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Vegetables and Pulses Outlook

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Vegetable Supply Steady Despite Unstable Weather and Widening Trade Gap

Severe weather during 2018 has been a major disruption to some of the spring and summer vegetable markets. However, despite these events, U.S. markets have exhibited steady to increased production for both fresh and processed vegetables. Though wet weather slowed some 2018 plantings compared to the previous year, weather patterns overall have since supported continued crop development under more favorable conditions. More recently, moisture returned to the Eastern U.S., brought on by landfall of two hurricanes and the detriment of those crop areas. Although the full extent of damage is not yet know, the storms have at least slowed harvest activities in the region.

While retail prices for overall fresh vegetables grew slightly, the farm value dipped this year, compared to 2017. This is at least partially due to a dramatic spike in prices caused by spring flooding in California in 2017, which delayed the harvest and drove up commodity market prices. Both consumer and producer price indices for fresh vegetables showed gains, indicating strong markets.

Overall increasing export values for both fresh and processed vegetables is the trend in 2018 year-to-date. For vegetables, both fresh and processed, the U.S. imported more and exported less in 2018 that one year previous. Mexico and Canada, our closest trading partners, remained dominant in the fresh markets.

Garbanzo bean production is forecast to continue its meteoric climb, despite substantial tariffs in international markets hampering exports. Improved yields in dry beans, peas, and lentils gave a boost to domestic production; however, narrowing U.S. exports are being reported across all of these markets globally.

In this report:

Industry Overview

Table 1: U.S. vegetable and pulse industry at a glance, 2015-2018[1]

Item	Unit	2015	2016	2017	Percent Change 2016-17	2018f
Area harvested						
Vegetables Fresh	1,000 acres	1,351	1,590	1,434	-9.8	1,492
Vegetables Processing	1,000 acres	1,324	1,246	1,171	-6.0	1,225
Potatoes	1,000 acres	1,054	1,018	1,025	0.6	1,010
Dry beans, peas and lentils	1,000 acres	3,288	3,821	4,095	7.2	3,608
Other[2]	1,000 acres	156	167	162	-2.5	162
Total	**1,000 acres**	**7,174**	**7,841**	**7,888**	**0.6**	**7,496**
Production						
Vegetables Fresh	Million cwt	358	363	357	-1.7	368
Vegetables Processing	Million cwt	402	378	331	-12.4	365
Potatoes	Million cwt	441	441	442	0.1	432
Dry beans, peas and lentils	Million cwt	54	69	58	-16.7	61
Other[2]	Million cwt	40	41	45	9.8	42
Total	**Million cwt**	**1,296**	**1,292**	**1,232**	**-4.6**	**1,268**
Crop value						
Vegetables Fresh	$ millions	11,589	10,229	11,128	8.8	10,106
Vegetables Processing	$ millions	2,234	1,926	1,708	-11.4	1,865
Potatoes	$ millions	3,865	4,008	4,023	0.4	3,817
Dry beans, peas and lentils	$ millions	1,218	1,508	1,358	-10.0	1,480
Other[2]	$ millions	676	652	733	12.5	687
Total	**$ millions**	**19,582**	**18,323**	**18,949**	**3.4**	**17,955**
Unit value[3]						
Vegetables Fresh	$/cwt	32.39	28.17	31.19	10.7	27.44
Vegetables Processing	$/cwt	5.55	5.10	5.16	1.2	5.11
Potatoes	$/cwt	8.76	9.08	9.10	0.2	8.84
Dry beans, peas and lentils	$/cwt	22.56	21.86	23.61	8.0	24.46
Other[2]	$/cwt	16.74	15.91	16.30	2.4	16.31
Total	**$/cwt**	**15.11**	**14.18**	**15.38**	**8.4**	**14.16**
Imports						
Vegetables Fresh	$ millions	6,618	7,486	7,354	-1.8	7,751
Vegetables Processing[4]	$ millions	2,343	2,519	2,618	3.9	2,827
Potatoes	$ millions	1,152	1,243	1,367	10.0	1,537
Dry beans, peas and lentils	$ millions	111	100	133	32.5	134
Other[5]	$ millions	1,570	1,583	1,612	1.8	1,739
Total	**$ millions**	**11,795**	**12,931**	**13,084**	**1.2**	**13,988**
Exports						
Vegetables Fresh	$ millions	2,087	2,114	2,153	1.9	2,419
Vegetables Processing[4]	$ millions	1,615	1,585	1,512	-4.6	1,616
Potatoes	$ millions	1,672	1,737	1,815	4.4	1,985
Dry beans, peas and lentils	$ millions	555	663	486	-26.7	543
Other[5]	$ millions	726	834	822	-1.5	894
Total	**$ millions**	**6,655**	**6,934**	**6,787**	**-2.1**	**7,456**
Per-capita availability						
Vegetables Fresh	Pounds	141.7	144.4	145.0	0.4	144.7
Vegetables Processing	Pounds	101.2	107.7	116.3	8.0	109.3
Potatoes	Pounds	115.3	110.0	115.8	5.2	115.5
Dry beans, peas and lentils	Pounds	8.4	9.9	11.2	13.2	12.48
Other[2]	Pounds	11.5	11.2	12.0	7.0	11.54
Total	**Pounds**	**378.1**	**383.3**	**400.2**	**4.4**	**405.4**

f = forecast. [1]Total rounded. [2]Includes sweet potatoes and mushrooms. [3]Ratio of total value to total production. [4]Includes canned, frozen, and dried. Excludes potatoes, pulses, and mushrooms. [5]Other includes mushrooms, sweet potatoes, and vegetable seed. All trade data are on a calendar-year basis.

Note: Hundredweight (cwt), a unit of measure equal to 100 pounds.

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

Service, Crop Production, Acreage, Agricultural Prices, Crop Values, Mushrooms, and Potatoes; and from U.S. trade data from U.S. Department of Commerce, U.S. Census Bureau.

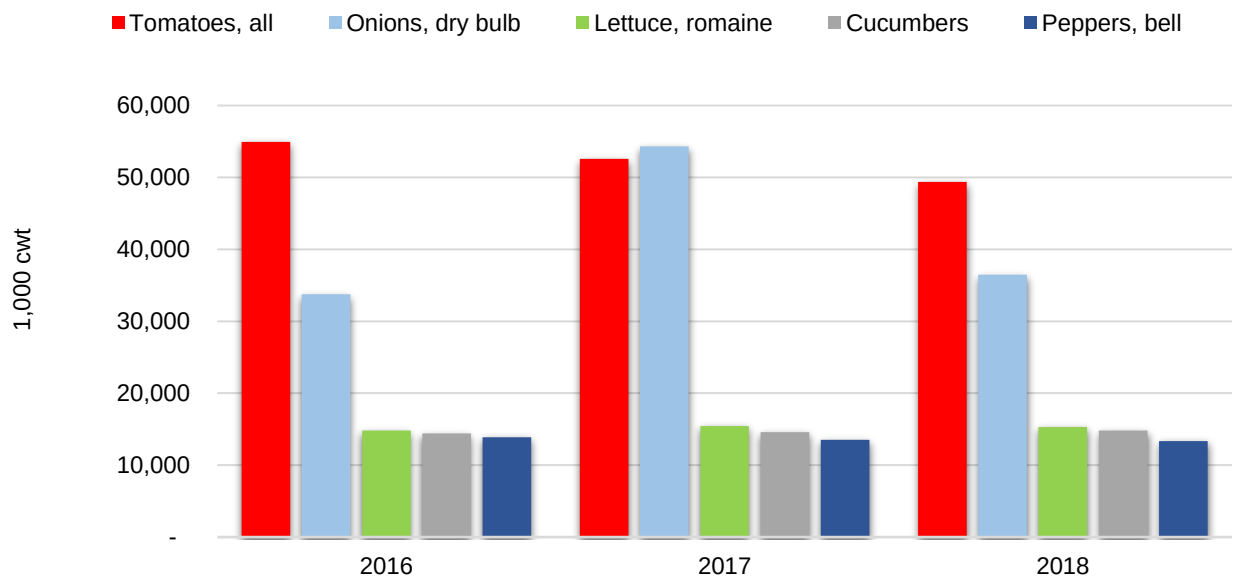
Fresh-Market Vegetables

Fresh Vegetable Shipments Remain Steady

Total year-to-date shipment volume of most 2018 fresh-market vegetables through August was comparable to the same period last year (table 2). Large declines in tomatoes, romaine lettuce, and dry onions were offset by shipment increases in head lettuce, cucumbers, celery, carrots, broccoli, squash, and chili peppers (fig. 1). Wet conditions in dry bulb onion–growing areas of Oregon slowed harvest pace below the previous year and below the 3-year average. The State of Washington dry bulb onion harvest was also at a slower pace than the 3-year average. As of August 25, 2018, the current year ranks fifth of six years in percentage of processed tomatoes harvested.

Figure 1

Select fresh-market vegetable shipments



YTD August year over year
Source: USDA, Economic Research Service using data form Agricultural Marketing Service.

Table 2: Selected U.S. fresh-market vegetable shipments, 2016-2018[1]

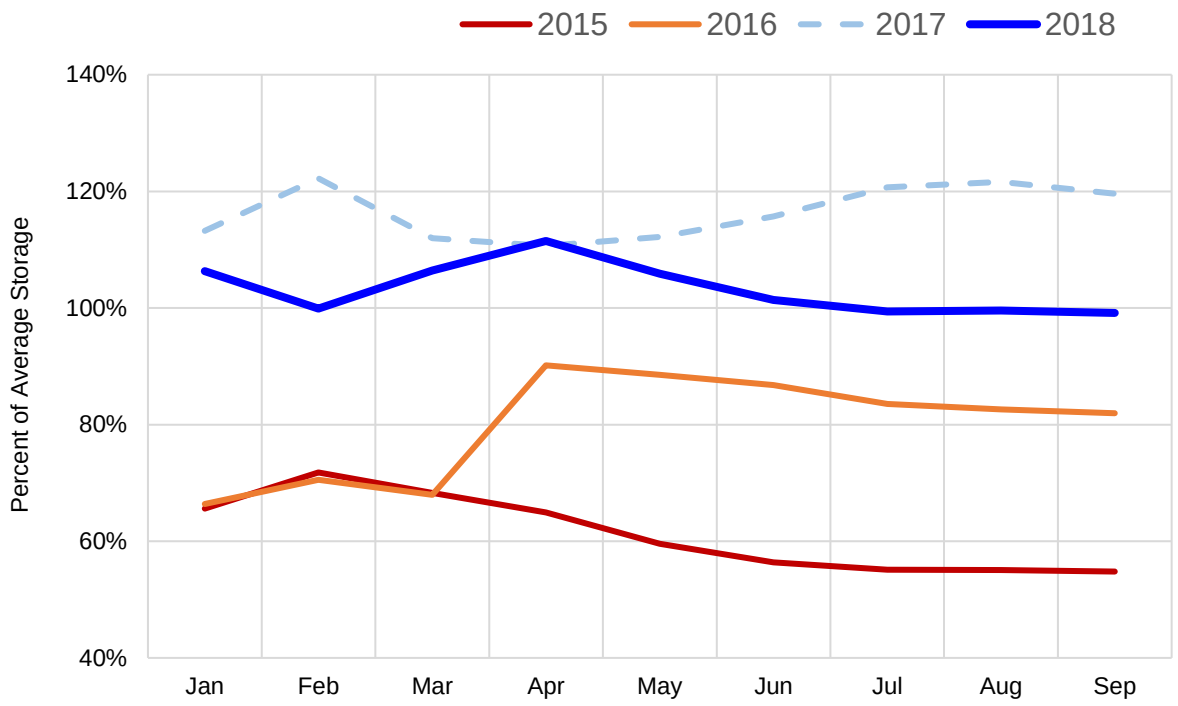
	2016		2017		2018		% Change previous[2]
	Aug YTD	Annual	Aug YTD	Annual	Aug YTD	Annual	
				1,000 cwt			
Asparagus	3,695	6,755	3,834	4,948	4,031	---	*5*
Snap beans	2,621	5,487	2,663	3,733	2,499	---	*-6*
Broccoli	7,976	11,933	7,497	11,317	8,031	---	*7*
Cabbage	6,275	10,005	6,561	9,853	6,387	---	*-3*
Chinese Cabbage	754	1,052	631	890	838	---	*33*
Carrots	8,269	13,382	8,402	12,240	9,209	---	*10*
Cauliflower	3,620	5,533	3,607	5,521	4,289	---	*19*
Celery	11,118	17,135	10,481	16,210	10,886	---	*4*
Sweet corn	10,901	12,800	11,033	12,857	10,541	---	*-4*
Cucumbers	14,429	23,051	14,610	21,585	14,793	---	*1*
Greens	2,006	3,072	1,707	2,854	1,737	---	*2*
Head lettuce	19,103	28,442	17,878	26,280	18,707	---	*5*
Lettuce, romaine	14,817	22,698	15,451	22,981	15,292	---	*-1*
Lettuce, others	1,530	5,473	1,536	5,325	1,105	---	*-28*
Onions, dry bulb	33,772	54,328	36,480	53,768	36,229	---	*-1*
Onions, green	2,565	3,902	2,665	3,983	2,705	---	*2*
Peppers, bell	13,881	22,113	13,515	19,872	13,350	---	*-1*
Peppers, chili	6,293	12,337	6,449	11,351	7,233	---	*12*
Squash	7,511	11,998	7,275	11,581	7,708	---	*6*
Tomato, field, round	24,779	36,037	24,767	34,902	22,571	---	*-9*
Tomato, field, Roma	6,665	8,503	6,079	8,020	6,383	---	*5*
Tomato, ghouse[3]	21,374	29,780	19,585	28,452	18,796	---	*-4*
Tomato, small[4]	2,138	2,869	2,150	2,677	1,647	---	*-23*
Selected total	**226,091**	**348,685**	**224,854**	**331,200**	**224,969**	**---**	***0***

[1]1,000 cwt = 100,000 lbs. Data for 2018 are preliminary and include domestic and partial imports.
[2]Change from YTD August 2017. [3]All tomatoes produced under cover. [4]Grape and cherry tomatoes.
Source: USDA, Agricultural Marketing Service, *Fruit and Vegetable Market News.*

Agriculture accounts for 62 percent of total water use in California. Deficits in precipitation are made up in part through water released from reservoirs throughout the State. Reservoir water demand is higher over periods in which natural precipitation does not occur. Reservoir levels throughout California, therefore, have been a reflection of rainfall amount, melted winter snowpack, and water consumption. Most vegetable crops throughout California require the most moisture during the spring months. California averaged 59 percent of total U.S. vegetable utilized production during the 2016 and 2017 crop years. During the past spring, reservoir levels throughout the State were near the historical average which is above the drought-stricken 2016 spring period, but below the post-drought conditions of the previous growing season (fig. 2). There were concerns earlier in the year of renewed drought conditions in California growing areas due to excessive dryness and above-normal temperatures. Reservoir levels were later boosted in April after above-normal precipitation during March in addition to the plentiful rainfall last winter.

Figure 2

California reservoir water storage % of historical average by month

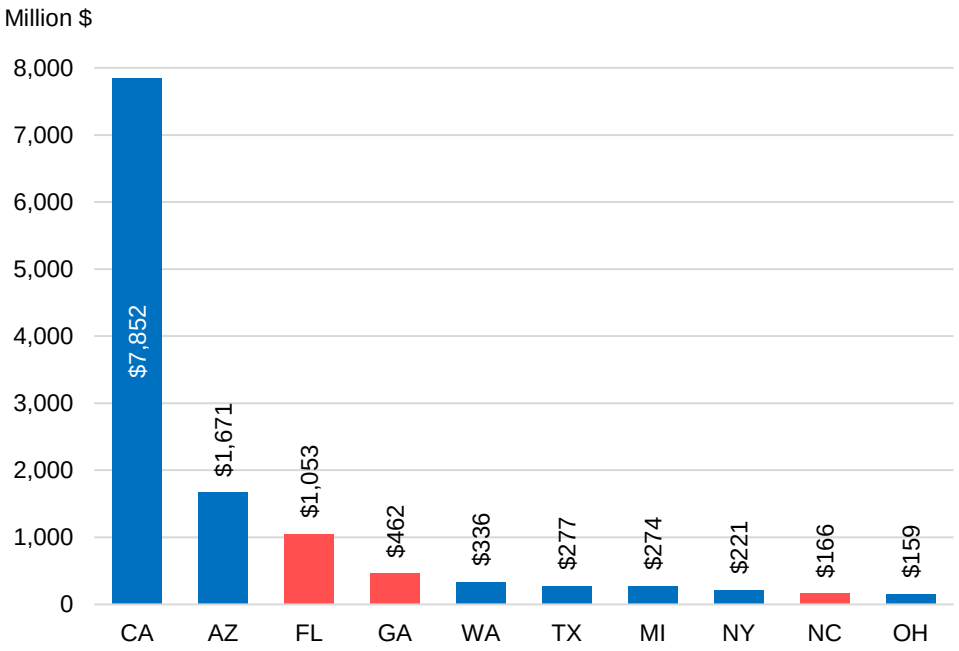


Source: USDA, Economic Research Service using data from California Department of Water Resources.

