

U.S. Cucumber Supply

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Contents

1	Origins of U.S. Supply	1
2	Prices	4
2.1	Size	4
2.2	Origin	4
2.3	Trend	5
3	Trade Dispute	6

1 Origins of U.S. Supply

Cucumbers are a widely consumed vegetable in both fresh and pickled form. In their fresh form, cucumbers are the seventh most consumed fresh vegetable, just after bell peppers in popularity.¹ Cucumbers made up 4% of U.S. fresh vegetable availability by weight in 2019 (USDA Economic Research Service, 2021). The U.S. is a major importer of cucumbers with approximately 84% of fresh cucumber availability originating outside the U.S. during 2016-2020. Imports from Mexico and Canada are the primary sources of cucumber availability in the U.S. with Mexico providing the U.S. 65% and Canada providing 14% of all U.S. fresh cucumbers between 2016 and 2020.

Table 1: U.S. Fresh Cucumber Availability by Origin (2016-2020)

Origin	Volume (million lbs.)
Domestic:	
FL	570
GA	507
MI	411
Other Domestic	290
Total Domestic	1,778
Imports:	
Mexico	7,358
Canada	1,640
Honduras	351
Other Imports	194
Total Imports	9,543
Total	11,321

Source: *Agtools Inc.* and USDA Global Agricultural Trade System.

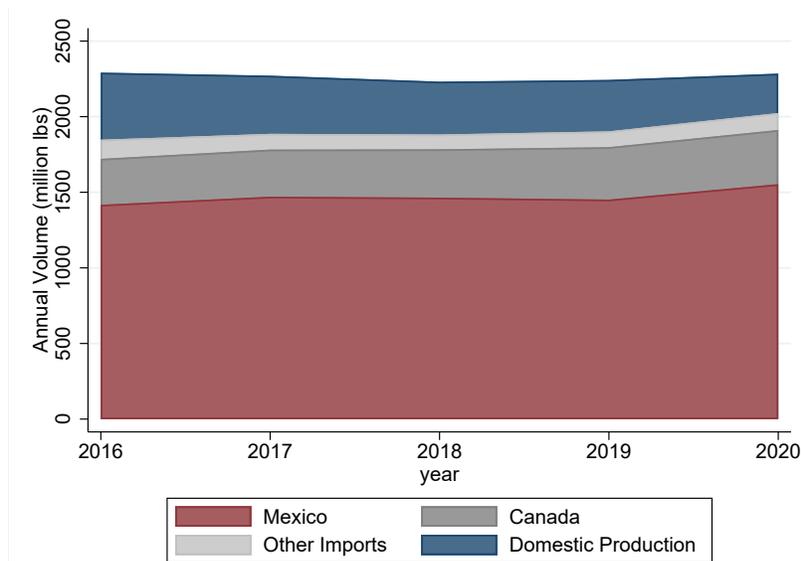
Fresh vegetable imports have been rising over the past several decades. Much of this increase in fresh vegetable imports results from reductions in financial barriers to trade (lower tariffs and lower shipping costs) as well as consumer preferences for year-round as opposed to seasonal availability of fresh vegetables (Melton and Minor, 2017). Imports of cucumbers have grown from approximately 35 percent of availability in the U.S. in 1990-1994 to about 85 percent in 2016-2020 (Davis and Lucier, 2021*b*). The USDA attributes this dramatic increase in cucumber imports to year-round demand and consumer preferences for cucumbers grown in greenhouses. Only a small portion of

¹This report focuses exclusively on fresh cucumbers and does not address the market for processed or pickled cucumbers.

U.S. domestic cucumber production is under protection, whereas protected agriculture production practices are much more common in Mexico (Davis and Lucier, 2021*b*). Further, domestic cucumber production area under protection increased dramatically from 2009 to 2014, but then decreased sharply from 2014 to 2019 (Davis and Lucier, 2021*a*).

Over the past five years, imports of cucumbers into the U.S. have been relatively stable, with the exception of an increase in 2020. Figure 1 shows the U.S. fresh cucumber availability by origin over time from 2016 to 2020. Availability from domestic production and imports is mostly flat from 2016 to 2019. In 2020, domestic production falls and the shortfall is made up primarily from increased imports from Mexico. The domestic production shortfall in 2020 is the result of downy mildew in Michigan and poor weather (excess heat as well as excess moisture) in the rest of the country (Davis and Lucier, 2021*c*).

