

FoodMap NY

Leveraging Private-Sector Innovation
and Investment for Food Security

SUMMARY OF RESEARCH AND PROJECTS

November 2024



Center for
Sustainable Business



Mother Cabrini
HEALTH FOUNDATION



Cornell
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Executive Summary

Impact investors, corporations, and philanthropies have a pivotal opportunity to address the food insecurity crisis that impacts 2.2 million people in New York State, while unlocking sustainable investment returns and building healthier communities.

Key Insights

Over more than two and a half years of FoodMap NY research, outreach, and incubation of various pilot projects that span the food supply chain, NYU Stern CSB has key insights to share with investors and private sector partners interested in strengthening the food system, including:

FOOD PRODUCTION:

Controlled Environment Agriculture (indoor farming) offers attractive investment potential when using greenhouse technologies in rural New York, where land and energy is cheaper. By providing year-round fresh produce at price parity with out-of-state soil-grown products, innovative CEA operations can be profitable and bring healthy, affordable food to underserved rural and urban markets.

FOOD PROCESSING:

Supply Chain & Infrastructure improvements to rebuild New York State's dry bean and minimally processed vegetable industries need only modest strategic investments. These industries are primed to tap the growing procurement market that prioritizes local foods, and can provide access to healthy, affordable, and sustainable foods across the state.

FOOD RETAIL:

Healthy Food in Retail Environments can be available when dollar stores and convenience stores in rural and urban areas capitalize on the growing demand for healthy, affordable food options from lower-income shoppers by introducing targeted product offerings and implementing new distribution models.

PUBLIC FOOD ASSISTANCE INNOVATION:

Food and Nutrition Assistance Programs create opportunities for businesses to profit from attracting more Supplemental Nutrition Assistance Program (SNAP) customers by embracing pilot programs that integrate State and local nutrition incentives, which supplement SNAP benefits, on EBT cards and modernizing their point of sales payment systems.

HEALTHCARE SYSTEM CHANGE:

Food as Medicine program expansion through Medicare and Medicaid has put private health insurers on the cusp of a major market shift. Early investors in healthy food prescriptions for patients at risk for chronic diseases from poor nutrition could see measurable healthcare savings and improved patient outcomes.

CAPITAL FOR ENTERPRISES ACROSS THE FOOD SUPPLY CHAIN:

Food Finance for both for-profit and nonprofit mission-focused farm and food enterprises need access to flexible, patient, low-cost capital to build and sustain their businesses. Blended finance models, backed by philanthropy and impact investors, can create sustainable food systems and healthy communities, and need to be built in New York State.

Collaborative Potential: Building Partnerships for Lasting Impact

Public-Private Collaboration: Breaking down silos between sectors is essential. Food insecurity is a complex issue and solutions require collaboration between and among government, business, impact investors, community organizations, and philanthropy.

Scaling Capital for Food Enterprises: Mission-driven food enterprises are primed for growth, but capital barriers remain. NYU Stern's work highlights the potential for investors to partner with philanthropy in developing flexible, patient financing solutions that can strengthen the New York State food system.

As Food Insecurity Increases, A Call to Action

Invitation to Invest: Now is the time for the private sector and philanthropy to step up. Whether through investing in innovative food businesses, partnering with local organizations, or scaling pilot programs, there are multiple pathways to both economic and social impact.

Collaborate with Purpose: Join us in building a resilient, equitable food system for New York State that not only addresses immediate needs, but creates sustainable economic opportunities and healthier futures for all.

Introduction

Despite decades of government and philanthropic support, food and nutrition insecurity persists in New York State (NYS), impacting nearly one million households. This crisis disproportionately affects low-income communities and communities of color, with a staggering one in six children experiencing hunger.¹ While the causes of food and nutrition insecurity are multifaceted, they are primarily symptoms of systemic socio-economic challenges—including poverty, inequality, unemployment, and discrimination—that burden many in our communities.

Food and nutrition *security* can be shaped by the availability and affordability of healthy food, the presence of healthy food retailers, and accessible transportation infrastructure. While government and philanthropic programs provide essential social safety nets, addressing these systemic challenges will require more comprehensive action. Federal and state leaders have called for private-sector collaboration to improve food access and affordability, integrate nutrition and health, empower consumers to make healthy choices, support physical activity for all, and enhance nutrition and food-security research.² Based on its research findings, FoodMap NY believes that the private sector can play a vital role in developing effective solutions.

