leafy and cruciferous vegetables. In Mexico (a key source for winter fresh vegetables including tomatoes, peppers, squash, and green beans), hurricanes impacted growers in Western and North Central production regions.

The 2022 crop marks the first-time annual potato production declined 5 consecutive years in a row. The gradual decline in production over the last few growing seasons occurred despite increased planted acres in 2019 and 2021. According to USDA's *November Crop Production* report, 2022 U.S. potato production is down 3 percent from last year due in part to decreased planted acres (down 2 percent) and adverse growing conditions. During the September 2021–August 2022 marketing year, the season-average price (includes fresh and processing potatoes) reached a nominal record high of $10.20 per hundredweight, marking the first time the season price exceeded $10 per hundredweight.

Contract production of California processing tomatoes declined 2 percent to 10.5 million short tons in 2022. With tomato paste inventories very low and tomato product prices high, processors will be looking for a larger crop in 2023. However, the long-term drought, high input prices, and favorable prices for alternative crops stand in the way of achieving larger output.

Despite a 10 percent decline in planted area this spring for dry edible beans (excluding chickpeas), a 23-percent gain in yields over the previous year's drought-reduced lows allowed U.S. dry edible bean production to increase 11 percent in 2022. The larger crop will boost stocks and weaken dry bean price prospects for the 2022/23 marketing year.

A variety of factors caused price spikes and volatility for dry peas, lentils, and chickpeas. These include a decline in production driven by weather-reduced yields, lower global supplies, reduced domestic area as producers transition to high-priced competing crops such as wheat, soybeans, and corn, and global supply chain impacts from the Ukraine-Russia conflict. In 2021, reported annual prices broke 35-year records for peas and lentils but both are expected to taper down from record-breaking highs in the 2022/23 marketing year as production is estimated to increase from low 2021 levels.

Table 1: U.S. vegetable and pulse industry at a glance, 2019–22/1

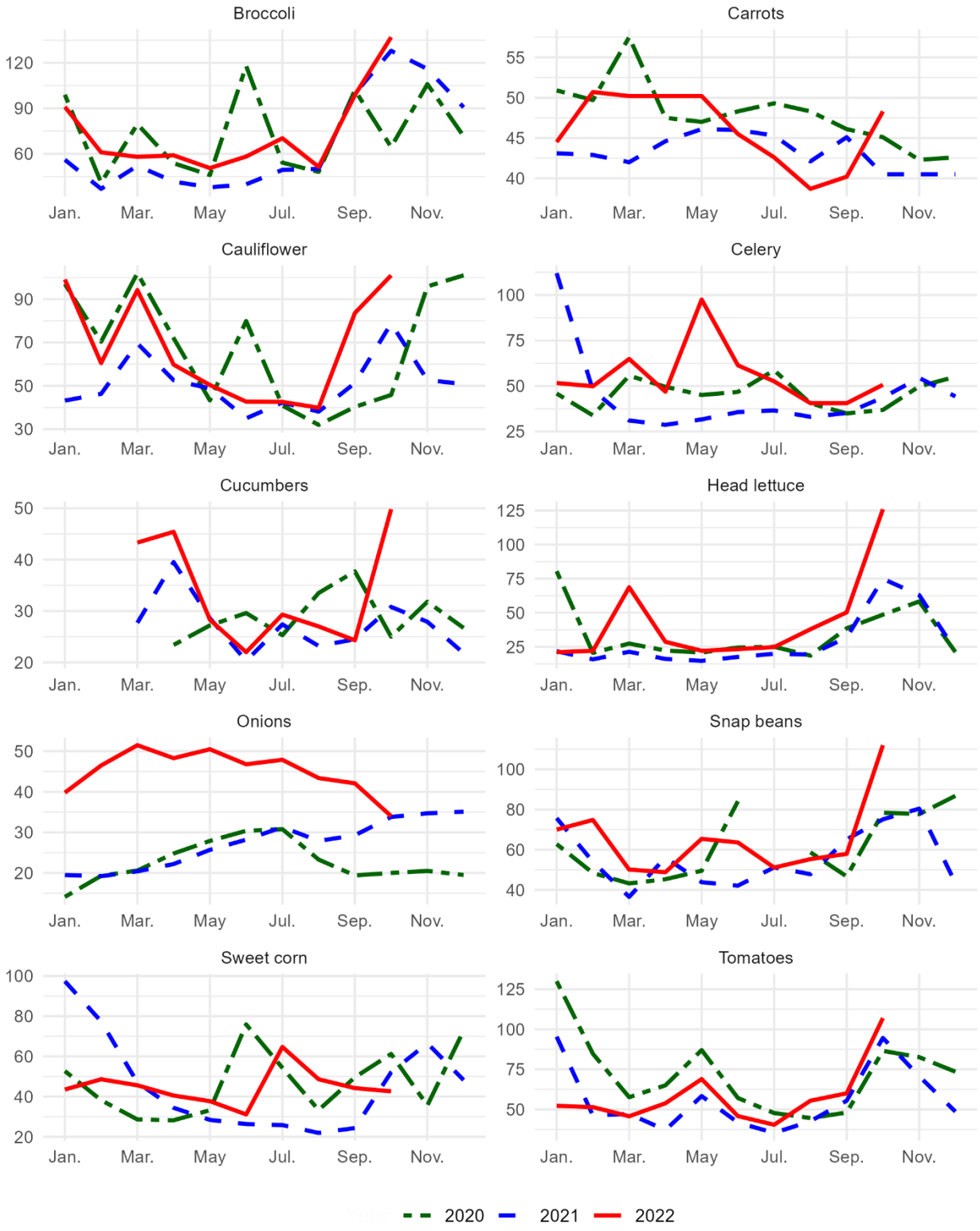
Item	Unit	2019	2020	2021	2022/2	Percent change 2021–22
Area harvested						
Vegetables, fresh and processing/3	1,000 acres	2,199	2,141	2,131	1,734	-18.6
Potatoes	1,000 acres	937	912	924	906	-1.9
Dry beans, dry peas, lentils, and chickpeas/4	1,000 acres	3,050	3,395	3,070	3,054	-0.5
Mushrooms/5	1,000 acres	3	3	*3*	*3*	-10.6
Total	**1,000 acres**	**6,189**	**6,451**	**6,127**	**5,697**	**-7.0**
Production						
Vegetables fresh/3	Million cwt	297	288	275	274	-0.5
Vegetables processing/3/7	Million cwt	352	354	339	335	-1.1
Potatoes	Million cwt	424	420	410	397	-3.2
Dry beans, dry peas, lentils, and chickpeas/4	Million cwt	55	66	37	45	20.5
Mushrooms	Million cwt	9	8	8	8	-7.2
Total	**Million cwt**	**1,137**	**1,135**	**1,069**	**1,058**	**-1.0**
Imports/7						
Vegetables fresh	$ millions	8,511	9,523	10,008	10,448	4.4
Vegetables processing/6	$ millions	3,258	3,644	3,932	4,525	15.1
Potatoes (including seed)	$ millions	1,529	1,734	2,019	2,524	25.0
Dry beans, dry peas, lentils, and chickpeas/4	$ millions	236	315	355	443	25.0
Mushrooms	$ millions	467	502	595	687	15.5
Total	**$ millions**	**14,002**	**15,718**	**16,908**	**18,628**	**10.2**
Exports/7						
Vegetables fresh	$ millions	2,393	2,307	2,398	2,479	3.4
Vegetables processing/6	$ millions	2,196	2,038	2,255	2,388	5.9
Potatoes (including seed)	$ millions	1,925	1,675	1,873	1,967	5.0
Dry beans, dry peas, lentils, and chickpeas/4	$ millions	620	782	734	631	-14.0
Mushrooms	$ millions	44	42	41	39	-3.9
Total	**$ millions**	**7,178**	**6,844**	**7,301**	**7,505**	**2.8**
Per capita availability						
Vegetables fresh	Pounds	149.2	148.0	146.3	144.9	-1.0
Vegetables processing/6	Pounds	113.1	123.1	112.3	106.9	-4.7
Potatoes	Pounds	112.6	115.0	112.9	112.5	-0.4
Dry beans, dry peas, lentils, and chickpeas/4	Pounds	9.8	12.7	9.9	9.5	-3.7
Mushrooms	Pounds	3.8	3.7	3.7	3.7	-1.2
Total	**Pounds**	**388.5**	**402.6**	***385.0***	***377.4***	**-2.0**

Note: Hundredweight (cwt) = 100 pounds.
1/ Total values rounded. Area and production prior to 2019 include several States no longer in the annual NASS estimates program.
2/ The values for 2022 vegetables and mushrooms are USDA, ERS forecasts while area harvested and production values for potatoes and pulses are preliminary.
3/ Utilized production excluding melons.
4/ Includes Austrian winter and wrinkle seed peas where applicable.
5/ Mushroom area equals Agaricus total fillings (multiple mushroom crops).
6/ Includes canned, frozen, and dried. Excludes potatoes, pulses, and mushrooms.
7/ All international trade data are expressed on a calendar year basis.
Sources: USDA, Economic Research Service calculations using USDA, National Agricultural Statistics Service data and U.S. trade data from U.S. Department of Commerce, Bureau of the Census.

Figure 1

Free-on-board (f.o.b.) prices for selected fresh-market vegetables, 2020–2022

Cents per pound



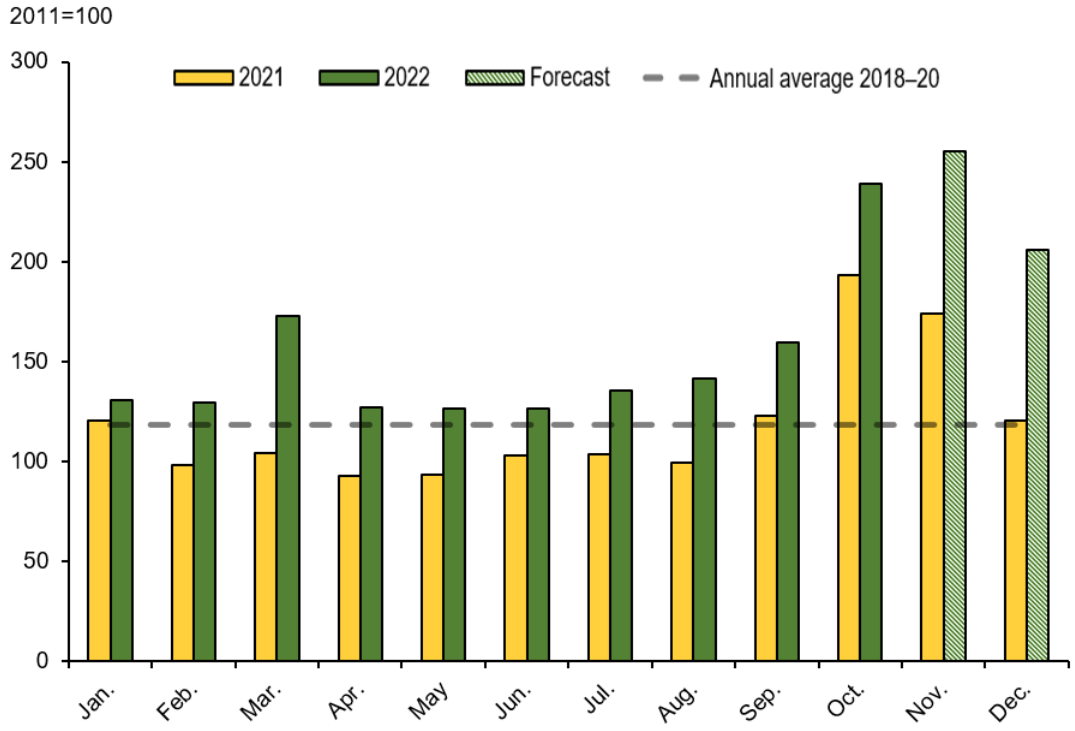
Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service.

Fresh Market Vegetables

Elevated Fresh Vegetable Prices in 2022

During 2022, shipping point prices for fresh vegetables remained well above previous year levels in each quarter of the year as a variety of circumstances came together to limit supplies (table 7A). Many of the supply disruptions were because of inclement weather which ranged from below-normal temperatures in southwestern production regions early in the year, to hurricanes and associated heavy rains on both coasts and in Mexico this fall. Also, sharply higher prices for potatoes and onions (two heavily weighted crops in any fresh vegetable price index), underpinned increases experienced for other fresh vegetables (figure 2).

Figure 2
Monthly vegetable price index, average 2018–22



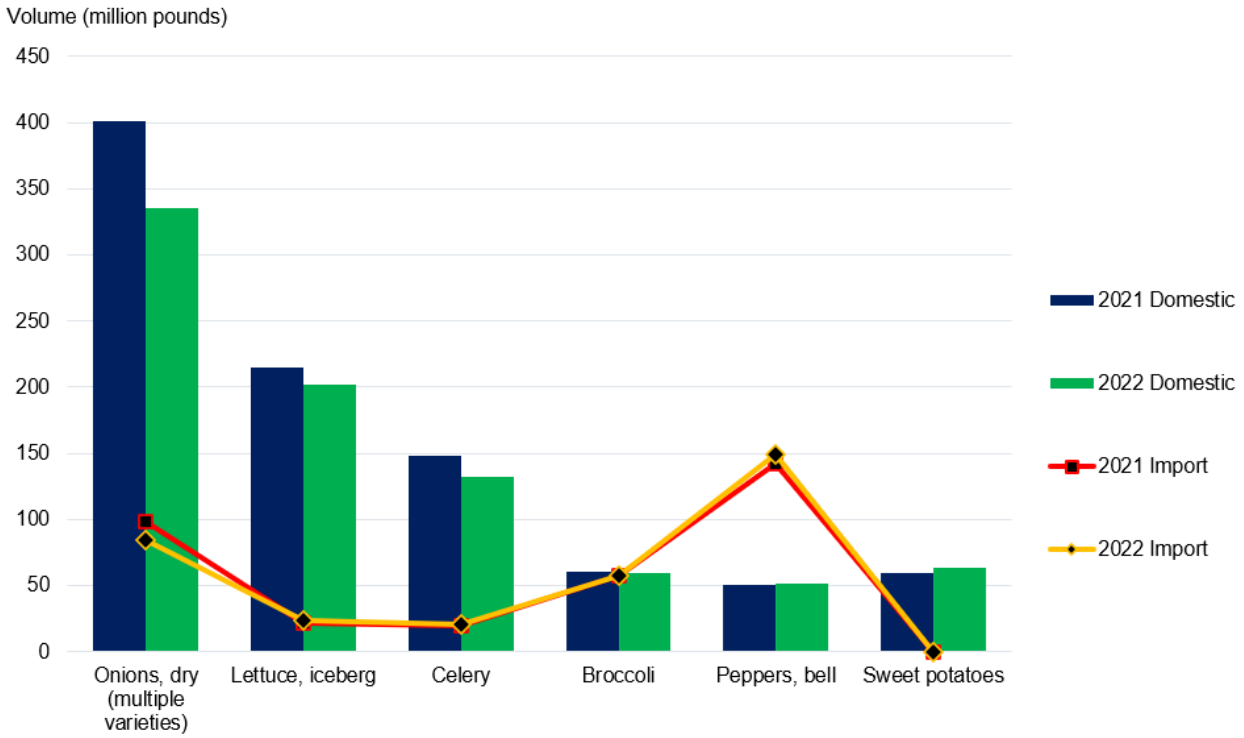
Source: USDA, Economic Research Service calculations using USDA, National Agricultural Statistics Service data.

In addition to weather, heavy pest pressure severely damaged crops in both the Salinas Valley and Central Valley of California. This came on top of sharply higher input prices and local shortages of irrigation water which forced some growers to limit planted area below what they normally would seed. This left little or no cushion against supply disruptions caused by weather or pest damage. Given the prevalence of contracting in vegetable production, limited available supply after contract fulfillment for crops such as lettuce resulted in sustained price spikes in open-market free on board (f.o.b.) prices.