Dual Hurricanes Disrupt Vegetable Market Progress

The backdrop of two destructive hurricanes slamming into southeastern United States one month apart (September then October) has created uncertainty on the potential for lost production and curtailed quality of many vegetable crops in the region. While it is evident so far that some vegetable crop production was impacted, it may be weeks from the time of this report before a full quantitative impact of the storms is fully known. The States affected by both storms (Florida, Georgia, and North Carolina) are among the top ten vegetable producing states by value (fig. 5). Most of the vegetable crop value at risk is of crops which were at or nearing harvest.

Figure 5
2017 Top Ten Vegetable Producing States by Value



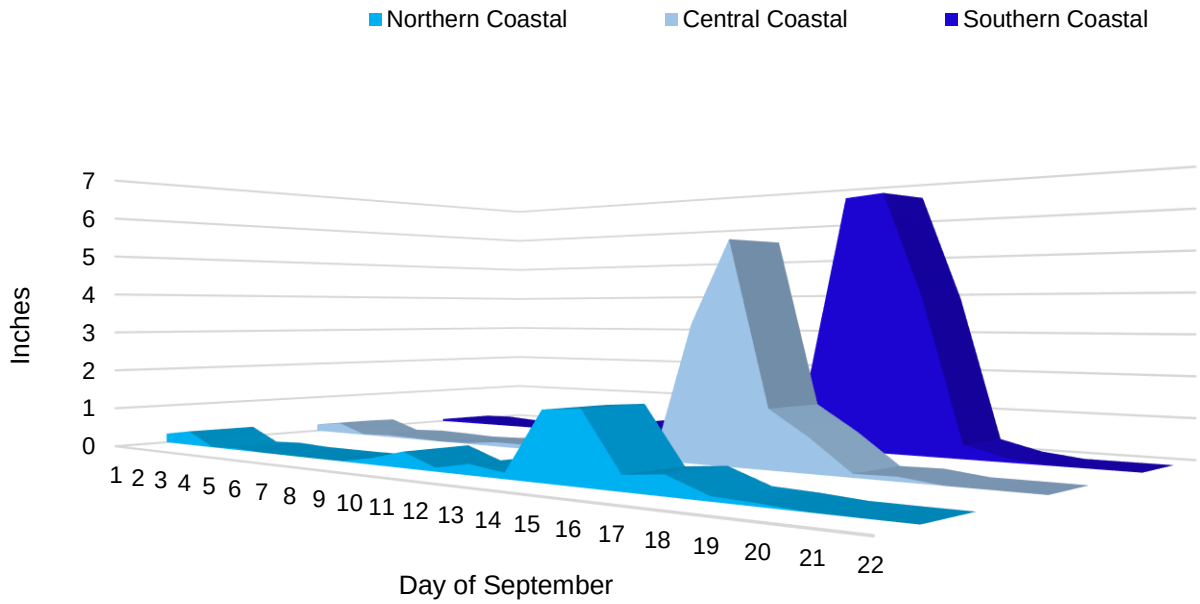
Source: USDA, National Agricultural Statistics Service.

Hurricane Florence

On September 14, 2018, Hurricane Florence made landfall just south of Wrightsville Beach, North Carolina, and stretched 450 miles wide. Even before landfall, the storm continually dumped heavy rain along coastal areas while moving forward at only 2–3 miles per hour carrying over 100 mile-an-hour wind gusts. Record-breaking rain caused widespread inland flooding especially in some low-lying areas as major rivers spilled over their banks. In the Southern Coastal Region, during the storm's landfall, daily rain amounts reached almost seven inches in one day—an amount exceeding any historical monthly normal of the region (fig. 6).

Figure 6

September 2018 North Carolina regional observed daily precipitation



Source: USDA, Economic Research Service using data from U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration.

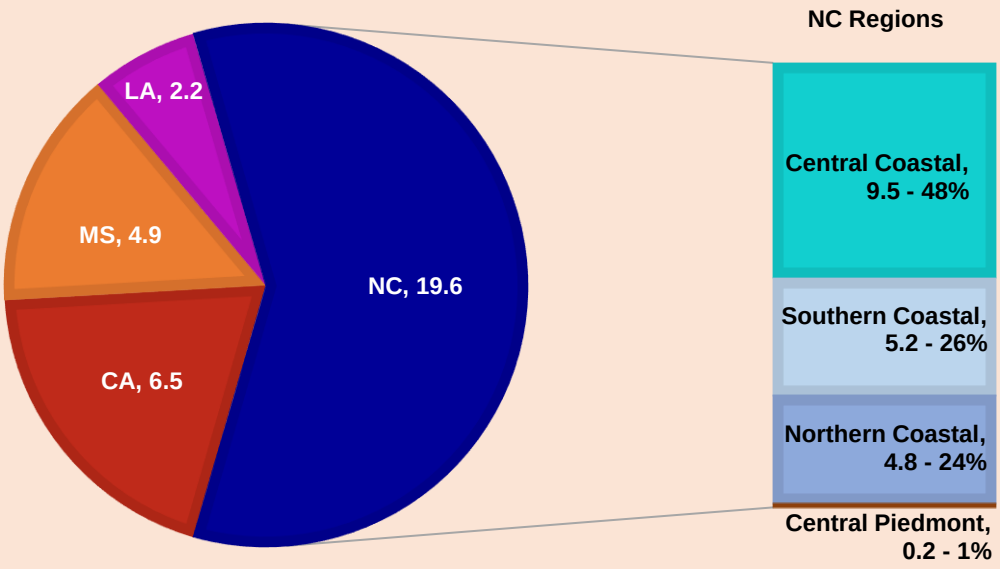
North Carolina Sweet Potato Production

During 2015–17, North Carolina averaged 17.7 million cwt in sweet potato production—a 170 percent increase from the 2005–07 average. The 2017 North Carolina sweet potato production represented 50 percent of total U.S. production and was valued at over $346 million, according to NASS. Since 2015, sweet potato price declines in North Carolina, averaging about 11 percent per year or $2.00 per cwt per year, have led growers to reduce planted acreage. Since the central and southern coastal areas of North Carolina were affected by record rainfall, and ocean storm surges, the higher concentration of sweet potato production in those areas was significantly impacted (fig. 7). After 2 years of declining yields in the State, 2017 represented one of the highest yields in history at 220 cwt per acre—pushing State production to its highest level in 13 years. The Central Coastal region, the highest producing region of the State, produced 9.5 million cwt of sweet potatoes in 2017—48 percent of total State production, while the Southern Coastal region represented 26 percent of the State's sweet potato production. September 2018 sweet potato shipments were 30 percent below the same period last year and

lowest in the past 3 years, cumulative shipments year-to-date ending September 2018, are the second highest in almost two decades, behind only last year's shipments.

Figure 7

2017 U.S. sweet potato production (million cwt) by major State and affected NC regional mix



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

Because sweet potatoes grow underground, producers will not know the storm's impact on their crops until they resume harvest when the fields have dried out. As of October 21, NASS reported that harvest progress was at 61 percent, a much slower pace than last year, and below the 5-year average. NASS reports that, as of October 7, crop condition rated good to excellent was just 77 percent—the lowest for the same period in the last 4 years. As of October 14 the crop condition of the crop rated good to excellent declined to 75 percent. The 2018 sweet potato crop has been challenged since mid-August 2018, as conditions have deteriorated each subsequent week. The percentage of the crop rated good for a given week has been trending below the prior 4-year average.

The concern is that flooded crops will not only have lower yields, and quality loss, but that the crops may not be suitable for human consumption or even animal feed. By the end of September 2018, some sweet potatoes were beginning to rot, causing growers to evaluate early harvest. An alternative is to delay harvest to allow crop to dry. Delays of sweet potato harvesting beyond November can be problematic as, over the past 18 years, November has been the peak month for shipments within a year, particularly the second and third weeks of November. A late

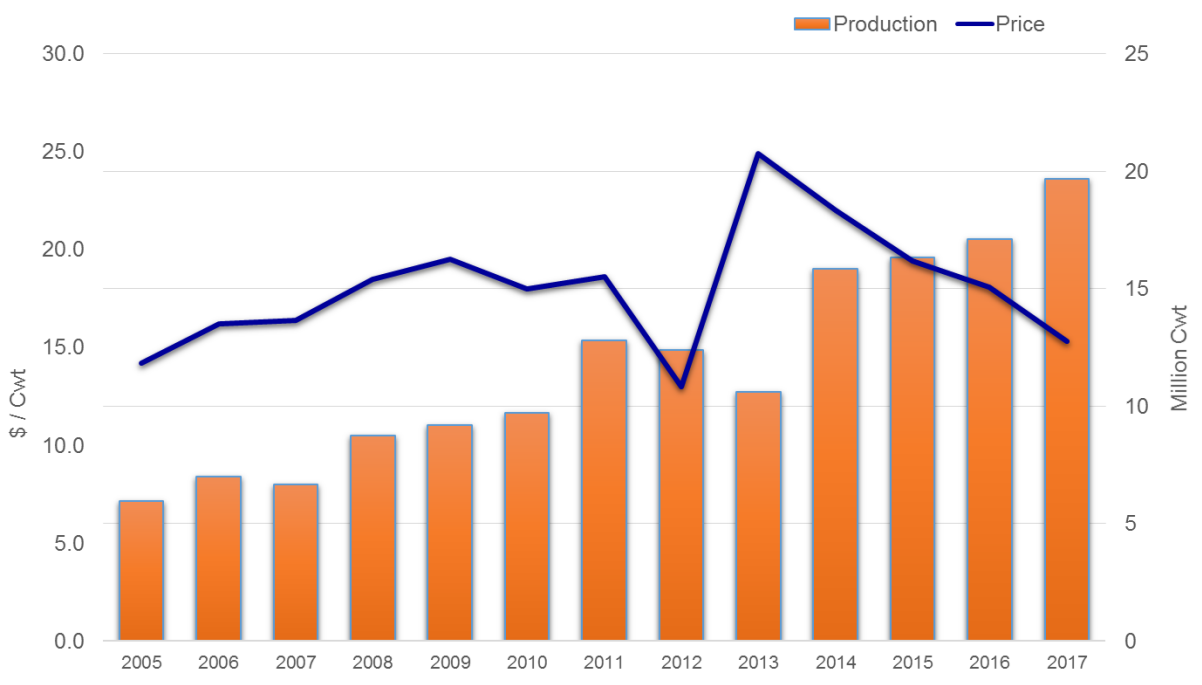
harvest may put the crop at risk to a frost or freeze which can also lower yields or completely ruin a crop.

Sweet Potato Price

Sweet potato prices received and production have exhibited a recent inverse relationship (2012-2017) showing that as production has increased, sweet potato price received has declined (fig. 8). Given the behavior of the two metrics, potentially lowering sweet potato production may cause the downward trajectory of price received to reverse during the 2018 calendar year.

Figure 8

North Carolina sweet potato production and price, 2005-17



cwt = hundredweight, a unit of measure equal to 100 pounds.
Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service *Crop Production 2017 Summary*.

According to USDA, Agricultural Marketing Service (AMS), *Market News, Shipping Point Price*, September 2018, the month coinciding with the landfall of Hurricane Florence, was the largest monthly gain in 4 years of eastern North Carolina 40-pound carton sweet potato average of all grades including: (U.S. No. 1, No. 2, and U.S. No. 1 Petite) shipping point prices. The average monthly shipping point price changes in September 2018 were of note since the low- and high-price changes were the largest and second-largest increases, respectively, over the past 5

years. Additionally, national average retail prices for sweet potatoes saw the biggest increase in September retail prices in the past 10 years. Retail prices from August 2018 to September 2018 jumped over 21 percent from 54 cents per pound to 66 cents per pound. Early indications for October 2018 are a continuation of the price climb.

North Carolina Sweet Potato Trade

Europe and Canada are the major international markets for U.S. sweet potatoes. The U.K., Netherlands, Canada, Belgium, and Ireland (in order by market value) received 94 percent of total U.S. exports during the September 2017 to August 2018 period. California, Louisiana, and Mississippi exported exclusively to Canada, while North Carolina exported 91 percent of total State exports to all areas, representing 57 percent of exports to Canada. Total vegetables exported from North Carolina during the 12-month period ending August 2018 were valued at $187 million—an 8-percent increase over the same period last year, and over 40 percent more than the previous 4-year average. Fresh vegetables averaged 94 percent of total value of vegetables exported from the state during the 12-month period ending August 2018. Total sweet potato value exported from the State was $168 million during the period—a 15-percent increase from the same period last year and the highest over the past four years. North Carolina sweet potato export value also represented about 84 percent of total U.S. export value of sweet potatoes during the period. The State exports about a fourth of its production of sweet potatoes by weight.

Given the hurricane-caused devastation to local North Carolina areas, a reduction of domestic sweet potato production should lead to a decline in total exports of sweet potatoes to Europe and Canada. The U.S. currently represents 70 percent of the major European markets' import of sweet potatoes by value while supplying 90 percent of the Canada market.

Ports in the Storm-Affected Carolinas Saw a Level of Disruption

The Wilmington, North Carolina district ports resumed full commercial operations following more than a week of disruption during and after Hurricane Florence while the Charleston, South Carolina district terminals were met with a few days of disruption. The two districts combined exported $69 million in fresh and processed vegetables during the year ending August 2018. Sweet potato exports were 87 percent of the total value. The remaining exports were comprised of frozen vegetables (9 percent), and tomato sauce/paste (4 percent) destined for the

South/Central America region. Imports of fresh (25 percent) and processed vegetables (75 percent) were valued at over $18 million for the year ending August 2018 .The month of September is one of the least active for these ports during the year. This tendency serves to mitigate trade disruptions caused by the hurricane. Over the past 4 years, September averaged just 6 percent of both total annual value exported and imported through the North Carolina and South Carolina district ports.

Hurricane Michael

On October 10, Hurricane Michael made landfall on the Florida Panhandle. When the hurricane hit Florida it was classified as a Category 4 storm, the strongest the U.S. has seen this year. The initial damage was devastating with losses of life, property, infrastructure, and crops across the Southern U.S. Damage has been recorded across Southern States, with the most severe impact being registered where the storm was at its strongest, in Florida and southern Georgia.

Most of the vegetable crops in Florida are located in the central and southern Regions of the State which was largely spared serious damage from the storm. However, reports are that plantings of corn and tomatoes in the Panhandle may have been severely damaged. Similarly, southern Georgia's tomato crop was in the direct path of the storm, and while the season was about halfway though, some reports suggest it may be difficult to recover the remaining winter market, which Florida and Georgia often dominate. Georgia also grows a number of winter vegetables, such as squash, cucumbers, and peppers, which were ready for harvest and may not be salvageable after the damage caused by Hurricane Michael. Although the damage to vegetables appears serious, it seems less severe than the damage to other crops and livestock in the same area.

Farm Prices Return to Historic Norms After Last Year's Spike

During the first 6 months of 2018, point-of-first-sale (farm price) for most commercial fresh-market vegetables were below the previous year. The price index for all vegetables was 21 percent lower (table 3). The largest average price declines were led by celery, which fell 49 percent from a year earlier, followed by head lettuce (down 39 percent), broccoli (down 37 percent), tomatoes (down 36 percent), and cauliflower down (33 percent). Conversely, only three vegetable crops gained during the April-June period. Farm prices averaged higher for cucumbers, onions, and carrots (up 7, 2, and 1 percent, respectively).

