Journal of Agriculture, Food Systems, and Community Development
ISSN: 2152-0801 online
https://foodsystemsjournal.org

Evaluating the successes and challenges toward achieving the Real Food Commitment at Johns Hopkins University

Jeremy Berger [a] and Raychel Santo [b] *
Johns Hopkins University

Isabela Garces [c]
SAGE Fund

Submitted February 3, 2022 / Revised April 15 and May 5, 2022 / Accepted May 9, 2022 / Published online August 13, 2022

Citation: Berger, J., Santo, R., & Garces, I (2022). Evaluating the successes and challenges toward achieving the Real Food Commitment at Johns Hopkins University. *Journal of Agriculture, Food Systems, and Community Development, 11*(4), 165–182. https://doi.org/10.5304/jafscd.2022.114.010

Abstract

With their significant purchasing power, institutions of higher education can create substantial changes in the food system through their food purchases. The Real Food Challenge launched a national campaign in 2011 to shift food procurement at colleges and universities across the United States to local and community-based, fair, ecologically sound, and humane sources. In 2013, the president of Johns Hopkins University (JHU) signed on to the Real Food Commitment, pledging to purchase at least 35% "Real Food" by 2020. Drawing on interviews with students, dining staff, and vendors as well as an analysis of purchasing data, this research analyzes the successes and challenges that JHU stakeholders encountered in their efforts to implement this commitment. Although the university fell short of achieving its goal of 35% "Real Food" procurement, JHU spent US$4.7 million on local and community-based,

[a] Jeremy Berger, Student, Johns Hopkins University; 3400 North Charles Street; Baltimore, MD, 21218 USA.
Jeremy Berger is now at Equity Advocates; 258 Halstead Avenue #613; Harrison, NY 10528 USA.

[b] * *Corresponding author:* Raychel Santo, Senior Research Program Coordinator, Johns Hopkins Center for a Livable Future, Johns Hopkins Bloomberg School of Public Health; 111 Market Place, Suite 840; Baltimore, MD 21202 USA; +1-410-223-1689; rsanto1@jhu.edu

[c] Isabela Garces, Senior Program Associate, SAGE Fund; 10 East North Avenue, Suite 5; Baltimore, MD 21202 USA; bela@sagefundrights.org

Funding Disclosure
This research did not receive any dedicated funding.

Author Note
J. Berger conducted the interviews with stakeholders and wrote the draft on which this paper was based as part of a senior capstone project. As stated in the manuscript, some authors of this article were involved in aspects of the JHU Real Food Commitment implementation. R. Santo was a leader of the Real Food Hopkins student group until 2014, served as a student volunteer on the national working group to develop an early version of the Real Food Standards from 2011 to 2012, and participated in JHU Food Systems Working Group meetings until 2020. I. Garces was a JHU Real Food Calculator intern (a paid position) from 2017 to 2020 and participated as an interview participant in the current study before later supporting compilation and verification of the quantitative data analyzed. Garces has also been an (unpaid) steering committee member of Real Food Generation since March 2021.

humane, ecologically sound, and fair foods between 2013 and 2019. Most of the university's successful procurement shifts focused on local and community-based foods and animal source foods. Challenges that hindered additional procurement shifts included the volumes and food preparation required by the university, student dining preferences, contracts that required purchasing from specific vendors, and staffing limitations. Lessons learned from the implementation of the Real Food Commitment can inform the evolution of sustainable and ethical food procurement standards at JHU as well as other universities and institutions.

Keywords
Local Food Systems, Sustainability, Food Service, Food Procurement, Real Food Challenge, Social Justice, Farm-to-Institution, Fair Trade, Animal Welfare, Higher Education

Introduction and Literature Review

Over the past few decades, a growing food movement has elevated attention to the socio-economic, environmental, health, and animal welfare harms associated with global food systems (Holt Giménez & Shattuck, 2011; Pollan, 2010). Concentration and consolidation along global food supply chains are associated with improved efficiencies and productivity, but have reduced farmer and consumer autonomy over food systems; pressured producers to minimize workers' wages and compromise occupational health and safety; and reduced resiliency to social, environmental, and economic disruptions (Asbed & Hitov, 2017; Hendrickson, 2015). Conventional industrial food production relies on techniques including monocropping, tilling, and the overuse of synthetic pesticides and fertilizers that degrade soils, pollute water, and threaten biodiversity, posing a direct threat to future food production (Foley et al., 2005; Frison & IPES-Food, 2016). Moreover, food production is a key driver of climate change, deforestation, and biogeochemical flows, compromising humans' capacity to stay within Earth's planetary boundaries (Conijn et al., 2018). The vast majority of animal foods available in the United States—and increasingly around the world—come from industrial operations in which livestock are raised in crowded indoor spaces. This allows for higher production levels at minimal costs but compromises the quality of life for livestock and creates conditions conducive to the spread of disease (Moses & Tomaselli, 2017).

The local food movement, which seeks to reduce the distance between where foods are produced and consumed, has arisen as one response to reform the food system. By shortening supply chains and supporting small and midsized farms, advocates purport to improve trust, counter industrialization, and invest in local economies (Hinrichs, 2000). Some local food initiatives, including farmers markets and community supported agriculture (CSA), focus on direct marketing from individual producers to individual consumers. Others involve partnerships between farmers and restaurants or institutions, including schools, universities, hospitals, and government agencies (Brain, 2012).

Local food purchasing is not always feasible or desirable for all foods. In lieu of the accountability and transparency that can be conveyed when consumers have direct relationships with producers, third-party certification schemes have also arisen to identify producers who practice more environmentally sound, socially just, or humane practices. Organic certification is one of the most common certifications for sustainable growing practices, indicating that synthetic fertilizers and pesticides are not applied, genetically modified organisms are avoided, and crop rotations are practiced (Gomiero et al., 2011). Fair trade certifications and corporate standards programs, such as the Fair Food Program, identify companies that improve wages and working conditions for producers and workers (Asbed & Hitov, 2017). Other certification schemes recognize livestock producers that reduce unnecessary harm and suffering, promote physical and mental health, and allow animals to perform natural behaviors, such as allowing a grazer to graze (Appleby, 2005).

Institutional Food Procurement

With their significant purchasing power, institutions (including schools, hospitals, government agencies, and colleges and universities) have become key consumers of local and third-party–certified foods, seeking to drive systemic changes in the food system through their procurement poli-

cies (Santo & Fitch, 2018). Shifting institutional food procurement is limited in scope and scale compared to federal policy interventions but can influence the supply chains, infrastructure, and knowledge necessary for sustainable, ethical, and local food production (Porter, 2015).

In the higher education sector, procurement of sustainable, ethical, and local foods has grown significantly, motivated by student demand, public relations, and the desire to improve food quality on campuses (Murray, 2005). The national Real Food Challenge was established in 2008 as a student-driven movement for food justice, inspired by the anti-apartheid divestment movement (Steel, 2018). Recognizing that institutions of higher education in the U.S. purchased around US$5 billion of food each year, the organization launched the Get Real! Campaign in 2011, with the goal of shifting 20% (approximately US$1 billion) of the dining budgets at colleges and universities to "Real Food" by 2020. The Real Food Challenge defined "Real Food" as food that qualifies in at least one of four categories: local and community based, fair, ecologically sound, or humane. The Real Food Challenge Standards 2.1 detail specific criteria for each category, developed by a team of student leaders and professional advisors in consultation with over 100 food systems stakeholders (Real Food Challenge, n.d.-c). Foods are disqualified from counting as "Real" if they are sourced from a producer that used forced labor or had been cited for labor violations within a certain time period, produced on a concentrated animal feeding operation (CAFO), or are foods made with genetically engineered ingredients or other ingredients that classified them as ultraprocessed (Real Food Challenge, n.d.-c).