The Covid-19 pandemic escalated food insecurity. In 2022, more than two million people across NYS reported that they lacked sufficient access to food.³ It also revealed the terrible fragility of our food supply chain. The pandemic food crisis prompted heroic, emergency efforts from city, state, and nonprofit

organizations to combat hunger, and also boosted interest in tapping new partners and bringing longer-term change to the NYS food system.

In August 2021, in the midst of the pandemic, Mother Cabrini Health Foundation (MCHF) invited New York University's Stern Center for Sustainable Business (NYU Stern CSB) to propose a two-year special initiative. The goal was to advance thinking on the private sector's role in addressing food insecurity in NYS and to propose impactful pilot projects. NYU Stern CSB eagerly accepted the challenge, and MCHF funded the initiative in December 2021, leading to the creation of FoodMap NY.

Acting as a think tank and incubator, FoodMap NY—NYU Stern CSB, in partnership with Cornell University—collaborated with experts in agriculture, food production, distribution, and retail.⁴ Our mission: to research and identify strategic opportunities that leverage the private sector to ensure that low-income and rural communities in NYS have access to healthy, affordable food.

¹ Rabbitt, M.P., Hales, L.J., Burke, M.P., and Coleman-Jensen, A., U.S. Department of Agriculture (USDA), Economic Research Service. *Household food security in the United States in 2022*, at 28. (Report No. ERR-325). October 2023. <https://doi.org/10.32747/2023B134351ers>

² The White House. *FACT SHEET: The Biden-Harris Administration Announces More Than \$8 Billion in New Commitments as Part of Call to Action for White House Conference on Hunger, Nutrition, and Health*. September 28, 2022. <https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/28/fact-sheet-the-biden-harris-administration-announces-more-than-8-billion-in-new-commitments-as-part-of-call-to-action-for-white-house-conference-on-hunger-nutrition-and-health/>

³ [https://nyhealthfoundation.org/resource/food-insufficiency-during-the-covid-19-pandemic-new-york-state-trends-2020-2022/#:~:text=accessed%20March%202023,-Key%20Findings,children%20\(18.7%25%20increase%20vs.](https://nyhealthfoundation.org/resource/food-insufficiency-during-the-covid-19-pandemic-new-york-state-trends-2020-2022/#:~:text=accessed%20March%202023,-Key%20Findings,children%20(18.7%25%20increase%20vs.)

⁴ Team members are listed in the Appendix 1.

FOODMAP NY TIMELINE

- **August 2021**
MCHF invites NYU Stern CSB to propose a two-year special initiative that advances thinking and helps develop strategies to address food insecurity in NYS through private-sector engagement and investment, with a special focus on rural and upstate areas of NY
- **December 2021**
MCHF awards NYU Stern CSB \$2 million to fund a two-year research and incubator project
- **March 2022**
FoodMap NY launches
- **April 2022**
NYU Stern CSB partners with Cornell University to launch FoodMap NY's research and landscape analyses
- **April 2022 – May 2023**
FoodMap NY teams research the NYS food supply chain and reach out to over 115 key stakeholders throughout the state
- **May 2023**
FoodMap NY organizes and retains project teams to develop concrete opportunities for private investment and engagement
- **June 2023**
FoodMap NY kicks off the work of project teams at a meeting of key stakeholders convened at Cornell
- **April 2024**
FoodMap NY partners with the Federal Reserve Bank of New York and hosts the Food Finance Forum
- **May 2024**
FoodMap NY passes the baton to engaged organizations to take on project leadership
- **June 2024**
FoodMap NY project teams complete project proposals and support lead organizations in seeking philanthropic and impact investment

Landscape Analysis

The initial phase of FoodMap NY focused on a landscape analysis of the NYS food system, looking across the entire food supply chain. Conducted from April 2022 to May 2023, this research included extensive literature review and interviews with over 115 stakeholders and experts in agriculture, sustainability, food processing, manufacturing and distribution, food access, public policy, and financial markets.

This landscape analysis identified six areas across the NYS food system in which the private sector could be leveraged to improve access to healthy and affordable food for low-income and rural communities. The six broad areas include:



Controlled Environment Agriculture (CEA)

Indoor hydroponic and aeroponic growing practices (e.g., greenhouses, vertical farming) are designed to optimize crop production, improve quality, expand local production capacity, and enable the application of year-round farming methods. Private investment that helps expand CEA in NYS has the potential to improve access to and the availability of locally grown produce for food-insecure populations. As greenhouse farming becomes increasingly price-competitive with soil-based agriculture, it offers a particularly powerful opportunity to improve access.



