

Memorandum

Date: April 22, 2019

To: Lance Jungmeyer, President, Fresh Produce Association of the Americas

From: Dr. Timothy J. Richards, Ph.D, Badger Metrics, LLC.

Re: Economic Impact of Restricting Tomato Imports to the U.S.

Background on Terminating the Suspension Agreement

On February 7, 2019, the US Department of Commerce (DOC) announced that it would withdraw from the 2013 Suspension Agreement on fresh tomatoes from Mexico by May 7, 2019. The Suspension Agreement, which was an updated version of the original 1996 Agreement, suspended a formal investigation of antidumping charges, or selling tomatoes below their cost of production, against Mexican tomato growers. If the International Trade Commission finds evidence of dumping, then the US tomato industry may request the DOC levy antidumping duties on imports of tomatoes from Mexico. Currently, Mexico's share of the US tomato market is approximately 54%, although this figure varies by tomato variety, region, and season. Terminating the suspension agreement will reduce the supply of tomatoes in the US market, and raise prices paid by consumers in the US, particularly during the winter tomato season (October - June). The exact extent of these effects depends on the sensitivity of prices to changes in supply.

Economic Impact on U.S. Tomato Consumers

Economists at Arizona State University conducted an economic analysis of the potential impact of limiting Mexican tomato imports on retail prices paid in the U.S. for four types of fresh tomatoes using a national sample of retail sales data: (1) Tomato-on-Vine (TOV), (2) Vineripe, (3) Roma, and (4) Field / Beefsteak, tomatoes, which most often are gassed green-field tomatoes. These varieties represent the majority of tomatoes imported from Mexico, and purchased by consumers in the US.

We estimated potential price effects using a statistical model that accounts for seasonal, varietal, and regional variation in demand, and weather events that may have affected supply over time. We then constructed a number of scenarios that represent supply-shocks similar to removing Mexican imports from the US market. For each scenario, we simulated the expected change in equilibrium prices by reducing supply, given the estimated demand curve for each variety. All of our methods are well understood in the policy-analysis literature, and reflect standard economic assumptions.

We consider a range of possible scenarios in order to provide a general perspective on the potential impact of removing all Mexican tomato imports from the market for an entire year, a single month, or a number of months coupled with changes in US domestic production. Specifically, we calculate the expected change in retail prices for all tomato types if import-limiting tariffs are in force for the month of January (Scenario 1), at the same time as a production shock reduces US supply. We then examine the impact of reducing import-supplies with punitive tariffs, along with a more severe reduction in domestic US supply in Scenario 2. Next, we consider the price-effect of removing Mexican tomato imports, or reducing them by 50%, over the May – December tomato season. Finally, we replicate Scenario 1 over the entire Winter-Spring season (January – May) to examine the

longer term effect on US consumer prices (Scenario 4). All of our simulation results are summarized in table 1 below.

In the first scenario, we consider a scenario in which Mexican imports fall by 50% in January, along with a 30% reduction in US production. This scenario models a reduction in supply that occurs perhaps from a disease event that impacts only one production region in the state that produces the majority of US winter tomatoes (Florida). For example, the 2005 Tomato Yellow Leaf Curl Virus reduced production in Florida by approximately this amount. We expect the combined effect of tariffs and lower US production to cause a 64.32% rise in TOV prices, a 50.97% rise in Vineripe prices, a 58.67% rise in Roma prices, and 42.03% higher Field / Beefsteak prices. Field / Beefsteak prices rise by a substantial amount (42.0%) because of the relative importance of domestic US production during the month of January, while the other effects are due largely to the reduction in imports from Mexico. Consumer spending on all tomato varieties is expected to rise by more than 10%, due to the fact that tomato demand is “inelastic” (demand volume changes by proportionately less than prices).

The second scenario examines a more extreme case in which a 50% reduction in January imports from Mexico and an 80% reduction in US production occur simultaneously. In this scenario, we effectively remove half of Mexican imports due to trade-limiting tariffs, and nearly all of the Florida supply, whether from cold temperatures such as the 2010 freeze events, disease, or extreme labor shortages. In this case, prices for TOV rise by more than 68.0%, Vineripe tomato prices are expected to rise over 80.0%, and prices for Field / Beefsteak tomatoes will more than double. Spending on all tomato varieties rise by an average of nearly 19.0%.

In Scenario 3, the reduction in imports, perhaps due to the immediate effect of trade-limiting tariffs, takes place during the May - December time frame. We again assume imports fall by 50% due to the imposition of tariffs, but now the market is largely comprised of production from summer-producing regions in the US. California dominates this market, but North Carolina, Virginia, Ohio, and others, are major producers. Now, prices rise by over 40.0% for TOV, Vineripe, and Roma tomatoes, but only 0.2% for Field / Beefsteak tomatoes, reflecting the fact that tomato supplies rise from US sources during the summer months.