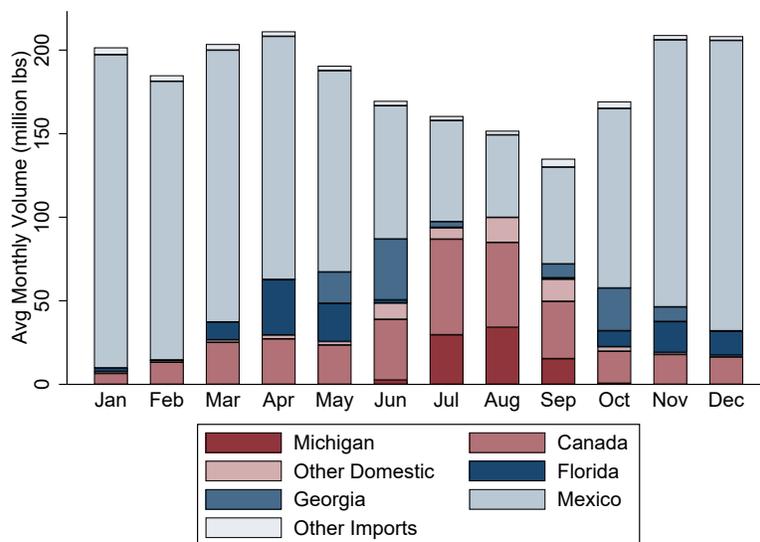
Figure 1: Availability by Origin over Time



Source: *Agtools Inc.*

U.S. cucumber provenance changes throughout year. Most of U.S. domestic cucumber production and receipt of imports from Canada occurs in the summer months. The key domestic exceptions are Florida and Georgia which produce off-cycle and produce mainly in the Fall and Spring. Figure 2 presents the average monthly volume supplied to the U.S. market by origin by month of the year for 2016-2020. Production regions that supply mainly in the summer are colored shades of red. Production regions that supply during the rest of the year are colored shades of blue. The U.S. imports cucumbers from Mexico on a year-round basis, but primarily during the winter months. As such, imports from Mexico primarily coincide with the production season of Florida and, to a lesser extent, Georgia. Imports from Canada mainly coincide with the production season of Michigan. Information on imports from Canada are only partial before 2020.²

Figure 2: Seasonal Availability by Origin (2016-2020)



Source: *Agtools Inc.*

²The primary source for import data obtained through AgTools is the USDA Agricultural Marketing Service (USDA AMS). The USDA AMS only has incomplete information on monthly trade flow volumes out of Canada up through 2019. Volumes out of Canada in Figure 2 are based on AMS monthly volume information scaled up to match yearly import volumes from the USDA Global Agricultural Trade System (GATS) (USDA, 2021).

2 Prices

Cucumber prices are influenced by many attributes including size, quality, variety, and production type (open field vs. protected agriculture). Cucumber prices are obtained from the USDA via the Agtools service.³ Records for the most commonly available item sizes (medium and 24s) and the most common package types (1 1/9 bushel cartons and 22 lb cartons) are retained. All other item sizes and package types are removed. Prices from the USDA are the mostly-high and the mostly-low price by package. Package prices are converted to price-per-pound based on indicated package weight.⁴ Despite being differentiated in price by size, quality, variety, and production type, the USDA does not track quality or production type information and only records variety information for a small minority of records. As a result, this analysis examines price and volume information of all qualities, varieties, and production methods together, controlling only for origin and size.

2.1 Size

Figure 3 indicates the range of prices for medium size and 24s cucumbers. The top of each bar represents the average mostly high price and the bottom of each bar represents the average mostly low price. Prices for 24s trades at around \$0.30/lb during 2016–2020. Prices for medium items trade at approximately \$0.25/lb.