Supply Chain & Infrastructure

Food hubs connect local producers (e.g., wholesale buyers, processors) to markets through a range of functions, including product aggregation, storage, processing, and distribution; technical assistance to farms and food businesses; and farm-to-institution programs involving schools and hospitals. Investments in food-hub capacity and coordination as well as the food supply chain have significant potential to both address the market needs of farmers and producers, and improve access to local, affordable, nutritionally rich food products.



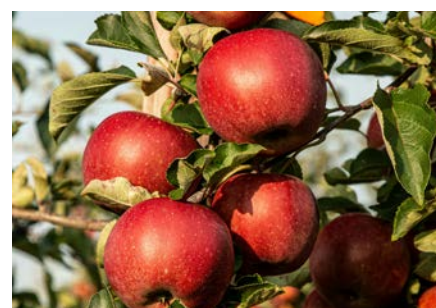
Healthy Food in Retail Environments

Access to healthy food in both rural and urban low-income communities can be very limited because small grocery retailers cannot afford to carry fresh foods. Innovative new models for wholesale, distribution, and retail enterprises could help retailers expand access. As dollar stores and gas-station convenience stores increase in number throughout rural low-income communities, these businesses can be engaged to include more healthy and affordable options in their food offerings.

“ [W]e are mobilizing the will to meet a bold goal: to end hunger in America and increase healthy eating and physical activity by 2030 so fewer Americans experience diet related diseases...Everyone has an important role to play in addressing these challenges: local, State, territory and Tribal governments; Congress; **the private sector**; civil society; agricultural workers; philanthropists; academics; and of course, the Federal Government.” *(emphasis added)*

PRESIDENT JOE BIDEN

White House Conference on Hunger, Nutrition & Health, September 2022.



Food and Nutrition Assistance Programs

Public-sector and philanthropic initiatives that are designed to improve access and affordability of healthy food (e.g., Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)), including a range of nutrition incentive programs, provide opportunities for the private-sector to support the uptake, access, and scaling of, and technological implementation of food and nutrition assistance programs.

Food as Medicine (FAM)

Food as Medicine programs use healthy, food-based interventions—including produce prescriptions or medically tailored meals—to help prevent, manage, and treat chronic diet-related diseases and address social determinants of health, such as a lack of access to healthy food. Currently funded with federal dollars, FAM programs could be adopted and funded by private interests, including private health insurers or nutrition start-ups, to increase access to healthy food for in-need populations and reduce healthcare costs.

Food Finance

Access to flexible, patient capital is a persistent challenge for small farmers and food businesses that are unable to reach larger markets, including low-income communities. Innovative or non-traditional sources of capital (e.g., CDFIs, impact investors) could help address this barrier.

An executive summary of the research and findings from the full landscape analysis is [available here](#). Full analyses for each of these six areas are available in a separate set of spotlight reports [located here](#).

Project Development

Based on findings from the year-long landscape analysis, six different FoodMap NY project teams worked with stakeholders from May 2023 through June 2024, developing concrete opportunities to pilot private investment and engagement in each of the identified areas. While the individual projects are at varying levels of readiness at the time of publication, all have the potential to demonstrate how the private sector can help build a more equitable and resilient food system in NYS.

A high-level overview of each project appears below. Full project profiles are [available here](#).

Controlled Environment Agriculture (CEA)

PROBLEM

In the U.S., more than 90% of the adult population fails to get the recommended daily amount of fruits and vegetables,⁵ which results in negative health outcomes. But those who experience food insecurity—2.2 million in NYS—are particularly affected by a lack of access to fresh fruits and vegetables. For rural food-insecure individuals, for example, affordability (79%) and transportation (54%) are the primary accessibility issues.⁶ During the summer, household and community gardens and local farms can improve food access, but outdoor production is not possible year-round due to NYS' cold climate. Most leafy greens are produced in California and Arizona, and can take four to six days to reach NYS markets, leading to decreased shelf-life (and greater food waste) relative to locally grown products.

SOLUTION

CEA—growing crops in environments such as greenhouses or indoor vertical farms—allows for year-round production



of perishable fruits and vegetables, provides a shorter delivery window, and employs a local workforce. With CEA, the plant-growing environment can be optimized through heating and supplemental lighting. Hydroponic growing systems are typically used to optimize root-zone conditions, and recapture and reuse water and fertilizer. Other advantages of CEA over field production include much greater land-use efficiency and the ability to forego pesticides.

