2021

Benefits of the Global Strawberry Trade (First Place)

Luke Deneker
Xavier University, Cincinnati, OH, denekerl@xavier.edu

Luke Denecker

Professor Martin

Food on the Move (Core 100)

29 November 2020

Benefits of the Global Strawberry Trade

Ripe, red, juicy: strawberries are a fruit most people associate with summertime. However, due to the global strawberry trade, this delicious fruit is now available all year-round. In 2019, global sales of fresh strawberries exceeded 2.76 billion U.S. dollars, and frozen strawberries contributed an additional 1.16 billion dollars in sales (Workman). As the demand for strawberries continues to grow, so do the concerns among environmentalists that this worldwide trade is doing damage to the environment. For example, strawberries "have traditionally been a highly pesticide-intensive crop" (Parker), and the airplane emissions that result from transporting strawberries have caused food activists to contest the fruit's year-round production (Murray 215). Still, it is unlikely that this billion dollar business will slow down anytime soon as producers, such as China, and importers, such as the United States ("Strawberry"), have too much to lose from an economical standpoint. Furthermore, proponents argue that the global strawberry trade provides a nutritional benefit to consumers and creates jobs in impoverished areas, such as Kenya (Murray 217). Thus, while environmentalists argue that the global strawberry trade is unethical due to its effects on the environment through air travel, the economic and humanitarian benefits of this global trade outweigh any potential dangers to the earth.

The global strawberry trade can be traced back to Roman times but remained mostly local and regional until "modern transport and refrigeration options became available" ("Strawberry Trade") in the late 1970s (Murray 35). In ancient times, strawberries were often used for medical purposes such as curing depression ("Health"). Today, strawberries are "the most popular berry fruit in the world" (Gabrick), and strawberry trade involves a number of countries including Great Britain, the United States, Egypt, Kenya, Mexico, South Africa, among others (Murray 207, 217). The compound annual growth rate (CAGR) of strawberries is 3.4% for 2021-2026 ("Fresh Strawberry"), showing that this trade is not slowing down. Countries all over the world import strawberries in their "off-season" when those countries are unable to grow their own or are unable to grow enough to fill consumer needs. According to Sarah Murray, author of *Moveable Feasts*, "As one growing season ends, another begins somewhere else" (207). In order to keep the produce fresh, strawberries are harvested then packed and flown to their destination, where they are then placed into refrigerated vehicles and sent to distribution centers to be sorted, packaged, and priced. Next, they are driven overnight to their final destination. In all, it takes about 48 hours for strawberries to go from harvest to table (Murray 210-211). Despite the environmental impact of transporting the fruit, the benefits of the strawberry trade are immense.

One of the most obvious benefits of the global strawberry trade is the fact that consumers can enjoy this delicious, healthy fruit all year-round. One serving of strawberries contains more vitamin C than an orange and is packed with antioxidants that help to fight cancer (Gabrick). Furthermore, strawberries are "about 75 percent water," so eating them keeps "a person's skin hydrated and glossy" ("Health"). Strawberries also help "fight bad cholesterol" and "contain powerful heart-health boosters" ("Health"). In addition, they are antidiabetic, provide

cardiovascular disease protection, have neuroprotective properties, and act as an anti-inflammatory (Afrin et al.). In many ways, strawberries are truly a super-fruit; they are low-calorie, sodium-free, fat-free, and are a good source of magnesium and potassium (Gabrick). As a result, these health benefits are one reason why the global strawberry trade is worth its environmental impact.

Along with being delicious and healthy, the economic benefits of the global strawberry trade are vast. As stated before, the current global strawberry trade exceeds 3.92 billion U.S. dollars (Workman) and the demand is increasing (Lim). In the United Kingdom alone, the global strawberry trade surpassed 99 million Euros (Hodgkiss, et al. 2). Among the world's top exporters are "Spain, USA, Mexico, Netherlands, Belgium, Egypt, Greece, Morocco, Turkey, Italy, France, [and] Germany…[all countries combined export] about 92.77% of the world's total exports" (Saleh). The fastest growing exporter of fresh strawberries since 2015 is Japan (up 175.6%) (Workman). Among frozen strawberries, Egypt is the world's fastest growing exporter since 2015 (up 267.8%) (Workman). The world's most important importers are "USA, Canada, Germany, France, UK, Russian Federation, Italy, Netherlands, Belgium , Austria, Switzerland, Czech Republic, Saudi Arabia, [and The] United Arab Emirates… [all countries combined import] about 82.53% of the world's total imports" (Saleh). As seasons change, so does the activity of growing strawberries. For example, Egypt produces strawberries from November until May, which overlaps somewhat with Spain, whose main growing season is March, April, and May (Lim). In contrast, the U.S. West Coast produces its main crop during June, July, and August (Murray 207). Simply put, at any point in the year, strawberries are being grown and transported all over the world. In the words of Murray, "As one growing season ends, another

begins somewhere else" (207). Because of this ongoing trade, countries enjoy the economic benefits of the strawberry trade year-round.

