GOOD FOOD IMPACT HUB
PROCESS & METHODOLOGIES

CONTENTS

INTRODUCTION

This document provides the process and methodologies used for the impact calculators, impact statistics, and estimations of impacts of food purchasing shifts in the real-world examples on the Good Food Impact Hub.

IMPACT CALCULATORS

General Process

The calculators model the impacts of general strategies that public institutions like schools, hospitals, and jails can implement to increase their values-based food procurement. These are impacts that policymakers have expressed as their top priorities over the past several years and that are feasible to quantify based on existing research. We use current studies and methods; interviews with policymakers, researchers, scientists, and experts in their fields; and the Center for Good Food Purchasing's data on how public institutions are spending their food dollars to develop the methodologies for calculating impacts. For a complete list of resources, studies, and the experts we engaged, refer to the Appendix.

The Center for Good Food Purchasing works with municipalities and institutions nationwide to collect data on all food purchases made by those institutions and their vendors. Those purchases are analyzed to determine alignment with the Good Food Purchasing values of local economies, environmental sustainability, valued workforce, animal welfare, and nutrition. This data, in aggregate, is used within model calculations to represent the types and quantities of food products an institution purchases. Institutional procurement data is combined with available literature, studies, and methods to develop models on institutional purchasing impacts.

Because modeling encompasses assumptions and generalities, we show conservative estimates where assumptions need to be made. As more research and methodologies emerge, we will have an opportunity to update the calculators.

Calculator Inputs: User Selections and Institutional Procurement Data

To provide an estimated food budget based on population, we use the average population of the cities for institutions enrolled in the Good Food Purchasing Program and their average food budget to derive an average dollar spend per person. This average is extrapolated to the population size.

For the Greenhouse Gas and Water Footprint, Pesticide Application, and Health Risks & Healthcare Costs calculators, we convert food purchase dollars to weight using an average spend to weight ratio (based on institutional food purchase data collected by the Center for Good Food Purchasing) for all the institutions enrolled in the Good Food Purchasing Program.

Good Food Purchasing Program data is based on Fiscal/School Year 2019 food purchases; where 2019 data is unavailable, 2018 purchases are used.

Local Jobs and Wages Calculator

User Inputs and Strategies

The strategy in this calculator shifts the portion of an institution's total food purchases spent on local foods. The user can choose the percentage by which they would like to increase their local spend. Local is defined as food produced within a 250-mile (or 500-mile for meat) radius of the region.

Jobs and Wages Per Dollar of Spend by Industry Sector and Location

Calculated jobs represent the number of food-related jobs estimated to occur in a given locality (within 250 miles of a region). The calculated wages are the estimated salaries or pay associated with those jobs. The estimate for jobs and related wages, per dollar of food spend, is calculated as a ratio of jobs to gross domestic product (GDP) and ratio of wages to GDP. Each ratio is calculated by industry sector and production location (e.g., jobs and wages attributable to one dollar spent on chicken produced in Los Angeles.)

First, we assign industry sectors to food purchases. Industry sectors are in accordance with the North American Industry Classification System (NAICS) (U.S. Census Bureau, 2017) at the 6-digit industry code level (e.g., 111110 Soybean Farming). The 6-digit industry codes used represent industry sectors from which institutions in the Good Food Purchasing Program purchase foods.[1]

Next, we identify the number of jobs, associated wages, and GDP for each industry where the food was produced.[2] Employment and wages data for each 6-digit industry code are taken from the Bureau of Labor Statistics' Quarterly Census of Employment and Wages (BLS QCEW) (2018). Gross domestic product, which corresponds to food spend in the model, is derived by industry from the Bureau of Economic Analysis (BEA).[3]

BEA data provides GDP by location and at the 2-digit NAICS industry code level (e.g., Agriculture, Forestry, Fishing and Hunting). To estimate each location's GDP at the 6-digit industry code level, we determine the proportion of wages to that location's GDP at the 2-digit industry code level and apply that proportion to wages at the 6-digit industry level.[4]

For example, a 2-digit industry code with $10 million in wages and $50 million in GDP for a particular location would result in $1 in wages for $5 in GDP in that location (or $0.2 wages per $1 GDP). If the sub-sector 6-digit industry code has $1 million in wages, this would create an estimated GDP of $5 million at the 6-digit industry code level in that location.