While greenhouses and vertical farms can address local communities' lack of

access to fruits and vegetables, agricultural products from these operations have higher price points compared with field-grown produce. For example, vertical farms have been, until recently, a growing sector, but high up-front capital costs, high energy costs, the technical expertise needed to operate sophisticated growing systems, and research costs have mostly limited their markets to higher-end supermarkets and restaurants. Especially in urban areas, where land is scarce and expensive, production costs for vertical farms are twice those of field cultivation. As a

⁵ NY Health Foundation. *Food Insecurity in Rural, Suburban, and Urban New York*. November 2022. <https://nyhealthfoundation.org/wp-content/uploads/2022/11/Food-Insecurity-in-Rural-Suburban-and-Urban-New-York.pdf>

⁶ Ibid.



low-income individuals and families across Upstate NY regions at their local value-focused grocery chains

- Reduce food waste substantially compared to products trucked east from California
- Avoid loss from product deterioration
- Generate 57 year-round jobs, with the goal of hiring a workforce that includes more than 50% disadvantaged or marginalized community members (such as veterans and formerly incarcerated individuals)
- Result in a \$70-million long-term capital project, implemented in a rural county that has one of the highest unemployment rates in NYS

NEXT STEPS

Leveraging its new relationships, GLASE is seeking financial support for the second phase of work, which includes identifying supportive community stakeholders that are committed to establishing a greenhouse facility; developing the necessary workforce and creating social impact; engaging community partners to seek their input on design; selecting an optimal location, securing the specific site and designing the production facility; refining the business model with feedback from existing greenhouse businesses; and executing offtake agreements with retailers/distributors that serve food-insecure customers. The goal is to provide roughly 70% of the greenhouse's production to a low-cost food retailer like Aldi, at a price point that's comparable to field-grown greens, and 30% at very low cost to institutional purchasers—thereby improving both retail and institutional access to local food.

result, the vertical-farm sector has been plagued by major bankruptcies over the last few years. However, greenhouse operations, which have lower costs than vertical farming, could grow produce for local communities and address hidden hunger (from lack of fruits and vegetables), if those operations could address affordability.

To advance year-round production of leafy greens in Upstate NY that could sell for prices comparable to those of field-produced greens from out of state, the CEA team, led by GLASE (Greenhouse Lighting & Systems Engineering) at Cornell University, developed a public-private partnership model for a 10-acre greenhouse. This model builds on economies of scale in rural NYS, which has greater access to affordable electricity and the ability to service both rural and urban markets. The goal is to produce healthy, affordable food at near price-parity with out-of-state

producers of field-grown leafy greens. The project will help address food insecurity and focus on social impact such as employing local residents.

IMPACT

The team created financial projections, researched distribution models, and conducted a market analysis for a 10-acre greenhouse operation in Jefferson County, in the North Country of Upstate NY. Ultimately, the project has the potential to produce ready-to-eat leafy greens at price-parity with field-grown operations, and include institutional distribution models that support rural food security/healthy diets in NYS. When fully established, the project could:

- Provide 400,000 New Yorkers per year with leafy greens that have a shelf life that's four to six days longer than what is currently available to