In Scenario 4, we combine a 30% reduction in US production during the January - May time period with a 50% reduction in imports from Mexico. Given the scale of production in the US Southeast during this time period, this scenario envisions lower imports from Mexico at the same time as a weather event, such as a hurricane or frost in the US, or perhaps insect or disease damage, or extended labor shortages. Prices for TOV, Vineripe, and Roma tomatoes are all expected to be over 50.0%, and prices for Field / Beefsteak tomatoes are expected to rise by 41.3%. Consumer spending on all varieties will rise by over 10.0%.

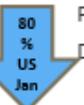
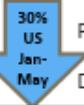
Ultimately, US consumers pay for the lion’s share of the tariff impact because the demand for tomatoes in the US is relatively inelastic, meaning that consumers do not change how much they purchase much in response to higher prices.

To summarize, we define the scenarios as follows:

- Scenario 1 - 50% reduction in imports from Mexico during month of January, and a 30% reduction in US production;

- Scenario 2 - 50% reduction in imports from Mexico during month of January, and a 80% reduction in US production;
- Scenario 3 - 50% reduction in imports from Mexico during months of May - Dec.;
- Scenario 4 - 50% reduction in imports from Mexico during months of Jan. - May, and a 30% reduction in US production.

Table 1. Tomato Price and Spending Impacts, by Scenario

Scenario	Measure	Rise %	TOV		Rise %	Vineripe		Rise %	Roma		Rise %	Beefsteak	
			Before	After		Before	After		Before	After		Before	After
1	  Price (\$/lb)	64.32%	\$2.61	\$4.29	50.97%	\$2.32	\$3.51	58.67%	\$1.32	\$2.10	42.03%	\$1.78	\$2.53
	Dollars (mil.)	15.52%	\$33.7	\$38.92	11.77%	\$10.8	\$12.02	11.07%	\$33.6	\$37.34	10.63%	\$7.8	\$8.67
2	  Price (\$/lb)	68.28%	\$2.61	\$4.40	86.08%	\$2.32	\$4.32	66.07%	\$1.32	\$2.20	104.28%	\$1.78	\$3.63
	Dollars (mil.)	16.48%	\$33.7	\$39.24	19.88%	\$10.8	\$12.89	12.47%	\$33.6	\$37.81	26.38%	\$7.8	\$9.90
3	 Price (\$/lb)	46.54%	\$2.87	\$4.21	41.92%	\$2.32	\$3.29	48.10%	\$1.31	\$1.94	0.24%	\$1.78	\$1.78
	Dollars (mil.)	11.23%	\$43.4	\$48.28	9.68%	\$9.5	\$10.42	9.08%	\$34.13	\$37.23	0.06%	\$9.8	\$9.84
4	  Price (\$/lb)	63.54%	\$2.87	\$4.69	49.03%	\$2.32	\$3.45	58.69%	\$1.31	\$2.08	41.28%	\$1.78	\$2.51
	Dollars (mil.)	15.34%	\$43.4	\$50.06	11.32%	\$9.5	\$10.58	11.08%	\$34.13	\$37.91	10.44%	\$9.8	\$10.86

Fresh Tomato Item Descriptions:

Vine-ripened tomatoes are those that are picked after showing signs of changing color. Tomatoes continue to ripen off the vine, and the qualities necessary to make a quality tomato are present when the first hint of color appears at the blossom end, so a tomato picked before it is fully ripe can have the same flavor as one picked later. Vine-ripened tomatoes are grown both outdoors and indoors, from a variety of greenhouse structures. Vine-ripened tomatoes can be sold both stem-on and stem-off.



Tomatoes on the Vine (TOV) are marketed and sold stem-on, with four or five tomatoes to each vine. As they are allowed to ripen to a later stage of maturity, they have a higher sugar content, are uniformly bright red, and typically medium-sized.

Field /
Beefsteak
tomatoes are



most often grown outdoors, nationwide during warm months, in the Southeast during the winter months.

On a commercial basis, these are harvested in a mature-green state, and shipped to a destination market where they are turned red or “de-greened” when exposed to ethylene gas. These tomatoes are popular as sandwich toppings due to their exceptional slicing characteristics. They are more prominent in restaurant foodservice channels, and less common at supermarkets.



Roma tomatoes (below) are plum tomatoes popularly used both for canning and producing tomato paste because of their slender and firm nature. Commonly found in supermarkets, Roma tomatoes are also known as Italian tomatoes or Italian plum tomatoes. These tomatoes are popular chopped up as toppings on salads and tacos, and in pico de gallo.