During the October–early December period of 2022, the volume of domestic shipments declined from a year earlier for many major fresh-market vegetables (table 8A). Reductions were noted for crops such as iceberg lettuce, romaine lettuce, broccoli, and celery (figure 3). Vegetables such as tomatoes, squash, and green beans that rely on both Florida and imports from Mexico for most of supply, experienced shipping-point prices well above a year-earlier due to storm-reduced production in both Florida and Mexico.

Hurricanes Ian and Nicole damaged infrastructure and flooded fields in Florida, damaging fall season crops such as tomatoes and peppers (which were at or close to maturity) reducing and delaying shipments. Farther south, rain and wind damage required many winter vegetable growers to replant, which could lead to delayed shipments (and possible price-depressing bunching of harvests) in early 2023.

Figure 3
Selected domestic and import fresh market vegetable shipments, January–November 2021–22



Note: January–November represents year-to-date (YTD) shipping movement.
Source: USDA, Economic Research Service using data from USDA, Agricultural Marketing Service, Fruit and Vegetable Market News, *Movement Reports*.

Shipping-point prices (as measured by the NASS Vegetable Price Index) for fresh-market vegetables surged 33 percent over the first 10 months of 2022—the largest year-over-year gain since 1995. Fresh shipping-point prices averaged one-third above a year earlier during each of the first three quarters of 2022. This fall (October–November), shipping-point prices for fresh

vegetables are on track to rise by about one-fourth over the previous fall and nearly 50 percent above fall of 2020 (table 7A). The fall quarter of 2022 began with serious pest/disease pressure in Salinas Valley lettuce crops. The fall supply disruptions in Salinas persisted to season's end and created an uneven start to the desert Southwest vegetable season, which began a slow recovery into the second week of December.

While retail prices for all food rose at the quickest year-over-year pace since 1979 (up about 10 percent), retail fresh vegetable prices (as measured by the Consumer Price Index) rose 6 percent during the first 3 quarters of 2022 (table 9A). Driven primarily by rising transport costs and higher prices for key items such as potatoes, onions, and lettuce, when complete this year, the CPI for fresh vegetables will likely present the largest year-to-year gain since an 11 percent surge in 1998.

Because the farm value generally represents about one-fourth of the retail price for fresh vegetables, retail price gains in 2022 were more subdued than the substantial increases seen at the shipping point. Much of the gain in fresh-market vegetable retail prices the past few years reflected sharply higher transport costs (especially trucking costs buoyed by high diesel fuel prices), which account for the lion's share of fresh vegetable retail value.

Drought and Disease Push Lettuce Prices to Record Highs

Shipping-point prices for iceberg, leaf, and romaine lettuce soared this fall as marketable volume declined due to widespread disease damage in the Salinas Valley. Unseasonably warm weather this fall, and a combination of soil borne pathogens (such as Pythium Wilt) and thrip-vectored Impatiens Necrotic Spot Virus (INSV) reduced yields on farms that already had reduced planted acreage because of irrigation water shortages. Thus, higher prices reflected curtailed production caused by both disease-impacted yields and lower planted area.

According to the National Agricultural Statistics Service (NASS), the October f.o.b. shipping-point price for iceberg lettuce averaged $126.00 per hundredweight—up 150 percent from a month earlier and 132 percent above the already elevated October average of the past 3 years. Scanning records back to 1949, the October 2022 price was the highest nominal or real price for any month, shattering the previous nominal dollar high of $87.30 reached in March 2002. One caveat is that prior to 2020, monthly prices reported by NASS were reported for the grower level and excluded fees and marketing costs embodied in the shipping-point price. According to USDA's Market News Service, shipping-point prices for iceberg lettuce remained over $100 into early December, with romaine lettuce shipments and prices also affected by yield reductions.

The summer/fall lettuce season in Salinas ended by early November, with weary shippers moving to the primary winter production region in the desert Southwest. Market flow of fresh vegetables from the early desert season was unsteady as shippers attempted to fill the supply gaps at the close of the Salinas season by harvesting fields slated for later market windows. The net effect was an extension of limited supplies, wide ranging quality and sizing, and elevated prices as the desert season moved into December. By mid-December, after the chaotic start to the desert winter season passed, supplies of leafy and cruciferous vegetables slowly improved and prices began to ease, although remaining well above the average of the past 3 years.

Fresh Vegetable Trade

In 2022, with weather, pests, input price surges, competing crops, and water availability issues taking a toll on domestic production, the share of consumer availability supplied by imported fresh vegetables continued to rise. In 2021, imports accounted for a record 38 percent of domestic availability. At the same time, export share of supply continued to lag as shippers faced dual headwinds from a strong dollar and high domestic prices.

- Import volume for fresh-market vegetables (excluding potatoes) increased 2 percent from a year earlier during the first 10 months (January–October) of 2022 (table 10A). Shipments from Mexico, which accounted for about 78 percent of fresh vegetable imports thus far in 2022, rose 1 percent despite a 2 percent drop in the first quarter caused in part by cold weather impacts on growth and yield. Imports from Canada, which accounted for 12 percent of fresh-market imports (about half of which consist of protected-culture crops such as tomatoes, cucumbers, and peppers), rose 8 percent.
- During the January–October period of 2022, import volume increased from a year earlier for carrots (15 percent), lettuce (13 percent), broccoli (5 percent), cucumbers (6 percent), and tomatoes (1 percent). Import volume declined for asparagus (13 percent), chile peppers (8 percent), squash (7 percent), and bell peppers (2 percent) (table 10A).
- Reflecting higher prices across the domestic vegetable market, average unit values for fresh vegetable exports rose 12 percent from a year earlier during January–October 2022. These higher prices combined with reduced domestic production and the strong dollar to push the volume of fresh vegetable exports (excluding potatoes) down 8 percent from a year earlier. Shipments to Canada, the top destination for U.S. fresh vegetable exports, dropped 7 percent, while volume to the Netherlands (the third leading destination) fell 20 percent. However, partly offsetting was a 13 percent gain in exports

to Mexico, the second-leading destination, reflecting greater volume of onions, cauliflower, and organic vegetables.

- Export volume increased for tomatoes (13 percent) and asparagus (5 percent). Exports declined for most other fresh-market vegetables including lettuce (down 3 percent), carrots (10 percent), onions and shallots (11 percent), and broccoli (76 percent).
- In 2022 (January–October), fresh/dried sweet potato export volume also fell 13 percent from the previous year with lower volumes to the Netherlands (down 20 percent) and the United Kingdom (down 18 percent).
- Given reduced domestic volume, higher prices, and sluggish imports, it is likely that per capita availability of fresh market vegetables will register a decline in 2022. Reduced availability is likely for fresh vegetables such as iceberg and romaine lettuce, broccoli, cauliflower, sweet corn, onions, and tomatoes.

Organic Vegetable Prices and Trade

In October and November 2022, shipping point prices were up more than 50 percent for several organic vegetables, including cauliflower, romaine lettuce, and broccoli compared to the same time last year. While organic shipping point prices tend to follow, but remain higher than conventional prices, conventional lettuce prices for romaine, iceberg, and green leaf varieties exceeded organic prices during some weeks in October and November.

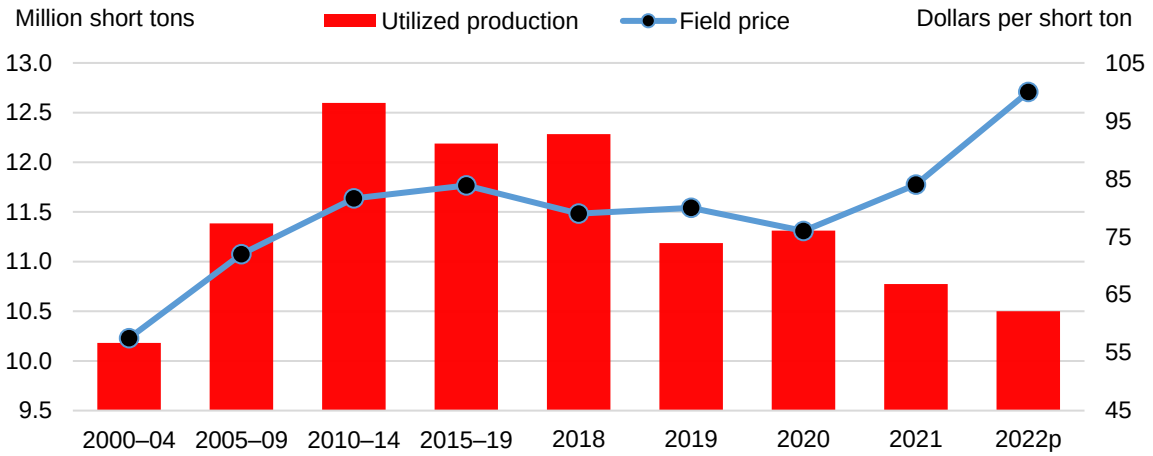
U.S. import volume of organic vegetables and pulses remained strong in 2022 (January–October), with bell peppers (greenhouse and other) up 7 percent from the previous year (table 11A). Mexico remained the top supplier of organic bell peppers accounting for 88 percent of market share with 80 percent of bell pepper import volume from greenhouse production. Year-to-date changes in export volume for organic vegetables in 2022 (January–October) varied by commodity with broccoli and head lettuce seeing the largest percentage change while potatoes, spinach, and salad mix continued their upward trend.

Processing Vegetables

Weather, Disease, and Water Hampered Tomato Crop Again

U.S. processing tomato production is projected to have declined 3 percent to 11.0 million short tons in 2022. According to administrative data from the California Processing Tomato Advisory Board (PTAB) (confirming the forecast released August 31 by the California Agricultural Statistics Service), growers in that State delivered nearly 10.5 million short tons of tomatoes to processors this year—2 percent below a year earlier. The industry anticipates that growers in other States (not surveyed annually by USDA, NASS) such as Indiana, Pennsylvania, and New Jersey added another 0.5 million short tons.

Figure 4
California processing tomato production and field price, 2000–22



Note: One short ton is equal to 2,000 pounds. 2022p = projected.
Source: USDA, Economic Research Service calculations using USDA, National Agricultural Statistics Service and California Processing Tomato Advisory Board data.

- According to PTAB data, organic processing tomato production totaled 0.598 million short tons, down 3 percent from a year earlier. About 58 percent of organic volume came from Fresno and Kern County.
- Although California processors initially planned for a larger crop coming from greater area than the year before, area for harvest in the State fell short of earlier intentions largely because of a lack of irrigation water and competition with lower-cost alternative crops like cotton. Processing tomato area in California was the lowest since 2017 and the second lowest since 1987.
- Since reaching a record high of 52.1 short tons in 2018, California's processing tomato yield per acre has trended lower, declining again in 2022 to a projected 46.9 tons per

acre—1 percent below a year earlier. For each of the past four seasons, a variety of negative factors hindered tomato crops including long-term drought (which has severely restricted the use of surface irrigation water and led to reduced ground water quality), unfavorable temperatures (cold springs and/ or excessively hot summers), smoke from wildfires, and pest-vectored plant diseases. The 30-year trend (1993–2022) yield for California's 2023 crop is 52.1 short tons (equal to the record high), which to be attained would likely require the mitigation of several of these negative factors, including drought.

- With stocks shrinking and U.S. and world 2022 production below expectations, wholesale prices for tomato products have risen. Industry sources indicated the price for 31 percent natural tomato soluble solids (NTSS) industrial tomato paste (the base ingredient required to manufacture most sauces, soups, and ketchup) was well above a year earlier in early December, with current nominal dollar tomato paste prices likely the highest over the past 40 years. Although paste prices are no longer publicly reported, the October export unit value for tomato paste was 40 percent above a year earlier.
- With sharply higher prices for most tomato products and the threat of recession looming, both domestic and export demand have begun to soften. Industry estimates show disappearance of tomato products down more than one-tenth during January to June 2022. Even with continuation of the current slowdown in tomato product demand, June 1 beginning stocks of paste and other processed tomato products are likely to be below the lows of a year earlier.
- With paste inventories low and tomato product prices high, processors will likely look for a larger crop in 2023. However, the long-term drought, rising input prices and alternative cropping possibilities for growers may stand in the way of achieving greater intentions. Processors will likely offer growers more attractive contract prices for tomatoes to offset surging production costs caused by rising prices for energy-based manufactured inputs, increasingly scarce irrigation water, and labor. Tomato grower revenue has been squeezed by lower yields and sharply higher production costs, while processor revenues have been limited by higher energy, labor, and raw tomato costs.
- Of paramount importance in the 2023 season will be the long-term California drought and the availability and cost of quality irrigation water. If the predicted La Nina weather pattern again limits winter mountain snowpack in California to below average levels, surface irrigation water for the 2023 season could remain severely limited and pumping costs for groundwater (where available) will rise as well water levels and quality continue to drop.

Frozen Vegetable Stocks Down, Retail Prices Up

Stocks of frozen vegetables (excluding potatoes) in cold storage warehouses on November 1 were 3 percent below a year ago (table 12B). Stock levels were down for most vegetable crops including cut sweet corn (down 5 percent), cauliflower (down 13 percent), and spinach (down 26 percent). Frozen chopped/cut broccoli stocks were down 16 percent from a year ago and were the lowest for this date since records began in 1972. On the other hand, onion rings, which typically account for about one-fourth of frozen onion product stocks, were up 69 percent from the lows of a year earlier to 19.6 million pounds—a record high for this date.

With frozen stocks generally lower and processing and production costs well above a year ago, the Producer Price Index (PPI) for frozen vegetables (excluding potatoes) has been running above 2021 levels—averaging 15 percent above a year earlier during the third quarter (table 13B). For the year, the PPI for frozen vegetables is projected to average 13 percent higher, the largest year-over-year gain since the index was first published in 1990. Including potatoes, the frozen vegetable PPI in 2022 would see the greatest year-over- year increase since 1981, when it rose 14 percent.

Processed Imports and Exports Up

Including potatoes and mushrooms (also covered elsewhere in this report), processed vegetable import value is projected to exceed export value in 2022 because of reduced domestic production, elevated domestic prices, and the strong dollar. During the first 10 months of 2022 (January–October), the value of all processed vegetable imports surged 17 percent to $5.6 billion (table 13B). The source of increased import value was about evenly split between gains in volume (up 9 percent) and higher prices (up 8 percent). More than half of the volume of processed vegetable imports entered from the top three countries: Canada (volume up 16 percent, value up 25 percent), Mexico (volume up 1 percent, value up 11 percent), and China (volume down 1 percent, value up 19 percent). The following import value comparisons with a year earlier were noted:

- Prepared/preserved/juices (largely shelf stable/canned), which account for about one-third of processed import value, were up 18 percent to $2.1 billion, led primarily by tomato products (up 38 percent), onions (up 37 percent), and artichokes (up 30 percent). Given the small 2022 crop and shrinking domestic inventories, tomato products will likely continue as a major import driver in the coming year.

- Frozen products, which make up nearly half of the value of processed vegetable imports, rose 16 percent to $2.7 billion, driven largely by french fries and other frozen potato products. Excluding potato products, frozen vegetable imports rose 9 percent to $1.4 billion. Imports continued to garner ever-larger shares of domestic markets for frozen green beans, green peas, and sweet corn.
- Dried and dehydrated vegetable imports were up 17 percent to $772 million, with about 12 percent of the gain in import value due to rising prices (import volume was up 5 percent). Greater dehydrated import value was led by gains in products made using tomatoes (up 38 percent), onions (up 27 percent), and garlic (up 18 percent).