Jobs and Wages Related to Institutional Food Purchasing

Once we determine the job and wages ratios for all 6-digit industry sectors and locations represented by Good Food Purchasing Program institutional purchasing data, we multiply the jobs or wages ratios for each industry sector and location with the corresponding institutional purchases to determine attributable jobs and wages.

Then, we aggregate all attributable jobs and related wages associated with local food purchases. The aggregate nationwide jobs and wages are representative of many regions across the country.

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[1] Good Food Purchasing Program data is based on Fiscal/School Year 2019 food purchases; where 2019 data is unavailable, 2018 purchases are used.

[2] We determine the state of the production location and use the corresponding state-level BLS QCEW data.

[3] The job and wage ratio calculations use BLS and BEA data at the state-level. While BLS/BEA data is available at the county level, state-level data is more available and less affected by data suppression (data may be suppressed to protect suppliers' confidentiality). When data is missing, we use a catchall labor ratio calculated as the weighted sum of all available labor ratios for a food category. The catchall labor ratio does not account for regional differences in institutional purchasing; we apply the weights based on the overall distribution of purchases across all institutions and regions.

[4] We assume that GDP output is approximately proportional to wages and that this correlation will be stronger for NAICS codes that fall under a parent NAICS (i.e., 2-digit level) than those across different sectors. We use wages rather than jobs in estimating GDP because wages are more likely to be proportionate to GDP. See Assumptions and Limitations for details.

After that, we calculate a multiplier for jobs and and a multiplier for wages per dollar of institutional food spend (by dividing the aggregate attributable jobs and wages by the aggregate food purchases). These multipliers are used to model the labor impact (in jobs and related wages) for a given food budget.

Limitations and Assumptions

- The model assumes a linear relationship between wages and the output of any given sector of the economy. This does not reflect all situations, especially in sectors where there are large economies of scale (e.g., animal meat production). However, because of limitations in the data available, we consider this a reasonable assumption.
- The model assumes that purchasing operates within a perfectly elastic economy. As purchasing increases, supply (i.e., labor) will increase accordingly.
- Calculated jobs and wages impacts for any given region are assumed to follow the nationwide jobs and wages factors calculated from Good Food Purchasing Program institutional food purchase data.

Greenhouse Gas and Water Footprint Calculator

User Inputs and Strategies

The strategies in this calculator include replacing animal proteins with plant proteins to reduce greenhouse gas emissions and water use. “Meat and egg purchases” include beef, chicken, pork, turkey, and eggs; “dairy purchases” include butter, cheese, cow’s milk, and yogurt.

Conversion of Food Purchase Dollars to Weight

We convert food purchase dollars to weight using the average spend to weight ratio for all the institutions enrolled in the Good Food Purchasing Program.[5] For strategies that affect multiple food categories (e.g., “meat and eggs” and dairy), the proportionate weights of each food category are based on the average purchases of institutions enrolled in the Good Food Purchasing Program, using a “basket” approach to reflect food products typically purchased by institutions.[6]

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[5] Good Food Purchasing Program data is based on Fiscal/School Year 2019 food purchases; where 2019 data is unavailable, 2018 purchases are used.

[6] Good Food Purchasing Program data is based on Fiscal/School Year 2019 food purchases; where 2019 data is unavailable, 2018 purchases are used.

For example, if institutions on average spend five percent of their total food spend on chicken meat and three percent on beef, the calculation for a 100-pound (lb) reduction in meat would include a reduction of five pounds (lb) of chicken meat and three pounds (lb) of beef.