Table 3: U.S. quarterly fresh-market grower (point-of-first-sale) prices, 2017-18

Commodity	2017				2018				Change
	1Q	2Q	3Q	4Q	IQ	2Q	3Q *	4Q *	2nd Q[1]
	-- Cents/pound ($/cwt) --								*Percent*
Asparagus	96.60	111.83	---	---	165.00	99.87	--	--	-10.7
Snap beans	50.43	70.60	79.25	70.90	69.47	65.50	85.39	72.97	-7.2
Broccoli	60.23	76.23	65.07	53.90	40.10	47.80	39.91	36.39	-37.3
Carrots	28.33	27.10	28.53	28.93	30.10	27.23	26.13	25.95	0.5
Cauliflower	85.23	87.40	43.47	73.10	59.43	58.30	34.86	53.08	-33.3
Celery	19.20	53.87	20.90	24.13	21.73	27.50	13.88	16.63	-48.9
Sweet corn	30.93	31.63	26.27	40.43	29.00	29.33	21.82	31.32	-7.3
Cucumbers	38.50	34.80	17.93	35.43	37.25	37.20	20.13	30.24	6.9
Lettuce, head	43.37	43.80	27.33	31.90	33.23	26.77	21.42	24.80	-38.9
Onions, dry bulb	9.23	16.30	17.43	16.30	13.27	16.70	16.17	11.10	2.5
Tomatoes, field	29.03	46.60	31.83	61.67	40.77	29.80	22.51	35.19	-36.1
All vegetables[2]	**114.97**	**126.60**	**101.67**	**113.50**	**104.93**	**99.47**	**87.11**	**91.92**	**-21.4**

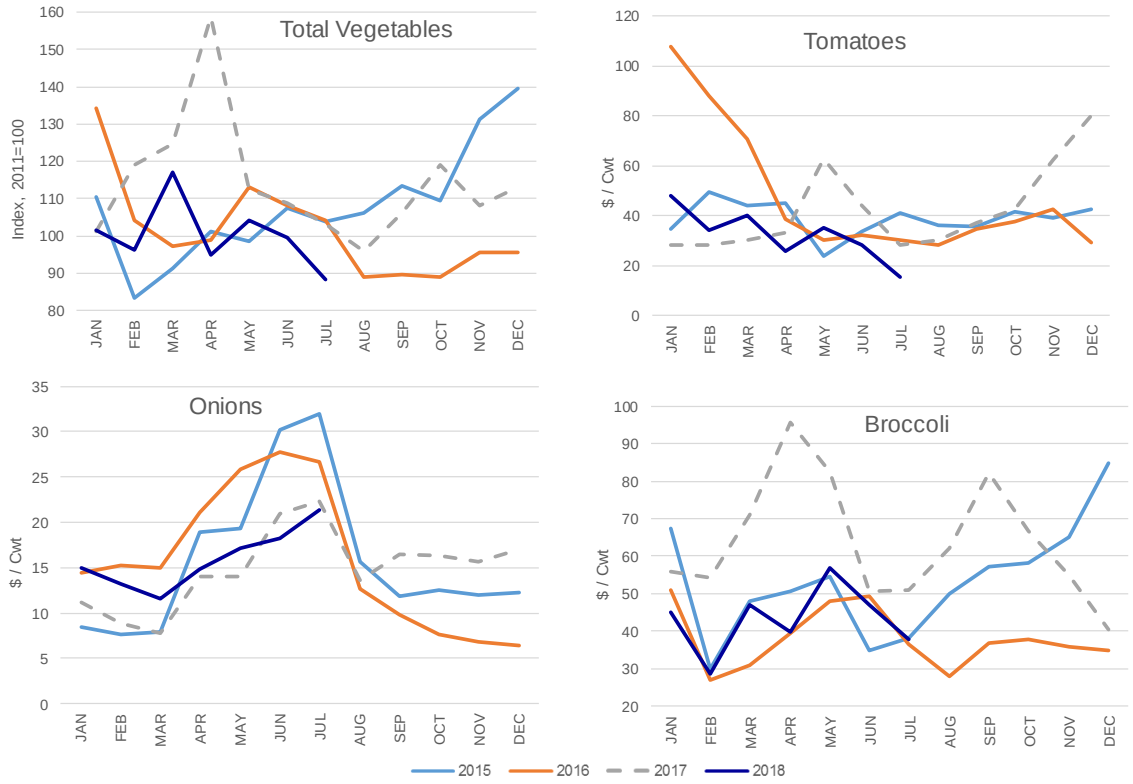
-- = not available. * = ERS forecast. [1]Change in 2nd quarter 2017 over 2nd quarter 2016.

[2]Price index with base period of 2011 (the period when the index equaled 100).

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

Warm, dry conditions during January and February caused concerns, but most vegetable crops in California were relieved with a wet March and April during the critical growing period there. Mostly favorable growing conditions in California contributed to subdued prices for most crops going into the important spring developmental stage. Led by lettuce, the total vegetable price index and other vegetable prices trended down through August. Dry onion prices, on the other hand, began rising in April likely as a reflection of less than optimal planting conditions in major onion-producing areas (fig. 3). Mid- to late-March above-normal precipitation in western areas of Washington State and Oregon slowed dry onion plantings. The developing dry onion crop in these areas then experienced below-normal precipitation May through July.

Figure 3
Favorable 2018 spring growing conditions caused downward price pressure

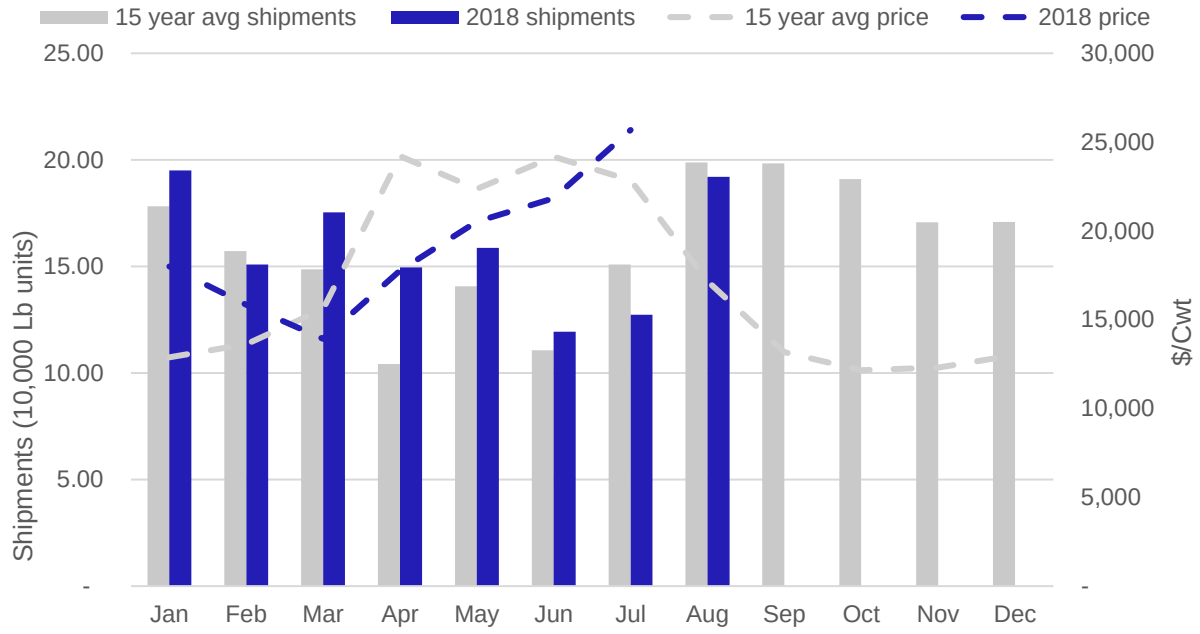


Source: USDA, National Agricultural Statistics Service, Agricultural Prices.

Weather is not the only factor affecting dry onion monthly prices received nationally. Since 2002, prices received for dry onions typically begin their ascent in February, and climb to their highest during the summer, only to begin their decent in August. The States of California, Oregon, and Washington averaged 71 percent of the total U.S. dry onion production during the 2015-2017 period. Shipments from these States in aggregate since 2002 have begun their decline in February and proceed to their lowest levels within a given year during April-June, the complete opposite of the trajectory of dry onion prices received during the same months over the past 15 years. Dry onion prices received and shipments are no different in 2018 as the same patterns can be observed through July (fig. 4).

Figure 4

15-Year CA, OR, and WA dry onion shipments and U.S. dry onion prices received



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

Retail Prices Up 1 Percent from Last Year

The overall Consumer Price Index (CPI) for fresh-market vegetables rose 1 percent from a year ago this August. For the same period, the CPI for potatoes, tomatoes, lettuce, and other vegetables also rose, while the Producer Price Index (PPI) for fresh vegetables (excluding potatoes) increased over 6 percent. The PPI experienced large changes in certain markets from a year ago this August such as cabbage and lettuce, which rose 105 and 52 percent, respectively. Squash and sweet corn were down 63 and 27 percent, respectively, from the prior year. Between July and August 2018, both the CPI and PPI increased for lettuce 2 and 40 percent, respectively. In addition, the PPI for tomatoes increased 7.7 percent between July and August (table 4).

Table 4: Fresh vegetables: Consumer and producer price indexes

Item	2017 Aug	2018 July	2018 Aug	Change previous[1]: Month	Year
	---------- *Index* ----------			---- *Percent* ----	
Consumer Price Indexes (1982/84=100)					
Food at home	239.0	240.1	240.2	0.0	0.5
Food away from home	269.5	276.1	276.6	0.2	2.6
Fresh vegetables	**320.4**	**323.1**	**323.5**	**0.1**	**1.0**
Potatoes	352.1	356.3	356.7	0.1	1.3
Tomatoes, all	319.5	325.1	322.0	-1.0	0.8
Lettuce, all	289.5	285.8	291.0	1.8	0.5
Other vegetables	323.8	326.7	327.0	0.1	1.0
Producer Price Indexes (12/1991=100)					
Fresh vegetables (excl. potatoes)[2]	**185.4**	**173.9**	**197.7**	**13.7**	**6.6**
Beets	112.7	88.6	93.9	6.0	-16.7
Broccoli	143.8	150.8	241.2	59.9	67.7
Cabbage	129.4	235.3	265.5	12.8	105.2
Carrot	161.5	179.4	170.6	-4.9	5.6
Cauliflower	39.8	41.3	42.0	1.7	5.5
Celery	156.7	266.7	147.3	-44.8	-6.0
Cucumber	262.1	270.2	205.1	-24.1	-21.7
Eggplant	314.7	233.3	345.8	48.2	9.9
Endive	503.0	391.9	391.9	0.0	-22.1
Green peas	139.5	--	--	--	--
Greens	192.0	183.6	182.2	-0.8	-5.1
Lettuce [2]	167.0	181.2	254.4	40.4	52.3
Onions, dry bulb [2]	163.3	146.1	151.8	3.9	-7.0
Peppers, green	252.9	284.0	268.5	-5.5	6.2
Spinach	371.7	317.2	527.1	66.2	41.8
Squash	549.8	272.0	203.7	-25.1	-63.0
Sweet corn	158.6	116.8	114.8	-1.7	-27.6
Tomatoes [2]	221.6	163.4	176.0	7.7	-20.6

[1]Change in August 2017 from previous month/year. [2]Index base is 1982=100.

Source: U.S. Dept. of Labor, Bureau of Labor Statistics (http://www.bls.gov/data/home.htm).

Fresh Exports Unchanged While Imports Gain

According to the U.S. Census Bureau, during January-August 2018, the volume of fresh-market vegetable imports (excluding potatoes, sweet potatoes, melons, and mushrooms) grew 7 percent from the previous year with all observed vegetables showing import growth (Table 5). Onions increased 9 percent followed by fresh-market tomatoes, which accounted for 27 percent of total imports, and increased 8 percent or 219 million pounds. Cucumbers and sweet peppers also both increased 8 percent. Chili peppers grew 29 million pounds (up 5 percent), and squash

increased 14 million pounds (up 2 percent) Asparagus imports spiked 14 percent over last year as February imports seasonally more than double over January imports. This doubling of February imports from Mexico coincides with the seasonal reduction of imports from Peru.

Table 5: Selected fresh-market vegetable trade volume, 2016-18[1]

	2017	January-August			Change
	Annual	2016	2017	2018	2017-18
	---------- *Million pounds* ----------				*Percent*
Exports, fresh:					
Onions, dry bulb	670	381	377	363	-4
Lettuce, head	260	174	177	172	-2
Lettuce, other	424	279	281	278	-1
Tomatoes	188	120	133	121	-9
Cauliflower	249	186	169	194	15
Carrots	153	136	127	132	4
Celery	239	172	159	170	7
Other	1,240	966	893	884	-1
Total	**3,424**	**2,413**	**2,316**	**2,315**	**0**
Imports, fresh:					
Tomatoes, all	3,944	2,836	2,698	2,917	8
Cucumbers	1,944	1,344	1,330	1,439	8
Peppers, sweet	1,457	995	1,008	1,086	8
Lettuce, all	597	332	398	404	1
Onions, dry bulb	1,212	781	797	868	9
Peppers, chili	988	580	569	599	5
Squash[2]	974	629	607	622	2
Asparagus	502	337	355	407	14
Other	3,457	2,234	2,305	2,396	4
Total	**15,075**	**10,068**	**10,068**	**10,738**	**7**

[1]Excludes melons, potatoes, mushrooms, dry pulses, and sweet potatoes. [2]Excludes chayote.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, U.S. Census Bureau.

The top three sources of fresh-market vegetable imports so far in 2018 are Mexico (82 percent of the total), Canada (10 percent), and Peru (2 percent). The three combined represent 94 percent of total fresh-market vegetable imports. Furthermore, the U.S. increased imports from Cost Rica and China by 3 and 18 percent, respectively (table 6). Imports from China year-to-date through August increased due to gains in garlic and onion imports of 27 and 17 percent, respectively. Garlic (72 percent) and onions (9 percent) represented 81 percent of total U.S. fresh-vegetable imports from China.

Table 6: Fresh-market vegetables: Imports by country, 2016-18[1]

Item	2017 Annual	January-August 2016	2017	2018	Change 2017-18
	---------- *Million pounds* ----------				
Mexico	11,946	8,148	8,243	8,805	7
Canada	1,726	1,012	999	1,035	4
Peru	451	182	163	206	27
Costa Rica	200	146	130	134	3
China	93	65	57	67	18
Others	659	514	477	490	3
Total	**15,075**	**10,068**	**10,068**	**10,738**	**7**

[1]Excludes melons, potatoes, mushrooms, dry pulses, and sweet potatoes.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, U.S. Census Bureau.

Processing Vegetables

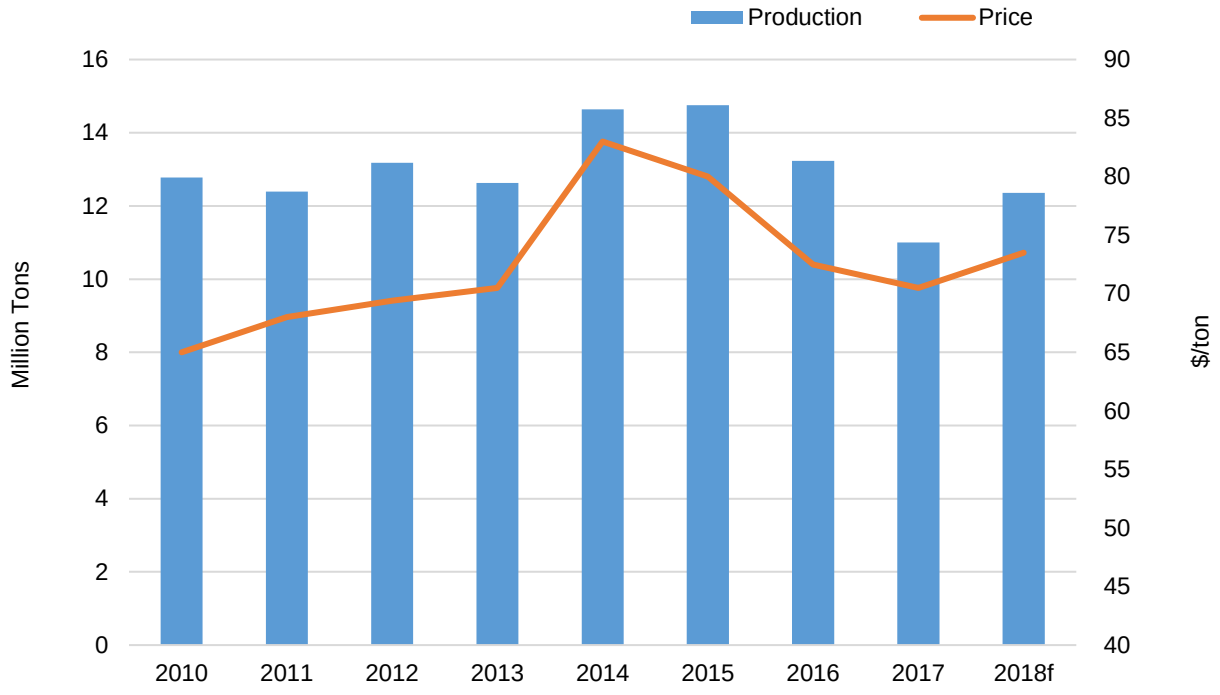
Tomato Production Rebounds from Previous Year

California tomato processors report they anticipate contracting a total of 11.8 million short tons in 2018—13 percent higher than the 2017 amount produced under contract. The increase in the 2018 processing tomato crop is largely a result of both favorable growing conditions in California, which pushed yields to a record 50.4 tons per acre, and the increased contract acreage of 234,000—6 percent higher last year's level.