Despite hurdles such as unfavorable currency exchange rates, high domestic prices, and diminished inventories, the value of U.S. processed vegetable exports managed to post a 6 percent increase from a year earlier to $3.5 billion during the January–October period. Export values for the shelf stable (up 7 percent), frozen (up 7 percent), and dehydrated (up 2 percent) categories were each above a year earlier. Performance within the top 3 export markets, which account for about 58 percent of all U.S. global processed vegetable export value (60 percent of volume), have been mixed so far in 2022 with gains in value for Canada (up 8 percent), Mexico (up 1 percent), and Japan (up 7 percent). In terms of volume, Canada (up 4 percent) and Japan (up 1 percent) were both positive but reductions in frozen potatoes and dried potato flakes dropped export volume into Mexico 10 percent. The following export value comparisons with a year earlier were noted:

- Canned (prepared/preserved) vegetables were up 7 percent to $1.8 billion, led by tomato products (up 5 percent) and cucumber pickles (up 22 percent), and sweet corn (up 18 percent). Despite drought-reduced production, record-high tomato paste prices, and shrinking stocks, the United States remains the global leader in processed tomato output and exports. Despite these market impediments, tomato product export volume was down just 2 percent through October, but conventionally grown tomato product unit values were higher.
- Frozen vegetables were up 7 percent to $1.3 billion as 11 percent higher unit values outweighed 3 percent lower export volume. Higher prices and lower volumes were common across the major frozen export crops—particularly potatoes and mixed vegetables. Potato products account for more than three-fourths of U.S. frozen vegetable export value, followed distantly by sweet corn with 6 percent. Excluding potatoes, which through October already exceeded the $1 billion mark, the United States exported $260 million in frozen vegetables so far in 2022.

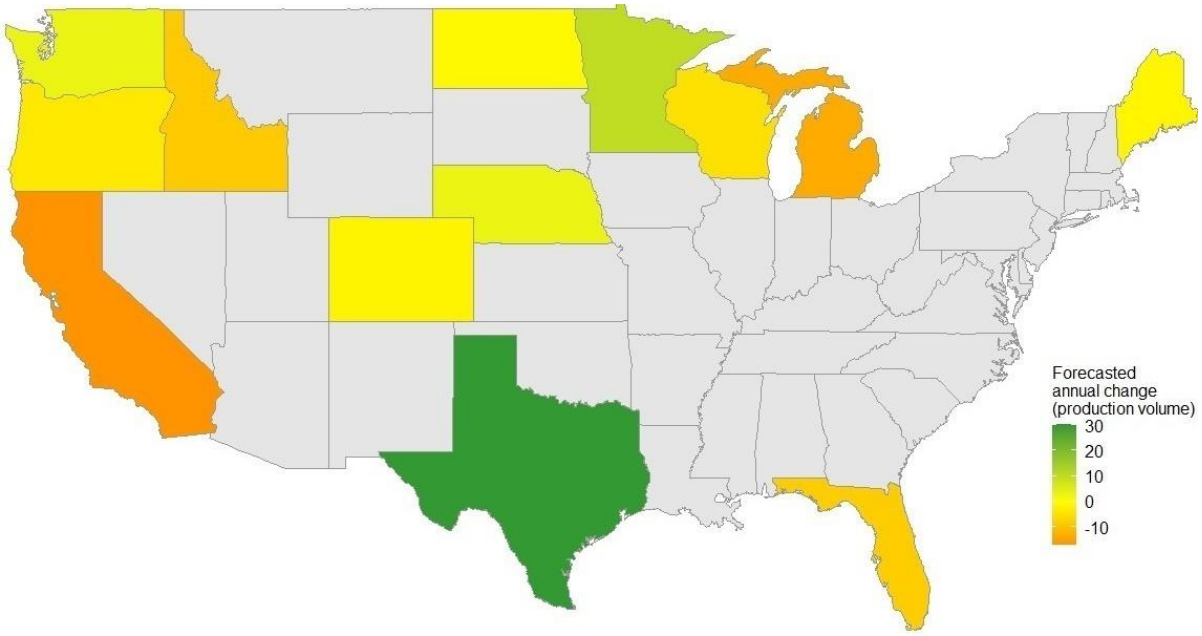
- With higher unit values more than offsetting a 4 percent reduction in volume, the value of dried and dehydrated vegetable exports rose 2 percent to $279 million. Much of the volume reduction occurred in potato flakes and mixed vegetables—two of the top three dehydrated export crops. However, partly offsetting these reductions was greater volume (and lower unit values) for onion products and garlic.

Potatoes

Production Down in 2022 as Acreage and Yield Drop

According to USDA's November Crop Production report, 2022 U.S. potato production is down 3 percent from last year due in part to decreased planted acres (down 2 percent) and adverse growing conditions (figure 5).

Figure 5
U.S. potato production volume change by State, 2021–22



Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, *Crop Production Report* (November 2022).

- The 2022 crop marks the first-time annual potato production declined 5 consecutive years since 1866. The gradual decline in production over the last few growing seasons occurred despite increased planted acres in 2019 and 2021.
- In Idaho, the largest potato producing State, late planting and a 6 percent decline in harvested acres resulted in the lowest production volume since 2001. Of the 13 USDA, NASS surveyed States, only Minnesota, Nebraska, Washington, and Texas had an increase in production compared to the previous year (figure 5).
- The national potato yield averaged 438 cwt (hundredweight) per acre, the lowest yield since 2017. Cool and wet April weather delayed planting and negatively affected yields in key growing areas like Idaho, the Columbia Basin, Michigan, and the Red River Valley. In addition, acreage abandonment exceeded the 5-year average in 2022 with only 84 percent of planted acres harvested.

- Based on historical patterns with year-over-year decreases in production, planted acres in 2023 are forecast to be higher than 2022.

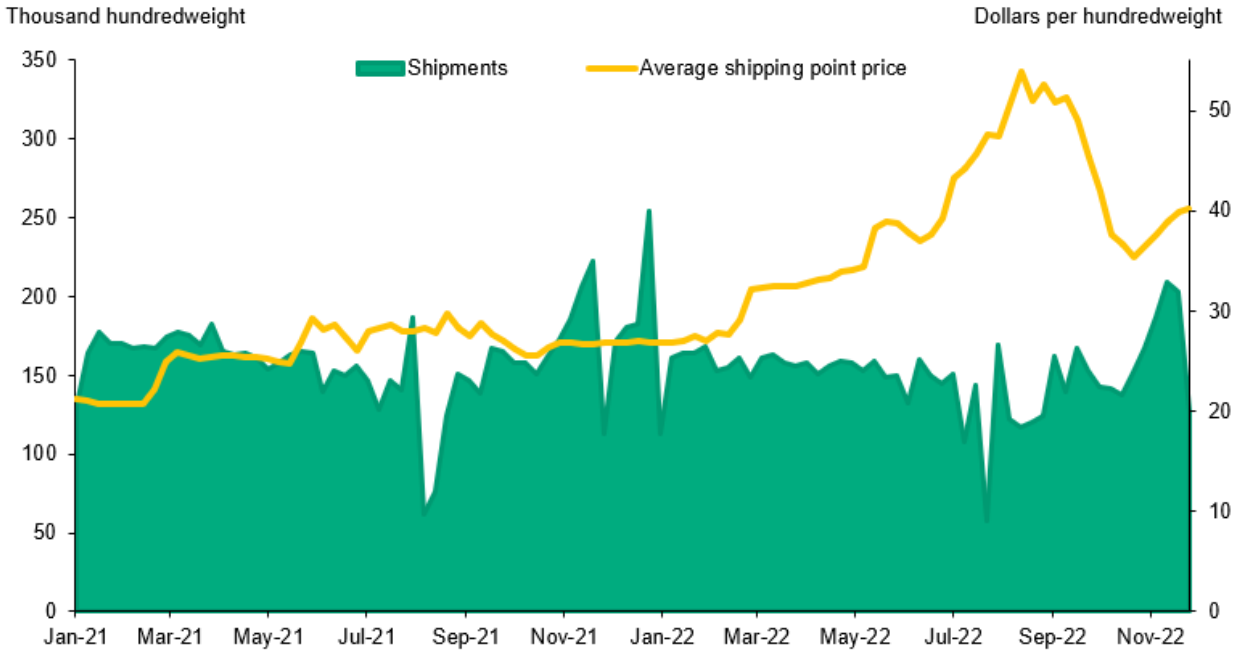
Potato Prices Remain High Heading Into 2022/23

During the September 2021–August 2022 marketing year, the season-average price (includes fresh and processing potatoes) reached a nominal record high of $10.20 per hundredweight, marking the first time the season price exceeded $10 per hundredweight. According to industry reports, some potato processors purchased table stock potatoes in 2022 to make up for lower inventories of processing potatoes, which puts additional pressure on fresh potato prices. Given the smaller than expected 2022 potato harvest, the 2022/23 marketing year (MY) season-average price is expected to exceed the nominal record high set last year.

The weekly average shipping point price for fresh potatoes climbed throughout 2022, peaking in August ahead of fall harvest (figure 6). During the first 3 months of the 2022/23 MY, fresh potato shipment volumes lagged last season (down 3 percent). As 2022/23 MY shipment volume peaked in November, the average weekly shipping point price remained 46 percent higher than the same month last season but was lower than prices observed in August 2022.

Figure 6

U.S. weekly fresh potato domestic shipments and average shipping point price, 2021–22[1]



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

Potato prices for consumers have also begun to ease, as the average retail prices for potatoes fell in September after climbing for 8 consecutive months (Bureau of Labor Statistics, CPI data).

Potato Trade Value Up, as Export Volume Falls in 2021/22

During the 2021/22 MY, U.S. exports of all potatoes and potato products (including starch but excluding dextrin) set a nominal record high of $1.93 billion dollars—a 2 percent increase from the previous season.

- Overall export volume fell during 2021/22 MY, driven by declines in fresh, frozen, chips, and flakes/granules potato categories (table 15C).
- U.S. exports of organic fresh potatoes reached a record high 19.5 million pounds in 2021/22. Canada and Mexico remained the top export destination of organic potatoes, accounting for 76 percent and 22 percent of the U.S. export market, respectively.
- Following a USDA, APHIS announcement on expanded market access for U.S. fresh potato exports to Mexico in May 2022, fresh potato export volume to Mexico tallied approximately 120 million pounds between June and October, a record high for that period and 9 percent higher compared to the same period last year.

On the import side, both the value and volume of U.S. imports of potatoes and potato products rose in 2021/22 compared with a year ago.

- Despite the increase in U.S. imports of potato and potato products, the 2022 preliminary per capita availability for all potato products is expected to drop slightly to 112.5 pounds per person.
- U.S. imports of fresh potatoes jumped 24 percent from the previous year as Canadian production helped ease raw-product supply for table stock and processing potatoes.
- Canada also accounted for 90 percent of U.S. frozen french fry import volume, with most of the remaining market share going to European countries.

Mushrooms

2021/22 Fresh Production Volume Lowest Since Late '90s

The farm value of all mushrooms (Agaricus and others), fell 4 percent to $1.02 billion during the 2021/22 crop year (July–June)—the lowest value in 11 years (table 2). Despite an increase in both brown and specialty mushroom sales volume, a 12 percent decline in white button (Agaricus) mushrooms led to a 7 percent decline in total mushroom sales volume compared to 2020/21.

Table 2. Mushroom sales volume, price, and sales value

	---- Volume of sales ----		--------- Price ---------		------ Value of sales ------	
Item	2020/21	2021/22	2020/21	2021/22	2020/21	2021/22
	----- 1,000 pounds -----		*--- Dollars per pound ---*		*----- 1,000 dollars -----*	
Agaricus	**737,413**	**679,888**	**1.35**	**1.37**	**997,736**	**930,930**
White[1]	544,738	477,320	1.28	1.24	696,138	593,204
Brown[2]	192,675	202,568	1.57	1.67	301,598	337,726
All Specialty	**20,573**	**22,504**	**3.21**	**3.88**	**66,112**	**87,351**
Shitake	7,210	7,749	3.44	3.51	24,836	27,162
Oyster	6,708	5,007	2.70	3.04	15,003	15,209
Other	6,655	9,748	4.54	4.61	26,273	44,980
Total	**757,986**	**702,391**	**1.40**	**1.45**	**1,063,848**	**1,018,281**

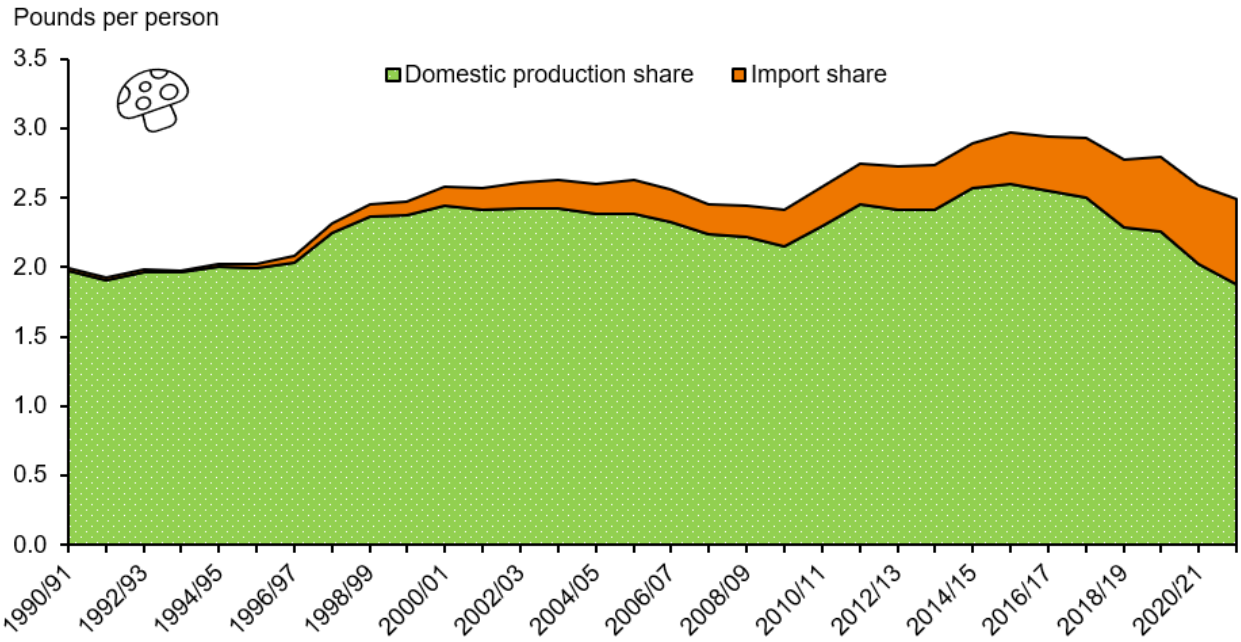
Note: The marketing year for mushrooms begins in July and ends in June of the following year.
1/ USDA, Economic Research Service derives white mushroom statistics using the total Agaricus and Brown statistics.
2/ Includes Portobella and Cremini.
Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, *Mushrooms.*

- Fresh mushroom sales volume also fell in 2021/22 (down 8 percent) from last year, continuing a downward year-over-year production trend that started in 1997/98. The two largest mushroom producing States, Pennsylvania, and California, both reduced growing area in production in 2021/22 compared to the previous season.
- Specialty mushroom sales volume and value increased from last year with the specialty mushroom category almost doubling sales volume. According to the USDA, NASS Mushroom Report, 13.4 of the 22.5 million pounds of specialty mushroom sales volume was organic, outpacing conventional specialty mushroom sales for the first time since 2017/18. (See the special article at the end of this outlook publication for more details on organic mushrooms.)
- In the USDA, NASS Mushroom Report (released August 2022), U.S. growers indicated they plan to reduce Agaricus bed and tray production area (total fillings) by 4 percent to

112.4 million square feet in 2022/23 with growers in Pennsylvania signaling a 5 percent reduction.