Calculation of Replacement Amount

To calculate the impact of decreasing animal product purchases, replacement plant proteins are substituted. The replacement amount is a percentage decrease of current purchases of beef, meat and eggs, or dairy products (and does not represent an absolute value percentage of total food spend). For example, for a food spend of $37 million and a replacement of beef of 20%, the calculation is:

Current spending on beef: 2.5% of total, or $925,000

Replacement: 20% of $925,000, or $185,000 (equivalent to 220,000 lb)

The calculator shows the estimated net CO_2 equivalent emissions and water use reduction for $185,000 (220,000 lb) of beef purchases, offset by the CO_2 equivalent emissions and water use from the replacement plant proteins.

GHG Emissions and Water Use

The greenhouse gas (GHG) emissions reductions and water use reductions are the differences between the GHG emissions and water use of the reduced food category (e.g., beef, meat and eggs, dairy) and the replacement plant proteins (e.g., beans, pulses, and tofu). The replacement plant proteins are based on the most common lower-impact plant proteins that institutions purchase; using these food categories for calculations is common practice per the subject matter experts consulted. The replacement assumes an equal substitution by weight.

For example, if a user selects the strategy to replace beef purchases with plant proteins and inputs a food spend corresponding to 50 pounds (lb) of beef purchases, the calculator results show the net decrease in GHG emissions and water use for 50 pounds (lb) of beef, after accounting for the increase in GHG emissions and water use for 50 pounds (lb) of beans, pulses, and tofu.

The GHG emissions reported by the calculator are the product of multiplying the food weight by the GHG emissions factor for the food category (Poore & Nemecek, 2018; North American GHG emissions obtained through World Research Institute's Cool Food Pledge Calculator). This factor includes food-related emissions along the total supply chain (feed, farm, processing, transport, packaging, and losses) for North America. Water use reported by the calculator is the product of multiplying the food weight by the water use factor for the food category (Poore & Nemecek, 2018). This factor includes food-related freshwater withdrawals ("irrigation withdrawals embedded in feed; drinking water for livestock; water for aquaculture ponds; and processing water") for North America. Where North American factors are unavailable, global factors are used.

Conversion to Passenger Vehicles and Household Water Needs

To help users understand the impact of greenhouse gas and water use reduction, "social math" is used to frame the impacts in more relatable units, such as cars on the road or households using water. The greenhouse gas emissions equivalent uses the passenger vehicles per year calculation from the EPA Greenhouse Gases Equivalencies Calculator (US EPA). The water use equivalent uses the household indoor water consumption conversion factor from the Water Research Foundation report *Residential End Uses of Water, Version 2* (2016).

Limitations and Assumptions

- The model assumes a reduction in purchasing a certain category of food leads directly to a reduction in production (i.e., a closed system).
- The model assumes that institutions will replace a meat, egg, or dairy purchase with plant proteins (beans and pulses, or tofu) of equal weight.
- For strategies that include reducing multiple food products, the model assumes that institutions will reduce their purchasing of each food product by the same percentage.

Pesticide Application Calculator

User Inputs and Strategies

The strategies in this calculator include replacing purchases of conventionally grown produce with produce that is grown without the use of pesticides, such as USDA certified Organic products. To determine the impacts of shifting produce purchases towards items that are grown without pesticide use, a user may choose to either focus on apple purchases (the most commonly purchased produce item for institutions), focus on five items (broccoli, corn, oranges, peaches, pears), or choose to shift 20 items (apples, broccoli, carrots, celery, corn, cucumbers, grapes, kale, lettuce, nectarines, onions, oranges, peaches, pears, potatoes, spinach, squash, strawberries, tangerines, and tomatoes). These items are commonly purchased by institutions and associated with high-risk pesticides.

Converting spend to weight

We convert food purchase dollars to weight using the average spend to weight ratio for all the institutions enrolled in the Good Food Purchasing Program. For any strategy to replace more than one category of food (i.e., five items, twenty items), the proportionate weights of each food category are based on the average purchases of institutions enrolled in the Good Food Purchasing Program (as described further in the Greenhouse Gas and Water Footprint Calculator section).