The high demand for strawberries has resulted in the need for people to grow, harvest, package, and transport the fruit, resulting in meaningful work and higher wages for workers in less-privileged countries. Murray writes, "For poor countries, the ability to sell 'value added' vegetables to Western markets generates badly needed jobs for farmers and other workers that might not exist, were we to return to buying everything locally" (216). In developing countries, this trade is needed to provide much-needed jobs for those in the horticulture/sustainable agriculture trade. According to research at the University of Sussex:

> "the [strawberry] industry has raised living standards, particularly for smallholders . . . Eighty percent of horticultural smallholders had concrete floors in their homes, compared with 35 percent for those not involved in the horticultural industry…[the horticulture industry] also provided jobs for unmarried women with no other employment prospects" (qtd. in Murray 217-218).

Similarly, in Great Britain, the consumption of fresh fruits, such as strawberries, helps to supply income to "more than one million Africans" (Murray 218). Moreover, and importantly, jobs like strawberry farming are sustainable. An organic, sustainable farming project introduced by the Swedish International Development Cooperation Agency to Uganda and Tanzania resulted in a one-hundred percent increase in harvest and between twenty and fifty percent more money for these countries (Murray 217). As these examples illustrate, sustainable agriculture development can contribute greatly to ensuring food security and ameliorating poverty in developing countries

(Schindler). Helping to eliminate poverty and caring for fellow humans on this Earth is another reason why the benefits of the global strawberry trade outweigh any environmental impacts.

While there are a variety of notable benefits of the global strawberry trade, food activists are opposed to it because of its negative effects on the environment. For example, activists "question the sustainability of pesticide use in strawberries and other crops for human health" and worry about the long-term effects on the soil and those who work directly with strawberry production (Parker). According to Christine Parker, professor of law at the University of Melbourne, large doses of pesticides can potentially result in negative biological impacts on humans including birth defects, cancer, autism, and asthma. Although pesticides do have harmful side-effects, government regulators and industries are able to control the use of pesticides so that they are used responsibly. Parker states, "The maximum residue limits set by governments are supposed to allow for a total dietary intake that will not cause serious illness." In other words, the amount of pesticides present in harvested strawberries is negligible and should not be of serious concern to consumers.

Alongside the pesticide argument, local food activists point to the fact that strawberries must be air-freighted in order to maintain freshness as another negative. According to Murray, "airfreight emits substantially larger amounts of carbon dioxide per unit or cargo than if it were moved by ocean" (215). Furthermore, transporting strawberries by air results in carbon emissions in the form of contrails, which are "condensation trails" of frozen water vapor (Naranjo). These contrails "have an overall warming effect" on the earth's atmosphere; however, "the effect is still quite small" on a global scale according to researchers from NASA (Naranjo). Thus, although transporting strawberries by air does result in some negative effects on the environment, the

impact is so minimal that it does not outweigh the benefits of this continued global trade. Murray states, “Aviation is thought to generate only about 3 percent of the world's man-made greenhouse gases and aircraft are far more fuel-efficient than they were even a few years ago” (215). For example, strawberries grown in Africa and flown to the United Kingdom generate “less than 0.1 percent of the UK’s total carbon emissions” (Murray 218). Thus, the environmental impact from planes is insignificant compared to the benefits already established.

A third reason some local food activists question the global strawberry trade is because they believe that buying strawberries from foreign countries takes away sales from local farmers. Despite some validity to this concern, the fact is that international trade provides needed work and economic benefits for farmers worldwide. In many cases, “local farmers” are better off than the farmers in developing countries. Ethicists Peter Singer and Jim Mason point out in *Moveable Feasts* that there is something honorable in wealthy communities, such as San Francisco, purchasing produce from poorer areas of the world (qtd in Murray 217). Said another way, local farmers will have enough business in rich countries, so it makes sense to help farmers elsewhere. As was noted earlier, providing sustainable farming in developing countries is essential in preventing poverty.

A final point environmentalists make when arguing against the global strawberry trade is that with new technology, strawberries can be grown year-round no matter the climate, in spaces such as polytunnels. Therefore, they argue that there is no need to transport strawberries from country to country via airfreight. While local growing techniques would eliminate air pollution caused by the strawberry trade, growing strawberries in polytunnels can have environmental and economic impacts of their own. For example, polytunnels do not always achieve a good return

on investment, are at increased risk for insects and arthropods, and require close attention to irrigation management (Pullano). Furthermore, those who grow strawberries in polytunnels will find that "Maintaining recommended levels of Ca, Mg and K is often challenging;" likewise, "pest populations and infestations tend to come on quickly, requiring a strong proactive management program" (Pullano). On a less important note, people also tend to find polytunnels "ugly," saying that they "marred the landscape" (Murray 214). Simply put, growing strawberries in artificial climates does not provide enough benefits to be considered as a serious alternative to the global strawberry trade.