As part of the campaign, students advocated for their individual colleges and universities to commit to procuring at least 20% "Real Food" by 2020, but some institutions made more ambitious commitments ranging from 25–40%. The Real Food Commitments also sought more transparency in the institutions' food systems, and student and community engagement. By 2020, 43 individual colleges and universities and four statewide university systems had signed Real Food Commitments, representing more than US$80 million a year in committed shifts toward "Real Food" sources (Real Food Challenge, n.d.-a).

The Johns Hopkins University (JHU) signed on to the Real Food Commitment in December 2013, committing to purchasing 35% "Real Food" by 2020 (Rosen, 2013). This effort was in part due to the advocacy of the student organization called Real Food Hopkins, an independent campus group created with inspiration from and in loose connection with the national Real Food Challenge. Following the signing of the Real Food Commitment in 2013, JHU Dining purchases were evaluated every year by "Real Food Calculator" interns. The interns researched the origins of food purchases and determined whether the food qualified as local and community-based, fair, ecologically sound, or humane, using Real Food Challenge standards. The interns analyzed the data to determine what percentage of JHU food purchases from certain dining halls qualified as "Real Food," termed the Real Food Percentage. Interns also researched potential "Real Food" suppliers and met with staff of JHU Dining and Bon Appétit Management Company (BAMCO), the subcontractor in charge of dining purchases, to suggest reasonable shifts in the budget to increase the Real Food Percentage (Rosen, 2013).

Limited research has evaluated the Real Food Challenge nationally or at individual institutions. Previous research on the Real Food Challenge has focused primarily on institutions before they have committed to the procurement policy. Porter (2015) explored student demand for "Real Food" at the University of Vermont and a willingness to pay a premium for it. Several student projects, including unpublished theses, examined opportunities or barriers to adopting the Real Food Commitment (Baldwin, 2017; Kington, 2015) or procurement shifts inspired by the Real Food Challenge (Burley et al., 2016) at individual universities. The Real Food Challenge published a preliminary impact report that evaluated the impacts of food procurement shifts as of 2018 across Real Food Commitment signatory institutions (Real Food Challenge, n.d.-d) and published updated, though limited, summary statistics on its webpage in 2020 (Real Food Challenge, n.d.-b). Apart from the university-specific Real Food Commitment, a growing body of research has examined the effects of food

procurement shifts at other institutions, including hospitals, K-12 schools, food banks, and government agencies (Thottathil & Goger, 2019). To our knowledge, there has not been a formal evaluation of the successes and challenges of implementing the Real Food Commitment from its inception to its conclusion.

This research provides the first longitudinal study of the implementation of the Real Food Commitment at an individual institution by assessing the processes and impacts associated with shifting JHU food procurement purchases from 2013 to 2020. We begin by analyzing the university's Real Food Calculator data over the years following the commitment, looking at the Real Food Percentage over time and how qualifying foods were distributed among different "Real Food" categories and food groups. We then present a thematic analysis of semi-structured interviews conducted with former Real Food Calculator interns, Real Food Hopkins members, JHU dining staff, BAMCO staff, and vendors of "Real Food" to explore the perceived successes, challenges, and lessons learned from the implementation of the commitment. The discussion contextualizes these results in relation to other research on institutional food procurement and explores potential future directions for institutional food procurement shifts aimed at building a more sustainable and ethical food system.

Methods

Calculations of "Real Food"

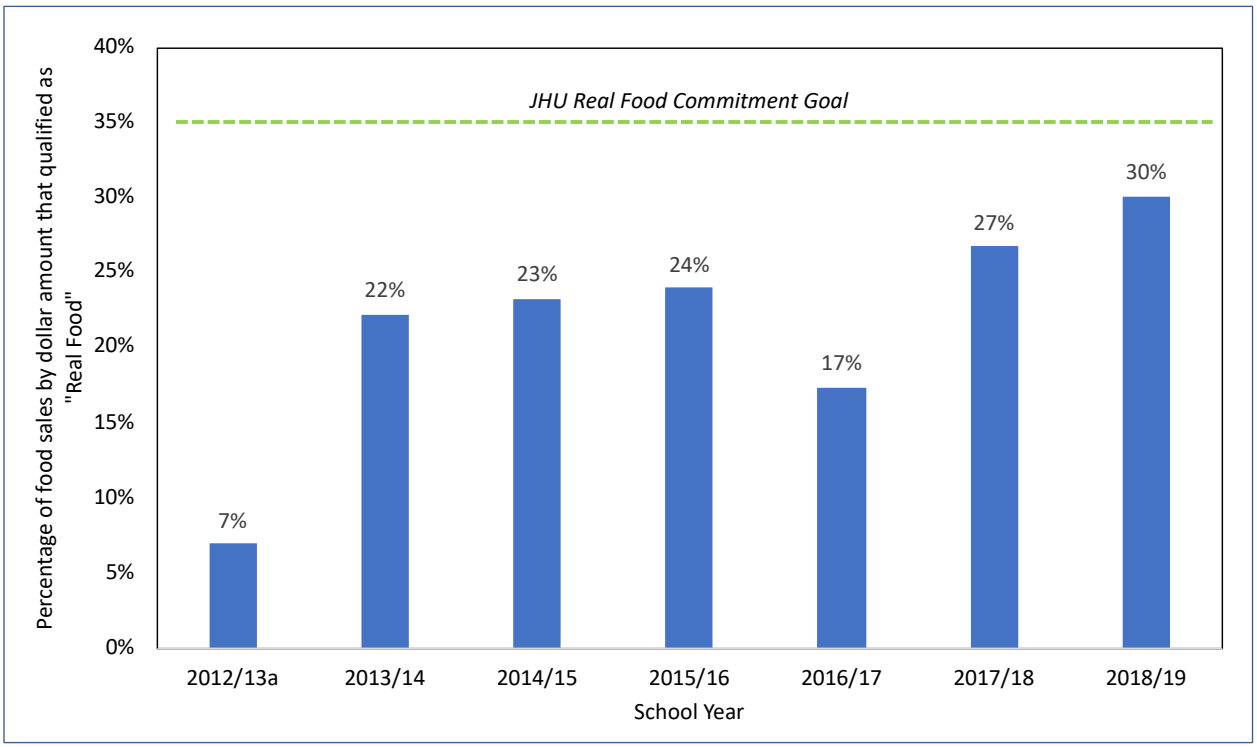
Data on JHU dining purchases were collected by members of the student group Real Food Hopkins for the 2012/13 school year and then by paid Real Food Calculator interns with JHU Dining Services from 2013 to 2020. The data for the 2012/13 school year reflected only purchases in one dining hall, the Fresh Food Café, on the university's primary academic and administrative campus (Homewood). Data for all other years, from 2013 to 2019, reflect purchases in three dining halls on the Homewood campus: Fresh Food Café, Nolan's on 33rd, and Levering Kitchens and Café. The data exclude food purchases for other eateries on Homewood Campus, university catering services, or the campus convenience store (Charles Street Market). It also excludes purchases from other university divisions, including the medical institutions campus. Dining hall purchases were analyzed by the students or interns to interpret whether they qualified as "Real Food" according to the Real Food Challenge standards. There is no data available for the 2019/20 school year due to the inability of students to view and analyze invoices (which were predominantly on paper) in person during the COVID-19 pandemic. The percentage of "Real Food" by money spent was then quantified by these interns; the numbers are summarized in Figure 1, tracking the Real Food Percentage at JHU over time. The time-intensive process of researching and classifying every product on an institution's dining invoices makes it infeasible within the capacity of most universities to analyze purchases from an entire school year. To derive a Real Food Percentage for each school year, the national Real Food Challenge recommends averaging the results from an analysis of purchases from two months (one in the fall and one in the winter) to reflect the extremes of seasonal availability for local food. The forthcoming JHU data reflect averages from September and February each year. Average "Real Food" purchases broken down by "Real Food" category and food type are summarized in Table 1 and Figure 2, respectively. The supplementary data file (linked to this article's abstract page online) provides summary data from each year. The estimated total amount of money spent on "Real Food" purchases across all years was derived from an extrapolation of the average amount spent on "Real Food" in two months of each school year.