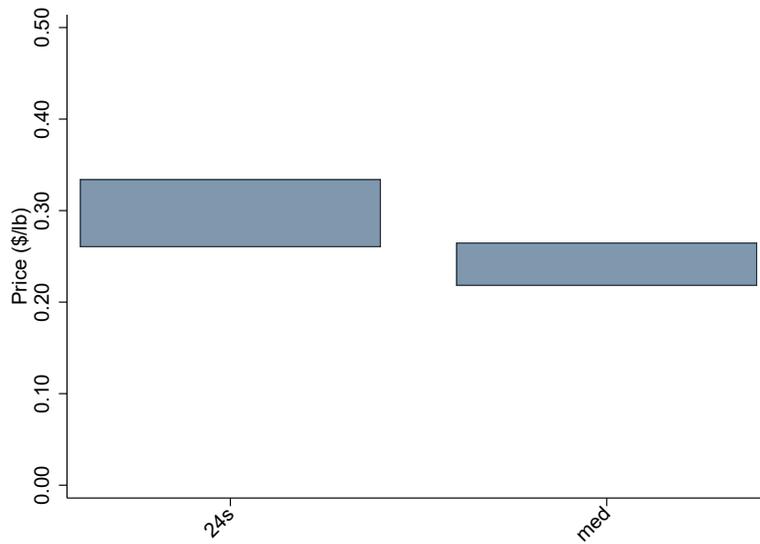
2.2 Origin

Figure 4 shows price ranges for cucumbers by place of origin for the medium size. The top of each bar reflects the average of the mostly high price for that origin and the bottom of the bar represents the average of the mostly low prices for that origin. Produce from Mexico trades at about the same mean price as domestic produce albeit with a slightly larger range of prices. Produce from Central America trades at slightly elevated price compared to domestic and Mexican produce, though the price ranges from all three origins overlap. Prices of cucumber imported from Canada are not available from USDA.

³Prices are F.O.B. shipping point prices.

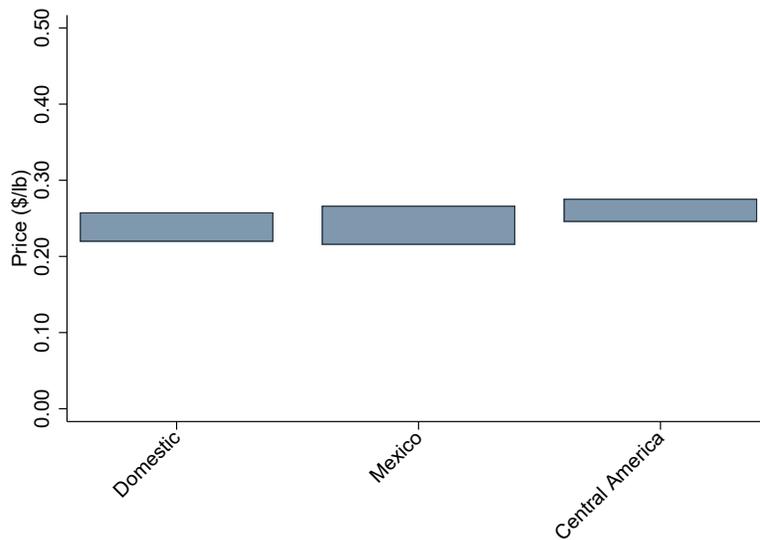
⁴Package weight for 1 1/9 bushel cartons is assumed to be 55 lbs (USDA Agricultural Marketing Service, 2021).

Figure 3: Price Ranges Differentiated by Item Size (2016 - 2020)