Pesticide Load

To determine pesticide load, we begin by using the Center for Good Food Purchasing's institutional purchasing data to identify the top 20 produce items purchased by institutions (by spend and weight) that are typically grown domestically. Our next step is to identify Category 1B pesticides from the Whole Foods Responsibly Grown list that are applied to these 20 items (Whole Foods, 2017). Despite the public-facing version of the Whole Foods Responsibly Grown program being discontinued, the list was confirmed to be accurate and relevant by the IPM Institute of North America (IPM). Category 1B pesticides are defined as high-risk pesticides including all organophosphate and N-methyl carbamate pesticides, which have a harmful effect on children born to mothers exposed to these pesticides. These active ingredients are also toxic to beneficial organisms such as pollinators (Whole Foods, 2017).

We then use USDA National Agricultural Statistics Service (NASS) data to determine the pesticide application rate for each of these 20 items, which includes the relevant average pounds of pesticides applied per acre per year (USDA NASS, 2019). USDA NASS data is used because it represents production across multiple states, corresponding to the Center for Good Food Purchasing's national dataset. Using USDA NASS data, we calculate the average yield (pound per acre) of product grown for each produce item. We use the pesticide application rate and yield to estimate the pounds of pesticides applied per pound of conventionally grown product.

Conversion to Football Fields

To help users understand the impact of reduced pesticide use, farm acres are translated to a more recognizable unit: An American football field. There are 1.32 acres in a football field,[7] and the metric demonstrates the total farmland in number of football field equivalents impacted by decreased pesticide use.

Limitations and Assumptions:

While pesticide application rate is the most precise impact measure available in public datasets, it does not account for the agroecological nuances that accompany specific application usages. For example, targeted amounts of certain pesticides can have a lesser negative environmental impact than broad spectrum or calendar applications of other pesticides. We encourage users to visit IPM's Pesticide Risk Assessment Tool for the most precise indicator of toxicity exposure.

Health Risks & Healthcare Costs Calculator

User Inputs and Strategies

The strategies in this calculator include changing the amount of food products purchased to reduce adverse health outcomes and subsequent healthcare costs. The user can choose to increase purchases of fruits and vegetables, increase purchases of whole grains, or decrease purchases of processed meat. "Processed meat" purchases include red meat that is altered from its whole state by processes like smoking, salting, curing, or adding chemical enhancers or preservatives.

Converting spend to weight

We convert food purchase dollars to weight using the average spend to weight ratio for all the institutions enrolled in the Good Food Purchasing Program. For any strategy to replace more than one category of food (e.g., fruits and vegetables), the proportionate weights of each food category are based on the average purchases of institutions enrolled in the Good Food

[7] Per NFL Rule 1, a field is 360 feet long by 160 feet wide, or 57,000 square feet (1.32 acres).

Purchasing Program (as described further in the Greenhouse Gas and Water Footprint Calculator section).

Relative Risk Ratios

The health and nutrition model estimates the change in risk of disease, health event, or associated healthcare cost based on changing the servings of different food types. Relative risk ratios from Clark et al. (2019) report the risk of a health outcome resulting from consumption of an additional serving of food per day relative to the average intake of that food.

Calculation of Replacement Amount

The change in spend on processed meat, fruits and vegetables, or whole grains assumes that the total overall food spend is unchanged. For example, for a food spend of $37 million and a decrease in processed meat of 50%, the calculation is:

Current spending on processed meat: 4.7% of total, or $1.7 M

Replacement: 50% of $1.7M, or $870,000 (equivalent to 583,000 lb)

The calculator shows the estimated health impacts related to the daily servings decrease for $870,000 (583,000 lb) of processed meat purchases.