The intended contract production of processing tomatoes from California (11.8 million tons) combined with its historical relationship with the total U.S. production, and total State production, suggests the 2018 total U.S. crop of tomatoes for processing could reach 12.3 million tons—12 percent above 2017 and about 6 percent below the 5-year average. Processing tomatoes account for three-fourths of the output of NASS-reported annual processing vegetables (excluding potatoes and sweet potatoes). According to the California Tomato Growers Association, the 2018 base price at the point of first delivery (excluding fees and incentives that vary by processor) for tomatoes for processing has been declining throughout the year. In February, the negotiated raw product price was $75.00 per short ton, but in July it declined to $73.50 on a delivered-ton basis—still up $3 (or 4 percent) from a year ago (fig. 9).

Figure 9

Production and price[1] of U.S. processing tomatoes, 2010-2018



f-forecast. [1]Average price at first delivery point in California, excluding premiums.
Source: USDA, National Agricultural Statistics Service and California Tomato Growers Association.

Frozen Stocks Drop Below Last Year's Near-Record High

Stocks of frozen vegetables (excluding potatoes and adjusting cob corn to a cut basis) in cold storage warehouses on August 31 were down 3 percent from a year ago, but still at the third highest level in two decades. Although aggregate stocks were down, there were still large percentage increases in some commodities—notably sweet corn, okra, and broccoli. Declines were noted for a majority of vegetables, including spinach, carrots, green peas, and asparagus (table 7).

Table 7: Frozen vegetables: U.S. cold storage holdings, 2016-2018 (August 31)

Commodity	2016	2017	2018p	Change from a year ago
	---------- *1,000 pounds* ----------			*Percent*
Asparagus	12,697	12,102	10,093	-17
Lima beans	45,577	33,807	32,820	-3
Snap beans	261,480	212,494	187,630	-12
Broccoli	72,192	67,536	85,829	27
Brussels sprouts	12,265	14,101	15,534	10
Carrots	197,595	186,441	137,851	-26
Cauliflower	18,853	26,193	24,163	-8
Sweet corn, cut	464,716	377,400	458,439	21
Sweet corn, cob	177,551	181,921	212,130	17
Mixed vegetables	65,596	72,540	65,546	-10
Okra	46,536	38,821	50,020	29
Onions, all	61,991	73,667	75,689	3
Blackeye peas	1,332	1,900	2,007	6
Green peas	437,827	410,645	317,927	-23
Southern greens	18,049	18,517	13,140	-29
Spinach	54,125	61,732	44,922	-27
Squash	52,030	48,758	45,790	-6
Other vegetables	405,041	518,807	505,435	-3
Total	**2,405,453**	**2,357,382**	**2,284,965**	**-3**

p = Preliminary.

Source: USDA, National Agricultural Statistics Service, *Cold Storage.*

Processed Vegetable Exports Down and Imports Up

From January to August 2018, the value of processed (canned, frozen, dried) vegetable imports rose 7 percent from the previous year. All three markets made gains: canned vegetables (up 3 percent from last year), frozen vegetables (up 15 percent), and dried and dehydrated vegetables increased 3 percent over last year (table 8).

The combined value of all three markets of processed vegetable exports (canned, frozen, and dehydrated) declined 5 percent during January–August from a year earlier. Exports of canned products during the first 8 months of the 2018 calendar year declined 6 percent, to $734 million, from a year ago. Tomato products, which accounted for 60 percent of total canned exports in 2018, fell 6 percent year-to-date. Dehydrated onions accounted for 42 percent of total dehydrated exports and increased 8 percent.

Table 8: Value of processed vegetable trade, 2016-2018[1]

Item	2017	January-August			Change
	Annual	2016	2017	2018	2017-18
	---------- *Million dollars* ----------				*Percent*
Imports:					
Canned	1,468	883	959	986	3
Tomato products	189	156	118	137	16
Frozen	1,144	722	755	871	15
Broccoli	296	213	198	237	20
Dehydrated[2]	700	468	468	482	3
Peppers (exc. Paprika)	203	139	131	140	7
Exports:					
Canned	1,155	801	777	734	-6
Tomato products	694	507	466	436	-6
Frozen	358	230	246	239	-3
Sweet corn	110	73	75	73	-3
Dehydrated[2]	210	129	139	130	-6
Onion products	81	50	51	55	8

[1]Excludes potatoes and mushrooms. [2]Also includes miscellaneous dried leguminous vegetables. Source: USDA, Economic Research Service using data of the U.S. Department of Commerce, U.S. Census Bureau.

The strengthening U.S. dollar against the Canadian dollar during 2018 so far is likely assisting the decline of canned exports to Canada. The top four foreign destinations during this period for all canned products included Canada (45 percent), followed by Japan (11 percent), Mexico (8 percent), and South Korea (3 percent) (table 9).

Table 9: Value of processed vegetable exports by selected countries, 2016-2018[1]

Item	2017 Annual	January-August 2016	January-August 2017	January-August 2018	Change 2017-18
	Million dollars				*Percent*
Canned	**1,155**	**801**	**777**	**734**	**-6**
Canada	523	369	360	328	-9
Japan	114	66	75	80	7
Mexico	104	78	66	61	-6
South Korea	39	26	29	26	-11
Others	376	262	248	238	-4
Frozen	**358**	**230**	**246**	**239**	**-3**
Canada	116	73	79	82	4
Japan	69	49	48	52	9
Mexico	35	28	23	22	-3
Netherlands	27	13	18	19	3
Others	111	68	78	64	-17
Dehydrated[2]	**210**	**129**	**139**	**130**	**-6**
Canada	63	56	61	63	3
Japan	22	21	21	22	5
Mexico	16	14	14	16	17
Indonesia	14	15	14	14	-5
Others	95	23	28	15	-47

[1]Excludes potatoes and mushrooms. [2]Also includes miscellaneous dried leguminous vegetables.
Source: USDA, Economic Research Service using data of the U.S. Department of Commerce, U.S. Census Bureau.

Potatoes

Fall Area Up, Spring and Summer Areas Down

The 2018 fall-season potato acreage indicates a 1-percent decline in both planted and harvested acreage from a year ago. In 2018, U.S. fall-season potato growers planted 911,700 acres. Three states accounting for almost half of the 2018 fall crop area led the increase: Idaho, Maine, and Michigan. The State of Washington accounted for 18 percent of total area and had no change in planted fall acreage. A wet, cold spring in California hindered planting which resulted in reduced planted acreage. Combined, the months of March, April, and May experienced 147 percent of normal precipitation throughout California.

Spring and summer plantings were down in 2018 with spring plantings at 47,000 acres—the lowest planted acreage in 20 years. While summer plantings decreased 9 percent to 62,000 acres, they continued to outpace spring plantings at an increasing rate. The combined U.S. planted area for all potatoes in 2018 totaled 1.021 million acres, down 1 percent from last year (table 10).

Table 10: Potatoes by season and selected State: Area, yield, and production

Season & State		Area Planted 2017	Area Planted 2018	Area Harvested 2017	Area Harvested 2018	Yield 2017	Yield 2018	Production 2017	Production 2018
		----------1,000 acres----------				---Cwt---		---1,000 Cwt---	
Spring	CA[1]	29.0	25.0	29.0	25.0	435	395	12,615	9,875
	FL	29.0	22.0	28.7	20.8	250	265	7,175	5,512
	U.S	**58.0**	**47.0**	**57.7**	**45.8**	**343**	**336**	**19,790**	**15,387**
Summer[2]	TX	22.0	20.0	21.5	19.0	395	460	8,493	8,740
	NC	16.0	14.0	15.1	13.3	230	170	3,473	2,261
	MO	8.8	7.8	8.5	7.4	285	265	2,423	1,961
	IL	8.1	7.7	7.6	7.5	410	400	3,116	3,000
	VA	5.0	5.0	4.5	4.9	265	240	1,193	1,176
	KS	4.1	3.5	4.1	3.4	380	400	1,558	1,360
	U.S	**68.3**	**62.0**	**65.5**	**59.5**	**331**	**332**	**21,679**	**19,750**
Fall	ID	310.0	315.0	310.0	314.0	435		134,850	
	WA	165.0	165.0	164.0	165.0	605		99,220	
	ND	75.0	74.0	74.0	72.0	330		24,420	
	WI	68.0	67.0	67.0	66.0	425		28,475	
	CO	55.9	55.3	55.6	55.0	382		21,220	
	ME	48.0	52.0	47.5	51.5	320		15,200	
	MI	47.0	48.0	46.5	47.0	370		17,205	
	MN	46.0	44.0	45.5	43.0	405		18,428	
	OR	39.0	38.0	38.9	37.9	550		21,395	
	U.S	**906.7**	**911.7**	**901.7**	**904.4**	**444**		**400,565**	
U.S. total		**1033.0**	**1020.7**	**1024.9**	**1009.7**	**431**		**442,034**	

Cwt = hundredweight (100 pounds). [1]Starting in 2010, California winter and summer estimates are included in the spring estimates.
Source: USDA, National Agricultural Statistics Service, Crop Production.

As of October 14, the potato harvest was approaching completion in Idaho at 85 percent harvested. This year is the second fastest sustained pace over a six-week period, behind the 2016 crop season. Idaho potato crop condition rated excellent is 30 percent compared with 16 percent the same week last year. A weighted average of the complete set of condition ratings for the Idaho potato crop indicates the highest rating in 5 years. Washington State was harvesting potatoes at a slower pace compared to the same week last year and the 5-year average.

Average Prices Mixed

During the marketing year (September-August), prices received by potato growers for all potatoes averaged $0.089 per pound; no change from the same period last year. From September through August, grower prices for fresh-market potatoes averaged $0.115 per pound—17 percent above previous year levels. Prices were higher at the retail level for chip potatoes during marketing year, and averaged 5 percent above the previous year while retail prices for fresh potatoes averaged 1 percent higher (table 11).

Table 11: U.S. potatoes: Monthly grower and retail prices, 2017-18

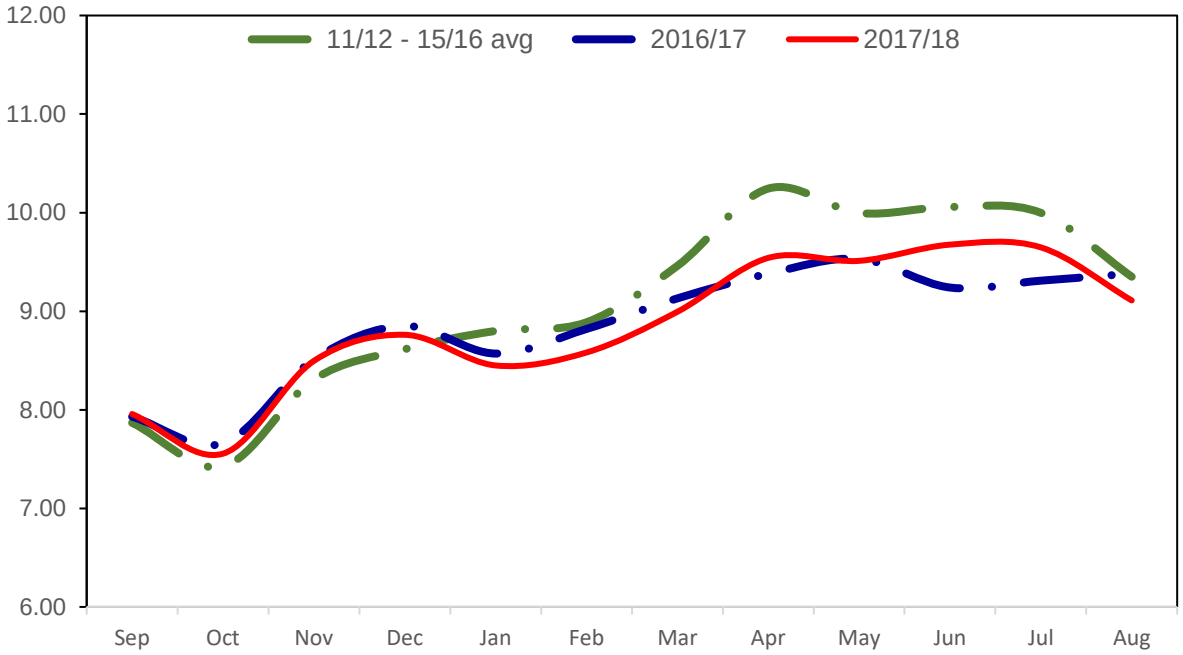
Crop year &	Grower prices			Retail prices	
month	All uses	Fresh	Processing	Fresh	Chips
	Dollars/pound				
2017					
August	0.094	0.146	0.073	0.750	4.370
September	0.080	0.139	0.069	0.745	4.389
October	0.076	0.113	0.066	0.748	4.480
November	0.085	0.112	0.074	0.733	4.521
December	0.088	0.114	0.079	0.731	4.431
2018					
January	0.084	0.113	0.079	0.730	4.386
February	0.086	0.112	0.077	0.736	4.344
March	0.090	0.111	0.078	0.727	4.446
April	0.095	0.112	0.079	0.728	4.448
May	0.095	0.114	0.082	0.739	4.491
June	0.097	0.118	0.083	0.744	4.441
July	0.096	0.115	0.082	0.765	4.407
August	0.091	0.112	0.071	0.768	4.446
Percent change from August 2017	-2.9	-23.3	-3.6	2.0	0.8

Source: USDA, National Agricultural Statistics Service, *Agricultural Prices* and U.S. Dept. of Labor, Bureau of Labor Statistics, Consumer Price Index average price data. USDA, Economic Research Service, beginning August 2017, monthly all uses and processing prices are estimated.

While all 2017/18 potato prices peaked during the usual period (April, May, June), and were actually higher than 2016/17 in these months, they remained lower than the 5-year average. Prices remain virtually unchanged on average from last year (fig. 10).

Figure 10

U.S. fresh potatoes: Average monthly price received, 2017/18 and previous[1]



[1]Marketing year is September–August. Average price of potatoes sold for all uses, including table stock, processing, seed, and livestock feed.

Source: USDA, National Agricultural Statistics Service, *Agricultural Prices,* USDA, ERS, beginning August 2017, monthly prices estimated.

Potato Exports Slightly Down, Imports Continue Growth

During the September-August marketing year, U.S. exports of all potatoes and potato products (including starch) totaled $1.8 billion—less than 1 percent below last year. The decline in U.S. potato exports is largely attributed to lower exports to Japan (down 5 percent) and Canada (down 2 percent). Japan remained the leading foreign market with 20 percent of export value, followed by Canada (17 percent), Mexico (16 percent), China, and South Korea (5 and 6 percent, respectively). Only potato exports to Mexico and Malaysia grew over the past year at 14 and 5 percent, respectively. Led by Mexico, the two markets combined represent 19 percent of the total U.S. potato export market by value (table 12). Exports of frozen fries led the advance for Mexico with the largest annual increase in 4 years and the highest level of exports of frozen fries to Mexico in 12 years.

Table 12: U.S. potatoes exports (all uses): Marketing year[1] trade value, 2015/16-2017/18

Markets	Mkt year 2015/16	2016/17	2017/18	Change 16/17-17/18
		Million dollars		*Percent*
Japan	338.2	369.4	350.3	-5
Canada	287.3	317.0	310.8	-2
Mexico	238.0	243.7	277.6	14
China (Mainland)	145.1	100.0	97.9	-2
South Korea	110.2	109.1	106.1	-3
Philippines	92.9	95.6	89.5	-6
Taiwan	66.1	84.3	78.4	-7
Malaysia	47.2	57.9	60.5	5
Others	394.8	420.0	417.7	-1
Total	**1,719.8**	**1,797.0**	**1,788.8**	**0**

[1]Based on a marketing year that runs September through August. Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau.

All potatoes and potato products imported during the 2017/18 marketing year totaled $1.48 billion—11 percent above a year earlier, and the highest level reached in 21 years (table 13). Imported potatoes are comprised primarily of frozen fries, which represent over half of total potato import value. Canada currently accounts for 96 percent of all frozen fries imported into the United States.