- The preliminary 2021/22 per capita availability for all mushroom products (including truffles) remains stable at 3.7 pounds per person. Imports of fresh mushrooms and imported processed mushroom products helped offset the decline in domestic production. While processed mushroom imports have historically accounted for a greater share of available domestic supply, imports of fresh mushrooms have contributed to a smaller portion of available supply. During the 1990s, 95 percent of average annual available domestic supply of fresh mushroom was attributed to U.S. fresh mushroom production (figure 7). In the past decade imports of fresh mushrooms from Canada and Mexico trended upwards, accounting for 25 percent of available domestic supply in 2021/22.
- The National Mushroom Council reported the average retail price per pound for fresh mushrooms between July and September 2022 was $4.68, which was 9 percent higher than the same time last year.

Figure 7
U.S. fresh mushroom per capita availability by share of domestic production and imports, 1990/91–2021/22



Note: The marketing year for mushrooms begins in July and ends in June of the following year.
Source: USDA, Economic Research Service based on data from USDA, National Agricultural Statistics Service and U.S. Department of Commerce, Bureau of the Census.

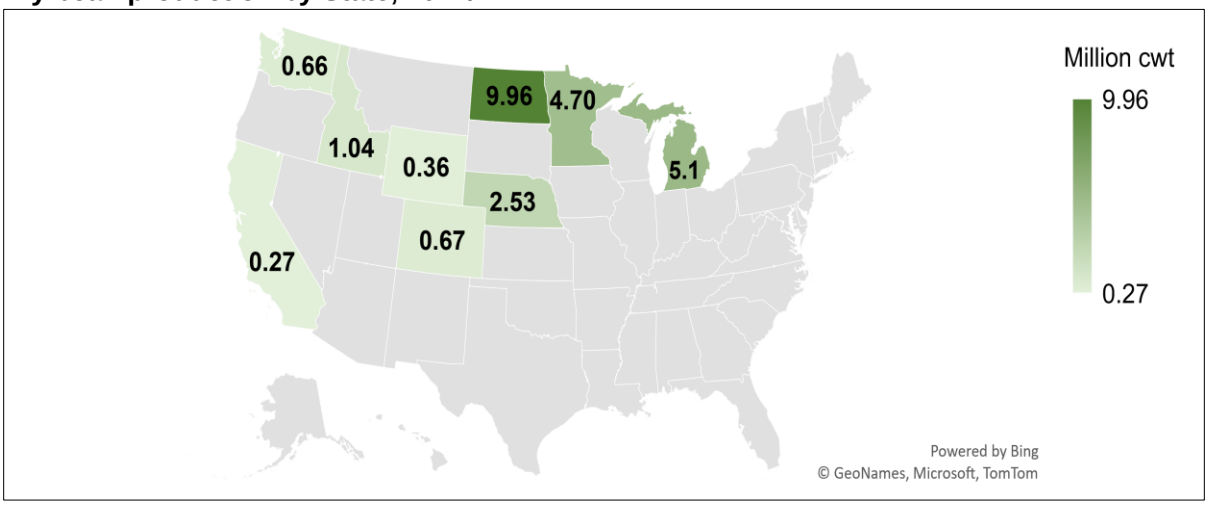
Dry Edible Beans

Dry Bean Production Increases Despite Planted Area Decline

According to USDA's *Crop Production* reports, 2022 planted area for dry edible beans (excluding chickpeas) declined 10 percent from the previous year. However, production increased by 11 percent in 2022 from the previous year as yield increased by 23 percent.

- The major classes with the largest area in 2022 are pintos (578,000 acres), black (280,000 acres), and navy beans (169,000 acres) representing represent 82 percent of U.S. planted area in 2022.
- Great Northern and dark red kidney planted acreage declined the most from the previous year—down 47 percent and 35 percent respectively. However, the declines in great Northern and dark red kidney acreage domestically are offset by the larger relative acreage of the more significant bean classes.
- Despite production declines in Washington (down 39 percent to 0.66 million hundredweight (cwt) and Idaho (down 30 percent to 1.04 million cwt), production increases in the top 3 dry bean producing States, North Dakota, Michigan, and Minnesota, more than offset the declines for domestic production (figure 8).

Figure 8
Dry bean production by State, 2022/1



Note: Cwt = hundredweight, a unit of measure equal to 100 pounds.
1/ Excludes other States
Source: USDA, Economic Research Service, using data from USDA, National Agricultural Statistics Service, *QuickStats.*

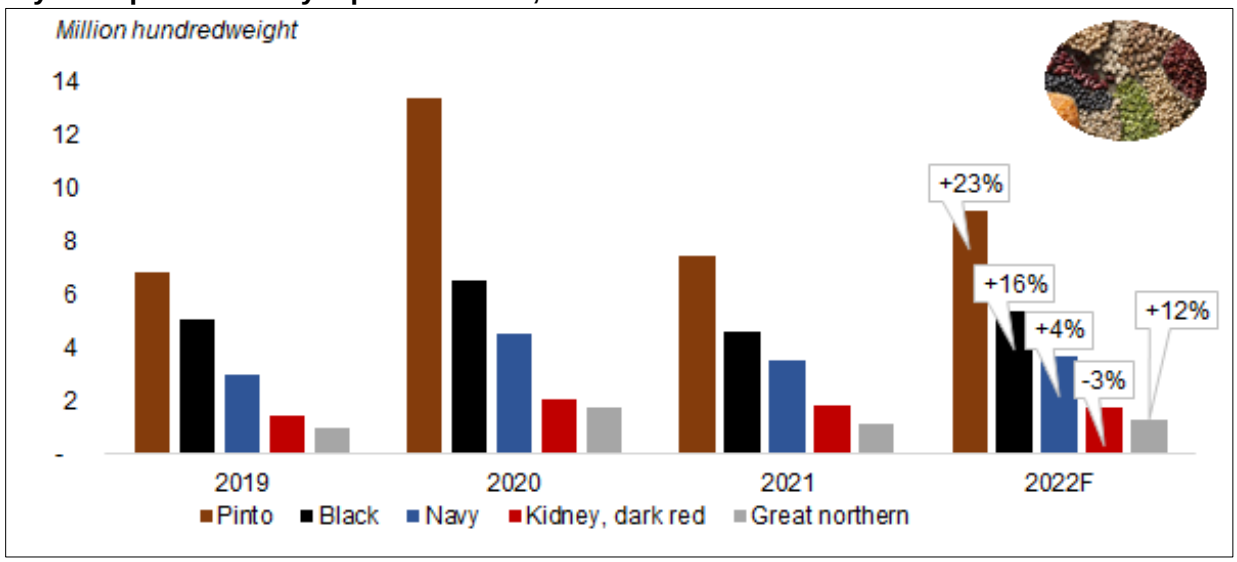
- North Dakota dry bean production is up 56 percent to 9.96 million cwt and both Michigan and Minnesota are up 2 percent from the previous year to 5.11 million cwt and 4.70 million cwt respectively.

Dry Bean Production and Yield Forecasts by Class for 2022

Production and yield estimates by class for 2022 are not yet available but USDA, ERS forecasts the greatest production increases by class for 2022 are pintos, black, and navy beans.

- The USDA, NASS preliminary forecast production for 2022 increased 11 percent for all beans excluding chickpeas. USDA, ERS forecasts production for the top 5 producing bean classes to also increase from 4 percent to 23 percent for pinto, black, navy, and great Northern, while dark red kidney production is projected to decrease by 3 percent (figure 9).

Figure 9
Dry bean production by top five classes, 2019–22

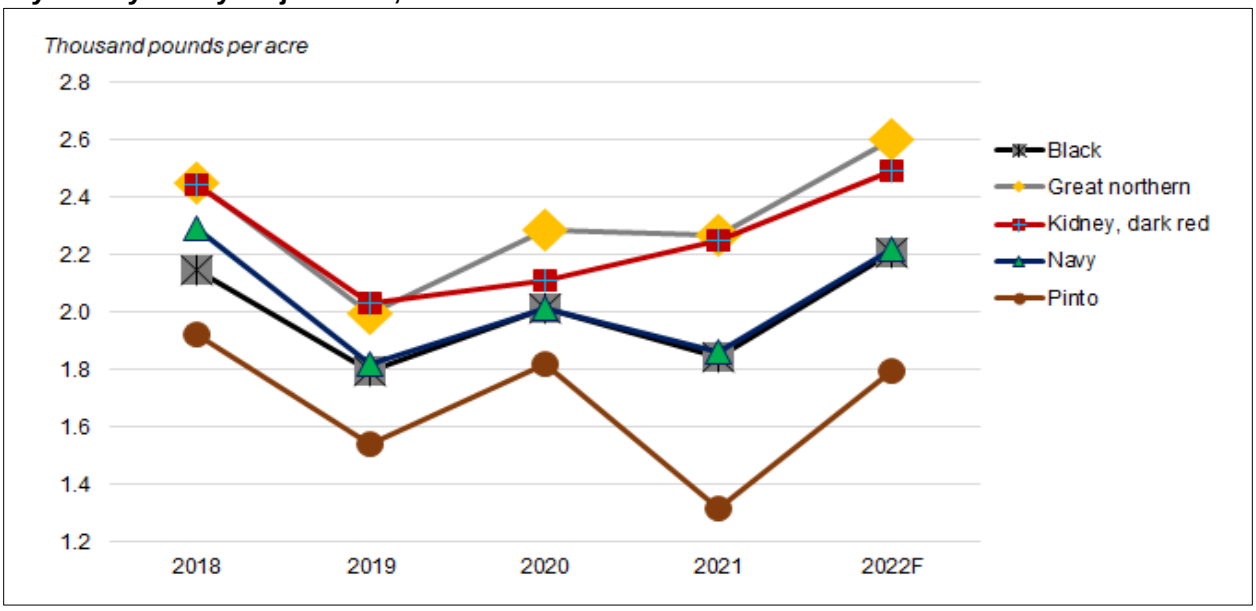


Note: F = USDA, Economic Research Service forecast by dry bean class. Hundredweight is a unit of measure equal to 100 pounds.
Source: USDA, Economic Research Service, 2022 dry beans class forecast, and USDA, National Agricultural Statistics Service, *QuickStats* and *Crop Production Summary*.

- Production forecasts for all 13 distinct dry bean classes in 2022 range from a decline of 30 percent for cranberry beans to an increase of 31 percent for baby lima beans. All USDA, NASS estimates through 2021 and USDA, ERS forecasts in 2022 by bean class are reported in the appendix (table 16D).

- The USDA, NASS reported yield for 2022 increased 23 percent for all beans excluding chickpeas. USDA, ERS forecasts 2022 yield for the top 5 producing bean classes to also increase from 11 percent to 36 percent (figure 10).

Figure 10
Dry bean yield by major class, 2018–22/1



Note: F = USDA, Economic Research Service forecast by class.
1/ Excludes chickpeas.
Source: USDA, Economic Research Service, 2022 dry beans class forecast, and USDA, National Agricultural Statistics Service, *QuickStats* and *Crop Production Summary*.

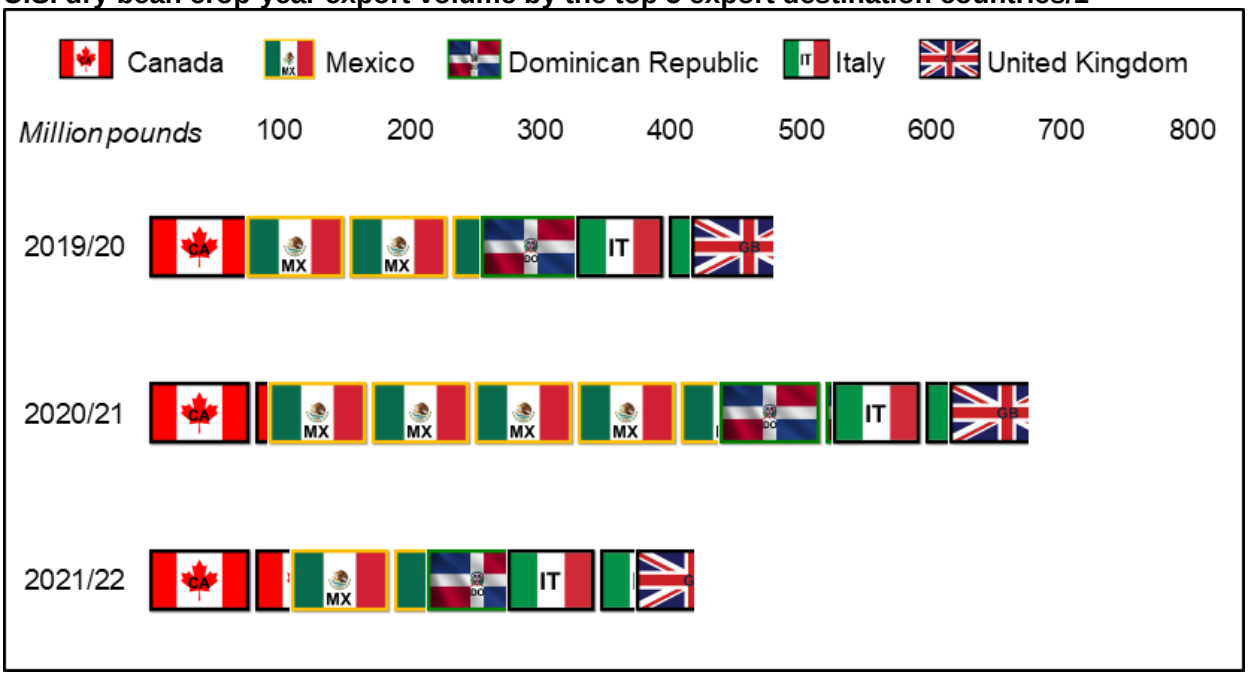
Dry Bean Exports Down, Imports Up; United States Still Net Exporter

The 2021/22 dry bean marketing year runs from September 2021–August 2022. Despite total dry bean export volume dropping in 2021/22 from the previous marketing year by 36 percent from 926 million to 590 million pounds, the United States remains a net exporter of dry beans as imports increased by 5 percent from 309 million to 325 million pounds during that period. The 2022/23 dry bean marketing year is underway; with only 2 months of data available is currently about 5 percent below the previous year during the same period.

- Table 17D. U.S. dry bean crop-year export volume in the appendix provides export statistics by dry bean class and by export destination countries.
- The United States exported a total of 590 million pounds of dry beans to over 80 countries in 2021/22 with over 70 percent of total U.S. exports destined to the top 5 countries—Canada, Mexico, Italy, Dominican Republic, and the United Kingdom (figure 11).