Health risks and associated healthcare costs

Based on institutional food purchase data collected by the Center for Good Food Purchasing, the total daily servings of food purchased by product category (e.g., fruits, vegetables, red meat, whole grains) is divided by the total number of individuals consuming food from an institution to estimate total daily consumed servings for individuals served. Using the relative risk ratios, we estimate the risk of all-cause mortality and the cumulative risk of four chronic diseases or health events (coronary heart disease, colorectal cancer, diabetes, and stroke) related to the daily servings of each food product per individual. Based on a change in products purchased, we estimate a relative risk of health outcomes that would occur due to the change in servings of that food product. For data based on serving K-12 students, we apply a 35% reduction to the risk factor, accounting for the fact that an estimated 35% of childhood eating habits persist into adulthood (Rosettie et al., 2018).

As a calculation example, increasing the percentage of fruits and vegetables purchased by a factor of 50% could result in a decrease of approximately 2.5% in chronic disease risk (cumulative risk of coronary heart disease, colorectal cancer, diabetes, and stroke). To calculate associated annual healthcare costs averted, number of new cases of disease in the target population is calculated based on Relative Risk and national disease/health event incidence; the number of new cases is applied to determine the number of cases of disease or health event averted. The number of averted cases is multiplied by the average annual cost per disease or health event (Waters & Graf, 2018) to calculate the estimated annual healthcare costs savings.

Limitations and Assumptions:

- All food purchased is consumed by the population the institution serves. We do not account for the proportion of food not consumed because of food waste or other factors.
- Purchasing data and servings are calculated based on institutions where figures on population served is readily available, such as schools.
- Relative Risk ratios are based on health outcomes in adult populations, and the model includes a high percentage of children and adolescents from K-12 school districts enrolled in the Good Food Purchasing Program. Because chronic disease and health events related to food consumption generally do not present themselves until years down the line, we use conservative estimates of long-term relative risk for children's food consumption (35% of the total adult relative risk) from Rosettie et. al (2018).
- Relative Risk ratios from Clark et al. are based on increasing consumption of a food by one serving. They do not account for multiple serving changes or decreased consumption of a food. For this model, we assume that a decrease in processed meat consumption will have the inverse effect that an increase of the same magnitude would have.

IMPACT STATISTICS

Valued Workforce

This calculation estimates the impact that a 40% increase in farm-workers wages could have on annual institutional fruit and vegetable expenditures, leveraging methodology developed for a consumer price increase (EPI, 2020) and adapting this model to the institutional setting.

First, we determine the average institutional spend on fruits and vegetables for institutions that participate in the Good Food Purchasing Program. We assume that institutions purchase produce from wholesalers, and based on that assumption, we find the farmers' share of wholesale prices (i.e., the amount that farmers get for every dollar of fruits & vegetables institutions spend on wholesalers) using the USDA Economic Research Services (ERS) farm-to-consumer price spread and the average retailers' mark-up on wholesale prices (Hayut, 2013). We further find farm-workers' share of farmers' revenue using the ERS Farm Labor Statistics (2019). Based on these inputs, and using a 40% pay increase for farm-workers, we determine the price impact to institutions and the pay impact to workers relative to the living wage, per MIT's Living Wage Calculator (2020).

Animal Welfare

To calculate the impact of all K-12 public schools adopting one vegetarian food service day per week, we use The Darwin Challenge multipliers that describe the amount of beef and chicken an average OECD member consumes per day (The Darwin Challenge). We also find the number of public K-12 students that participate in the National School Lunch Program (assuming that this number equals the number of students eligible for free or reduced-price lunch) (National Center for Education Statistics). With an average of 180 school days per year, or 36 vegetarian days per year (given the stated one vegetarian day a week strategy), we are able to calculate the total number of cows and chickens that would not be consumed per year if all K-12 public schools participate in one vegetarian day per week.

Equity, Accountability, and Transparency

Box 1

One of the ways for institutions to support Good Food Purchasing values is through sourcing from unionized suppliers. The Center for American Progress (CAP) (2021) shows the impacts that better pay and benefits, through unions, can have in closing the racial wealth gap. The Center for American Progress demonstrates that median household wealth by race and ethnicity increases for all union households,[8] and that the wealth gap between the less wealthy groups (Black, Hispanic, and Other races[9]) and White decreases with union membership. Wealth of each group as a percentage of the wealthiest group is calculated based on the amounts shown in Figure 2 of CAP's analysis.