Supply Chain & Infrastructure

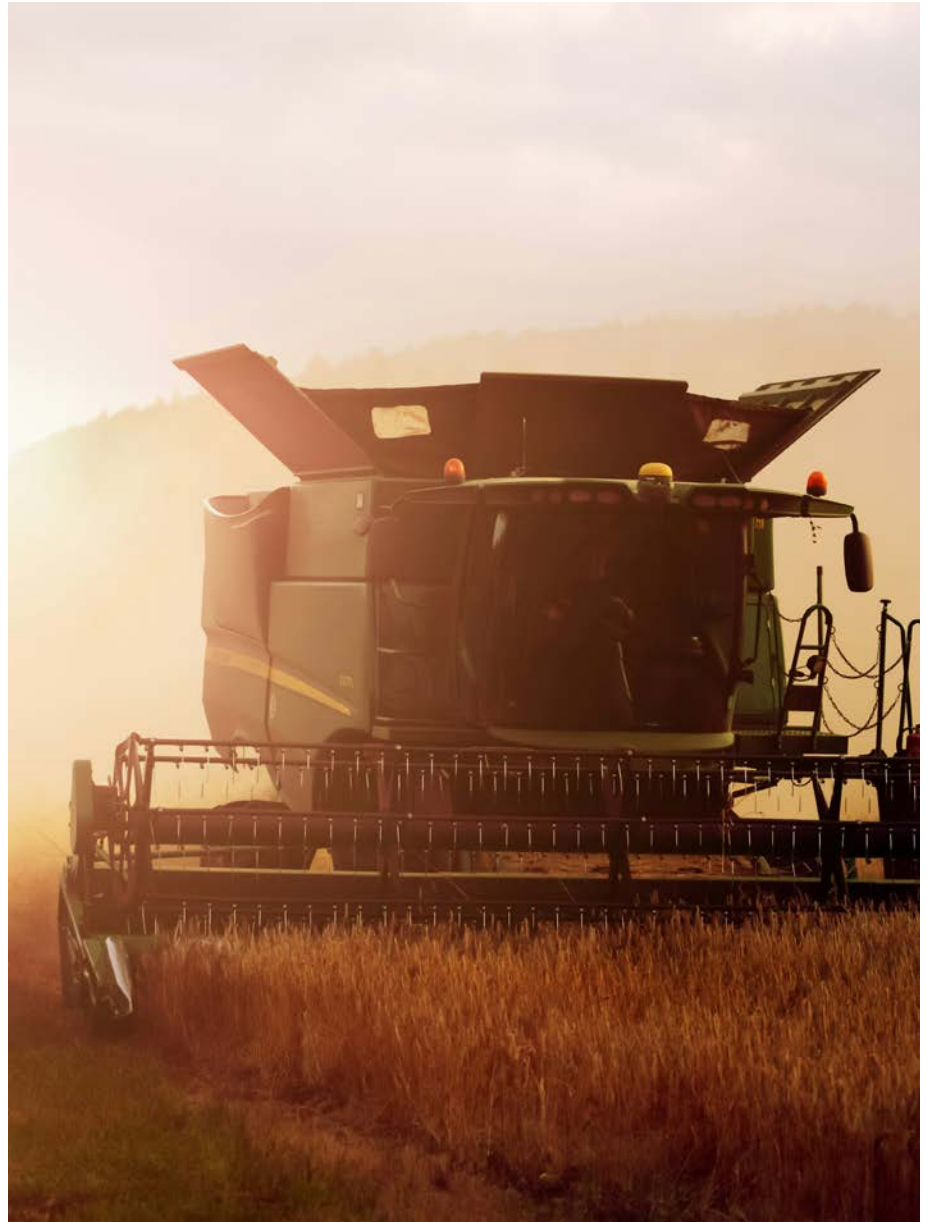
PROBLEM

The global agricultural system produces enough food each year to feed every person on Earth plus one billion more, yet globally and within the United States people go hungry every day. Food insecurity will not be solved by producing more food. Rather, our current food system hinders the supply of healthy, nutritious food to low-income communities while simultaneously propelling farmers and food workers on a race to the bottom when it comes to pricing. This team's research and landscape analysis suggests that gaps in the supply chain and infrastructure—the system of producing and delivering a product (including aggregation, processing, storing, packaging, and distribution)—create barriers in delivering nutritious food to vulnerable communities.

SOLUTION & IMPACT

Led by the Center for Agricultural Development and Entrepreneurship (CADE), the Supply Chain & Infrastructure team identified and created two investment opportunities that would improve the supply chain for dry beans and minimally processed produce. Both beans and minimally processed vegetables are important sources of nutrition for human health. Recognizing that low-income communities suffer from poorer health outcomes, it's critical that they have access, both physically and financially, to these products, to support nutrition security.

The first opportunity is to expand the capacity of **Seneca Grain & Beans (SG&B)**, a certified organic company in Penn Yan, NY, that provides cleaning, handling, and storage services. SG&B aggregates beans from multiple growers and sells crops through multiple market channels. Increasing their operational capacity would position SG&B for continued growth



and give them the opportunity to take advantage of emerging market trends calling for local, regenerative, and plant-based food crops in a diversity of market channels. Specifically, SG&B would be able to:

- Store approximately 500,000 additional pounds of beans and 600 additional tons of grains
- Double the amount of bean growers the company could work with, from

nine to 18 farms, and increase grain farms by more than 50%, from 20 to 32 farms

- Decrease overtime costs associated with having to continually move inventory
- Increase capacity to produce a greater volume of food-grade beans for new bean markets, including school-lunch, food-security, and NYS "buy local" incentive programs.



Seneca Grain & Bean. Photo taken by Peter Martens.

The second opportunity is to launch **Farm Connect**, a collaboration between Headwater Food Hub (HFH) and George's Farm Products (GFP) to develop diverse produce offerings for institutional markets, including fresh-cut, minimally processed, and ready-to-eat or recipe-ready products. This would strengthen NYS's vegetable supply chain and provide healthy affordable foods to low-income communities with the potential for scale to other wholesale markets in the longer term. The project would:

- Expand production capacity in the mid-tier processing market to provide flexible, custom services that address various customer needs
- Increase the ability to work with small producers, providing them

with access to value-added market space—something that larger processing entities do not have the flexibility to do

- Enable NYS Food Spend dollars to be used on NYS farmers and businesses, creating a positive impact on the state economy
- Bring infrastructure on line that makes nutritious NYS-grown food available for key programs, such as the 30% NYS Initiative, the USDA's Local Food Purchase Assistance Cooperative Agreement program, Nourish NY, and Governor Kathy Hochul's Executive Order 32. These programs aim to increase institutional procurement of healthy food in NYS to \$500M by 2027.