Figure 11

U.S. dry bean crop-year export volume by the top 5 export destination countries/1



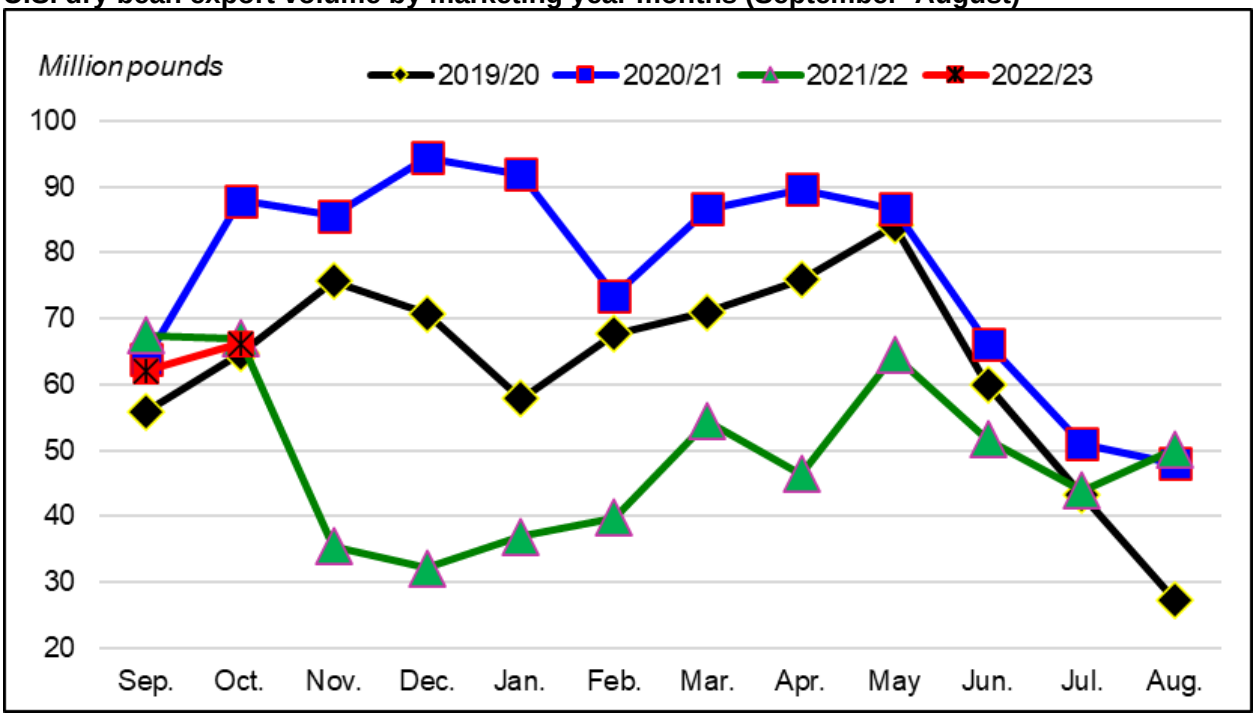
Source: USDA, Economic Research Service using data from the U.S. Department of Commerce, Bureau of the Census.

1/ Only includes U.S. export volume for the top 5 destination countries.

- The decline in exports are mostly kidney beans (dark red, light red, and generic kidney beans) which declined from 303 million to 184 million pounds in 2021/22.
- A few bean classes reported gains over 90 percent (cranberry up by 264 percent and the generic bean class group which includes pigeon peas, Bambara, broad and horse beans, and other unclassified dry beans (beans, other) up by 96 percent. However, cranberry and the other beans classes' combined proportion are only 10 percent of total dry bean export volume, whereas kidney beans represent 31 percent (table 17D).
- Trade data for the 2022/23 dry bean marketing year is only available for the first 2 months of the season through October 2022. Export volume is slightly below 2021/22 volume levels but above 2019/20 for the same 2 months (table 17D and figure 12).

Figure 12

U.S. dry bean export volume by marketing year months (September–August)

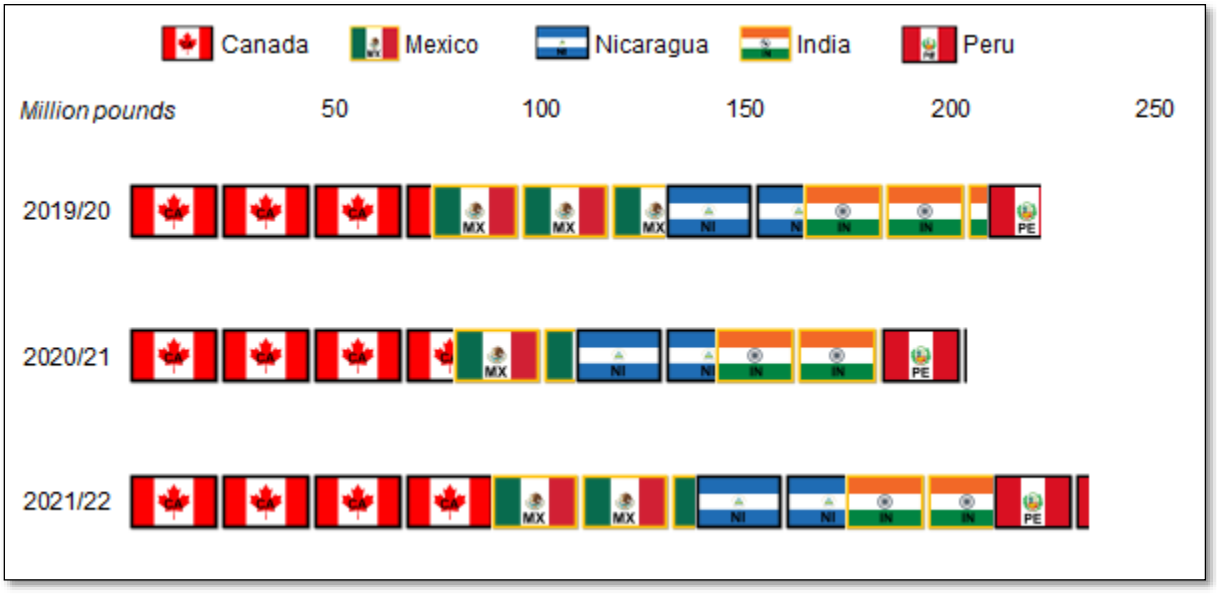


Source: USDA, Economic Research Service using data from the U.S. Department of Commerce, Bureau of the Census.

- Table 18D. U.S. dry bean crop-year import volume in the appendix provides import statistics by dry bean class and by import origination countries.

Figure 13

U.S. dry bean crop-year import volume by top 5 origination countries/1



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

1/ Only includes U.S. import volume for the top 5 origination countries.

- The United States imported 325 million pounds of dry beans from over 60 countries in 2021/22 with over 70 percent of total U.S. imports originating from Canada, Mexico, Nicaragua, India, and Peru (figure 13).

The top five bean classes imported in the 2021/22 marketing year were the generic bean classes, mung, all types of kidneys, pintos, and black beans. Despite a 13 percent decrease in mung bean imports in the 2021/22 marketing year from the previous year, U.S. imports of mung beans remain the most predominant class of dry bean imported after the generic bean classes.

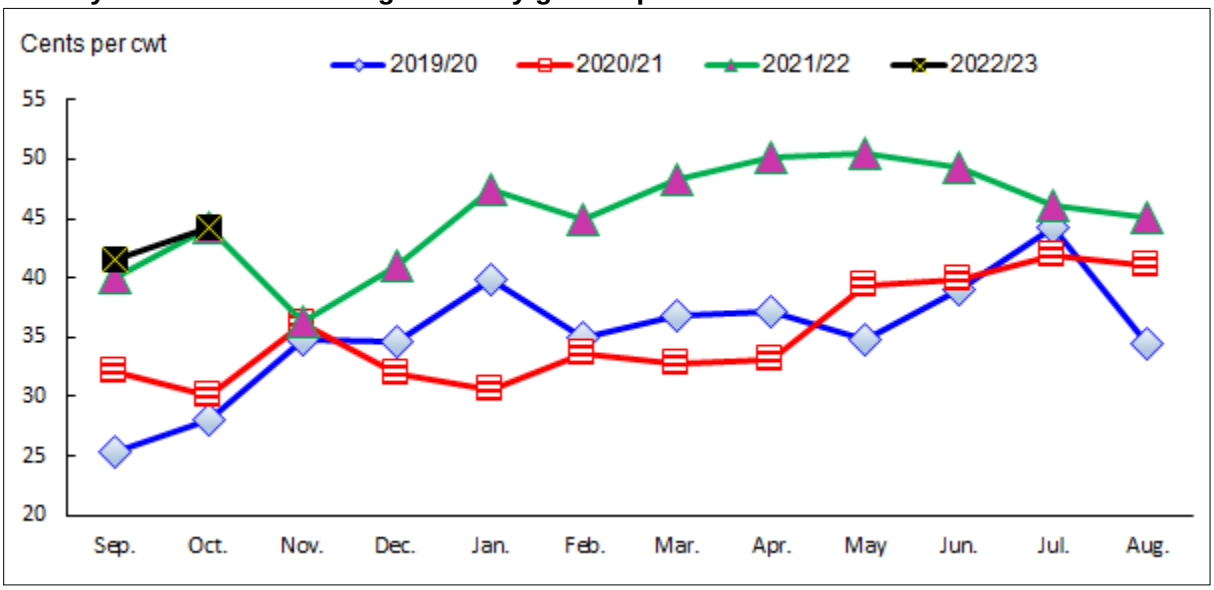
Canada and Mexico were also the top sources of U.S. dry bean imports in the 2021/22 marketing year. Significant increases in imports from Canada (up 11 percent from 79 million to 88 million pounds) and Mexico (up 67 percent from 30 million to 50 million pounds) outweighed reductions in volume from other countries (India and China) in comparison to the previous crop year. Imports from India in 2021/22 were down 11 percent from 40 million to 36 million pounds, while volume from China (Mainland) was down 48 percent from 30 million to 16 million pounds from the previous crop year (table 18D).

Dry Bean Price Changes Modest Going Forward

Dry bean prices are typically positively correlated with projected corn and soybean prices as they compete for acreage. Production, yield, and world demand also influence markets for each dry bean class and characterize the dry bean price outlook. Dry bean prices for the 2021/22 marketing year were considerably higher than the previous 2 years average price levels (figure 14).

Figure 14

U.S. dry edible beans: Average monthly grower prices received



Note: Cwt = hundredweight, a unit of measure equal to 100 pounds.

Source: USDA, Economic Research Service calculations using National Agricultural Statistics Service, *Agricultural Prices.*

USDA, ERS forecasts modest price changes in comparison to the large gains achieved in 2021/22, with marginal declines for pinto and black beans and slightly higher prices for navy beans in the 2022/23 market year. Assuming average soil moisture levels and a resultant return to trend yields, increased production will boost stocks and weaken dry bean price prospects coming into the 2023/24 marketing year.

Dry Edible Peas, Lentils, and Chickpeas

Production Increases Despite Planted Area Declines

The USDA, NASS September *Crop Production* reported reduced planted acres of dry edible peas, lentils, and chickpeas in 2022 by 6 percent, 5 percent, and 2 percent respectively, from the previous year. The reduction in planted acreage was more than offset by higher yields ranging from 27 percent to 42 percent which resulted in production increases of 29 percent to 11.1 million cwt (hundredweight) for dry peas, 46 percent to 4.9 million cwt for lentils, and up by 37 percent to 3.9 million cwt for all chickpeas (table 3).

Table 3
Dry peas: Area, yield, production, crop value, and price, 2018–22/1

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*
2018	857	808	15,929	163.96	19.7	10.50
2019	1,102	1,046	22,210	210.45	21.2	9.64
2020	998	970	21,629	212.54	22.3	9.84
2021	977	834	8,549	152.40	10.3	16.20
2022/1	914	863	11,050	198.90	12.8	18.00

Note: Cwt = hundredweight, a unit of measure equal to 100 pounds.

1/ Crop value and season average price for 2022 are USDA, Economic Research Service forecasts.

Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

Dry Pea, Lentil, and Chickpea Price Volatility

Price spikes and volatility for dry peas, lentils, and chickpeas were affected by a variety of factors such as the decline in production driven by low yields marked by poor weather, lower global supplies, reduced area as producers transition to produce more competing crops such as wheat, soybeans, and corn, in addition to impacts from the Ukraine-Russia conflict. USDA, NASS nominal prices reported annually broke records over the past 35 years for both peas and lentils in 2021. Dry peas increased by 65 percent from $9.84 to $16.20 per cwt while lentils rose 96 percent from $18.20 to $35.60 per cwt from the previous year (table 4).

Table 4

Lentils: Area, yield, production, crop value, and price, 2018–22/1

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*
2018	780	718	8,408	131.74	11.7	17.70
2019	486	425	5,311	83.57	12.5	15.70
2020	523	510	7,398	135.04	14.5	18.20
2021	708	549	3,327	110.93	6.1	35.60
2022/1	670	633	4,851	179.49	7.7	37.00

Note: Cwt = hundredweight, a unit of measure equal to 100 pounds.

1/ Crop value and season average price for 2022 are USDA, Economic Research Agency forecasts.

Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

Chickpea prices also rose significantly (up 63 percent from $22.20 to $36.20 per cwt) in 2021 but the nominal all chickpea (small and large) price received was second to the 2011 all chickpea price of $37.30 per cwt. USDA, ERS forecasts 2022 crop values to rise buoyed mostly by increased production driven by increased yield. Chickpea prices are expected to decline marginally as large chickpeas are trending down while small chickpeas remain at similarly high levels. Dry pea grower price projections are expected to rise modestly in comparison to a year earlier as wheat forecasts are expected to also continue to climb, and wheat typically competes for acreage and is positively correlated with peas and lentils.

Table 5

Chickpeas, all: Area, yield, production, crop value, and price, 2018–22

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*
2018	863	847	12,787	281.45	15.1	21.20
2019	453	405	6,256	116.29	15.5	16.50
2020	254	251	4,087	88.57	16.3	22.20
2021	369	351	2,861	104.18	8.2	36.20
2022/1	360	350	3,933	141.59	11.2	36.00

Note: Cwt = hundredweight, a unit of measure equal to 100 pounds.

1/ Crop value and season average price for 2022 are USDA, Economic Research Service forecasts.

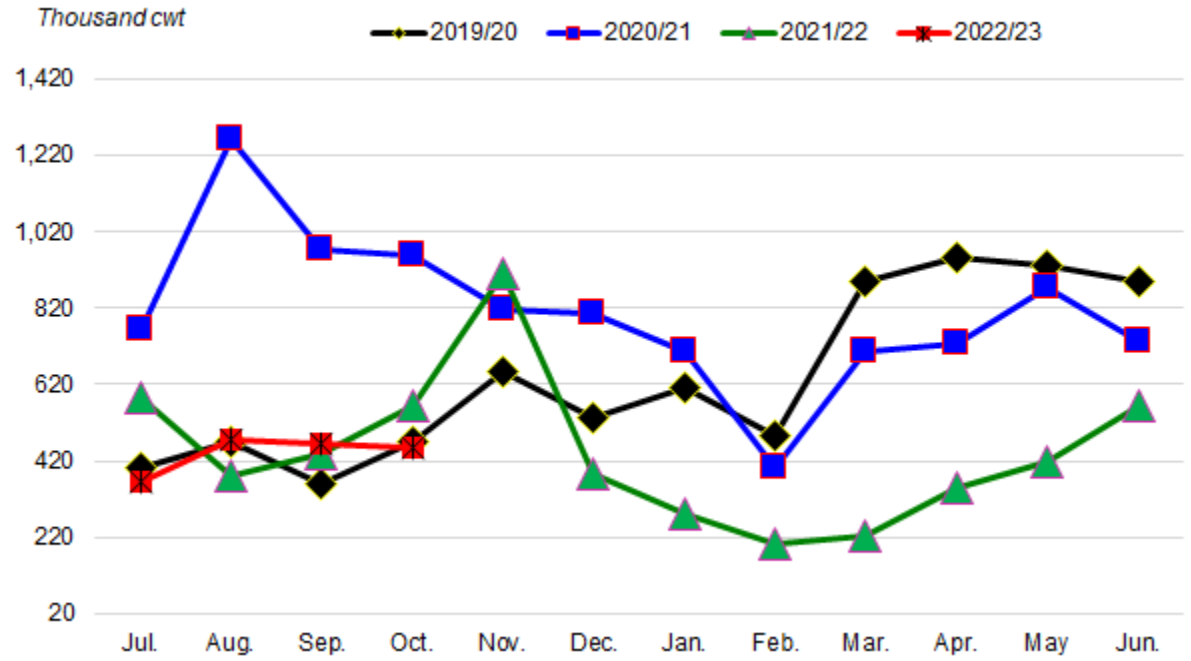
Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

Exports Down, Imports Up for Dry Peas, Lentils, and Chickpeas

The combined U.S. export volume in 2021/22 for chickpeas, dry peas, and lentils was down by 50 percent from 19.2 million cwt to 9.7 million cwt. Most of the decline in exports in 2021/22 was driven by dry peas which represent over half of the total combined exports. Dry pea exports were down 46 percent from 9.7 million cwt to 5.3 million cwt while lentils, which represent more

than a third of total exports, were down 52 percent from 6.7 million cwt to 3.2 million cwt. The 2021/22 decline in dry pea exports as influenced by a 76 percent reduction in yellow pea exports from 3.1 million cwt to 0.7 million cwt from the previous year (table 19E). The top 5 export destination countries for dry peas in 2021/22 were Ethiopia, Canada, Yemen (Sana), Philippines, and Djibouti. The United States increased exports to Ethiopia by 92 percent in 2021/22 from the previous year while dry pea exports to the other destination countries declined, driven largely by a reduction of dry pea exports to Canada by more than half.