Source: *Agtools Inc.*

Figure 4: Prices Differentiated by Origin



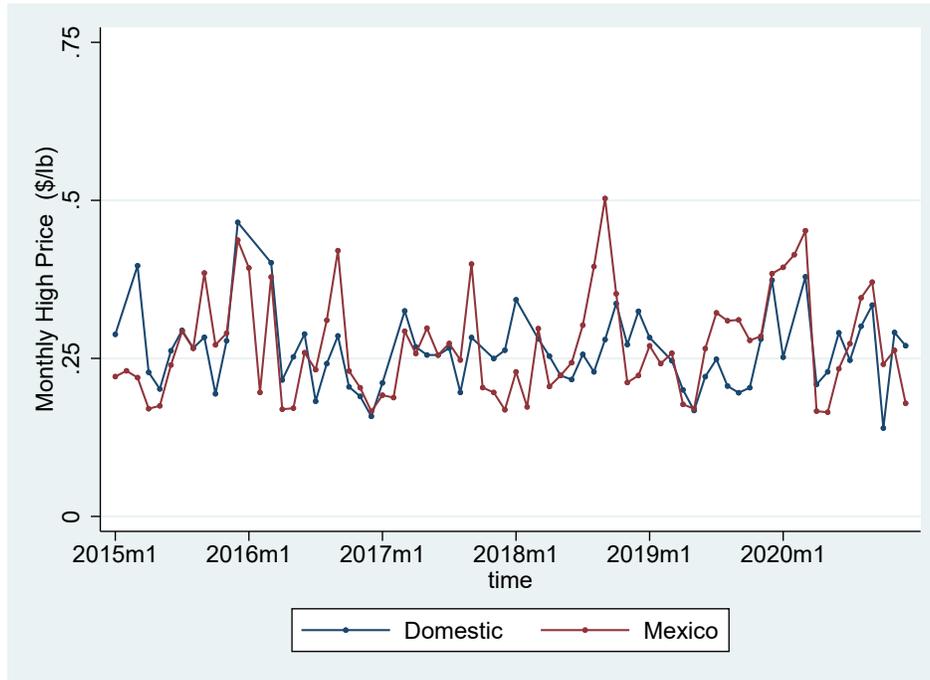
Source: *Agtools Inc.*

2.3 Trend

Figure 5 shows the average mostly high prices for medium cucumbers for both domestic production and imports from Mexico from 2016 to 2020. Over the past five years, both prices series appear flat with no increasing or decreasing trend. Despite variability in prices, there is no statistically discernible time trend or seasonality present in prices of domestic cucumbers or Mexican imported

cucumbers.

Figure 5: Prices by Origin over Time



Source: *Agtools Inc.*

3 Trade Dispute

There have been a series of trade disputes levied against Mexico, all with similar claims regarding agricultural production. In 2019, the U.S. updated the Tomato Suspension Agreement between the U.S. and Mexico which removed tariffs on imported Mexican tomatoes, but imposed strict inspection requirements and minimum prices. In 2020, U.S. growers requested the U.S. government to limit imports of blueberries, strawberries, bell peppers (Lighthizer, 2020). In March 2021, the U.S. International Trade Commission concluded that blueberries were “not being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or threat thereof, to the domestic industry” (U.S. International Trade Commission, 2021). The report concluded that, although imports of blueberries increased in both an absolute and relative sense during the period of interest, domestic blueberry production and investment increased during this time period. Additionally, they find “domestic industry as a whole continued to operate at a reasonable level of profitability.”

U.S. growers are now requesting the United States International Trade Commission to investigate imports of cucumbers and squash. In each of these disputes, U.S. growers allege that Mexican agricultural programs that subsidize greenhouse and high tunnel construction unfairly subsidize bell pepper production (USTR, the U.S. Department of Commerce and the USDA, 2020). This argument condenses the various elements that affect Mexican agricultural productivity to a single dimension and ignores consumer preference for produce from protected agriculture, climatic advantage, lower wages, and favorable exchange rate that all combine to enhance the competitiveness of Mexican agricultural production relative to U.S. production in the fresh, perishable produce sector. Additionally, the U.S. also offers funding for the construction of protected agriculture which is available to cucumber growers in the U.S.

References

- Davis, Wilma, and Gary Lucier.** 2021a. “After surge, U.S. production area of popular greenhouse vegetables slows.” <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=101510>.
- Davis, Wilma, and Gary Lucier.** 2021b. “Fresh cucumber imports capture nearly 90 percent of U.S. market.” <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=101346>.
- Davis, Wilma, and Gary Lucier.** 2021c. “Vegetables and Pulses Outlook.” <https://www.ers.usda.gov/webdocs/outlooks/100969/vgs-366.pdf?v=2862.9>.
- Lighthizer, Robert.** 2020. “Letter to USITC Chairman Kearns.” <https://southeastagnet.com/wp-content/uploads/2020/12/Lighthizer-Letter-Requesting-cucumber-squash-investigation.pdf>.
- Melton, Alex, and Travis Minor.** 2017. “Imports of fresh and processed vegetables make up an increasing share of domestic consumption.” <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=83174>.
- USDA.** 2021. “Global Agricultural Trade System.” <https://apps.fas.usda.gov/GATS/default.aspx>.
- USDA Agricultural Marketing Service.** 2021. “Container Net Weights.” <https://www.marketnews.usda.gov/mnp/fv-help-20>.
- USDA Economic Research Service.** 2021. “Food Availability (Per Capita) Data System.” <https://www.ers.usda.gov/data-products/food-availability-per-capita-data-system/>.
- U.S. International Trade Commission.** 2021. “Fresh, Chilled, or Frozen Blueberries: Investigation No. TA-201-77.” <https://usitc.gov/publications/safeguards/pub5164.pdf>.
- USTR, the U.S. Department of Commerce, and the USDA.** 2020. “Report on Seasonal and Perishable Products in U.S. Commerce.” <https://ustr.gov/sites/default/files/files/reports/2020/ReportSeasonalPerishableProductsUSCommerce.pdf>.