NEXT STEPS

With preliminary business plans completed, CADE is seeking both philanthropic support and private-sector investment to expand the capacity of these for-profit enterprises, as well as its own. Funding for CADE would allow it to draw on its extensive network of 160 institutional and wholesale buyers to help these businesses enter their target markets and sell dry bean products and minimally processed vegetables to NYS public school districts, as well as through additional market channels where low-income people shop (e.g., Stewart's Shops, Walmart, Price Chopper, Dollar General, etc.).

Healthy Food in Retail Environments – Urban Retail

PROBLEM

A lack of fresh, unprocessed food is a factor in the high incidence of diabetes, obesity, and heart disease in low-income communities. Small, privately owned bodegas are ubiquitous in many cities, particularly in NYC, where there are between 8,000 and 14,000 bodegas, which sell mostly non-perishable, highly processed foods. Several initiatives over the past decade have incentivized store owners to sell healthy food, demonstrating that bodega customers would purchase healthy food and store owners would welcome the ability to sell healthy food, if the cost and risk of perishable inventory could be understood and managed once the artificial interventions conclude. Through its landscape analysis, the Healthy Food in Retail Environments team identified two obstacles to the development of a sustainable supply chain to city bodegas:

- Minimum order sizes set by mainstream distributors are beyond the capacity of small stores.
- Bodegas are not equipped to use mainstream order-taking, invoicing, and delivery systems.

SOLUTION

A multi-bodega purchasing cooperative and last-mile delivery-network pilot in the Hunts Point neighborhood of the Bronx, the Healthy Bodega initiative would support community-based communications and in-store marketing to stimulate demand, owner/employee training, and operational support with deliveries. Partners include:

- **Bodega and Small Business Group (BSBG)**, a nonprofit organization that provides training to bodega owners on regulatory, operational, and financial issues
- **Bronx Health REACH (BHR) / The Institute for Family Health**, a community-based organization working to



eliminate racial and ethnic disparities in health outcomes related to diabetes and heart disease in Black and Latino communities in the southwest Bronx

- **Collective Fare**, a minority- and women-owned caterer and bodega owner supplying grab-and-go items and delivery services
- **Angela Trude, Ph.D.**, *Assistant Professor at NYU Steinhardt, Nutrition and Food Studies*, who has extensive experience planning, managing, and evaluating healthy retail interventions
- **Chet Van Wert**, *Adjunct Assistant Professor and Associate Research Scientist at NYU Stern CSB*, a business development professional with extensive experience planning and managing quantitative business experiments

IMPACT

Looking at NYC's 8,000-plus bodegas and using a conservative annual sales estimate of \$1 million per store, bodegas represent at minimum \$8 billion in annual retail sales in NYC and \$5.3 billion in annual wholesale purchases. Even if only 10% of NYC bodegas ultimately decided to collaborate in this manner, their wholesale purchasing power would be at least \$530 million annually. Newly introduced fresh and healthy food options could comprise

5% of these bodegas' sales. If we use the projected 10% figure, this small share of total sales would still represent \$26.5 million in wholesale purchases. This could accomplish two key goals:

Provide participating bodegas with access to all healthy food options at costs that are competitive with super-market operations

Offer an attractive value proposition to entrepreneurs in the bodega sector who might be motivated to develop this new business opportunity

NEXT STEPS

The team is seeking funds to operate an 18-month pilot, which would include a three-month planning period, 12 months of live operations, and three months for evaluation and documentation. Capturing a full year of experience operating this new business would allow all stakeholders to become acclimated to the newly available foods; test a variety of products, pricing, and promotion strategies; and permit careful measurement of results over a full cycle of seasons.

Healthy Food in Retail Environments – Rural Retail

PROBLEM

Rural communities face substantial challenges with regard to food access, having significantly fewer traditional grocery retailers than urban areas. Additionally, lower-income rural households are often situated farther away from food stores, contributing to issues of food access and insecurity.⁷ Furthermore, independent local grocery stores are finding it increasingly challenging to earn a profit and stay in business. This challenge stems from declining rural populations and is aggravated by growing competition from big-box stores and supercenters like Walmart, as well as the growing dominance of dollar stores. In the absence of traditional grocery retailers, dollar stores and convenience stores increasingly dominate the landscape.^{8,9}

Studies find that 5% of rural-household food budgets and 11.6% of Black rural-household food budgets are spent at dollar stores—underscoring the increasing role that these stores play in providing food to rural communities.¹⁰ Data suggest that food-insecure households also rely on convenience stores, with nearly 20% of food-at-home purchases made at these establishments, in contrast to food-secure households, who spent only 10% of their food-at-home dollars in these stores.¹¹ Despite these challenges, survey research from the Center for Science in the Public Interest found that 81% of dollar-store shoppers want these stores to offer more healthy options.