Figure 15
U.S. dry pea export volume by marketing year months (July–June)



Note: Cwt = hundredweight which equals 100 pounds.

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

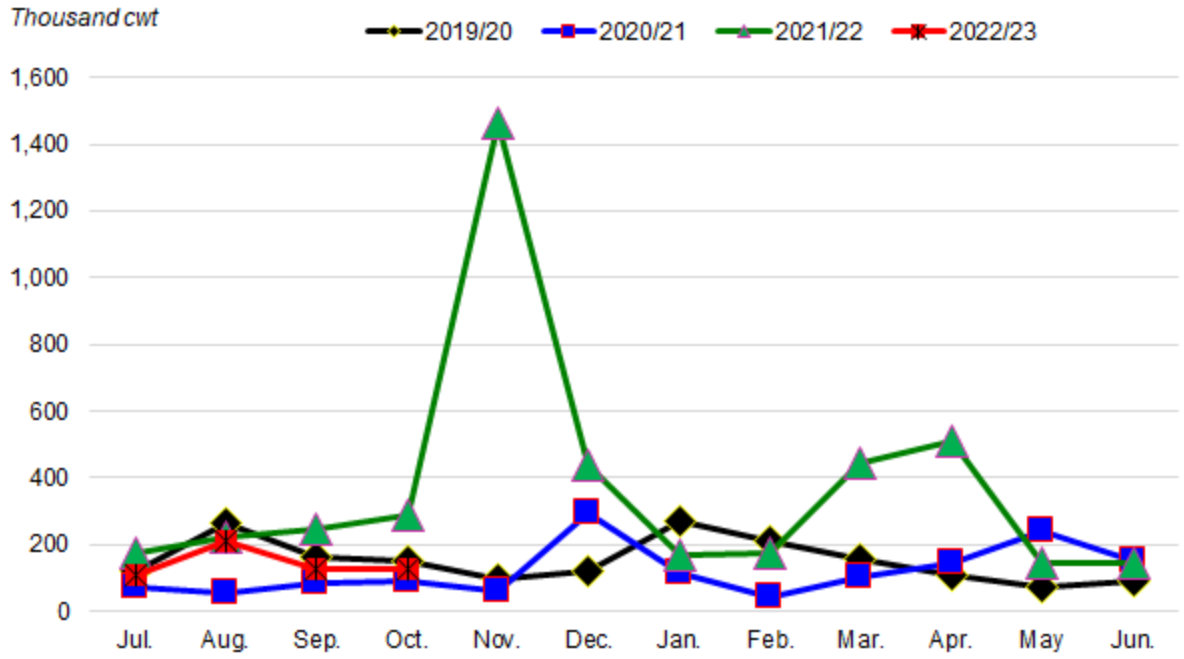
Dry Pea, Lentil, and Chickpea Imports

The volume of U.S. imports in 2021/22 for dry peas, lentils, and chickpeas combined was up by almost 100 percent from 3.4 million cwt to 6.8 million cwt from the previous year (table 20E). The increase in imports was a combined contribution of dry peas (up over 200 percent from 1.5 million cwt to 4.4 million cwt), lentils (up by 30 percent from 0.9 million cwt to 1.2 million cwt), and chickpeas (up by 15 percent from 1.0 million cwt to 1.2 million cwt).

The originating countries supplying the largest volume of dry peas into the United States in 2021/22 were Canada (2.99 million cwt), Ukraine (0.45 million cwt), Turkey (0.39 million cwt), and Russia (0.37 million cwt) which combined represented 95 percent of the total dry pea

imports. The largest month-to-month spike in dry pea imports over the past 3 marketing years occurred in November 2021 attributed to the large overall increase in imports in the 2021/22 dry pea marketing year (table 6). The large influx of dry bean imports in November 2021 of almost 1.5 million cwt originated largely from Canada (0.9 million cwt) and Ukraine 0.5 million cwt. The 2021/22 dry pea import volume from Ukraine is particularly interesting as all the dry peas imported were yellow peas given minimal imports of dry peas, lentils, and chickpeas imported into the United States the previous marketing year. According to a Global Agricultural Information Network 2014 report from the USDA, Foreign Agriculture Service on legume production and consumption patterns in Ukraine, yellow peas are traditionally considered a low-cost, low-quality food ingredient mainly popular with lower income consumers.

Table 6
U.S. dry pea import volume by marketing year months (July–June)



Note: Cwt = hundredweight which equals 100 pounds.
Source: USDA, Economic Research Service using data from the U.S. Department of Commerce, Bureau of the Census.

Special Article

U.S. Organic Mushroom Industry Overview

Catharine Weber, Sharon Raszap Skorbiansky, and Wilma V. Davis

Mushrooms, often viewed as a healthful food product, have seen increased demand in recent years. Organic mushrooms—grown in accordance with the standards set forth by USDA, Agricultural Marketing Service, National Organic Program (NOP)—have captured over 10 percent of the total mushroom market value. Organic mushrooms have exhibited upward trends in production and sales in recent years, both in fresh form and as an ingredient in powder and capsule supplements (Organic Trade Association, 2022).

Despite being a fungus and not a plant, organic mushrooms must follow NOP's organic crop production standards. The standards require that no prohibited substances be applied to land for at least 3 years prior to harvesting; attention to soil fertility and crop nutrients; and control of pests, weeds, and disease primarily via physical, mechanical, and biological means. The main difference between conventional and organic mushroom production is that organic operations are typically not allowed to use synthetic substances in production. For example, organic operations cannot put synthetic fertilizer in the substrate (the surface material mushrooms are grown on) and have stricter requirements for inputs like gypsum and lime.

Organic Mushrooms are Predominantly Grown in California and Pennsylvania

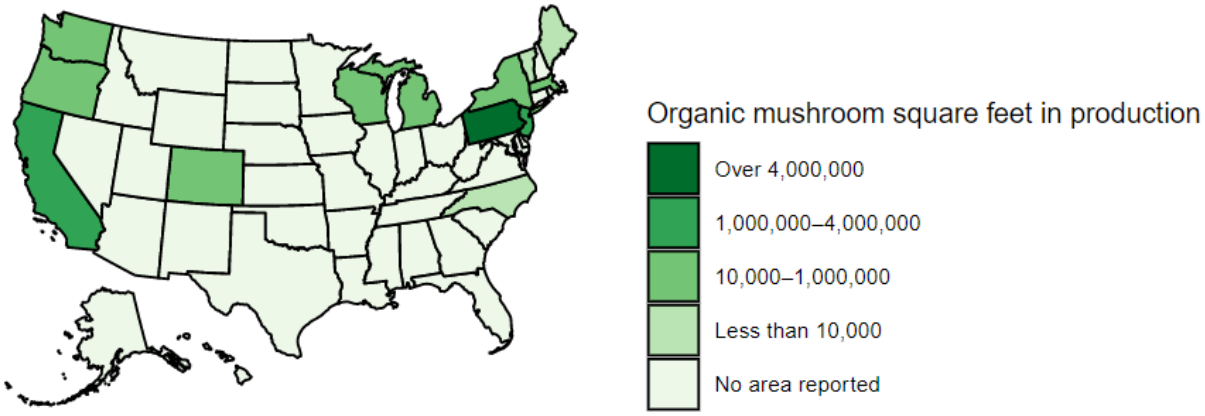
In the conventional mushroom sector, Pennsylvania accounted for almost 75 percent of the area in Agaricus[1] mushroom production in the 2021/22 crop year, and a sizeable portion of specialty mushrooms (e.g., shitake, oyster). California ranked second in production. Similar to the conventional market, the lion's share of organic mushrooms is predominantly grown in Pennsylvania and California. The most recent NASS Organic Survey reported that Pennsylvania had 4.1 million square feet of organic mushroom production in 2019 (about 40 percent of total

[1] Agaricus mushrooms are the most produced and consumed types of mushrooms and include white buttons, creminis, and portabellas.

U.S. square footage). California accounted for 3.1 million square feet of organic mushroom production (figure 1SA).

Agricultural production for a particular commodity is often concentrated in geographic locations most suited for production. However, mushrooms are generally produced indoors, so akin to greenhouse vegetable production, natural soil and temperature conditions may not be the main drivers of geographic concentration. Still, commercial mushroom production requires specialized knowledge and housing equipped with proper ventilation systems. Mushroom production in Pennsylvania has been ongoing since the 1880s and increased in the 1920s.

Figure 1SA
Square feet in organic mushroom production, 2019



Note: "No area reported" includes States not surveyed and States with withheld information to avoid disclosing data for individual farms.
Source: USDA, Economic Research Service using data from the USDA, National Agricultural Statistics Service Organic Survey, 2019.

Aside from the historical relevance of organic mushroom production in Pennsylvania, producers may also enjoy proximity to other organic production systems. Mushroom production relies on hay, straw-bedded horse manure, and poultry manure as a substrate (Beyer, 2017). Pennsylvania is the State with the largest organic chicken layer inventory (about 12 percent of total inventory in 2019), and California ranks third at 8 percent of total inventory.

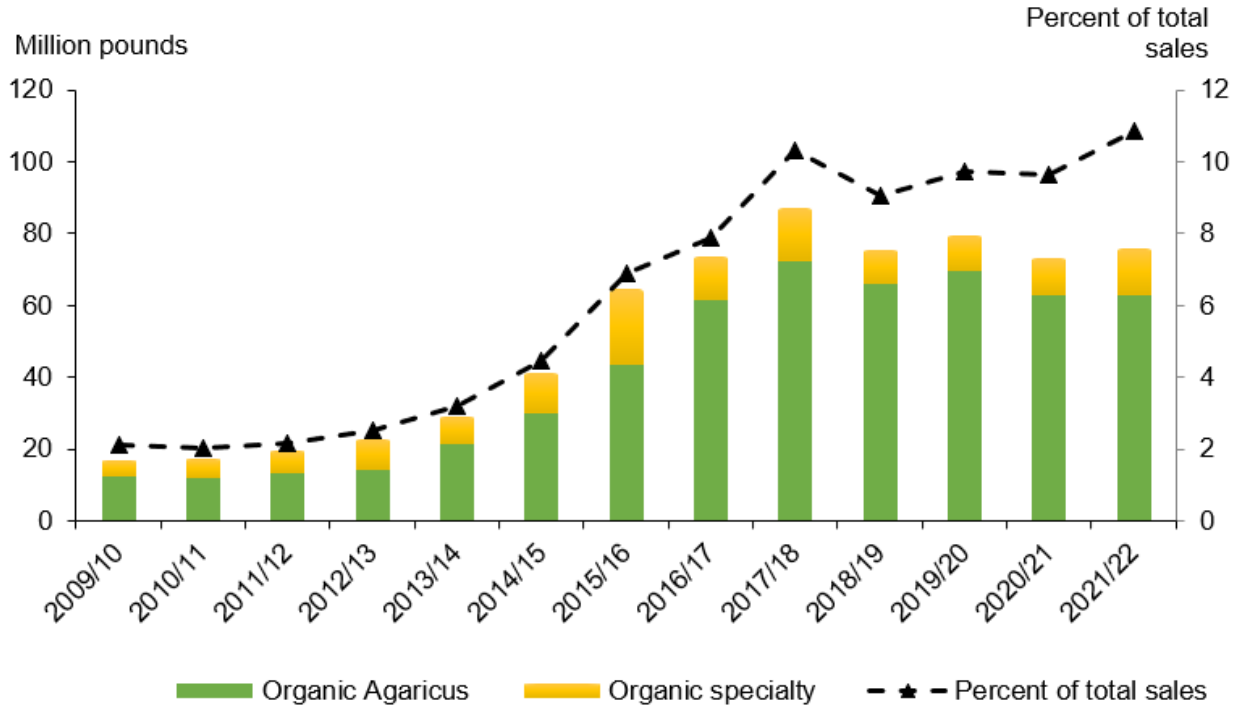
Growers Make Room for Organic Mushrooms

Between the 2009/10 and 2021/22 marketing years (July through June), certified organic mushroom grower sales volume went from 2 percent to 11 percent of total mushroom sales volume (figure 2SA). Like conventional mushroom production, Agaricus mushrooms make up the majority of organic sales volume, accounting for 82 to 88 percent of organic mushroom volume over the last 5 years. Although specialty organic mushrooms represent a smaller

percentage of organic grower sales volume, it has represented more than 50 percent of total specialty mushroom sales volume in 4 of the last 10 years.

Figure 2SA

Organic mushroom grower sales volume, 2009/10–2021/22



Note: Mushroom marketing year is July through June.
Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, *Mushroom* (various issues).

While domestic organic mushroom grower sales volume has increased over the last decade, USDA, National Agricultural Statistics Service data shows annual volume fell short in the years following the 2017/18 record high of 87.4 million pounds (figure 2SA). Several factors likely influence the plateaued trend in organic mushroom volume. Total domestic mushroom grower sales volume experienced year-over-year declines since 2015/16 due in part to labor supply challenges of year-round production and market disruptions caused by the Coronavirus (COVID-19) pandemic. In recent years, imports of fresh mushrooms also account for an increasing share of available domestic supply, but there is currently no Harmonized System (HS) code available to differentiate organic and conventional fresh mushroom imports. Organic mushrooms are therefore grouped together with conventional, which are largely imported from Canada. For example, in 2021/22, the United States imported a record 204 million pounds of fresh mushrooms, which represented almost 25 percent of available domestic supply (i.e., domestic production plus imports, minus exports).

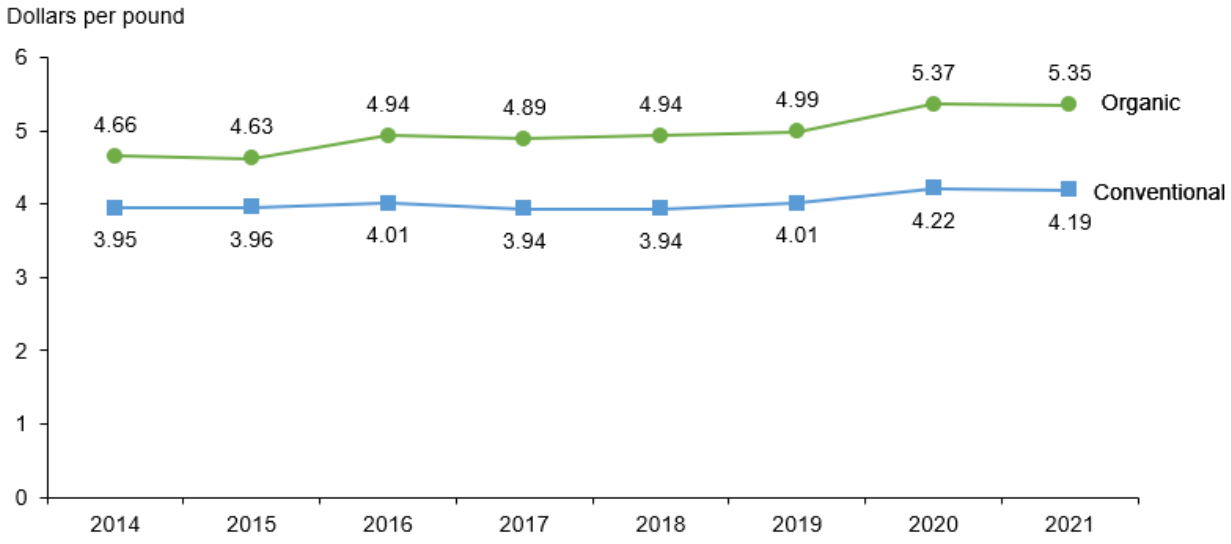
Organic Retail Sales and Price Premiums

Organic produce sales have steadily trended upward for the past two decades, and retail sales were an estimated $19.2 billion in 2021. However, 2021 was the slowest year for growth in organic produce sales over the last two decades (Nutrition Business Journal, 2022). In comparison, the value of sales of organic mushrooms grew from 2017 to 2020, reaching $168 million (The Mushroom Council, 2022a). Mushroom prices were affected by inflationary pressures such as labor market shocks and supply chain constraints, not unlike other products in the produce aisle. While the price of mushrooms increased, the value of organic mushroom sales in 2021 decreased to $159 million. However, the value of organic retail sales shortfalls was less than those for conventional, with organic declining by 5.4 percent and conventional by 6.1 percent (The Mushroom Council, 2022b).