Semi-structured Interviews

Semi-structured interviews were conducted in November and December 2020 with six former JHU students, three JHU dining department and BAMCO staff members, and four food vendors who sold produce, ice cream, coffee, and preprepared foods to JHU. An additional eight interview requests were sent out without response. Participants were selected using purposive sampling; recruitment aimed to target student leaders and the dining department and BAMCO staff who helped implement the JHU Real Food Commitment from

Figure 1. Real Food Percentage at Johns Hopkins University Homewood Campus, 2012–2019

Figure 1 shows the percentage of the university's food procurement budget that was spent on "Real Food" for each school year of the Real Food Commitment. Although the 2019/20 school year was part of the JHU Real Food Commitment, data were unavailable due to the premature ending of the school year during the COVID-19 pandemic.



[a] The 2012/13 data reflect historic estimates from one dining hall made by Real Food Hopkins students through a Real Food Calculator trial before the Real Food Commitment was signed in December 2013.

Table 1. Spending on "Real Food" by the Real Food Challenge Categories, 2013-2019

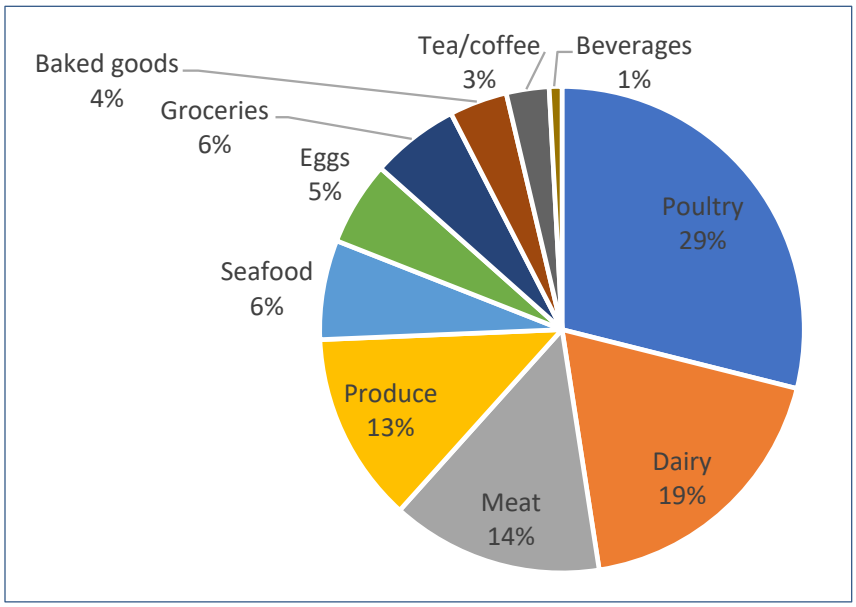
	Average Real Food Percentage of all foods purchased by Real Food Challenge category	Percentage of "Real Food" purchases by Real Food Category [a]
Local and community-based	18%	76%
Humane	5%	20%
Ecologically sound	4%	17%
Fair	0.3%	1%
Total across categories	**24%**	

[a] These percentages add up to over 100% because some foods qualified for more than one Real Food category.

2013 to 2020, as well as vendors who sold a variety of products to JHU. The Johns Hopkins Homewood Institutional Review Board reviewed and acknowledged this study protocol as "exempt."

After the participants agreed to an informed consent form, the interviews were all audio recorded using the voice memo application on an iPhone, except for one food vendor who preferred to participate without being recorded (detailed notes were taken during this interview for later analysis). The interview questions, which can be found in the Appendix, were designed to elicit participants' opinions on their experiences with the Real Food Commitment implementation at JHU, including the successes, challenges encountered, and lessons learned. The audio recordings were manually transcribed and analyzed to identify

Figure 2. Average Percentage of "Real Food" Purchases by Food Type, 2013–2019



common themes among the experiences of various stakeholders in the JHU Real Food Commitment from 2013 to 2020.

Author Positionality

Some authors of this article were involved in aspects of the JHU Real Food Commitment implementation, supporting this research through a participatory-action research framework (Danley & Ellison, 1999). J. Berger conducted the interviews with stakeholders and wrote the draft on which this paper was based as part of a senior capstone project. R. Santo, who was a leader of the Real Food Hopkins student group until 2014 and participated in JHU Food Systems Working Group meetings until 2020, contributed to and advised throughout the development of the study conceptualization, design, analysis, and write-up. I. Garces, who was a JHU Real Food Calculator intern from 2017 to 2020, participated as an interview participant and later supported compilation and verification of the quantitative data analyzed.

Results

Procurement Shifts at JHU Over Time

Following the signing of the Real Food Commitment in December 2013, JHU increased the proportion of its budget spent on local, sustainable, and ethical foods by over 20%. Over the six school years that official calculator data was available, 2013/14–2018/19, an estimated total of US$4.7 million was spent on "Real Food." On average, 24% of dollars spent on dining procurement each year was classified as "Real Food." In the final year of the commitment with available data, the university procured 30% "Real Food" (Figure 1).

Most of the university's "Real Food" purchases came from the local and community-based category (Table 1). An average of 18% of all food purchases across the six years analyzed met local and community-based criteria, making up 76% of total "Real Food" purchases. Approximately US$3.6 million was invested into the local economy over this period. An average of 5% of all food purchases were classified as humane, 4% as ecologically sound, and less than 1% as fair.

Nearly three-quarters of the university's "Real Food" purchases from 2013 to 2019 came from animal source foods. Poultry made up the largest percentage, accounting for an average of 29% of "Real Food" expenditures, followed by dairy, meat, produce, seafood, and eggs (Figure 2).

The following subsections provide additional details useful for interpreting this data.

Food service provider

The university switched from Aramark to BAMCO as its food service provider between the 2012/13 and 2013/14 school years, which led to a substantial increase in the Real Food Percentage between those years. BAMCO has its own ethical food procurement standards (Bon Appétit Management Company, 2016) that align similarly with the Real Food Challenge standards for many foods. Many interview participants involved in the early stages

of implementation said that switching to BAMCO was crucial to the implementation of the Real Food Commitment at JHU. One former student from that time reported,

> We had good working relationships with the Aramark staff that were based at Hopkins, but in terms of the corporate structure, they didn't necessarily have the power to make a lot of the kinds of sourcing changes that we knew we were going to be looking for. So I think the feeling was generally that Bon Appétit, the way it was structured, gave their employees who were based at universities more power to make those kinds of sourcing decisions and was less prescriptive in terms of the foods that had to be ordered.

Students involved in the implementation during that time reported that it was clear that BAMCO was more willing to work towards the Real Food Commitment than Aramark, based on what they had heard about student experiences at other universities. One former student also cited other reasons for the switch outside of pursuing the Real Food Commitment, such as student dining choices and cost. Although the Real Food Commitment was signed midway into the first school year after the switch to BAMCO, this switch helped boost the university's chances of achieving the Real Food Commitment.