Table 13: U.S. potatoes (all uses): Marketing year trade value to date, 2015/16-2017/18[1]

Item	Mkt year			Change
	2015/16	2016/17	2017/18	16/17-17/18
	Million dollars			*Percent*
Exports				
Fresh market	189.7	206.0	221.1	7
Seed	7.8	26.1	8.5	-67
Frozen fries	1,004.3	1,031.5	1,033.8	0
Other frozen	120.5	134.6	135.1	0
Chips	194.0	198.5	189.9	-4
Flakes/granules	100.8	101.0	98.8	-2
Canned/prep	75.8	73.9	80.7	9
Flour, meal, dried	17.8	14.5	13.3	-9
Starch	9.0	10.9	7.7	-29
Total	**1,719.8**	**1,797.0**	**1,788.8**	**0**
Imports				
Fresh market	157.9	188.1	203.9	8
Seed	24.7	26.0	25.2	-3
Frozen fries	685.5	731.2	814.4	11
Other frozen	88.2	102.5	119.6	17
Chips	69.0	73.7	84.3	14
Flakes/granules	39.2	46.1	48.1	4
Canned/prep	82.9	84.9	91.9	8
Flour, meal, dried	2.2	4.9	7.2	46
Starch	70.2	68.1	82.3	21
Total	**1,219.9**	**1,325.6**	**1,476.8**	**11**

[1]Based on a marketing year that runs September through August. Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau.

Mushrooms

Sales Volume Continues Down, Value Up

The farm value of all mushrooms (Agaricus and others), rose almost 1 percent to $1.2 billion during the 2017/18 crop year (July-June)—the highest value in 9 years. 2017/18 crop year mushroom sales volume (fresh and processed) declined 2-percent from last year, a continued reversal of a 7-year year upward trend which ended in the 2015/16 crop year (table 14). Agaricus sales volume was down in all areas of the country. Pennsylvania and California, when combined, accounted for 75 percent of total sales volume (table 15). With volumes down, the gain in total sales value was attributed to a 3-cents-per-pound price increase of Agaricus mushrooms.

A volume decline of 3 percent was realized in the white-button mushroom variety to 704.1

million pounds. Brown mushrooms (including Portobello and Crimini) increased 5 percent to 187.1 million pounds. Sales value climbed for brown mushrooms to $284.1 million, and white mushroom value decreased by less than 1 percent despite a 4-cent increase in the season-average price (point-of-first-sale), from $1.16 in 2015/16 to $1.20 in the 2016/17 crop year. White mushrooms accounted for 75 percent of all Agaricus sales in 2017/18 season (table 14).

Table 14: U.S. Mushrooms: Sales, price, and value

Item	Volume of sales		Price		Value of sales	
	2016/17	2017/18	2016/17	2017/18	2016/17	2017/18
	1,000 pounds		*Dollars per pound*		*1,000 dollars*	
Agaricus	906,593	891,231	1.24	1.27	1,122,821	1,127,886
White	727,599	704,107	1.16	1.20	847,010	843,791
Brown[1]	178,994	187,124	1.54	1.52	275,811	284,095
All specialty	26,762	26,004	3.86	4.06	103,306	105,696
Shiitake	10,806	10,112	3.91	4.44	42,301	44,883
Oyster	11,087	10,842	3.12	3.13	34,542	33,890
Other	4,869	5,050	5.43	5.33	26,463	26,923
Total	**933,355**	**917,235**	**1.31**	**1.34**	**1,226,127**	**1,233,582**

[1]Includes Portobello and Crimini.
Source: USDA, National Agricultural Statistics Service, *Mushrooms*.

Despite a decline in area, U.S. production of fresh mushrooms (Agaricus and Specialty) increased to 839 million pounds in the 2017/18 crop year, an increase of less than 1 percent. Within market segment, sales volume of fresh Agaricus mushrooms totaled 813.1 million pounds, up 1.4 million pounds from 2016/17 season, while sales domestic processed mushrooms declined 18 percent from the previous year. Fresh-market mushrooms represent 91 percent of total Agaricus sales volume. The average price producers received for fresh-market mushrooms rose just 1 percent and the price for processing-market mushrooms increased 12 percent from last year—the largest price increase in the past 10 years and the highest price received in 15 years.

The sales volume of specialty mushrooms (excluding brown Agaricus), most of which are sold in the fresh market, decreased in the 2017/18 season—down 3 percent to 26.0 million pounds. The resulting 5-percent increase in average grower price more than offset the decline in production volume, boosting the value of production to $105.7 million in the 2017/18 crop year.

Table 15: U.S. Agaricus mushrooms: Sales, price, and value, selected States

State	Volume of sales		Price		Value of sales	
	2016/17	2017/18	2016/17	2017/18	2016/17	2017/18
	1,000 pounds		*Dollars per pound*		*1,000 dollars*	
Pennsylvania	573,268	572,223	0.96	1.00	550,600	572,179
California	101,681	95,324	1.98	2.05	201,702	195,731
Other States	231,644	223,684	1.60	1.61	370,519	359,976
United States	906,593	891,231	1.24	1.27	1,122,821	1,127,886

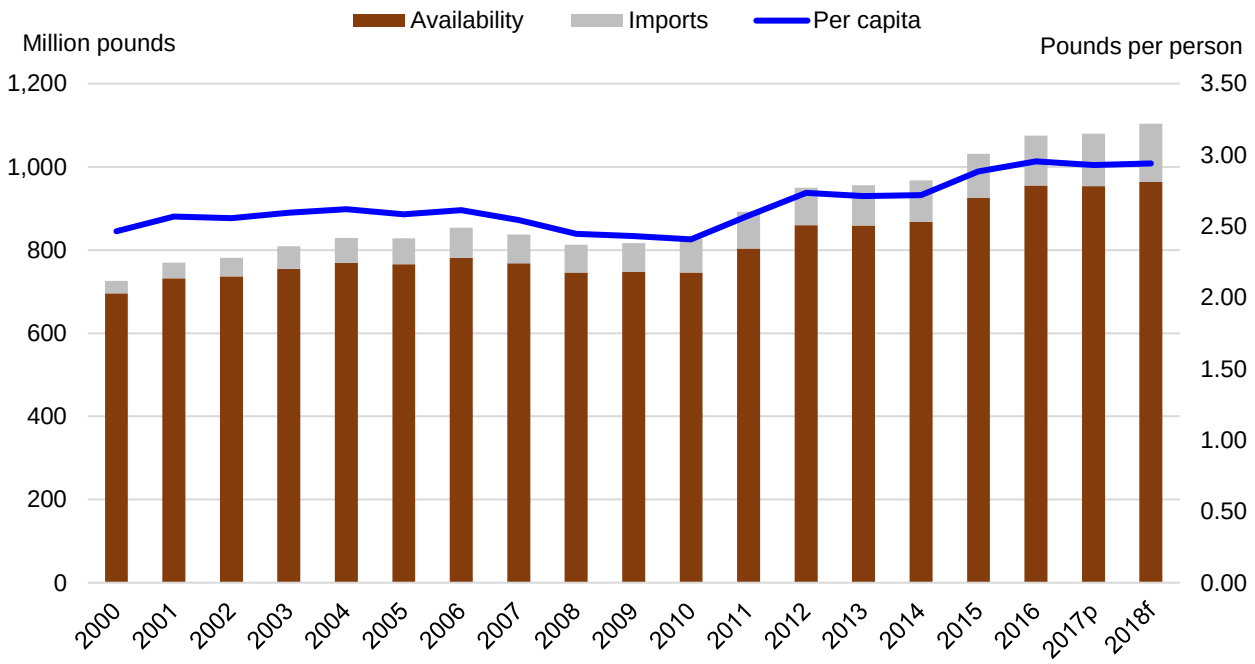
Notes: Includes Portobello and Crimini.
Source: USDA, National Agricultural Statistics Service, *Mushrooms*.

Per-capita availability, which had been steadily climbing since the 2010/11 crop year, experienced a slight increase to 2.94 pounds per person during the 2017/18 crop year from 2.93 pounds per person last year. U.S. fresh-mushroom imports grew to 140 million pounds in the 2017/18 crop year and continue to be increasingly important to per-capita availability. During the 2017/18 marketing year, the percent of imported fresh mushrooms available reached an all-time high at over 14 percent of total domestic availability (fig. 11).

Steady supply and demand of mushrooms have kept monthly retail prices relatively stable for the past two years. According to USDA Agricultural Marketing Services Market News, advertised retail prices for Agaricus white-button mushrooms averaged $2.16 per 8-ounce package during June through September 2018, up only 1 percent from same period last year, and the highest average price for the period over the past decade. In addition, for the prior 22 months, average monthly prices have fluctuated, but remained within a 10-cent band around the $2.16 average price. Prior to two years ago, the volatility was more than twice that currently observed.

Figure 11

Domestic supply and per capita use of fresh Agaricus mushrooms



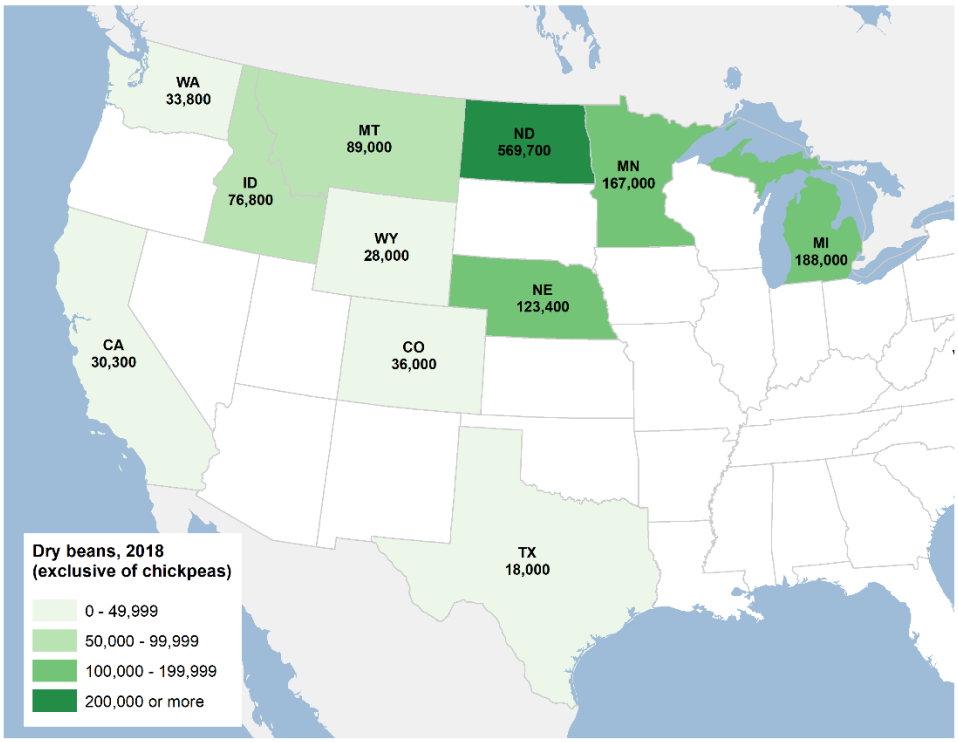
Source: USDA Economic Research Service Vegetables and Pulses Yearbook tables.

Dry Edible Beans

Improved Yields Nudge All Dry Bean Production Higher

Several major dry bean growing areas enjoyed more favorable weather in 2018, as compared with the widespread drought conditions that affected the 2017 crop, helping to lift dry bean yields and production, despite a drop in area planted. At 3.78 billion pounds, the USDA, NASS all dry bean production estimate is record-high, however, the published figure is inclusive of chickpea (also known as garbanzo bean) production which is expected to total nearly 890 million pounds. When chickpea production is excluded from the dry bean production forecast, the adjusted total of 2.895 billion pounds is essentially on par with adjusted production in 2017 (2.894 billion pounds) but well below the record-high of 3.374 million pounds harvested in 1991.

Figure 12
Projected 2018 dry bean (exclusive of chickpeas) harvested area, by State



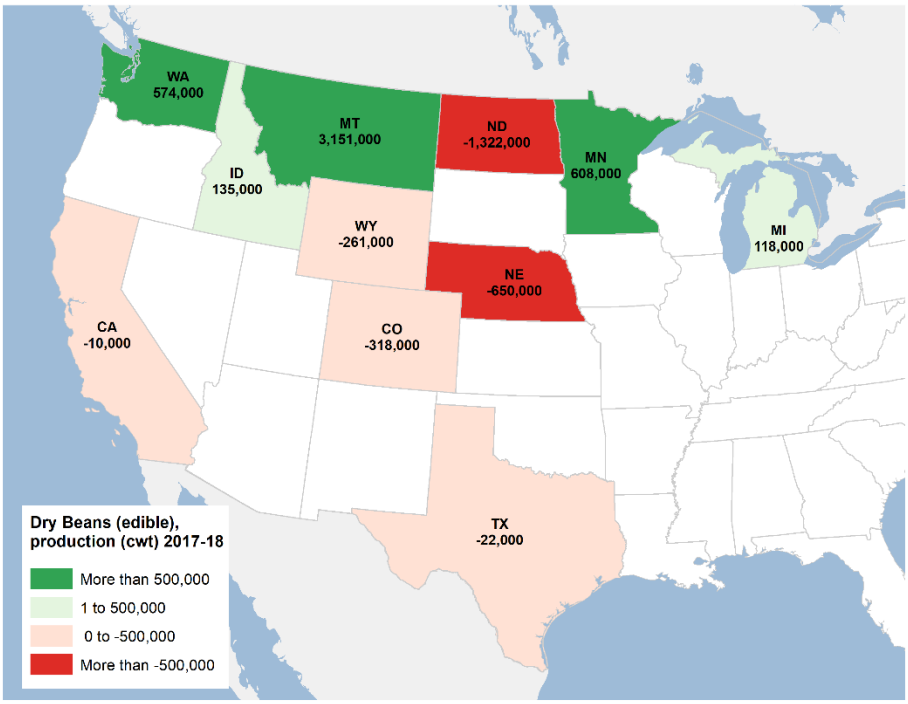
Sources: USDA, National Agricultural Statistics Service, *Quick Stats* database and USDA, Economic Research Service calculations.

Total dry bean planted area, exclusive of chickpea sowings, fell 214,900 acres to 1.258 million acres from the 2017 total (fig. 12). Planted area losses are greatest in North Dakota (down 70,000 acres) where plantings of spring wheat surged (up 1.055 million acres) on improved price and farmer return prospects. Declining adjusted harvested area, down net 55,700 year-to-

year to 1.357 million acres is attributable to reduced harvests of non-chickpea dry beans in a number of reporting States. The largest declines are indicated for Michigan (down 30,500 acres), Nebraska (down 31,600 acres), and North Dakota (down 73,600 acres). Michigan is a key black bean–producing State, while Nebraska produces the vast majority of Great Northern beans. North Dakota farmers produce significant volumes of pinto and black beans. Area planted to each of these three bean varieties is down in 2018. A sizable 83,000-acre gain in non-chickpea harvested area in Montana combines with smaller gains in Minnesota and Washington State to offset losses elsewhere in the country.

While area planted and harvested to dry beans fell in 2018, average dry bean yields improved by more than 100 pounds per acre from 17.8 hundredweight in 2017 to 18.8 pounds per acre in 2018. The most substantial yield improvements include Michigan (up 390 lbs/acre), Minnesota (up 310 lbs/acre), and Montana (up 500 lbs/acre)—States that were among those most affected by dry conditions in 2017 (figure 13). Each of these States reported areas of D1 (moderate drought) to D4 (exceptional drought) through last year's dry bean growing season. Small sections of Montana and Michigan remain classified as abnormally dry while sections of the Pacific Northwest, California, and Colorado are now experiencing drier conditions.

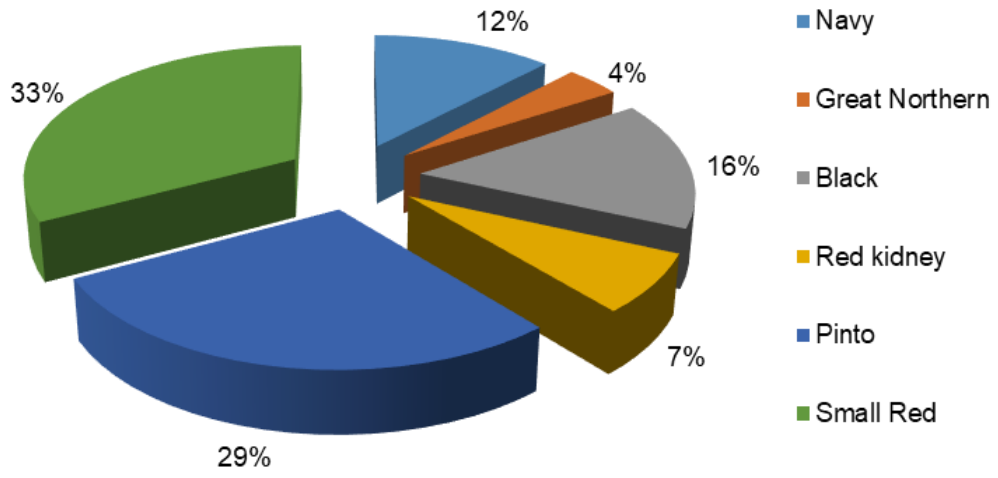
Figure 13
Projected 2018 all dry bean change in production (excluding chickpeas), by State



Sources: USDA, National Agricultural Statistics Service, *Quick Stats* database and USDA, Economic Research Service calculations.