Box 2

The Good Food Purchasing Program leverages the power of institutional procurement (or public food contracting) to create an equitable, transparent, and values-based food system. The National Equity Atlas (2021) shows the disparities nationwide between the number of people of color, the number of small businesses owned by people of color, and the number of public contracts (based on federal contracts) going to businesses owned by people of color, demonstrating the potential and opportunity for equitable economic development through public contracts.

REAL-WORLD EXAMPLES

Choosing the Regions

Regions featured as real-world examples were selected to provide a diversity of examples, both geographically as well as level of involvement in the Good Food Purchasing Program. While some regions, such as Los Angeles and the Bay Area, have been involved in Good Food Purchasing for many years, others, such as Denver and Alachua County, are in the beginning stages of involvement.

We plan to add and update information as progress is made throughout these regions and new regions' involvement in Good Food Purchasing advances.

Please refer to Appendix A. Acknowledgements for the regional partners who generously contributed photos, statements, input, and their review to the real-world examples.

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[8] A union household means that either the head of the household or spouse is covered by a union contract.
[9] "Other races" include individuals "who do not solely identify as white, Black or African American, or nonwhite Latino or Hispanic, resulting in a diverse group that also includes Asian, American Indian, Alaska Native, Native Hawaiian, Pacific Islander, and other race or ethnicity, as well as multiple race or ethnicity families. Despite the diverse universe of experiences in this category, the Federal Reserve must combine these households into one group due to sample size limitations before releasing their datasets to the public."

Regional Definitions

Austin: City of Austin in Texas
Chicago, Cook County: City of Chicago and Cook County in Illinois
Denver: City and County of Denver in Colorado
Gainesville, Alachua County: City of Gainesville and Alachua County in Florida
Los Angeles: City of Los Angeles in California
New York City: City of New York in New York
San Francisco Bay Area: Counties of Alameda and Contra Costa and the City and County of San Francisco in California
Washington, D.C.: District of Columbia

Data Maps

The maps on the regional pages show purchasing data from institutions enrolled in the Good Food Purchasing Program whose data have been collected and analyzed as of July 2022. Some regions' maps show no purchasing data, implying that data has only been collected for one institution in the region, and thus aggregated data across institutions is not yet available.

Regional Profiles

Population, Race Demographics, and Poverty Rate

Estimates are sourced from 2019 United States Census Bureau data and ACS 1-year Estimates.

Free and Reduced Lunch Rates

All school districts included on regional pages are enrolled in the Good Food Purchasing Program. Free and Reduced Lunch Rates are highlighted to show the percentage of school-age children who utilize publicly-funded school food.

- Austin: Austin Independent School District - provided by Lindsey Bradley at Austin Independent School District

- Chicago, Cook County: Chicago Public Schools
- Denver: Denver Public Schools
- Gainesville, Alachua County: Alachua County Public Schools
- Los Angeles: Los Angeles Unified School District
- New York City: New York City Public Schools
- San Francisco Bay Area: Berkeley Unified School District; San Francisco Unified School District; Oakland Unified School District; West Contra Costa Unified School District
- Washington, D.C.: D.C. Public Schools

Estimated Regional Public Food Spend and Impacts

Regional impacts are estimated using the Impact Hub impact calculators, selected to align with priorities as listed in Good Food Purchasing resolutions or ordinances, strategic plans, and other related policies and plans, where applicable.

Calculator projections are based on the regional "Estimated Public Food Spend." With the exception of Chicago, Cook County and New York City, each region's "Estimated Public Food Spend" is derived using the Census-reported population and the impact calculators' derived average cost per person (see the General Process section). Chicago and Cook County's Estimated Public Food Spend is the sum of the City of Chicago's and Cook County's estimated food spend, as reported by the Chicago Food Policy Action Council. New York City's Estimated Public Food Spend is reported by New York City Mayor's Office of Food Policy.