Labor citation associated with chicken vendor

The drop in the Real Food Percentage in 2016/17, followed by a large increase the following school year, occurred due to a labor citation associated with the processing facility of the university's primary vendor of unprocessed chicken, which had previously qualified as local and community-based. Specifically, the processing facility was cited by the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) for poor hazard communication and machine maintenance training for workers. Due to the nature of the incident, the vendor was disqualified from being considered "Real" for one year, as per Real Food Challenge protocols. This vendor and this incident were one of the most discussed themes in the interviews.

"Low-hanging fruit"

A common theme in the interviews was the idea of so-called "low-hanging fruit" and "high-hanging fruit," referring to the ease or difficulty of making certain procurement shifts. Many participants emphasized that it was relatively easy to make large switches for certain products, such as chicken, dairy, and eggs, because there were qualifying vendors available for these products at a competitive price. It was relatively harder to make changes to other products, such as bananas and soda; these high-hanging fruits are discussed later in this section. Generally, products that could not be sourced locally—or were far more expensive to source locally or with other criteria (e.g., ecologically sound, fair, humane)—were more challenging to shift. Overall, the data reflect initial successes in shifting toward low-hanging fruit, followed by a slowing of growth as the university worked more on high-hanging fruit.

Successes

While the growth in the Real Food Percentage illustrates the university's most obvious success, former students discussed various successes in specific food procurement shifts during their time working on the Real Food Commitment. The JHU dining department and BAMCO staff members (henceforth referred to as dining staff) focused on successful shifts and the growth of the Real Food Percentage. Dining staff and vendors also emphasized the growth of local small business partners.

Growth of Real Food Percentage over time

Reaching 30% "Real Food" represented a notable accomplishment for JHU despite falling short of the 35% goal set for 2020. Multiple interview participants mentioned the success of reaching the milestone of 20% "Real Food," which was the original commitment established by the national Real Food Challenge and the most common goal for other colleges and universities.

Operational changes

One factor that contributed to the successful shifts was that the JHU dining department standardized food procurement across all dining facilities on campus, which made food procurement shifts

much easier to implement. A former student explained that while individual chefs at each dining hall still selected their own food purchases, they had to choose from a standardized list or, in some cases, a particular vendor of that product.

Food Systems Working Group

Multiple participants noted the creation of the Food Systems Working Group as an accomplishment. A standard component associated with signing the national Real Food Commitment, this group was created so that all the stakeholders in the JHU food system could meet every semester, including dining department staff, BAMCO staff, dining hall workers, "Real Food" vendors, calculator interns, Real Food Hopkins members, and students who eat in the dining halls. Discussing goals and implementation strategies at Food Systems Working Group meetings was critical in ensuring all voices were heard in working towards the Real Food Commitment. One former student emphasized that these meetings were especially important for local businesses to meet the dining staff and build partnerships with each other. While attendance at these meetings and communication between different stakeholders was not perfect (i.e., the meetings did not solve all communication challenges), the Food Systems Working Group was seen as a useful tool for implementing the Real Food Commitment.

Growing local businesses

When vendors were asked about successes in their relationship with JHU, all four reported an increase in sales, and three responded that the partnership had helped expand their business. One vendor said,

> I can't complain about anything. … For us, for our company, it changed everything. … It made a huge difference for our company. And the relationship with Bon Appétit has been fantastic.

The relationship with BAMCO allowed many vendors to branch out to numerous institutional partners. A dining staff member explained that:

> When those companies grow, they're then able to do their own things to support the local community, and they become these support networks for other small businesses. So, the trickle-down effect, I don't think we understand the true impact of it because it's probably much bigger than we ever appreciated.

All three dining staff members reported the success of helping small businesses grow. One vendor was able to expand their business to include different social initiatives such as jobs and skills training for veterans, at-risk youth, people with disabilities, and formerly incarcerated people because of the partnership with JHU. Multiple vendors also felt that partnering with a large institution helped them stabilize their business model. For example, a business selling ice cream could maintain sales during the winter. Another farmer reported that the institutional partnership allowed them to plan where to sell excess produce that could not be sold through other venues.

Educational opportunities for students

Participating in the implementation of the Real Food Commitment provided valuable educational and career development opportunities for students. Several former students shared their experiences learning from and networking with students from across the country and region who were facing similar challenges by attending and hosting Real Food Challenge conferences. A critical component of success over time was the students' ability to pass the baton to new leadership and to empower new members, a difficult and important task for college campus organizing. Dining staff members also emphasized the ability to mentor students and increase awareness around the importance of consumption choices and "Real Food" procurement.

Challenges

When asked about challenges they faced, interview participants had many similar responses. Some responses identified structural challenges with university procurement requirements, while others focused on specific barriers to procurement shifts at JHU.

Requirements of university food procurement

Of the broader structural challenges, interview participants most commonly discussed how small, local, and sustainable farmers and vendors do not have the capacity to meet the demand of a large institution like JHU. Two dining staff members told the same story of a partner for salad greens who could not meet the need, and the partnership ended. However, when a different vendor was asked about limits to local vendor capacity, he claimed that this was "an excuse." In fact, this farmer felt confused as to why JHU was not ordering more produce from his farm. He also emphasized that it could not be because of his prices because he had asked JHU what to charge for his produce.

Several interview participants mentioned how food procurement at universities is not built for vendors of "Real Food." For example, universities prefer pre-cut and washed produce, but small vendors do not have the capacity to prepare food due to onerous regulations related to food safety and the need for on-site processing infrastructure. While more dining workers could be hired to prepare local produce, some interview participants said that the additional labor costs for the university associated with such preparations represent a large barrier. The seasonality and uncertainty of local produce availability posed a unique challenge for local farmers competing with large food distributors that source from all over the world and can guarantee the product. Similarly, one farmer reported that local farms require certainty in their contract and orders ahead of the season to know how much to plant.

Another related challenge stemmed from the university's expectations of satisfying student demand, especially since meal plans are required for underclassmen. Some former students reported they had been told by BAMCO that certain shifts could not happen because of student dining preferences. For example, students want chicken tenders, which are only sold by large food processing companies that do not qualify as "Real," such as Tyson Foods. Similarly, BAMCO standards require serving certain foods, such as cantaloupe, which could not be sourced feasibly or affordably to qualify under Real Food Challenge standards. These examples highlight how institutional food procurement requirements may inherently conflict with local, sustainable, or ethical food procurement goals.

Staffing limitations

Some interviewees identified challenges specific to the experience of implementing the Real Food Commitment at JHU through student interns and dining staff. One commonly cited challenge suggested that the calculator work was simply too demanding for full-time students to handle. Some former students also said they struggled to provide actionable insights from the data they compiled.

Dining staff turnover also limited progress. Many interview participants found the former dining director to be an active advocate for "Real Food" in the dining office. Multiple students and vendors mentioned that his departure from JHU in 2017 slowed progress toward the Real Food Commitment and hindered communication between students and staff. Three students used the word "frustrating" in their responses, all of whom were present during and after the former dining director's departure. Whether due to the change in leadership or failed campaigns for high-hanging fruit, former students from recent years were more disillusioned with their ability to implement impactful food procurement shifts. Similarly, the high turnover rate among BAMCO staff made it hard for vendors and students to form the personal relationships with the dining staff required to implement procurement shifts.

Failed shifts and rebate pricing system

Some interviewees focused on failed campaigns to make certain procurement shifts. As aforementioned, participants explained that low-hanging fruit was prioritized as a way to easily and quickly make substantial shifts in the Real Food Percentage. However, some of these participants felt that prioritizing low-hanging fruit allowed the university to avoid the most difficult procurement shifts.