SOLUTION

Initial research and analysis by the Healthy Food in Retail Environments team identified three potentially scalable and self-sustaining ideas to explore: 1) independent grocer cooperatives, similar to the proposed NYC Healthy Bodegas Initiative; 2) food lockers, in which an automated system makes it possible to deliver online orders from a full-service grocery store to temperature-controlled food lockers, where customers can pick them up at their convenience; and 3) social purpose grocery stores, which strive to address community needs as well as make a profit.

Despite extensive outreach, consultation and analysis, the team determined that none of these were appropriate to develop as a pilot in this initiative.¹² Instead, the Healthy Food in Retail Environments team pivoted to explore opportunities with larger-scale rural retailers such as Dollar General. After conducting an NYU MBA pitch competition in which students were asked to identify business strategies for integrating healthy food into Dollar General product offerings, the team began to explore the feasibility of integrating “ready-to-cook dinner in a bag” meal options into dominant rural retailers in NYS. In-store meal solutions have been growing in popularity at supermarkets

⁷ Feng W, Page E, and Cash S. “Dollar Stores and Food Access for Rural Households in the United States, 2008-2020,” *American Journal of Public Health*. February 15, 2023. <https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2022.307193?role=tab>

⁸ Shannon J. “Dollar Stores, Retailer Redlining, and the Metropolitan Geographies of Precarious Consumption,” *Annals of the American Association of Geographers*. August 27, 2020. <https://www.tandfonline.com/doi/full/10.1080/24694452.2020.1775544>

⁹ Mitchell S, Smith K, and Holmberg, S., Institute for Local Self-Reliance. *The Dollar Store Invasion*. February 28, 2023. <https://ilsr.org/articles/report-dollar-store-invasion>

¹⁰ Feng, 2023.

¹¹ USDA Economic Research Service. *Food-insecure households spend more of their food-at-home dollars at convenience stores*. 2019. <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=95154>

¹² The reasons why these projects were not a good fit for further exploration under FoodMap NY vary: a hundred-year-old independent-grocer wholesale co-op folded five years ago, driven out of business by the buying power of dominant superstores; the capital cost of the locker systems seemed prohibitive for the small retailer market for which we were seeking solutions; and finally, a deeper dive into an existing social grocer’s financial characteristics revealed that profitability would be difficult to achieve without ongoing subsidies—a consideration that is outside FoodMap NY’s framework. A full discussion of these ideas and suggestions for further exploration are available here.

around the country, with the industry projected to exceed \$10 billion by 2024, a significant increase from \$6.9 billion in 2021. The Covid-19 pandemic played a crucial role in kick-starting this trend in response to limited options for dining out. Post-pandemic, demand remains high, particularly among the 18–34 age group.¹³

The team's outreach included discussions with experts in meal creation, and key leadership at Dollar General and Stewart's Shops. The team also engaged Partnership for a Healthier America (PHA), whose credentials include running a meal pilot in Florida grocery stores, as well as several community-based and food organizations involved in meal production and food distribution.

Research and discussions identified several important criteria when designing a solution including: ensuring that solutions are SNAP/EBT eligible, meeting customers where they already shop, ensuring that food options align with relevant community demographics, and thinking creatively to address cost concerns.

IMPACT

This project has the potential to impact the food budgets of rural and food-insecure households—specifically, the 5% and 20% that these two household categories currently spend at dollar and convenience stores, and redirecting this money towards healthier options.

From studies cited earlier by the Center for Science in the Public Interest we know that 81% of consumers surveyed wanted healthier options at these stores. It is an exciting time to catalyze initiatives to bring healthier options to those locations that dominate the rural landscape and where consumers currently shop.



NEXT STEPS

With stakeholder engagement and the groundwork laid for a potential pilot, NYU Stern CSB engaged PHA to take the lead. PHA has the appropriate connections to the food manufacturing and retail industry, and the in-depth knowledge of food manufacturing, logistics, and operations that is needed to take this concept forward. In addition, it is an opportunity for PHA to build on its existing work to promote food access—such as Good Food at Home, a partnership with Instacart that bridges the gap between low-income families and food access through the use of produce credits and delivery services—and expand into rural areas. PHA has demonstrated that it is positioned to apply learnings from pilots toward national scalable solutions.