Projected production by class for 2018 indicates a number of year-to-year shifts in both share and absolute volume. Notably, pinto's share of production is down from 2017's abnormally high 47 percent to a closer-to-average 29 percent of dry bean production (exclusive of chickpeas). Reduced sowings in the key pinto production State, North Dakota, contribute to the decline. On net, 221,000 fewer pinto acres were sown in 2018. A sharp decline in navy bean planted area in Michigan (down 14,000 acres) is chiefly responsible for an aggregate 21,600 acres drop in planted area and a forecast 61.3 million pound reduction in production, reducing this class's share of total production from 14 to 12 percent (figure 14). Black bean's share of adjusted dry bean production is also expected to fall by about 2 percent and 62.5 million pounds and reflects increasing competition with Argentina in global black bean markets and particularly in South America on the whole.

Figure 14:
Projected 2018 dry bean production, by class 1/



1/ Excludes garbanzo bean production.
Sources: USDA, National Agricultural Statistics Service, *Crop Production* and USDA, Economic Research Service Projections.

Exports contract from previous year

U.S. all dry bean exports for 2018 are projected to be down about 100 million pounds from the previous year, in part due to slightly elevated prices, but also due to trade challenges. In late June and in response to U.S. tariffs on Chinese steel and aluminum, the EU imposed a 25-percent retaliatory tariff on U.S. kidney and navy beans (table 16). Surging sales of kidney beans to Mexico helped to bolster large and small kidney bean exports above 2017 levels and offset the effects of reduced EU sales. However, navy bean exports—based on the pace of sales to date—are projected to be down significantly in 2018, with reduced sales volume

(through August) to Canada, the United Kingdom, and several EU nations including France, Italy, and Spain. Elsewhere, U.S. exports of black beans have faced growing competition from Argentinian-grown product which has displaced U.S. sales to the Dominican Republic and Mexico.

Table 16: U.S. dry bean calendar year export volume[1, 2]

Bean class	2017	2018p	2019f	2018 year to date as % relative to same time in 2017
	1,000 cwt (bags)			
Navy (pea)	2,006	1,257	1,809	63
Black	1,275	1,154	1,243	91
Pinto	1,275	1,506	1,516	134
Great Northern	276	207	265	75
Light-red kidney	200	387	278	194
Dark-red kidney	999	1,139	979	114
Small red	182	314	209	172
Large lima	175	141	213	80
Baby lima	30	83	68	276
Pink	27	45	34	163
Cranberry	86	111	125	130
Other	5,360	4,179	4,115	
Total	11,890	10,523	10,853	

[1]Excludes Garbanzo beans. cwt = hundredweight.
[2] 2018 exports are preliminary and based on the pace of trade through August, as compared to the year previous. 2019 exports by class are forecast.

Source: Prepared by ERS using data of the U.S. Department of Commerce, U.S. Census Bureau.

Sales to North American trade partners Mexico and Canada are critical to the health of the U.S. dry bean export market and, since 2005, comprise the largest share of exports (table 17). The vast majority of exports to Canada are typically navy beans, though they may be supplemented with Great Northern beans or other white beans (classified as “beans, not elsewhere specified”) when prices make it favorable to do so.

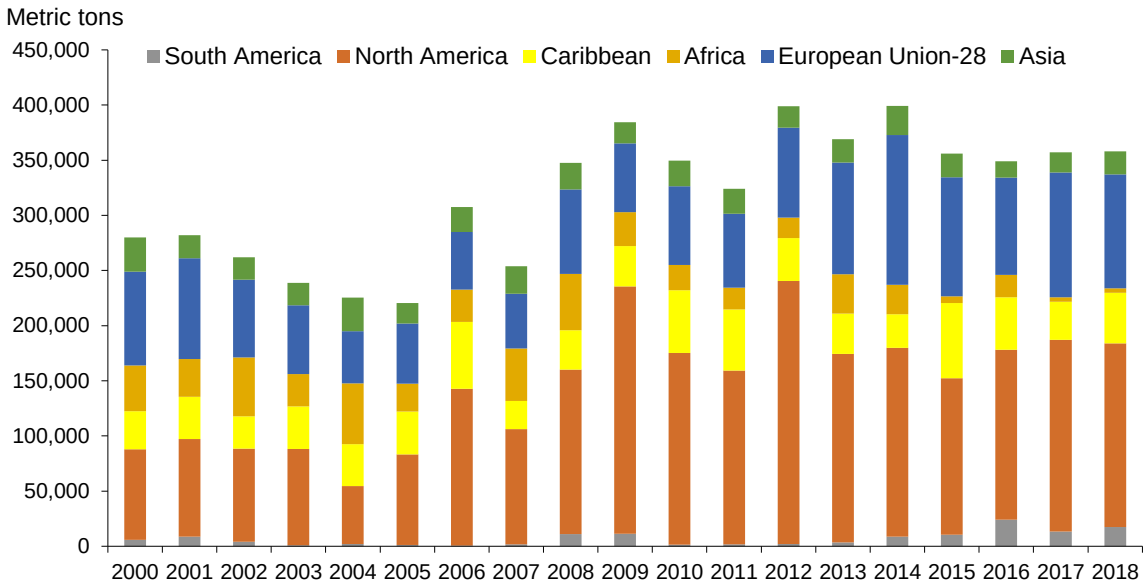
Table 17: U.S. dry bean calendar year export volume, by selected destination[1, 2]

Destination	*2016*	*2017*	*2018p*
	Metric Tons		
Canada	64,987	*71,454*	48,484
Mexico	88,938	*102,331*	119,505
Spain	3,578	*4,132*	8,804
Italy	25,944	*47,082*	42,841
United Kingdom	33,939	*38,024*	28,753
Dominican Republic	32,910	*19,509*	29,521
France	9,635	*5,833*	5,800
Japan	7,071	*6,994*	8,234
Other	112,333	100,450	95,461
Total	372,263	*388,815*	379,168

[1] Excludes Garbanzo beans. cwt = hundredweight.
[2] 2018 exports are preliminary and based on the pace of trade through August, as compared to the year previous.
Source: Prepared by ERS using data of the U.S. Department of Commerce, U.S. Census Bureau.

Exports to Mexico largely comprised black and pinto beans for a number of years; however, as Argentina's share of the black bean market grows, U.S. dry bean exports to Mexico have shifted to include relatively more kidney beans. In 2017, U.S. exports of kidney beans to Mexico more than doubled; kidney bean exports to Mexico for 2018 are on track to exceed 2017 volumes by more than 22 percent, while U.S. exports of black beans to Mexico are on pace to fall well short of 2017 volume.

Figure 15: U.S. dry bean exports by region 1/



1/Data is reported on a calendar year basis. Data for 2018 is projected and is scaled based on the share of exports through August as compared to the same time in 2017.
Source: USDA, Foreign Agricultural Service, Global Agricultural Trade Service database.

The EU has also been a perennially important dry bean trade partner for the U.S. (fig. 15). However, despite a drought that cut regional production for a number of crops in 2018, tariffs made it unfavorable to import several key varieties of U.S. dry beans, shrinking projected exports to the EU in 2018 by double-digits. Asia is a growing market for U.S. dry beans, primarily lima and kidney beans to Japan. Based on the pace of sales to date, Japan is on track to import nearly 20 percent more U.S. dry bean in 2018 as compared with 2017 and much of the gain is attributable to vastly increased imports of baby lima beans and Great Northern beans. Dry bean exports to Africa are on a declining trend and tend to fluctuate in response to food aid shipments.

Dry bean imports, which augment domestically grown production and carryin from the previous year, generally represent about 7.3 percent of total dry bean supplies, a slight increase from 2017. Dry bean imports, less garbanzo beans, is expected to total approximately 237 million

pounds in 2018, up from 231 million in 2017 (table 18). Imports are projected up in 2018 largely due to increased imports of pinto beans, following the harvest of what is expected to be a much smaller U.S. pinto bean crop. Elsewhere imports of baby lima beans and light red kidney beans are also projected up and help to augment demand from Asian export markets.

Table 18: U.S. dry bean calendar year import volume to date [1]

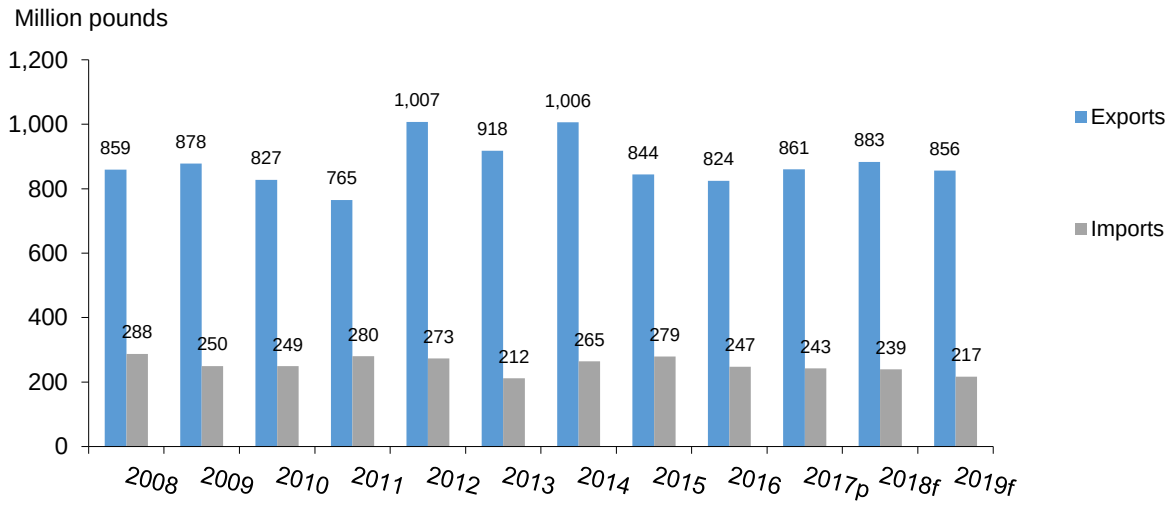
Bean class	2016	2017	2018p [1]
	1,000 cwt (bags)		
Black	33	31	32
Pinto	16	16	34
Small red	13	12	12
Navy	6	4	5
Dark-red kidney	5	7	6
Light-red kidney	16	15	17
Other [2]	145	146	131
Total	233	231	237

[1] Data for 2018 is projected based on share of exports to date. cwt = hundredweight.
[2] Excludes guar seeds.

Source: Prepared by ERS using data from U.S. Department of Commerce, U.S. Census Bureau.

In 2019, U.S. all dry bean imports and exports are expected to modestly lower than projections for 2018 (figure 16). Based on year-to-date dry bean exports, less garbanzo beans, are on pace to reach about 880 million pounds in 2018 and forecast to fall slightly in 2019, based on a return to more recent, average trade volumes.

Figure 16
U.S. dry bean trade 1/



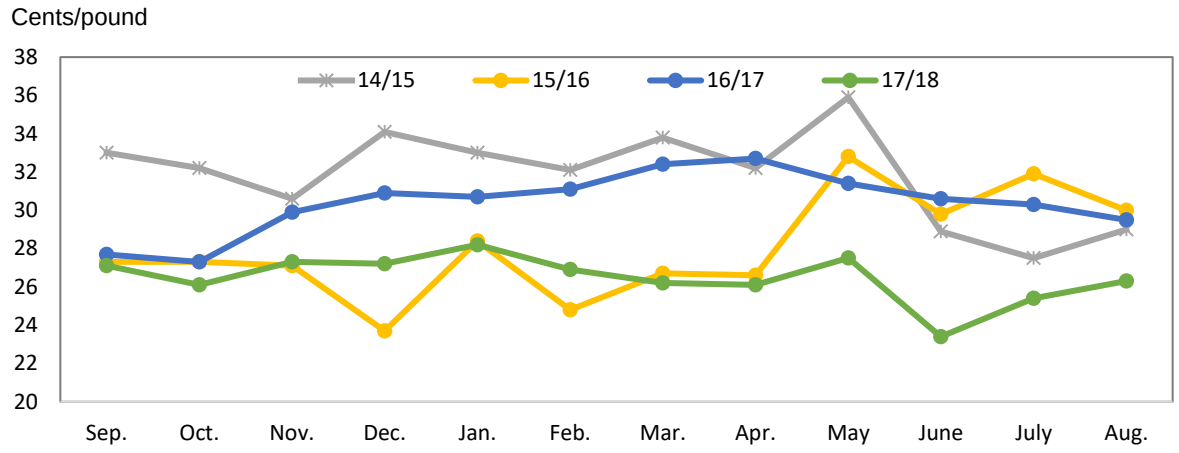
1/ Excludes Garbonzo beans.
Source: USDA, Economic Research Service using data from the U.S. Department of Commerce, U.S. Census Bureau.

An expected increase in production of black and pinto beans in 2019 helps to reduce demand for imported product, resulting in a slight year-to-year decline in the imports. Sizable carryout is forecast for the 2018 crop of small red beans following a projected surge in production that is expected to augment 2019 supplies and slightly reduce demand for imports in the same year.

Dry bean prices expected to improve in new marketing year

In nearly every month of the 2017/18 marketing year, the all dry bean monthly price came in below 2016/17 estimates (figure 17). Larger production combined with a weaker export market to increase supplies and carryout from 2017/18. Additionally, the corn price—which is significantly correlated with dry bean prices, was largely stagnant in 2017/18, on par with the 2016/17 estimate, and did not offer any upward momentum to the all dry bean price.

Figure 17
U.S. dry edible beans: Average monthly grower price



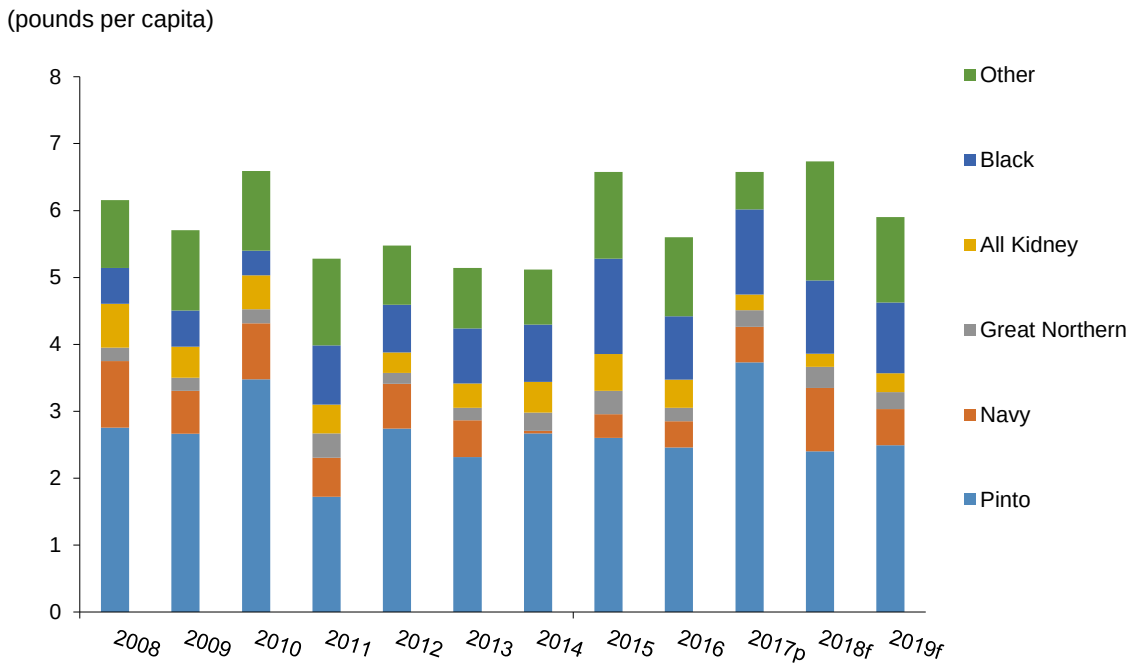
Source: USDA, National Agricultural Statistics Service, *Agricultural Prices.*

In 2018/19, both the corn and the all dry bean price are forecast to improve. Dry bean production (less garbanzo beans) is essentially level year-to-year with supplies up slightly, offering minimal price support which is augmented by the effects of a higher corn price. Notable reductions in production and supplies for key bean classes (pinto, Great Northern, navy) with resulting increases in forecast prices for these classes help to minimize the effects on the all dry bean price from expanded production for other classes. For 2018/19, the all dry bean price is forecast at $28.45 per cwt, an increase of about 65 cents from 2017/18 all dry bean price projection. June through August of 2018, the all dry bean price showed countercyclical improvement, providing further indication of a strengthening bean price outlook.