One of the most frequently discussed and most difficult procurement shifts attempted related to the failed effort to source from a sustainable soda vendor. Soda offers a clear example of a high-hanging fruit due to the size, length (seven years),

and donations (US$2 million) associated with the exclusivity contract with PepsiCo, which requires that 80% of all beverages sold on campus are manufactured by the company (Malcom, 2019). One vendor also mentioned being an advocate against soda contracts. Many students brought up "kickbacks" as a barrier in relation to the PepsiCo contract and other partnerships, whereby large companies offer dining management contractors rebates as incentives for buying a high percentage of a product from their company, making it difficult for small producers to compete.

Former students also brought up the failed campaign to obtain fair trade bananas. The only vendor that offered fair trade bananas, Equal Exchange, had a minimum volume requirement for purchases that could not be met by the university alone. The students attempted to partner with local grocery stores and other institutions to buy the bananas in bulk, but this initiative was unsuccessful.

In another example, several students and dining staff members told the same story about a local bakery whose products did not qualify as local and community-based according to Real Food Challenge Standards because its flour was not sourced locally. These interview participants felt that JHU should support local businesses and that not counting this bakery disincentivized an investment in the local economy.

Former students also reported occasions where they would find suitable shifts but were told "no" for various reasons. Similarly, they felt frustrated when a partnership or Real Food vendor was terminated by dining staff members without communicating with the students about it.

Minimal challenges for vendors

Notably, three of the four vendors interviewed said that there were no challenges and felt strongly about the partnership between their business and JHU.

Lessons Learned

Discussions on the lessons learned from the commitment implementation touched on criticisms of the Real Food Challenge and potential directions for future food procurement commitments at JHU. Another theme in these discussions identified the role of JHU in supporting the local food system.

Lessons about the food system

Interviewees highlighted how university dining is set up to reflect the industrial system of food production and distribution. While this system harms the environment, farmers, workers, animals, public health, and community food sovereignty, it provides consistent and large quantities of cheap food. The trend toward the concentration and industrialization of farming pushes out small, sustainable, and ethical producers, and thus reduces the availability of foods from them. A more recent trend toward preparing produce for serving in university dining halls (e.g., pre-cut produce) accelerates this harmful process. One former student explained that to support the local food system, university dining must change its expectations that can only be met by industrialized agriculture. She explains,

> The food system … is inherently messy, except when we try to corporatize it … then it becomes this ugly thing with the same ten things over and over again in different iterations. … If we want a food system that works for everyone … we have to be more comfortable adapting to different situations and change … and that needs to be true on college campuses too.

Interviewees also mentioned the profit motive as an obstacle to changing the food system. For example, BAMCO is restricted from paying workers more and from making more shifts in procurement because they ultimately need to make a profit. In contrast, a self-operated dining system may only need to break even rather than profit. Additionally, grassroots movements such as the Real Food Challenge are limited by larger policies that dictate how contracting works, the kinds of rebates that are allowed, and the agricultural subsidies that incentivize certain farming techniques and products over others. As one former student alluded to, federal policies largely subsidize the industrialization of agriculture rather than smaller farms and urban agriculture. While institutional procurement policies can raise public awareness around the need to

shift to a more sustainable, ethical, local, and humane food system, broader public policy changes are needed.

Lessons about food procurement shifts

To make progress on food procurement shifts, interim targets and enforceable commitments are necessary. Many interview participants also expressed how difficult choices need to be made between the different food procurement goals and standards. In many cases, it was unclear what should be prioritized among fair, local, humane, and ecologically sound criteria, and if low-hanging fruit should be prioritized or if foods and vendors that would be considered the most harmful (such as foods that would be disqualified by Real Food Challenge standards) should be targeted first. The value of long-term relationships in shifting institutional food procurement was also emphasized. Sustaining such relationships can be particularly difficult for individual college students, who are usually only temporary stakeholders in a university food system. The partnerships that were made had value beyond financial metrics because stakeholders felt better about the work they were doing and the food they were consuming. Students also shared that they had learned their unique power and responsibility to make an impact as clients of a university, especially compared to policy changes at other levels.

Criticisms of the Real Food Challenge

Interview participants shared criticisms of the Real Food Challenge national standards, as well as criticisms of the specific implementation at JHU. One concern specific to the JHU Real Food Commitment was that it did not engage dining workers enough. As important stakeholders in the university food system, dining workers' needs and voices should be prioritized going forward. Speaking of the Real Food Challenge national standards more broadly, participants expressed frustration that supporting local businesses was not always credited because products from local businesses did not count as local and community-based if their ingredients were not grown locally. This concern emerged primarily with local food products processed in some way, such as baked goods.

Role of JHU in supporting local food system

When vendors were asked about the role of JHU in supporting the local food system, all four stressed the importance of supporting local businesses, which puts money into the local community and creates jobs. One vendor who purchased most of their ingredients locally emphasized that partnerships with local farms are important, and large institutions should either partner directly with farmers or negotiate with larger food distributors to source their food from local farms. One vendor also explained that partnerships between JHU and small local vendors had to be two-way partnerships. JHU must be sensitive to the risk of a large institution putting pressure on a small company to grow or change. One vendor stressed the importance of institutions partnering with vendors oriented toward supporting low-income communities and communities of color rather than just supplying high-end farmers markets.

Future directions for food procurement at JHU

Both former students and dining staff provided several suggestions for future directions of food procurement commitments at JHU. One idea was introducing targeted percentages for each category of "Real Food," developing unique standards and goals for each value. Multiple students suggested hiring a full-time staff member to coordinate sustainable and ethical food procurement as a solution to the limits of student interns coordinating calculator work, vendor research, and outreach. When asked about this idea, former and current dining staff understood the suggestion but would not necessarily prioritize a new position for food procurement shifts, given the dining program's already-limited financial resources. Others mentioned the Real Food Challenge's new Real Meals Campaign, which targets the three major national food service providers directly rather than individual institutions. Many participants stressed that there should be more of a focus on procuring foods from businesses owned by women and people of color and including local businesses in their commitments, even if they did not necessarily use local ingredients.

A manager of dining programs elaborated on the current plans for future food procurement

commitments. The dining department has been building its own metric dashboard inspired by the Real Food Challenge since January 2020. He explained that the Real Food Challenge has a national lens and he would prefer that goals be more tailored to JHU's local context. For example, there is not a reliable local fish market near Baltimore, but local fish would be easy if the institution were in Seattle. Therefore, the dining department wants to build its own challenging but realistic goals. They also want to include food procurement goals as part of a broader picture of local, sustainable, and ethical commitments, including maintaining facilities sustainably, valuing local workers,[1] and measuring and reducing waste. When asked how to ensure accountability and avoid concerns of greenwashing related to creating their own metrics, he explained that other JHU affiliates outside of the dining department, including those from the Johns Hopkins Bloomberg School of Public Health, Center for a Livable Future, and Office of Sustainability, along with supply-chain experts in the division of procurement, could hold the program accountable. They were also working with undergraduate interns in the Office of Sustainability to determine new food procurement targets and whether they should be more or less specific. He hopes that students will be informed about the new goals and included in the process of implementation. In discussing the idea of JHU creating its own targets, one former student felt that the idea could address the shortcomings of the Real Food Challenge standards. However, she also expressed caution in allowing JHU to create its own standards due to the risk of the university giving itself excessive credit without implementing impactful and positive changes to its food procurement. She also raised a concern about the ability to compare JHU's progress to that of other campuses if individualized procurement standards are adopted.