While there are some minimal negative environmental impacts caused by the global strawberry trade, the health and economic benefits to humans ultimately demonstrate that the trade should and will continue. As Murray points out, "More than any other fruit or vegetable, the modern strawberry represents an era in which the seasons exert little power over what we eat" (202). The health, economic, and humanitarian benefits of the global strawberry trade suggest that it will remain an important and growing part of food production, distribution, and consumption. The demand for a bowl of fresh, ripe, red strawberries on tables across the world will undoubtedly continue--no matter the time of year.

Works Cited:

Afrin, Sadia, et al. "Promising Health Benefits of the Strawberry: A Focus on Clinical Studies." *Journal of Agricultural and Food Chemistry*, vol. 64, no. 22, Jan. 2016, pp. 4435–4449. *EBSCOhost*, doi:10.1021/acs.jafc.6b00857.

"Fresh Strawberry Market." *Market Watch*, 22 Sept. 2020, https://www.marketwatch.com/press-release/fresh-strawberry-market-2020-global-industry-analysis-by-top-countries-data-with-size-share-segments-drivers-and-growth-insights-to-2026-2020-09-22#:~:text=The%20worldwide%20Market%20for%20Fresh,3.4%25%20during%202021%2D2026. Accessed 29 Nov. 2020.

Gabrick, Andrea. "Nutritional Benefits of the Strawberry." *WebMD*, 31 Mar. 2008, https://www.webmd.com/diet/features/nutritional-benefits-of-the-strawberry#:~:text=Packed%20with%20vitamins%2C%20fiber%2C%20and,source%20of%20manganese%20and%20potassium Accessed 29 Nov. 2020.

"Health Benefits of Strawberries." *Business Mirror (Makati City, Philippines)*, 19 July 2018. *EBSCOhost*, search.ebscohost.com/login.aspx?direct=true&db=edsbig&AN=edsbig.A547067572&site=eds-live&scope=site. Accessed 27 Nov. 2020.

Hodgkiss, Dylan, et al. "Syrphine Hoverflies Are Effective Pollinators of Commercial Strawberry." *Research Gate*, 1 Feb. 2018, https://www.researchgate.net/profile/Dylan_Hodgkiss/publication/323749537_Syrphine_hoverflies_are_effective_pollinators_of_commercial_strawberry/links/5aa8f90e0f7e9b0e

a30842db/Syrphine-hoverflies-are-effective-pollinators-of-commercial-strawberry.pdf. Accessed 27 Nov. 2020.

Lim, Mingi. "Strawberries from Egypt, Overcoming Tough Competition in Europe." *Tridge*, 27 Aug. 2019, https://www.tridge.com/stories/tridge-market-update-strawberries-from-egypt-overcoming-tough-competition-in-europe. Accessed 29 Nov. 2020.

Murray, Sarah. *Moveable Feasts: from Ancient Rome to the 21st Century, the Incredible Journeys of the Food We Eat*. Picador, 2008.

Naranjo, Laura. "On the Trail of Contrails." *NASA*, 11 Oct. 2013, https://earthdata.nasa.gov/learn/sensing-our-planet/on-the-trail-of-contrails. Accessed 1 Dec. 2020.

Parker, Christine. "Strawberry Fields Forever: Can Consumers See Pesticides and Sustainability as an Issue?" *Sustainability Science*, vol. 10, no. 2, Jan. 2015, pp. 285–303. *EBSCOhost*, doi:10.1007/s11625-014-0267-3. Accessed 27 Nov. 2020.

Pullano, Gary. "Growers Considering Tunnels Must Weigh Pros and Cons." *Vegetable Growers News*, 19 Mar. 2015, https://vegetablegrowersnews.com/article/growers-considering-tunnels-must-weigh-pros-and-cons/. Accessed 29 Nov. 2020.

Saleh, Ghada Saleh Hassan. "The competitiveness of Egyptian strawberry exports in the most important international markets (Arabic)." *Journal of Agricultural Economics & Social Sciences*, vol. 8, no. 12, Dec. 2017, p. 987. *EBSCOhost*,

search.ebscohost.com/login.aspx?direct=true&db=edb&AN=130058378&site=eds-live&scope=site. Accessed 29 Nov. 2020.

Schindler, Jana, et al. "Methods to Assess Farming Sustainability in Developing Countries. A Review." *Agronomy for Sustainable Development*, vol. 35, no. 3, Jan. 2015, pp. 1043–1057. *EBSCOhost*, doi:10.1007/s13593-015-0305-2.

"Strawberry Trade History." *FruitTradeCoach*, 2013, http://www.fruittradecoach.com/strawberry-trade-history.html. Accessed 29 Nov. 2020.

"Strawberry." *Tridge*, 2020, https://www.tridge.com/intelligences/stawberry/export. Accessed 27 Nov. 2020.

Workman, Daniel. "Top Strawberries Exporters by Country." *World's Top Exports*, 2020, http://www.worldstopexports.com/top-strawberries-exporters-by-country/#:~:text=Strawberry%20dessert%20Global%20export%20sales,strawberries%20amounted%20to%20%241.16%20billion. Accessed 27 Nov. 2020.