Per Capita Availability Predicted Up

All dry bean per capita availability (less garbanzo beans) for 2018 is projected up slightly to 6.73 pounds per person in 2017. Preliminary by-class supply and use projections are informed by the most recent NASS *Crop Production* report and expectations for use based, in part, on scaled calendar year trade data. Availability for nonwhite beans is expected to fall from 5.7 pounds per person in 2017 to 5.4 pounds in 2018, driven by a sharp cut in production and supplies for pinto beans. After jumping to almost 3.7 pounds per person in 2017, pinto bean per capita availability is projected to fall 2.4 pounds per person in 2018 (figure 18). Increased availability of navy and Great Northern beans provides an offset to reduced pinto bean availability. Lower-forecast export prospects and sizable carryin from 2017, which more than offset reduced production, help to lift availability in these classes.

Figure 18
Dry bean (less Garbanzo beans) per capita availaibility



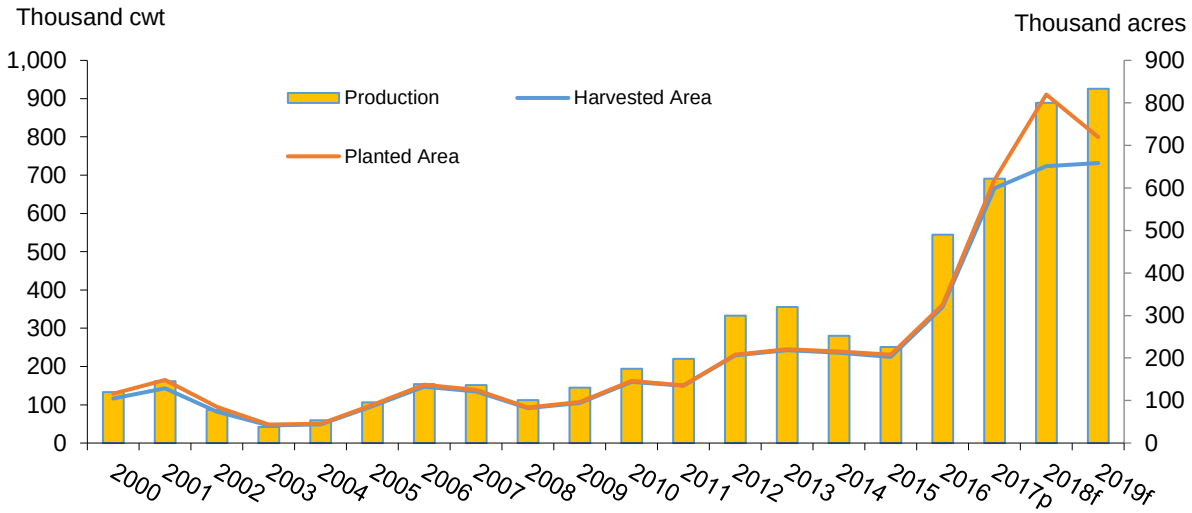
Source: USDA, Economic Research Service calculations.

Chickpeas (Garbanzo Beans)

Production Forecast to Surge to New Record-High

Sowings of chickpeas (also called garbanzo beans) reached a record high of 820,000 acres in 2018, a 33-percent increase over 2017 plantings. The October NASS *Crop Production* report indicates that 651,300 acres of chickpeas were harvested in 2018. At this level, the harvested-to-planted ratio is about 80 percent and represents a sharp decline relative to the 5-year harvested-to-planted ratio of nearly 98 percent. The lower share of harvested area notwithstanding, a return to more normal yields after last year's drought-affected decline, results in a surge of chickpea production. Production for 2018 is forecast up nearly 30 percent to 890 million pounds, an increase of about 200 million pounds over the 2017 estimate (fig. 19).

Figure 19
U.S. chickpea planted area and production 1/



1/ 2018 production is based on 3 year average yields and NASS-reported harvested area. Sources: USDA, National Agricultural Statistics Service and USDA, Economic Research Service yield and production calculations.

U.S. Chickpea Exports Hit Hard by Competition, Tariffs

Projected 2018 exports of U.S. chickpeas are down 48 percent from the same period in the previous calendar year. Chickpea exports are on track to total just 170 million hundredweight (cwt) in 2018 (table 19). If realized, this would be the lowest volume of chickpeas exported since 2015, when U.S. production was about one-third of the 2018 forecast. Exports of U.S. chickpeas were down due to increased competition from Canada as well as tariffs that limited access to a key market.

Canadian farmers are expected to produce more than twice the volume of chickpeas harvested in 2017 and augment North American chickpea supplies by 500 to 600 million pounds. This represents a significant increase in North American production relative to 2017 and demonstrates the capacity of Canada to produce pulse crops at nearly the same volume as the U.S. At a time when world supplies of chickpeas are robust and export options are more limited than in 2017, the surge in North American production has a dampening effect on global prices.

Subsequent to a favorable monsoon that produced a record-large harvest of some pulse and grain crops, the Indian government implemented a 40-percent duty on imports of chickpeas. Later that duty was raised to 60 percent, effectively choking off exports to the country and reducing access to a key U.S. trading partner. By curbing imports via duties and bans, the Indian government is also working to support domestic farmers who have faced low prices for their crops in recent years. The Indian government guarantees the farmers a minimum support price (MSP) for their crops. Pulse MSPs have been rising for the past several years, however, farmers are still said to be struggling to cover the costs of cultivation. At the same time, the growing Indian middle class—of whom nearly one-third are vegetarian and rely on pulses to provide protein—demands increasing volumes of pulses including chickpeas. At present it is unclear if imports of chickpeas and other pulses from the U.S. to India will recover and aid in closing the supply-demand gap. In India, Desi (small) chickpea and lentils are considered a winter or Rabi crop and are typically seeded in November and December. As planting progresses, prospects for the 2019 Indian production of pulse crops will become clearer.

Table 19: U.S. chickpea year export volume to date, by selected destination [1]

Destination	*2016*	*2017p*	*2018p* [2]	Period-Period % Change 2017 to 2018
	---------- *Metric Tons* ----------			
Canada	13,840	*29,348*	6,317	-9
Spain	14,059	*20,631*	6,997	-11
Pakistan	7,036	*18,780*	3,471	-63
India	8,911	*17,130*	316	-91
Turkey	7,544	*12,348*	1,271	-54
United Arab Emirates	3,729	*7,600*	856	-73
Algeria	3,485	*6,302*	139	-96
Italy	4,714	*5,863*	680	-77
Other	22,753	*17,216*	12,780	5
Total	**86,256**	***148,947***	**29,715**	**-48**

[1] Excludes seeds.

[2] Data for 2018 is January through August.

Source: Prepared by ERS using data of the U.S. Department of Commerce, U.S. Census Bureau.

Sales of U.S. chickpeas to Turkey, the United Arab Emirates, and Algeria are also down significantly year-to-year and it is expected that the pulses from the Black Sea region, and

Russia in particular, have supplanted demand for U.S. pulse crops in these countries. Starting in calendar year 2019, U.S. export prospects are expected to improve, in part due to reduced competition from Australia. Production of Australian pulses and chickpea crops (concentrated in New South Wales and Queensland regions) were negatively affected by the profound drought in the Southeast sections of the country, limiting supplies available for export while also bolstering prices.

Prices Up Slightly for 2017/18, Expected Down for 2018/19

The preliminary NASS all chickpea season average farm price (SAFP) for 2017/18 is up slightly year-to-year to $30.8 per cwt and compares to $28.8/cwt for 2016/17 (table 20). The 2017/18 SAFP is reflective of the smaller-than-expected chickpea crop harvested in 2017—which suffered from very dry conditions in several key production regions.

Table 20: U.S. chickpeas: Monthly grower prices [1]

	Chickpeas	
	2016/17	2017/18
Month	----- Cents per pound -----	
September	30.1	31.2
October	26.2	28.0
November	30.3	27.4
December	32.2	29.5
January	31.6	32.9
February	30.6	35.1
March	32.2	28.7
April	33.2	39.4
May	29.5	33.3
June	34.9	28.2
July	30.0	37.4
August	32.6	33.5
Marketing Year	**28.8**	**30.8**

[1] 2017/18 Marketing Year price is preliminary.
Source: USDA, National Agricultural Statistics Service

For 2018/19, there is downward pressure on prices owning to expanded projected chickpea production. Chickpea production in the new marketing year is forecast at nearly 890 million pounds based on NASS-reported chickpea harvested area and 3-year average chickpea yields. Larger production for 2018 combines with higher year-to-year carryin from 2017 to provide record-high supplies of U.S. chickpeas. Tepid exports weigh on use prospects and are expected to make available a significant volume of chickpeas for domestic use and carryout. Generally higher commodity prices in 2018 help to offset the price sapping effects of surging supplies and weaker export prospects. However, in recent weeks, chickpea prices have trended lower and support a year-to-year decline in the all chickpea price. USDA, Agricultural Marketing Service

and USDA, Farm Service Agency weekly chickpea price reports indicate weakening chickpea prices in the first several weeks of the new 2018/19 marketing year. Prices fell as the 2018 crop was harvested and the full scope of the size of the new crop came into clearer focus.

Per Capita Availability Expected to Continue Climbing

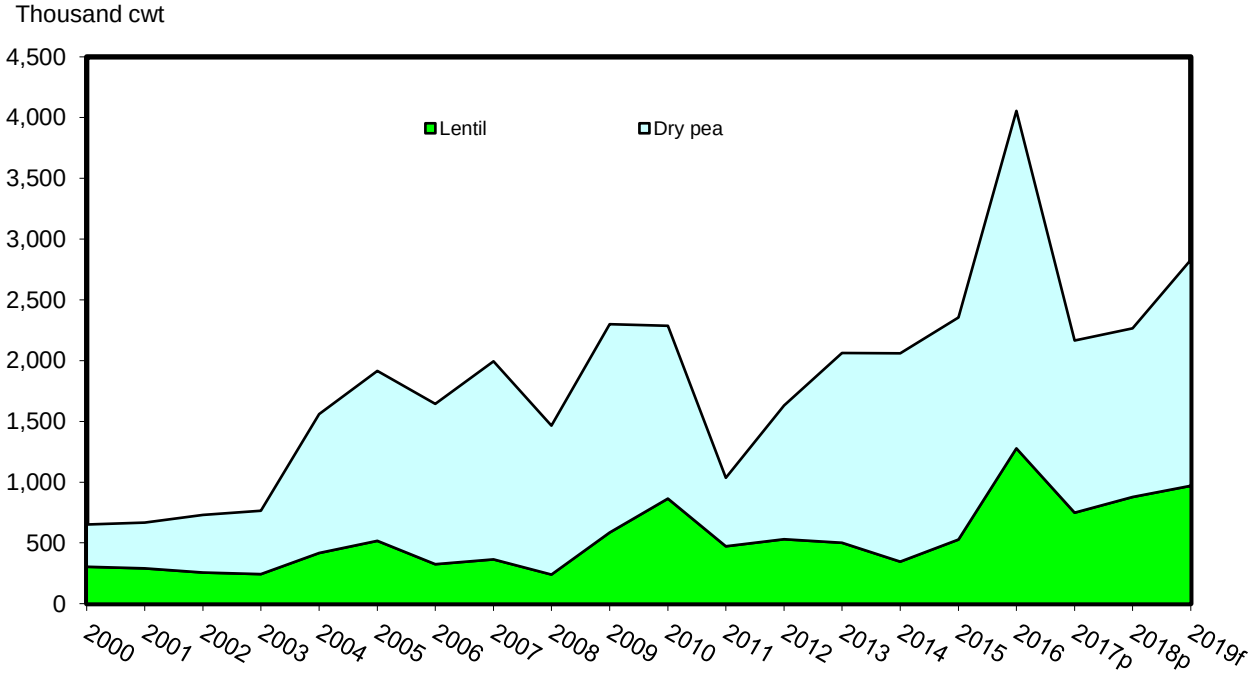
On the assumption of average carryout for 2018, and in light of weakened export prospects, domestic disappearance is projected to surge and support a sizable increase in per capita availability in 2018. At 2.52 pounds per capita, the 2018 figure is nearly twice that of the 2017 projection and is supported by expanding consumer demand for hummus and other chickpea-containing snack products and foods. With an expected, modest, recovery in chickpea exports and slightly reduced supplies in 2019, per capita availability is projected to decline slightly to about 2.3 pounds per capita.

Dry Pea and Lentils

Fewer Acres but Much-Improved Yields Lift 2018 Production

Aggregate dry pea and lentil production is estimated by NASS to rise slightly in 2018, up about 5 percent to 2,266 million hundredweight (cwt) (figure 20). The lift comes despite a near-60,000 acre reduction in planted area and is based on vastly improved yields for both dry peas and lentils. In 2017, lentil yields slumped to a record-low (reporting began in 1986) and dry peas realized their lowest yields since 1996. Extreme drought conditions in the critical Northern Plains pulse-growing region was largely responsible for the poor yield outcomes in 2017. In 2018, much of the drought has abated in this area, though sections of the Pacific Northwest have progressed into drought conditions through the growing season.

Figure 20
U.S. dry pea and lentil production



Source: USDA, National Agricultural Statistics Service.

Planted and harvested area for 2019 is projected to return to trend levels and rise from 2018 (table 21). Dry pea and lentils prices are roughly correlated with wheat prices, which are projected to rise in the outyear and to support strengthening prices for dry pea and lentils. Reduced dry pea production for the 2018/19 marketing year, down 30 million pounds from 2017/18, combines with stable use, including a modest increase in exports, to lower-ending

stocks and improve the stocks-to-use ratio for the 2019/20 marketing year, as well as to provide support for the dry pea price.

Table 21: Dry peas and lentils: Planted area

Item	2017	2018p	2019f [1]	Change 2017-18
		1,000 acres		*Percent*
Dry peas	1128.0	865.0	1128.0	-23
Austrian winter peas	26.5	16.5	26.7	-38
Lentils, all	1104	785	940.7	-29
Total	**2258.4**	**1661.9**	**2095.4**	**-26**

[1] Dry pea and lentil plantings are forecast by ERS for 2019.
Sources: USDA, National Agricultural Statistics Service, Quickstats Database; and USDA Economic Research Service calculations.

Lentil production in 2018/19 is reported by NASS to be nearly 20 percent above the volume harvested for the 2017/18 marketing year. Combined with sizable carryin from the 2017/18 crop, which experienced a tremendous decline in exports, total lentil supplies for 2018/19 are projected to rise by about 18 percent, year-to-year. Expectations of a return to recent average export volumes in 2018/19 aid in increasing total disappearance and support expectations of a slight price increase in 2018/19. However, should export volumes fail to recover to near the 3-year average, resulting slackness in the balance sheet will put downward pressure on the 2018/19 price and may result in a year-to-year decline. On the basis of increased plantings, normal weather and average yields in 2019/20, lentil production is again expected to rise and provide another year-over-year lift in total lentil supplies. Continued gains in export and domestic use, assist to maintain tightness in the balance sheet and to support a modest increase in the 2019/20 lentil price.

Dry Pea and Lentil Exports Fall Across Primary Markets

With trade data available from U.S. Census Bureau through August of 2018, a complete picture of imports and exports for the 2017/18 marketing year is now clear. In the first two months of the marketing year, lentil export volumes were above the same time a year earlier. The surge, in advance of the implementation of a series of pulses tariffs with key trade partners, did not last, and for the balance of the marketing year, export volumes fell short of the previous year for both lentils and dry peas. Combined exports totaled just 32 percent of last year's volume (table 22). The year-to-year decline in exports was greatest for lentils which fell 61 percent to 353 million pounds in 2017/18. Dry pea exports were down 54 percent to 515 million pounds for the 2017/18 marketing year. Exports of lentils to India, previously the second largest purchaser of U.S. lentils, were one-tenth the volume in 2017/18. Volume shipments to Canada, the number one destination for U.S. lentils fell to just over a one third the volume sold the prior marketing

year. Similarly, sales of U.S.-grown yellow peas were down markedly to both China and India in 2017/18 on the imposition of restrictive tariffs. The number-one market for U.S. yellow peas in 2017/18 emerged as Tanzania which, heretofore, had imported minimal quantities of U.S. pulses.