While initial discussions of the development of post–Real Food Commitment goals and metrics occurred in early 2020, several factors have delayed further development and implementation. The COVID-19 pandemic instigated immediate pivoting into emergency operations while the campus operated in virtual or hybrid mode for over a year. During that time, efforts to source and track "Real Food" were paused, as was other longer-term planning. Additionally, during the editing of this publication, JHU announced its plans to not renew its contract with BAMCO and instead to create a self-operated dining model without a third-party food service management company (Limpe, 2021). Real Food Hopkins members had advocated for such a shift, in line with a broader national trend that has spun off from the Real Food Challenge. This movement has begun challenging the corporatization of the food system by seeking to move campus dining services away from the three dominant food service companies (Anderson, 2021). That said, the university's decision took the students by surprise. During the editing of this publication, the university was preparing to launch its self-operated dining service in July 2022 and hiring its first-ever dining sustainability manager. A re-formed Sustainable Food Working Group had recently begun meeting to make short-term recommendations for the self-operated dining operations and longer-term recommendations to be included in the JHU Sustainability Plan being prepared for release in 2023. How the university maintains and refines its standards around sustainable and ethical food procurement and the extent to which it engages students in defining these standards as it transitions out of the formal Real Food Commitment and from BAMCO to a self-operated dining model remains to be seen. That said, the continued vigor and advocacy of the Real Food Hopkins student group, as well as the prioritization of sustainable food and dining in recent hiring and universitywide planning decisions, suggest that the university's experience implementing the Real Food Commitment has centered sustainable and ethical food procurement as a core value of the dining program and university at large.

Discussion

Johns Hopkins University's efforts to implement the Real Food Commitment occurred as part of a

[1] The university has a broader HopkinsLocal initiative that focuses on increasing hiring from specific neighborhoods with high unemployment or high poverty that are located near JHU campuses.

larger national movement focused on transforming institutional food procurement to be more local, healthy, sustainable, and ethical (Thottathil & Goger, 2019). Although research on other universities that participated in the Real Food Challenge is limited, the value of creating working groups consisting of stakeholders in a university food system to discuss dining procurement decisions has been explored by other researchers. These working groups can facilitate robust communication among students, faculty, staff, dining services, and community stakeholders, particularly by giving students a more permanent voice in procurement policymaking (Kington, 2015); dedicating spaces to deliberate about dining contract recommendations, prioritizing specific shifts, and other procurement decisions (Porter, 2015); and providing opportunities for integration with university education objectives (Porter, 2015) and campus event programming (Baldwin, 2017). JHU stakeholders echoed these reflections in discussing the value of the Food Systems Working Group established to implement the Real Food Commitment, while also acknowledging opportunities to improve communications about the termination of some "Real Food" contracts and whether and how certain categories were prioritized.

The Real Food Challenge's broad approach to encouraging procurement across all "Real Food" categories, without specific targets for each category, added an element of ambiguity and inconsistency in implementation across campuses. Compared to the national averages, JHU procured a substantially larger percentage of its "Real Food" purchases from local and community-based suppliers than the other categories (76% at JHU, compared to 53% nationally; Real Food Challenge, n.d.-b). At the same time, while nearly half of "Real Food" purchases were ecologically sound on a national level, they made up only 17% of "Real Food" purchases at Johns Hopkins.

The university's emphasis on local and community-based food procurement is not entirely unexpected. Many of the most prominent food procurement initiatives focus on local procurement, including farm-to-school and farm-to-institution programs, and do not explicitly incorporate other values-based standards related to workers, ecological impacts, or animal welfare. Additionally, there is a strong emphasis on supporting local and regional food systems at the federal government level (Low et al., 2015). There may also be increased consumer interest in purchasing local foods over those that represent other values. Students at the University of Vermont, for example, valued local foods more than the other "Real Food" categories and were willing to pay a premium for "Real Food" because they associated it with support for their local food economy (Porter, 2015).

Among the JHU stakeholders interviewed, participants reported that interim goals would have been useful in making progress annually, while more specific targets in each of the categories would have ensured greater success in the other three categories. For instance, if the university wants to demonstrate its environmental commitments, it should develop specific goals on that metric. Those developing future procurement policies may look to how the Good Food Purchasing Standards developed by the Center for Good Food Purchasing, another values-driven procurement policy focused on public agencies, expect program adherents to source a baseline amount of food that aligns with each of the five program values (Farnsworth et al., 2018).

While JHU's purchases of foods from local and community-based businesses grew substantially, two concerns emerged in this category. One of the Real Food Challenge standards specifies that products from local businesses must include ingredients that otherwise qualify under one of the "Real Food" categories in order to qualify as "Real." Given the geographical specialization of the American food system, most grains and flours are grown and processed in the Midwest (Halloran, 2015), limiting the potential for local bakeries to procure sufficient affordable local grains to have their breads and other products counted as local and community-based. This criterion around ingredients in processed goods prevented the baked goods that JHU purchased from four local bakeries from qualifying in the local and community-based category. If they had been counted, the university's Real Food Percentage would have increased from 30% to 36% in the 2018/2019 school year from this change alone. Furthermore, local and commu-

nity-based standards did not specify or prioritize businesses owned by women or people of color and did not distinguish between vendors that catered to low-income communities or to wealthier ones. The university could take inspiration from other procurement policies that are beginning to incorporate such priorities, such as Cook County (IL)'s Good Food Purchasing Policy, which incentivizes purchasing foods produced or processed in low- to moderate-income communities and from businesses that hire from low-to-moderate income communities, and encourages public land access for minority-owned or -controlled social enterprises and land trusts (Resolution 18-1650, 2018). National standards for the local and community-based category were also a point of tension for stakeholders at the University of Vermont (Porter, 2015) and the University of Florida (Baldwin, 2017), particularly the criterion that individual farmers that gross over US$5 million do not qualify as local. Some felt that this discouraged local food procurement in industries where local sourcing was feasible, such as dairy, or from producers that could meet the capacity needs of large institutions. These nuances associated with the local and community-based category are also critical to consider when comparing Real Food Percentages to procurement statistics from other institutions that classify purchases as "local" based on distance alone.

Various challenges encountered in implementing the Real Food Commitment at JHU, particularly those that reflect larger dynamics within the food system, reflected experiences similar to those reported by other institutions engaging in local and sustainable procurement initiatives. These include costs, the seasonality of produce, and the capacity of small producers or distributors to meet the demand for a high volume of produce, especially if preparing or processing produce is required (Bobronnikov et al., 2021; Vilme et al., 2015). Participants echoed challenges discussed in Apoliona-Brown et al. (2020) and Santo and Fitch (2018) about working with food-service management companies, including rebates being an inhibitor to procurement shifts and the limits to flexibility in procurement choices when working with these companies. Despite these challenges, interview participants mentioned that having BAMCO as the university's food-service provider allowed for more flexibility in procuring foods aligned with the commitment than Aramark.

Frequent turnover of students and dining staff also posed a significant challenge to implementing the commitment at JHU due to the reported importance of long-term relationships in procurement partnerships. This signifies a need for policies and documentation to facilitate the transfer of institutional knowledge and relationships. Furthermore, increasing the role of dining workers in the development and implementation of procurement policies was identified as an emergent issue. While dining workers often operate behind the scenes and without a significant voice, they play a distinct role in a university food system and could offer valuable perspectives to future food procurement policies.