Despite the drop in sales, the share of organic mushrooms in total retail mushroom sales continues to grow. Organic mushroom market share in terms of value grew from 10.8 to 12.4 percent from 2017 to 2021. Market share of organic specialty crops differs greatly across commodities. For example, Carlson and Jaenicke (2016) found less than 2 percent of potato sales were organic, and less than 1 percent of coffee (by weight) was organic. On the other hand, some organic fruits and vegetables make up more than 10 percent of their respective total market share—for example, apples, berries, celery, and lettuce, while organic kale makes up almost 40 percent of the retail kale market.

Figure 3SA

U.S. organic and conventional fresh mushroom retail price, 2014–2021



Source: USDA, Economic Research Service using data from The Mushroom Council.

The premium for organic mushrooms has increased in recent years from $0.71 per pound to $1.16 per pound, or from an 18-percent price premium to a 28-percent price premium (The Mushroom Council, 2022b) (figure 3SA). Carlson and Jaenicke (2016) analyzed 17 products from 2004 and 2010 and found that products with lower premiums (the difference between the organic and conventional price) were associated with larger market shares which may be one reason for the increased popularity of organic fungi. The current mushroom premiums are similar to other organic products with a relatively high market share. For example, organic carrots had a 27 percent premium and 15 percent market share by 2010. On the other hand, organic celery had a 44 percent premium and a 2 percent market share.

Looking Forward

United States growers have increased organic mushroom production to meet demand. Led by Pennsylvania and California, organic mushrooms accounted for 11 percent (76 million pounds) of total mushroom grower sales volume in 2021/22. However, organic production volume has plateaued in the last 4 years, with market share of total mushroom sales volume at the producer level remaining stable. Inflation and supply chain disruptions in 2021 negatively affected the upward trend in organic mushroom retail sales value but fell by a smaller margin than conventional mushrooms. Overall, demand for organic mushrooms in the past few years has proven resilient, but domestic growers will continue to face challenges with labor, inflation, and potential import competition in the near term.

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Appendix A: Fresh Vegetables

Return to fresh vegetable section

Table 7A. U.S. fresh-market organic and conventional vegetable f.o.b. prices per pound, 2021–22

	2021 October–November		2022 October–November		2021–2022 Change[1]	
Selected commodities	Conventional	Organic	Conventional	Organic	Conventional	Organic
	Dollars per pound[2]				*Percent*	
Broccoli, crown cut	1.41	1.75	1.72	2.59	22	49
Broccoli, unspecified	1.05	1.25	1.28	2.09	22	67
Cabbage, red	0.38	0.62	0.49	0.62	28	0
Cabbage, round green	0.32	0.63	0.28	0.63	-14	0
Carrots, baby peeled	0.63	0.91	0.66	0.92	4	1
Carrots, unspecified	0.33	0.57	0.43	0.65	30	14
Cauliflower, white	0.63	0.83	1.85	1.99	193	140
Celery, hearts	0.64	0.76	0.89	1.01	40	33
Celery, unspecified	0.21	0.32	0.31	0.48	46	50
Lettuce, green leaf	0.57	0.73	1.76	1.49	209	104
Lettuce, iceberg	0.73	0.42	1.47	0.57	101	36
Lettuce, romaine, hearts	1.43	1.28	3.33	2.99	134	133
Lettuce, romaine, unspecified	0.65	0.74	1.67	1.41	157	90
Onions dry, yellow	0.26	NA	0.28	NA	9	NA
Peppers, bell, green	0.65	NA	0.71	NA	9	NA
Spinach, flat	0.85	1.08	0.94	1.46	10	36
Sweet potatoes, Japanese	0.81	NA	0.96	1.18	18	NA
Sweet potatoes, orange	0.36	0.95	0.39	1.09	8	14
Sweet potatoes, red	0.44	0.95	0.58	1.09	34	14
Sweet potatoes, white	0.52	1.03	0.68	1.09	30	6
Tomatoes, grape	1.54	1.95	2.28	3.37	48	73

Note: NA = Not available.
1/ Change in average shipping point prices for weeks 40-47 from 2021 to 2022.
2/ Per pound weight conversions based on container approximate net weights from USDA, Agricultural Marketing Service Fresh Fruit and Vegetable Shipments, 2021.

Fresh Vegetables (continued)

Return to fresh vegetable section

Table 8A. Selected U.S. fresh market shipment volumes, January–November

Selected commodities	2021		2022		Change[2]	
	Domestic	Total	Domestic	Total	Domestic	Total
	Thousand hundredweight[1]				*Percent*	
Artichokes	715	761	692	750	-3.2	-1.4
Beans, snap	1,295	3,324	1,211	3,335	-6.5	0.3
Broccoli	6,073	11,864	5,916	11,718	-2.6	-1.2
Brussels sprouts	1,109	2,699	909	2,515	-18	-6.8
Cabbage, Chinese	466	597	404	630	-13.3	5.5
Cabbage, multiple varieties	6,846	9,957	7,511	10,529	9.7	5.7
Cauliflower	4,970	6,147	4,705	6,137	-5.3	-0.2
Celery (hearts/unspecified)	14,802	16,828	13,243	15,337	-10.5	-8.9
Cucumbers	2,631	24,181	2,096	24,362	-20.3	0.7
Greens, multiple varieties	2,073	2,133	2,418	2,610	16.6	22.4
Lettuce, iceberg	21,515	23,655	20,185	22,592	-6.2	-4.5
Lettuce, romaine	18,973	19,014	19,230	19,237	1.4	1.2
Lettuce, unspecified	2,209	9,233	2,067	8,448	-6.4	-8.5
Onions, dry (multiple varieties)	40,118	49,960	33,502	41,946	-16.5	-16
Peppers, bell	5,075	19,287	5,138	20,032	1.2	3.9
Peppers, chile (multiple varieties)	164	13,118	217	10,819	32.3	-17.5
Spinach	1,053	1,562	1,171	1,676	11.2	7.3
Squash (multiple varieties)	1,318	11,212	1,190	10,064	-9.7	-10.2
Sweet corn	6,974	8,672	5,803	7,431	-16.8	-14.3
Tomatoes (cherry/grape)	1,159	3,808	941	4,672	-18.8	22.7
Tomatoes (multiple varieties)	10,483	29,066	9,682	25,804	-7.6	-11.2
Tomatoes (plum/roma)	3,139	20,104	2,830	21,545	-9.8	7.2
Selected total	**153,160**	**287,182**	**141,061**	**272,189**	**-7.9**	**-5.2**

1/ Thousand hundredweight = 100,000 pounds.

2/ Change from YTD 2021–22.

Source: USDA, Economic Research Service using data from USDA, Agricultural Marketing Service, *Fruit and Vegetable Market News, Movement Reports*.

Fresh Vegetables (continued)

Return to fresh vegetable section

Table 9A. Selected fresh vegetables: U.S. consumer and producer price indices, 2021–22/1

Price Indices - Items	2021 Q1–3	2021 Q4	2022 Q1–3	2022 Q4F	Change 2021–22/2 Q1–3	Change 2021–22/2 Q4F
	Index				*Percent*	
Consumer Price Indices (CPI, 1982–84 = 100)						
Food at home	256.4	266.5	285.1	299	11.2	12
Food away from home	304.6	315.5	327.1	342	7.4	8
Fresh vegetables	347.8	355.4	369.6	387	6.3	9
Lettuce, all	343.0	369.6	379.8	439	10.7	19
Potatoes	380.3	368.2	413.2	423	8.7	15
Prepared salads/3	132.8	140.4	147.9	155	11.4	11
Tomatoes	348.6	357.9	350.3	369	0.5	3
Producer Price Indices (PPI, 1982 = 100)						
Fresh vegetables/4	207.0	327.2	278.9	610	34.7	87
Cabbage	281.2	279.5	302.2	324	7.5	16
Carrots	197.9	192.6	221.9	246	12.1	28
Lettuce	209.9	509.7	358.7	1,381	70.9	171
Onions, dry bulb	152.3	216.0	292.4	224	91.9	4
Potatoes	107.8	135.3	177.5	193	64.7	42
Sweet corn	207.7	287.2	202.9	428	-2.3	49
Tomatoes	256.7	355.9	282.0	633	9.9	78

Note: F = USDA, Economic Research Service forecast. Q = calendar quarter.
1/ Not seasonally adjusted.
2/ Percent change in a simple average of actual quarters 1-3 in 2022 and forecasted fourth quarter 2022 compared to 2021.
3/ Index base is 2007 = 100.
4/ Excluding potatoes.
Source: USDA, Economic Research Service calculations using U.S. Department of Labor, Bureau of Labor Statistics data.

Fresh Vegetables (continued)

Return to fresh vegetable section

Table 10A. Selected fresh market vegetable trade volume, 2019–22/1

Commodities	2019 Annual	2020 Annual	2021 Annual	January – October 2021	January – October 2022	Change 2021–22
				----- Million pounds -----		-- Percent --
Imports, fresh:						
Tomatoes, all	4,023	4,053	4,276	3,626	3,601	-0.7
Cucumbers, all	2,144	2,193	2,315	1,901	2,010	5.7
Peppers, bell	1,612	1,667	1,843	1,530	1,500	-2.0
Onions and shallots	1,198	1,234	1,469	1,218	1,263	3.7
Squash, all	1,224	1,221	1,232	976	910	-6.8
Peppers, chile	956	970	1,098	915	846	-7.6
Lettuce, all	789	820	930	753	850	12.8
Asparagus, all	572	586	665	564	492	-12.9
Broccoli, all	493	542	553	438	459	4.9
Carrots, all	504	466	527	429	493	14.9
Mushrooms, all	168	179	195	159	168	5.5
Sweet corn, all	127	160	194	157	169	7.4
Sweet potatoes, all	25	20	85	75	139	85.2
Vegetables, other	3,021	3,128	3,273	2,717	2,801	3.1
Subtotal, excluding potatoes	**16,856**	**17,238**	**18,656**	**15,460**	**15,700**	**1.6**
Potatoes, all	763	927	892	711	965	35.7
Total	**17,619**	**18,165**	**19,548**	**16,171**	**16,666**	**3.1**
Exports, fresh:						
Lettuce, all	723	706	740	617	595	-3.4
Onions and shallots	810	742	695	578	513	-11.3
Sweet potatoes, all	571	576	590	498	436	-12.5
Carrots, all	207	208	209	182	164	-9.8
Broccoli, all	134	132	155	129	30	-76.4
Tomatoes, all	173	145	166	130	147	12.7
Sweet corn, all	126	134	147	139	118	-14.8
Peppers, all	104	99	104	83	78	-6.5
Asparagus, all	52	36	58	52	55	5.3
Cucumbers, all	32	32	50	39	26	-34.2
Mushrooms, all	17	18	16	14	10	-26.0
Vegetables, other	1,220	1,216	1,258	1,016	1,021	0.4
Subtotal, excluding potatoes	**4,169**	**4,044**	**4,188**	**3,478**	**3,193**	**-8.2**
Potatoes, all	1,204	1,108	1,316	1,137	1,010	-11.2
Total	**5,373**	**5,152**	**5,504**	**4,615**	**4,203**	**-8.9**

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

Fresh Vegetables (continued)

Return to fresh vegetable section

Table 11A. Selected U.S. organic vegetable and pulses imports and exports, January–October

Trade	Commodity	2019	2020	2021	2022	Change 2021–22[1]
		Million pounds				*Percent*
Imports	Bell pepper	5.3	9	13.9	17	22.3
	Bell pepper, greenhouse	54.8	54.8	62.5	64.5	3.2
	Dried green lentils	2.3	1.9	4.3	4.5	4.7
	Dried yellow peas	31.7	28.5	23.3	32	37.3
	Garlic	2.8	5.5	3.9	4.4	12.8
	Squash	46	39.3	40.2	37.6	-6.5
	Tomatoes, cherry[2]	NA	NA	NA	4.1	NA
	Tomatoes, grape[2]	NA	NA	NA	34.8	NA
	Tomatoes, greenhouse[2]	NA	NA	NA	92.9	NA
	Tomatoes, other[2]	NA	NA	NA	1.6	NA
Exports	Broccoli	10.1	11.2	11.6	4.3	-62.9
	Carrots	44.7	49	44	38.9	-11.6
	Cauliflower	22.1	23.1	23.5	22	-6.4
	Celery	16	19	20.4	16.6	-18.6
	Head lettuce	16.6	14.6	7.6	3.3	-56.6
	Potatoes	6.9	9.4	12.5	19.6	56.8
	Romaine lettuce	23.7	33.8	41.8	46	10
	Salad mix	11.3	11.5	13.6	17.4	27.9
	Spinach	22	25.5	27.1	32.5	19.9
	Tomatoes, cherry	1.2	4	3.2	1.4	-56.2
	Tomatoes, other	4	3.3	4.6	3.3	-28.3
	Tomatoes, roma	10	1.6	1.5	3	100

NA = Not available.
1/ Change from YTD 2021–22.
2/ Organic tomato import data available starting in July 2022.
Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census.

Appendix B: Processing Vegetables

Return to processing section

Table 12B. Frozen vegetables: U.S. cold storage holdings for selected months, 2021–22/1

	2021		2022		2022 Change from:/2	
Commodities	July	October	July	October	Jul. 2021	Oct. 2021
	Thousand pounds				*Percent*	
Asparagus	8,470	6,412	10,803	8,801	27.5	37.3
Beans, lima	5,626	33,454	11,704	28,216	108.0	-15.7
Beans, snap/green	139,272	237,413	124,906	263,200	-10.3	10.9
Broccoli, all	78,446	68,353	67,181	61,957	-14.4	-9.4
Brussels sprouts	12,879	11,711	12,902	14,613	0.2	24.8
Carrots	146,089	182,713	154,894	181,413	6.0	-0.7
Cauliflower	29,242	25,854	22,468	22,422	-23.2	-13.3
Greens, Southern	18,428	19,665	14,233	16,459	-22.8	-16.3
Okra	29,431	39,815	28,371	38,100	-3.6	-4.3
Onions, all	66,844	54,307	52,341	55,551	-21.7	2.3
Peas, blackeye	2,318	2,118	1,498	1,275	-35.4	-39.8
Peas, green	320,166	263,263	334,539	260,467	4.5	-1.1
Potatoes, french fried	885,044	948,878	978,026	1,025,149	10.5	8.0
Potatoes, other	195,464	214,108	240,153	228,850	22.9	6.9
Spinach	62,678	48,225	50,376	35,643	-19.6	-26.1
Squash	38,349	57,402	38,775	56,741	1.1	-1.2
Sweet corn, cob	91,040	357,651	164,793	367,908	81.0	2.9
Sweet corn, cut	275,274	722,281	260,024	688,178	-5.5	-4.7
Vegetables, mixed	68,411	63,722	55,348	59,198	-19.1	-7.1
Vegetables, other	323,858	419,162	307,282	384,190	-5.1	-8.3
Total	**2,797,329**	**3,776,507**	**2,930,617**	**3,798,331**	**4.8**	**0.6**

1/ Reported stocks in cold storage at the end of the selected month.
2/ Percentage change in September stocks from July and the previous September.
Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service, *Cold Storage*.