Impacts for each region are calculated using the Local Jobs and Wages, Greenhouse Gas Emissions, Pesticide Application, and Health Risks & Healthcare Costs calculators. The strategies selected to calculate regional impacts are as follows:

- Local Jobs and Wages: Increase local food spend by 30%.
- Greenhouse Gas and Water Footprint: Replace all meat and egg purchases with plant proteins.
- Pesticide Application: Replace five conventional produce items with organic.
- Health Risks and Healthcare Costs: Increase fruit and vegetable purchases by 30%.

APPENDIX A: ACKNOWLEDGEMENTS

Consultant Partners

We thank our partners for leading the literature review and analytic model development for the impact calculators and for reviewing our methodologies in this document:

- Institute for People, Place and Possibility
- Seabourne Consulting

Subject Matter Experts

To develop the analytic model, in addition to drawing on the experience of the Center for Good Food Purchasing team, we conducted interviews with the following Subject Matter Experts to gather feedback on our proposed methodologies and to surface questions and additional research priorities. We thank the following individuals for sharing their knowledge with us:

- Ariel Larson, IPM Institute of North America
- Becca Jablonski, Colorado State University, College of Agricultural Sciences
- Bob Martin, Johns Hopkins Center for a Livable Future
- Chris Benner, University of California Santa Cruz, Everett Program for Technology and Social Change
- David Conner, University of Vermont, College of Agriculture and Life Sciences
- Dana Gunders, ReFed
- Dr. Dariush Mozaffarian, Tufts University, Tufts Friedman School of Nutrition Science and Policy and Tufts Medical School
- Dawn King, Brown University, Institute at Brown for Environment & Society
- Jonathan Kaplan, Compass Group, Global Sustainability
- Julian Kraus-Polk, Drawdown Labs
- Kari Hamerschlag, Friends of the Earth
- Kristine Madsen, Berkeley Food Institute
- Nina F Ichikawa, Berkeley Food Institute

- Peter Werts, IPM Institute of North America
- Ricardo Salvador, Union of Concerned Scientists, Food & Environment Program
- Sarah Reinhardt, Union of Concerned Scientists, Food & Environment Program
- Wendi Gosliner, Nutrition Policy Institute at the University of California

Partner Contributions to Regional Pages

We thank our local partners for reviewing and providing feedback on the good food work featured in the Real-World Examples and for providing photos of good food work in their regions.

- Austin
    - Austin Independent School District - Caroline Juarez, Lindsey Bradley, and Misty Miller
    - City of Austin - Amanda Rohlich and Edwin Marty
- Chicago, Cook County
    - Chicago Food Policy Action Council - Marlie Wilson
    - Chicagoland Good Food Purchasing Initiative - Amy O'Rourke, Gina Massuda-Barnett, Jennifer Herd, Jessica Walter, Kate McMahon, and Laura Nussbaum-Barberena
- Denver
    - City and County of Denver - Laine Cidlowski, Lauren Howe, Lesly Baesens, Marion Kalb, and Wendy Smittick
    - Denver Museum of Nature and Science - Patrick Hartnett
    - Denver Public Schools - Theresa Peña
- Gainesville, Alachua County
    - Alachua County - Sean Mclendon
    - Alachua County Public Schools - Kelli Brew
    - City of Gainesville - Karissa Raskin
- Los Angeles
    - Los Angeles Food Policy Council - Christine Tran
- New York City

    - New York City Department of Education - Stephen O'Brien
    - New York City Good Food Purchasing Coalition - Christina Spach, Ribka Getachew, and Suzanne Adley
    - New York City Mayor's Office of Food Policy - Dylaney Bouwman, Kate MacKenzie, and Mandu Sen
- San Francisco Bay Area
    - San Francisco Unified School District - Alex Emmott
    - SPUR - Katie Ettman
- Washington, D.C.
    - DC Greens - Lea Howe

APPENDIX B: BIBLIOGRAPHY AND OTHER RESOURCES

Literature Review Bibliography

The following resources were used in our literature review and development of the analytic model for the impact calculators.

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