Beyond directly benefiting the producers and vendors that sold local, ecologically sound, fair, and humane foods, implementing the Real Food Commitment provided a means to keep the university accountable to its sustainable dining values. Although criticisms of specific Real Food Challenge standards may be warranted, consistently evaluating and reporting food purchases across time to the university community using the Real Food Calculator likely advanced more progress toward sustainable procurement than would have been achieved without this tool. Additionally, the development of the tool's criteria by national food systems stakeholders, and the completion of the assessment by students rather than dining staff, ensured the validity of claims made by the university administration and product vendors. The implementation process also provided educational and professional benefits to the students involved in advocating for the commitment, analyzing data, and researching potential procurement shifts. These results demonstrate the importance of valuing institutional procurement commitments for more than numeric changes in product purchases over time. The benefits of such shifts will also differ based on the institution and industry; hospitals and public schools, for example, would experience different stakeholder engagement opportunities and implementation strategies. While the impact on local food producers may be similar across different sectors, nutrition standards and food prefer-

ences might still affect the nature of these relationships.

These findings suggest that future food procurement policies at JHU, as well as at other institutions of higher education, should take into consideration their influential role in the food system. While vendors with which JHU had partnered reported great appreciation, barriers to partnerships with local, sustainable, and ethical vendors could be directly alleviated by JHU, such as the need for pre-cut and washed produce and the demand for a large volume from a single vendor. Training dining workers to prepare unprocessed produce and partnering with multiple smaller vendors or a distributor or food hub that procures from small vendors could increase the university's ability to purchase from local, sustainable, and ethical vendors. The university could also reconsider committing to future contracts that require purchasing minimum amounts from specific vendors so that smaller vendors have an equal ability to compete with larger ones. Looking toward future procurement efforts, the considerable achievements of the JHU Real Food Commitment should be built upon by addressing the barriers in its previous experience to advance even greater progress.

Future research could evaluate the experiences of other schools that implemented the Real Food Commitment to support the continual evolution of local, sustainable, and ethical food procurement standards, particularly as the official national "Get Real" campaign concluded in 2020. Also, more in-depth analyses of JHU procurement data could examine how specific procurement shifts, such as the shifts of certain animal foods, impacted environmental or socioeconomic outcomes over time.

Conclusion

In signing the Real Food Commitment, Johns Hopkins University set an ambitious goal without clear expectations around the extent to which it was achievable. Although the university fell short of reaching this numeric target, it shifted US$4.7 million between 2013 and 2019 to local and community-based, humane, ecologically sound, and fair foods without significantly increasing dining costs. This notable accomplishment demonstrates the power of institutional procurement policies to advance changes at a scale far beyond individual dietary shifts. Many challenges, however, limited the ability of the university to reach its goal. Some of these challenges were structural, such as the limited capacity of small vendors, cost limitations, university food procurement requirements, and rebates associated with food-service management companies, while others were specific to the context of implementing the Real Food Commitment at JHU, including student preferences, limitations of implementation by student interns, and dining staff turnover. Much of the university's success in implementing its commitment was found in low-hanging fruit, such as switching to local and community-based animal source foods, while other efforts seeking to shift to higher-hanging fruit, such as challenging the university's soda contract, were unsuccessful. The metrics behind sustainability claims are not always transparent or consistent from institution to institution, demonstrating the value of rigorous and independently developed standards to ensure the validity of sustainability claims made by institutions and product vendors. At the same time, the limits to individual university procurement shifts have been recognized by the national leaders of the Real Food Challenge, as its parent organization, Real Food Generation, has begun new campaigns directly targeting the procurement and power of the three major food service management companies. The many lessons learned from this experience could inform future food procurement efforts at JHU as well as at other institutions.

Acknowledgments

The authors thank the interview participants for offering their time and sharing their perspectives on this process, as well as all the people who have worked towards signing and implementing the Real Food Commitment at JHU. The first author would also like to thank Dr. Alexios Monopolis and Dr. Rebecca Kelly for guiding him throughout the process. The authors also appreciate the support provided by Tina White and Stephanie Sufczynski for retrieving and discerning appropriate data files.

References

Anderson, G. (2021, March 31). Colleges break from corporate dining services. *Inside Higher Ed.* https://www.insidehighered.com/news/2021/03/31/movement-against-corporatized-campus-dining-services-renewed

Apoliona-Brown, P., Dunn-Wilder, E., Guthrie, L., Robbins, P., Steel, A., & Strader, K. (2020). *Be-trayed: How kickbacks in the cafeteria industry harm our communities—And what to do about it*. Real Food Generation. https://static1.squarespace.com/static/5bc8b828e666694cb5fbc669/t/5ee147093e414b3d94da9ad0/1591822093965/Be-Trayed-+Kickbacks+Report+2020-5-29.pdf

Appleby, M. C. (2005). Sustainable agriculture is humane, humane agriculture is sustainable. *Journal of Agricultural & Environmental Ethics, 18*(3), 293–303. https://doi.org/10.1007/s10806-005-1490-9

Asbed, G., & Hitov, S. (2017). Preventing forced labor in corporate supply chains: The Fair Food Program and worker-driven social responsibility. *The Wake Forest Law Review, 52*(2), 497–531. http://www.wakeforestlawreview.com/

Baldwin, S.J. (2017). *Serving up a social movement: The Real Food Challenge at Florida State University* [Doctoral dissertation, Florida State University]. FSU Digital Repository. https://diginole.lib.fsu.edu/islandora/object/fsu:536961

Bobronnikov, E., Boyle, M., Grosz, M., Lipton, I., Nutter, R., Velez, M., & Yadav, L. (2021). *Farm to school literature review.* Abt Associates. https://fns-prod.azureedge.us/sites/default/files/resource-files/Farm-to-School-LitReview.pdf

Bon Appétit Management Company. (2016). *Farm to fork.* Retrieved December 14, 2021, from https://www.bamco.com/timeline/farm-to-fork/

Brain, R. (2012). *The local food movement: Definitions, benefits & resources.* Hosted by Utah State University Libraries. Retrieved from https://explore.openaire.eu/search/publication?articleId=od_____1459::f0f7721c28b52127d4eec59095879f26

Burley, D., Coker, E., May, B., McCarty T., Dickerson, E., Milligan, B., Moses, D., Sanchez, S., & Hortman, R. (2016). Taking the challenge for real food: Student engagement in procuring sustainably produced food on campus. *Journal of Agriculture, Food Systems, and Community Development, 7*(1), 71–87. https://doi.org/10.5304/jafscd.2016.071.011

Conijn, J. G., Bindraban, P. S., Schröder, J. J., & Jongschaap, R. E. E. (2018). Can our global food system meet food demand within planetary boundaries? *Agriculture, Ecosystems & Environment, 251,* 244–256. https://doi.org/10.1016/j.agee.2017.06.001

Danley, K. S., & Ellison, M. L. (1999). *A handbook for participatory action researchers.* Implementation Science and Practice Advances Research Center Publications, Boston University Center for Psychiatric Rehabilitation. https://escholarship.umassmed.edu/psych_cmhsr/470

Farnsworth, L. D., Delwiche, A., McKinney, C. (2019). The Good Food Purchasing Program: A policy tool for promoting supply chain transparency and food system change. In S. E. Thottathil & A. M. Goger (Eds.), *Institutions as conscious food consumers: Leveraging purchasing power to drive systems change* (pp. 103–126). Academic Press. https://do0069.org/10.1016/B978-0-12-813617-1.00005-8

Foley, J. A., DeFries, R., Asner, G. P., Barford, C., Bonan, G., Carpenter, S. R., Chapin, F. S., Coe, M. T., Daily, G. C., Gibbs, H. K., Helkowski, J. H., Holloway, T., Howard, E. A., Kucharik, C. J., Monfreda, C., Patz, J. A., Prentice, I. C., Ramankutty, N., & Snyder, P. K. (2005). Global consequences of land use. *Science, 309*(5734), 570–574. https://doi.org/10.1126/science.1111772

Frison, E. A., & IPES-Food. (2016). *From uniformity to diversity: A paradigm shift from industrial agriculture to diversified agroecological systems.* IPES. https://hdl.handle.net/10568/75659

Gomiero, T., Pimentel, D., & Paoletti, M. G. (2011). Environmental impact of different agricultural management practices: Conventional vs. organic agriculture. *Critical Reviews in Plant Sciences*, *30*(1–2), 95–124. https://doi.org/10.1080/07352689.2011.554355

Halloran, A. (2015). *The new bread basket: How the new crop of grain growers, plant breeders, millers, maltsters, bakers, brewers, and local food activists are redefining our daily loaf.* Chelsea Green Publishing.