Processing Vegetables (continued)

Return to processing section

Table 13B. Selected processed vegetables: U.S. consumer and producer price indices, 2021–22/1

Price Indices - Items	2021		2022		Change 2021–22/2	
	Q1–3	Q4	Q1–3	Q4F	Q1–3	Q4F
	Index				*Percent*	
Consumer Price Indices (CPI, 12/1997 = 100)						
Processed fruits and vegetables	165.6	168.1	183.4	194	10.7	16
Canned vegetables	186.6	189.9	209.9	222	12.5	17
Frozen vegetables/3	207.2	208.7	225.7	244	8.9	17
Dry beans, peas, lentils	195.4	202.4	215.5	221	10.3	9
Olives, pickles, relishes	149.5	156.1	167.4	181	12.0	16
Producer Price Indices for selected processed vegetables (PPI, 1982 = 100)						
Canned vegetables and juices	187.0	194.4	213.6	240	14.2	23
Tomato catsup and sauces/4	163.3	169.9	186.3	205	14.1	21
Other canned vegetables/4	212.5	219.9	238.2	259	12.1	18
Pickles and products	247.0	260.3	292.2	313	18.3	20
Canned dry beans	175.4	177.0	188.4	200	7.4	13
Frozen vegetables (excluding potatoes)/5	161.7	166.9	181.8	195	12.4	17
Frozen vegetables (including potatoes)	220.1	223.5	243.5	278	10.6	25
Frozen potato products/5	210.6	211.1	230.1	275	9.3	30
Dried/dehydrated fruit and vegetables	255.9	256.3	268.5	289	4.9	13

Note: F = USDA, Economic Research Service forecast. Q = calendar quarter.
1/ Not seasonally adjusted.
2/ Percent change in a simple average of actual quarters 1-3 in 2022 and forecasted fourth quarter 2022 compared to 2021.
3/ Index base is 1982–84 = 100.
4/ Index base is 1987 = 100.
5/ Index base is 1990 = 100.
Source: USDA, Economic Research Service calculations using U.S. Department of Labor, Bureau of Labor Statistics data.

Processing Vegetables (continued)

Return to processing section

Table 14B. Selected U.S. processed vegetable trade value, 2019–22

Item	January–October				Change
	2019	2020	2021	2022	2021–22
Imports					*Percent*
Potatoes	1,095	1,208	1,439	1,758	22
Tomatoes (excluding juice)	217	268	293	404	38
Mushrooms	138	135	165	191	16
Juices (including tomato)	58	51	63	81	30
Sweet corn	41	47	68	71	5
Other[1]	2,386	2,628	2,834	3,191	13
Selected total imports	**3,934**	**4,337**	**4,861**	**5,697**	**17**
Exports					
Potatoes	1,386	1,171	1,356	1,447	7
Tomatoes (excluding juice)	519	511	547	559	2
Mushrooms	6	6	5	6	7
Juices (including tomato)	34	33	42	32	-24
Sweet corn	171	150	150	164	9
Other[1]	1,117	993	1,148	1,244	8
Selected total exports	**3,233**	**2,863**	**3,249**	**3,452**	**6**

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

Appendix C: Potatoes

Return to potato section

Table 15C. U.S. potato trade volume (September–August), product-weight[1]

Commodity	2018/19	2019/20	2020/21	2021/22	Percent change 2020/21–2021/22
		----------Million pounds----------			*Percent*
Exports					
Fresh	1,170.9	1,021.6	1,207.6	1,095.8	-9.3
Frozen, all	2,299.1	2,052.3	2,294.0	2,197.4	-4.2
French fries	2,031.1	1,806.7	1,986.4	1,939.3	-2.4
Other frozen	268.0	245.5	307.6	258.1	-16.1
Chips	107.6	99.3	112.1	106.0	-5.4
Dried, flour, and meal	22.2	24.2	23.0	29.4	27.6
Flakes and granules	172.8	183.0	166.7	135.6	-18.7
Other prep/preserved	96.0	96.2	100.1	94.3	-5.9
Seed	62.1	66.1	75.8	92.4	21.9
Starch	17.4	19.5	14.1	14.3	1.9
Total exports	**3,948**	**3,562**	**3,993**	**3,765**	**-5.7**
Imports					
Fresh	739.1	904.2	897.6	1,112.4	23.9
Frozen, all	2,144.6	2,294.9	2,596.2	2,927.4	12.8
French fries	1,875.8	1,894.1	2,177.4	2,443.6	12.2
Other frozen	268.8	400.9	418.8	483.8	15.5
Chips	52.6	57.0	69.8	70.8	1.4
Dried, flour, and meal	14.0	15.4	19.1	15.4	-19.4
Flakes and granules	98.8	118.4	136.5	125.9	-7.7
Other prep/preserved	60.1	65.0	74.9	73.5	-1.8
Seed	154.4	154.9	160.7	130.9	-18.6
Starch	254.1	290.3	323.3	337.2	4.3
Total imports	**3,518**	**3,900**	**4,278**	**4,794**	**12.0**

[1]Total volume is in terms of product weight.
Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census.

Appendix D: Dry beans

Return to dry beans section

Table 16D. Dry bean production by class and State, 2019–22/1

Commodity	2019	2020	2021	2022F	Change 2021–22
Dry bean classes	*Million hundredweight*				*Percent*
Black	5.06	6.56	4.64	5.40	16
Blackeye	0.27	0.36	0.23	0.29	23
Cranberry	0.16	0.13	0.26	0.18	-30
Great Northern	1.03	1.76	1.18	1.32	12
Kidney, dark red	1.44	2.07	1.82	1.77	-3
Kidney, light red	0.91	1.30	1.26	1.15	-9
Lima, baby	0.29	0.21	0.17	0.22	31
Lima, large	0.20	0.23	0.18	0.20	14
Navy	2.98	4.55	3.54	3.68	4
Pink	0.29	0.32	0.34	0.31	-7
Pinto	6.80	13.36	7.43	9.17	23
Small, red	0.57	0.97	0.95	0.83	-13
Small, white	0.11	0.13	0.14	0.13	-11
Other	0.64	0.73	0.58	0.65	11
Total production	**20.76**	**32.67**	**22.72**	**25.29**	**11**
Dry bean States/2					
California	0.73	0.60	0.38	0.27	-28
Colorado	0.61	1.07	0.60	0.67	12
Idaho	1.07	1.59	1.49	1.04	-30
Michigan	3.66	5.91	5.01	5.11	2
Minnesota	4.02	5.52	4.60	4.70	2
Nebraska	1.88	3.60	2.78	2.53	-9
North Dakota	7.71	12.79	6.40	9.96	56
Washington	0.69	1.06	1.09	0.66	-39
Wyoming	0.39	0.51	0.38	0.36	-5
Total production	**20.76**	**32.67**	**22.72**	**25.29**	**11**

Note: F = USDA, Economic Research Service forecast by dry bean class.
1/ Excludes garbanzo beans.
2/ Excludes other States.
Source: USDA, Economic Research Service, 2022 dry beans class forecast, and USDA, National Agricultural Statistics Service, *QuickStats and Crop Production Summary.*

Dry beans (continued)

Return to dry beans section

Table 17D. U.S. dry bean crop-year export volume

Commodity	------- September–August -------			---- September–October----		Change/1
	2019/20	2020/21	2021/22	2021/22	2022/23	2021/22–2022/23
	---------- *Million pounds* ----------					----- *Percent* -----
By class/2						
Kidney, all	**245.18**	**302.64**	**183.52**	**40.60**	**41.19**	**1.5**
Kidney, dark red	154.18	151.86	103.86	24.97	20.53	-17.8
Kidney, light red	26.03	27.61	13.14	1.30	2.12	63.2
Kidney, other	64.98	123.17	66.51	14.33	18.54	29.4
Navy	142.08	118.69	129.06	42.88	42.37	-1.2
Black	163.85	194.67	109.09	17.99	21.98	22.1
Pinto	109.19	183.56	45.99	7.60	6.27	-17.5
Beans, other	14.23	17.56	34.33	11.54	5.61	-51.4
Small red	21.11	54.27	25.39	6.58	7.34	11.5
Cranberry	9.59	6.92	25.17	1.84	0.18	-90.4
Lima, all	**20.68**	**13.01**	**13.85**	**1.86**	**1.30**	**-30.0**
Lima, baby	3.07	1.17	1.89	0.23	0.11	-50.2
Lima, large	17.62	11.84	11.96	1.63	1.19	-27.2
Great Northern	17.28	16.80	11.15	1.60	1.18	-25.8
Mung	2.78	5.74	5.22	0.80	0.43	-46.2
Pink	3.60	4.56	3.58	1.21	0.07	-94.5
Blackeye	1.82	2.35	1.84	0.05	0.05	6.1
White	2.76	4.99	1.63	0.00	0.28	NA
Total exports	**754.15**	**925.74**	**589.82**	**134.55**	**128.26**	**-4.7**
All by destination country						
Canada	74.06	91.12	107.82	47.36	47.54	0.4
Mexico	179.36	345.96	104.89	26.79	25.22	-5.9
Italy	87.80	88.92	98.87	27.85	17.10	-38.6
Dominican Republic	73.46	87.01	61.41	5.56	3.00	-46.1
United Kingdom	64.16	62.06	45.08	1.01	9.49	842.8
Costa Rica	26.13	36.76	23.19	4.84	5.03	3.9
Haiti	35.67	30.39	14.82	2.30	1.57	-31.6
Other countries	213.51	183.52	133.73	18.84	19.32	2.6
Total exports	**754.15**	**925.74**	**589.82**	**134.55**	**128.26**	**-4.7**

Note: NA = not applicable.
1/ Percent change from September–October 2021/22 to September–October 2022/23.
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 using data from U.S. Department of Commerce, Bureau of the Census.

Dry beans (continued)

Return to dry beans section

Table 18D. U.S. dry bean crop-year import volume

Commodity	September–August 2019/20	September–August 2020/21	September–August 2021/22	September–October 2021/22	September–October 2022/23	Change/1 2021/22–2022/23
	Million pounds					*Percent*
By class/2						
Beans, other	84.15	79.90	82.69	10.13	12.00	18.4
Mung	66.59	79.26	68.79	13.28	13.38	0.8
Kidney, all	**57.03**	**47.22**	**53.40**	**8.48**	**8.04**	**-5.2**
Kidney, dark red	3.96	5.05	8.24	0.53	0.79	47.8
Kidney, light red	22.22	19.30	21.43	3.97	4.41	11.1
Kidney, other	30.85	22.88	23.72	3.98	2.84	-28.5
Pinto	27.81	22.56	37.58	6.38	4.72	-26.0
Black	36.82	32.75	30.60	5.34	6.48	21.3
Small red	19.57	16.07	18.76	2.67	3.75	40.3
Blackeye	13.05	13.24	12.81	0.97	2.30	136.7
Lima, all	**1.70**	**8.85**	**9.68**	**1.76**	**0.59**	**-66.3**
Lima, baby	0.61	1.25	1.34	0.42	0.07	-84.2
Lima, large	1.09	7.61	8.34	1.34	0.53	-60.7
Navy	3.17	3.05	3.98	0.75	0.90	18.9
Great Northern	6.58	2.98	3.32	0.94	0.45	-52.6
White	2.47	2.21	2.19	0.48	0.23	-52.4
Cranberry	1.28	1.18	1.00	0.01	0.27	2,710.0
Total imports	**320.22**	**309.27**	**324.80**	**51.20**	**53.11**	**3.7**
All by destination country						
Canada	73.54	78.87	87.88	13.43	12.16	-9.5
Mexico	56.81	29.81	49.69	7.37	7.08	-4.0
Nicaragua	33.43	34.01	36.82	4.24	6.51	53.7
India	44.83	40.25	35.83	6.55	9.05	38.1
Peru	13.30	20.83	23.32	3.32	3.72	12.1
Thailand	10.96	13.31	21.75	5.55	3.65	-34.2
China (Mainland)	25.58	30.24	15.76	2.63	3.13	19.0
Other countries	61.75	61.96	53.74	8.10	7.80	-3.7
Total imports	**320.22**	**309.27**	**324.80**	**51.20**	**53.11**	**3.7**

Note: NA = not applicable.

1/ Percent change from September–February 2020/21 to 2021/22.

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 using data from U.S. Department of Commerce, Bureau of the Census.

Appendix E: Dry peas, lentils, and chickpeas

Return to dry peas section

Table 19E. U.S. dry peas, chickpeas, and lentils: Export volume by class/1

	July–June/2			July–October/3		Change/4/5
Commodity	2019/20	2020/21	2021/22	2021/22	2022/23	2021/22–2022/23
	Thousand cwt (bags)					*Percent*
By class						
Peas, all	**7,648**	**9,717**	**5,294**	**1,968**	**1,757**	-10.7
Peas, split	2,534	2,337	2,069	914	988	8.1
Peas, green	3,540	3,123	1,430	511	301	-41.0
Peas, other	459	1,183	1,038	457	244	-46.6
Peas, yellow	1,098	3,058	739	77	219	182.7
Peas, Austrian winter	17	15	17	10	5	-47.6
Lentils, all	**6,566**	**6,716**	**3,222**	**1,137**	**1,373**	20.7
Chickpeas, all	**3,428**	**2,812**	**1,170**	**252**	**289**	14.8
Total exports	**17,642**	**19,245**	**9,686**	**3,357**	**3,419**	**1.8**

Note: Cwt = hundredweight which equals 100 pounds.
1/ This table excludes planting seed trade.
2/ Chickpea months are September–August.
3/ Chickpea months are September–October.
4/ Dry pea and lentil percent change from July–October 2021 to July–October 2022.
5/ Chickpea percent change is from September–October 2021 to September–October 2022.
Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census.

Dry peas, lentils, and chickpeas (continued)

Return to dry peas section

Table 20E. U.S. dry peas, chickpeas, and lentils: Import volume by class/1

Commodity	July–June/2 2019/20	July–June/2 2020/21	July–June/2 2021/22	July–October/3 2021/22	July–October/3 2022/23	Change/4/5 2021/22–2022/23
	Thousand cwt (bags)					*Percent*
By class						
Peas, all	**1,822**	**1,460**	**4,422**	**931**	**570**	-39
Peas, yellow	947	704	3,133	512	140	-73
Peas, split	457	260	548	159	229	44
Peas, green	50	67	124	33	86	162
Peas, Austrian winter	4	2	1	1	1	95
Peas, other	364	428	616	227	113	-50
Lentils, all	**1,021**	**946**	**1,233**	**376**	**363**	-3
Lentils, red	328	251	286	77	101	30
Lentils, green	154	161	219	95	48	-49
Lentils, other	539	533	729	204	214	5
Chickpeas, all	**916**	**1,020**	**1,171**	**187**	**205**	9
Chickpeas, garbanzo	683	633	711	131	129	-1
Chickpeas, kabuli	233	387	460	56	76	34
Total imports	**3,759**	**3,426**	**6,827**	**1,495**	**1,138**	**-24**

Note: Cwt = hundredweight which equals 100 pounds.
1/ This table excludes planting seed trade.
2/ Chickpea months are September–August.
3/ Chickpea months are September–October.
4/ Dry pea and lentil percent change from July–October 2021 to July–October 2022.
5/ Chickpea percent change is from September–October 2021 to September–October 2022.
Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census.

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