Table 22: U.S. dry peas, lentils: Export volume by class

Item	2015/16	2016/17	2017/18p	Year-to-Date Change 2017/18-2016/17
		------Metric tons-----		*Percent*
Exports:				
Green peas	97,467	191,251	109,719	-43
Yellow peas	159,314	166,028	26,873	-84
Split peas	116,160	71,476	67,885	-5
Austrian winter pea	504	1,080	2,339	117
Misc. dry peas	104,034	79,422	26,896	-66
Lentils, all	203,402	339,945	160,333	-53
Planting seed, all	46,473	83,491	38,862	-53
Total (without seeds)	**680,881**	**849,202**	**394,045**	**-54**
Total (with seeds)	**727,354**	**932,693**	**432,907**	**-54**

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

Outyear year export projections indicate improvement in volume sales of U.S. dry pea and lentil products and are based on a return to normal marketing conditions. With tariffs still in place, for the first two months of the 2018/19 marketing year, exports of dry peas are about 14 percent above shipments for the same time in 2017/18. Lentil shipments remain fairly anemic and total approximately 54 percent of July and August sales in 2017 and about 83 percent of sales in the pre-tariff period of July and August of 2016.

Prices Reflect Reduced Export Demand

The sluggish pace of exports for both dry pea and lentil crops contribute to rising ending stocks for 2017/18 and put downward pressure on the season average price. For lentils, for which the export market has routinely absorbed 70 to 80 percent of total supplies, the 40- percent disappearance to the export market offsets the effects of broadly higher commodity prices in the U.S. and results in an anticipated $2.60 cent/cwt decline in the all lentil price for 2017/18. Expectations of rising commodity prices, specifically corn and wheat, in 2018/19 and projections for a return to more normal export levels underpin expectations for a price increase in the outyear. However, should the tariffs which have thwarted lentil exports in 2017/18 remain in

place through the balance of 2018/19, domestic season average prices are likely to be negatively affected. Lentil prices for the July and August of 2018, the first two months of the new marketing year, are weaker than for contemporary prices in 2017 (table 23). USDA, Farm Service Agency's weekly commodity prices report also shows prices for lentils and dry peas weakening in recent weeks.

Table 23: U.S. dry peas and lentils: Monthly grower prices by class, 2016/17-2018/19

	Dry peas [1]			Lentils		
	2016/17	2017/18p	2018/19p	2016/17	2017/18p	2018/19p
Month	----------cents per pound----------					
July	11.6	10.0	10.5	36.6	28.2	19.3
August	10.5	11.1	10.1	27.2	25.9	18.0
September	10.4	12.9		26.6	25.9	
October	13.7	12.9		27.1	27.9	
November	10.9	12.2		27.6	26.9	
December	11.3	12.1		31.5	27.7	
January	10.7	11.9		29.2	29.1	
February	11.6	11.5		31.5	27.5	
March	11.0	11.3		32.0	23.5	
April	11.5	11.2		29.8	21.2	
May	11.6	11.9		30.4	22.1	
June	10.8	11.6		28.7	20.6	

-- = not available. [1]Dry pea and lentil marketing year is July-Jun.

Source: USDA, National Agricultural Statistics Service, *Agricultural Prices*.

For dry peas, NASS estimates that the season average dry pea farm price for 2017/18 is $11.80/cwt, an increase of 80 cents over 2016/17. Significant production in 2016/17 weighed on the balance sheet and created record-high carryout, which in turn created downward pressure on the dry pea price. The sharp cut in 2017/18 production assisted to mute the effects of a dramatic drop in exports and the high volume of carryin from the previous marketing year. While ending stocks in 2017/18 are up slightly (approximately 6 million bushels) from 2016/17, the effects of the slight reduction in balance sheet tightness, year-to-year, is more than offset by rising commodity prices—which help to lift the dry pea season average price for 2017/18.

For 2018/19, production is expected to fall slightly along with carryout. ERS estimates that the 2018/19 dry pea and lentil price will rise slightly to $12.20/cwt. As is the case for lentils, expectation for seasonal carryout are based, in part, on a return to more normal levels of U.S. dry pea exports. Through the first two months of the 2018/19 marketing year, dry pea exports have exceeded last year's pace by about 14 percent. However, at 96.1 million pounds through August, dry pea exports are well behind the three year average exports of more than 166 million pounds.

Per Capita Availability Rises Due to Lower Exports

Lentil and dry pea per capita availability is expected to rise in 2017/18 on greatly reduced exports. With less product funneled to international markets, more supply is available for domestic use. Per capita availability in 2017/18 is forecast at 1.08 pounds for lentils and 2.26 pounds for dry peas. With expectation of rising exports in 2018/19, a smaller portion of production in the outyear is available for domestic consumption, resulting in lower per capita availability for dry peas, currently projected to reach 2.20 pounds. For lentils, significant carry out from 2017/18 augments supplies and helps create a slight lift per capita availability, to 1.15 pounds in 2018/19.

New Interactive Visualization Explores Vegetable and Pulse Markets

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Newly Updated Commodity Highlights Webpage Provides Interactive Visualizations for Vegetables and Pulses

As a major update to the Vegetables and Pulses (V&P) webpage, USDA's Economic Research Service (ERS) has developed an interactive visualization to explore commodity highlights for all 72 vegetable and pulse commodities in the V&P Yearbook. Five figures cover production and prices, area harvested, imports and exports, import and export shares, and per capita availability. The visualization is accessible in Commodity Highlights on the Vegetable and Pulses webpage. Data comes from the ERS V&P Yearbook (recently made available in a machine-readable format), and from USDA National Agricultural Statistics Service's Census of Agriculture (area harvested). Figures are downloadable in the Tableau toolbar at the bottom of each figure.

Each figure enables the user to visually engage with highlights of the commodity data published as tables in the Vegetables and Pulses Yearbook. Key variables highlighted in the figures provide quick answers to important market questions. A broader story emerges for commodity markets when figures are used in conjunction with each other.

For example, commodity highlights for fresh asparagus show the significant changes the market has undergone over the past two decades. From 2000 to 2017, national average fresh asparagus prices declined from $143/cwt ($143 in 2009 dollars per one hundred pounds) to $104/cwt (Figure 1). Fresh asparagus production has also declined from 150 million pounds in 2000 to 52 million pounds in 2017. Fresh asparagus production measured by harvested acreage is concentrated in California, Michigan, and Washington (Figure 2). Although fresh asparagus production declined over the past two decades (Figure 1) prices stabilized in the second half of the time period. Concurrent to the decline in domestic production, imports of fresh asparagus more than tripled (Figure 3). The increase in fresh asparagus imports more than compensated for the decline in domestic production, with annual per capita availability for

consumers increasing from 1 pound per person in the five-year period 2001–2005 to 1.6 pounds per person in the period 2011–2015 (Figure 4).

When considered together, a comprehensive market story emerges. As domestic production decreased (Figure 1) and imports increased (Figure 3), exports remained stable (Figure 3), putting downward pressure on the domestic price (Figure 1). A decrease in price alongside an increase in imports implies that foreign fresh asparagus can be produced at a lower cost, which could help explain falling domestic production. In further evidence that lower-cost, foreign production increased supply, per capita availability increased over the same time period (Figure 4).

Developments in other V&P commodity markets are readily discernable through the commodity highlight figures available in this visualization. Any questions, comments, or suggestions on how to improve this product should be directed to Gregory Astill.

Figure 1
Production and prices, 2000-2017, fresh asparagus

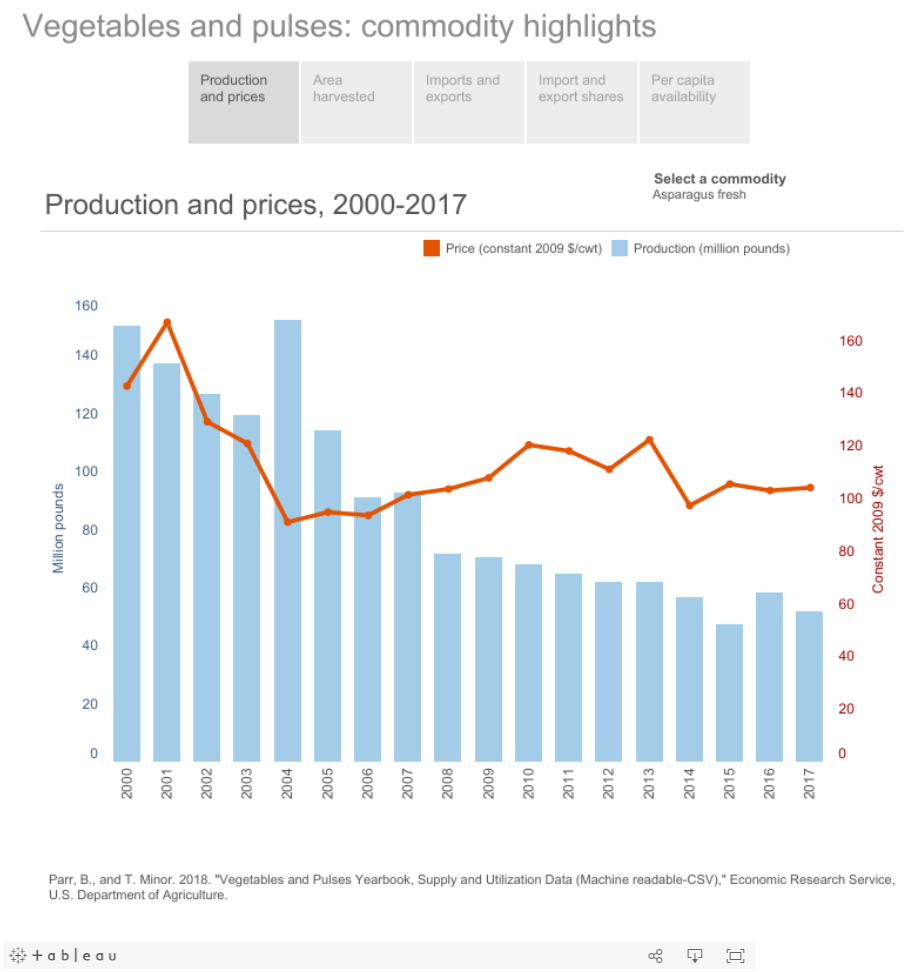


Figure 2
Area harvested by State in 2012, fresh asparagus

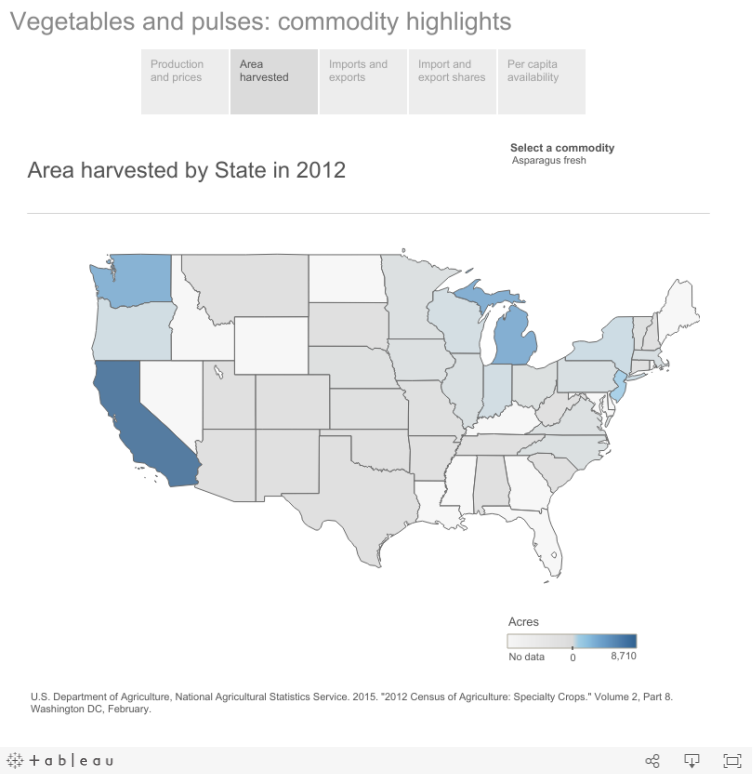


Figure 3
Imports and exports, 2000-2017, fresh asparagus

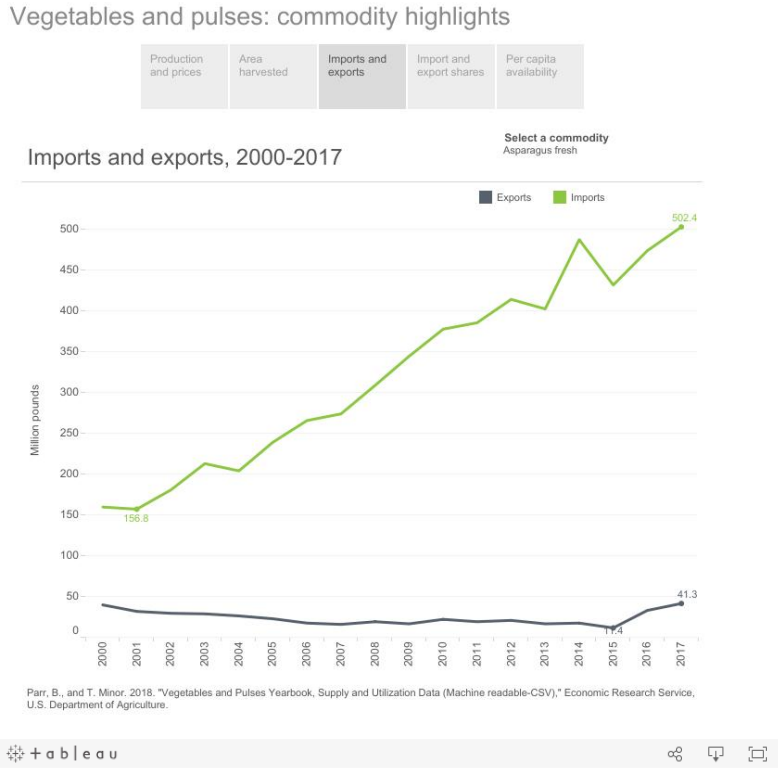
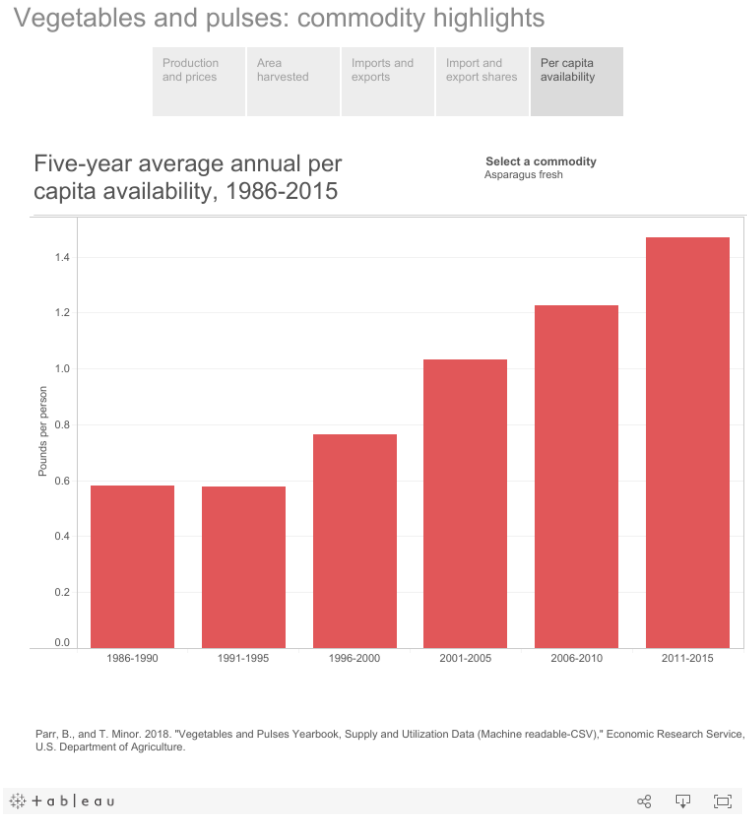


Figure 4
Five-year average annual per capita availability, 1986-2015, fresh asparagus



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