Hendrickson, M. K. (2015). Resilience in a concentrated and consolidated food system. *Journal of Environmental Studies and Sciences, 5*(3), 418–431. https://doi.org/10.1007/s13412-015-0292-2

Hinrichs, C. C. (2000). Embeddedness and local food systems: Notes on two types of direct agricultural market. *Journal of Rural Studies, 16*(3), 295–303. https://doi.org/10.1016/S0743-0167(99)00063-7

Holt Giménez, E., & Shattuck, A. (2011). Food crises, food regimes and food movements: Rumblings of reform or tides of transformation? *The Journal of Peasant Studies, 38*(1), 109–144. https://doi.org/10.1080/03066150.2010.538578

Kington, L. E. (2015). *Analyzing Ohio State University's food purchasing system: Opportunities for change through the Real Food Challenge* [Undergraduate honors thesis, The Ohio State University School]. OSU Knowledge Bank repository. https://kb.osu.edu/handle/1811/68871

Limpe, M. (2021, February 6). Bon voyage, Bon Appétit: Hopkins dining will be self-operated in 2022. *The Johns Hopkins News-Letter*. https://www.jhunewsletter.com/article/2021/02/bon-voyage-bon-apptit-hopkins-dining-will-be-self-operated-in-2022

Low, S. A., Adalja, A., Beaulieu, E., Key, N., Martinez, S., Melton, A., Perez, A., Ralston, K., Stewart, H., Suttles, S., Vogel, S., & Jablonski, B. B. R. (2015). *Trends in U.S. local and regional food systems* (Publication No. AP-068). U.S. Department of Agriculture Economic Research Service. https://www.ers.usda.gov/publications/pub-details/?pubid=42807

Malcom, R. (2019, April 11). Students call for end to Hopkins-PepsiCo contract. *The Johns Hopkins News-Letter*. https://www.jhunewsletter.com/article/2019/04/students-call-for-end-to-hopkins-pepsico-contract

Moses, A., & Tomaselli, P. (2017). Industrial animal agriculture in the United States: Concentrated animal feeding operations (CAFOs). In G. Steier & K. K. Patel (Eds.), *International Farm Animal, Wildlife and Food Safety Law* (pp. 185–214). Springer. https://doi.org/10.1007/978-3-319-18002-1_6

Murray, S. C. (2005). *A survey of farm-to-college programs: History, characteristics and student involvement* [Unpublished master's thesis]. University of Washington. https://web.archive.org/web/20150915064044/http://www.farmtocollege.org/Resources/Murraythesis_final_June2005.pdf

Pollan, M. (2010, June 10). The food movement, rising. *The New York Review*. https://www.nybooks.com/articles/2010/06/10/food-movement-rising/

Porter, J. (2015). *Get real: An examination of the Real Food Challenge at the University of Vermont* [Master's thesis, University of Vermont]. UVM ScholarWorks. https://scholarworks.uvm.edu/cgi/viewcontent.cgi?article=1411&context=graddis

Real Food Challenge. (n.d.-a). *Signatory schools*. Retrieved December 14, 2021, from https://www.realfoodchallenge.org/signatory-schools/

Real Food Challenge. (n.d.-b). *The 2020 results*. Retrieved December 14, 2021, from https://www.realfoodchallenge.org/real-food-challenge-celebrates-2020/2020-results/

Real Food Challenge. (n.d.-c). *Real Food standards 2.1*. Retrieved December 14, 2021, from https://calculator.realfoodchallenge.org/help/resources

Real Food Challenge. (n.d.-d). *The real impact of Real Food: 8 ways institutional procurement is building a real food economy*. Retrieved December 14, 2021, from https://www.realfoodchallenge.org/resources/rfc-reports/

Resolution 18-1650 (2018, May 16). *To adopt the Good Food Purchasing Policy*. Cook County Board of Commissioners. https://cook-county.legistar.com/LegislationDetail.aspx?ID=3309826&GUID=ED1C9BDF-90BD-4355-AB3C-AE1738EC6A38

Rosen, J. (2013, November 4). Johns Hopkins pledges commitment to local, sustainable food sources. *The Hub*. https://hub.jhu.edu/2013/11/04/real-food-challenge/

Santo, R. E., & Fitch, C. M. (2019). From foodservice management contracts to U.S. federal legislation: Progress and barriers in values-based food procurement policies. In S. E. Thottathil & A. M. Goger (Eds.), *Institutions as conscious food consumers: Leveraging purchasing power to drive systems change* (pp. 77–102). Academic Press. https://doi.org/10.1016/B978-0-12-813617-1.00004-6

Steel, A. (2019). Foreword. In S. E. Thottathil & A. M. Goger (Eds.). *Institutions as conscious food consumers: Leveraging purchasing power to drive systems change* (pp. xv–xvii). Academic Press. https://doi.org/10.1016/B978-0-12-813617-1.00001-0

Thottathil, S. E., & Goger, A. M. (Eds.). (2019). *Institutions as conscious food consumers: Leveraging purchasing power to drive systems change*. Academic Press. https://doi.org/10.1016/C2016-0-05105-7

Vilme, H., Lopez, I. A., Walters, L., Suther, S., Perry Brown, C., Dutton, M., & Barber, J. (2015). Perspectives of stakeholders on implementing a farm-to-university program at an HBCU. *American Journal of Health Behavior*, *39*(4), 529–539. https://doi.org/10.5993/AJHB.39.4.9

Appendix

Interview Questions

Questions asked to former interns:

- What year(s) were you involved with the Real Food Challenge and/or Real Food Calculator?
- What primarily did you work on as a calculator intern?
- What successes did you have during your time as an intern?
- What challenges did you face? Why were they challenges?
    - Were these things repeatedly challenges or just one-time occurrences?
- Which product shifts, if any, happened while you were a calculator?
- What did you gain from the experience of being an intern?
- What lessons about the food system do you think can be drawn from the Real Food Challenge?

Questions asked to dining staff:

- How long have you worked with JHU dining?
- Could you describe what role you have played in carrying out the Real Food Challenge commitment on the Hopkins campus?
- What would you say have been the biggest successes that JHU has achieved through the Real Food Challenge commitment?
- What have been the biggest challenges you have faced and why?
- What do you think JHU should consider including in its future commitments to local, ecologically sound, fair, and humane dining purchases?
- What have you gained from the experience of being involved with the Real Food Challenge?

Questions asked to vendors selling to JHU:

- What product(s) do you sell to Johns Hopkins University (at least, before COVID happened)?
- How long have you sold your [product name] to Johns Hopkins University?
- Has selling to JHU has impacted your businesses at all? If so, how?
- What challenges have you encountered in selling your product to JHU?
- What do you think the role of large institutions like JHU should be in supporting the local food system?