PHA is seeking financial support to build on the FoodMap NY research and assess the feasibility of leveraging Dollar General or Stewart's Shops to provide healthy food to low-income communities that lack access to full-service grocery stores. Specifically, PHA seeks support to pursue the following outcomes:

- Establish relationships with Dollar General stores and Stewart's Shops in low-income communities that lack access to full-service grocery options
- Determine the feasibility of integrating PHA's iQpay's platform with Good Food at Home in local Dollar General or Stewart's stores, to promote healthy food access
- Compile learnings to leverage future retail-partnership projects and make the learnings publicly accessible
- Based on learnings, decide whether to move forward with a pilot with one of these local NY partners, to infuse healthier food into low-income communities

¹³ Loria K. "Supermarkets capitalize on meal kit craze." *Supermarket News*. February 27, 2023. <https://www.supermarketnews.com/retail-financial/supermarkets-capitalize-meal-kit-craze>

Food and Nutrition Assistance Programs

PROBLEM

The Supplemental Nutrition Assistance Program (SNAP) is the nation's largest food assistance program, providing nutritional support to a monthly average of 41 million Americans across 22 million households;¹⁴ including one out of every seven NYS residents. Despite the potential benefits offered by SNAP, including reducing food insecurity and the risk of chronic disease, residents in NYS and across the country may experience a "SNAP gap," where SNAP benefits may not cover the full price of household food purchases within a given month. Nutrition incentives are state and local programs designed to extend shopping dollars beyond the funding that's provided by SNAP and serve as a way to assist primarily low-income shoppers with the purchase of fruits and vegetables.

While these nutrition incentive programs have been shown to provide benefits to consumers—including increased purchasing power, and greater fruit and vegetable consumption—consumers may also experience challenges using these incentives, leading to underutilization and missed opportunities to address food insecurity. Consumers that shop with nutrition incentives, especially those enrolled in multiple programs, may experience difficulties organizing and using multiple payment methods (e.g., card, coupon, tokens; different redemption limits), particularly if specific stores only take certain incentives or only allow for SNAP. Relatedly, users who wish to apply nutrition incentives are often required to ask the staff of grocery stores or farmers markets for vouchers to get started, which may add to the existing stigma of using food assistance programs, particularly when visible, non-digital payment methods, such as tokens or coupons, are involved.



SOLUTION

The Food and Nutrition Assistance team investigated the possibility of an integrated digital point-of-use payment method for NYS nutrition incentive programs that would be added directly onto SNAP EBT cards to simplify user experience, reduce barriers to uptake, and potentially increase the purchase and consumption of fruits and vegetables.

The team held multiple discussions with states that have already adopted

integrated programs, including Washington and Rhode Island; technical assistance providers, such as the National Grocers Association and the Fair Food Network; and NYS nutrition incentive program managers at Field & Fork Network and Fresh Connect. The team also built relationships with relevant NYS agencies that play integral roles in these programs, including NYS Department of Agriculture and Markets, and the Office of Temporary and Disability Assistance (OTDA).

¹⁴ USDA Economic Research Service. *Key Statistics and Research*. February 23, 2024. <https://www.ers.usda.gov/topics/food-nutrition-assistance/supplemental-nutrition-assistance-program-snap/key-statistics-and-research/>; Desilver, D. Pew Research Center. *What the data says about food stamps in the U.S.* July 19, 2023. <https://www.pewresearch.org/short-reads/2023/07/19/what-the-data-says-about-food-stamps-in-the-u-s/>

Integrating nutrition incentive program benefits onto EBT cards would require cooperation among numerous stakeholders as well as several complex technical tasks, including:

- Potentially amending the contractual agreement between the payment processor and the state agency charged with disbursing food assistance
- Changing technical requirements and updating software to allow point-of-sale systems, EBT cards, and processing systems to recognize eligible food items and allow for seamless benefit distribution to consumers
- Selecting a nutrition incentive program and program administrator to manage the integration process
- Codifying program specifics, including which food items will be eligible, the extent of the matching percentage, and the dollar cap per day, week, or month (if any)

- Selecting a retailer(s) and/or geographic location(s) to pilot these integration efforts
- Launching the integration, including consumer advertising and education

IMPACT

This project could help increase access to healthier food for the one in seven NYS residents who are eligible for SNAP benefits. Research shows that integration can reduce barriers to uptake of nutrition incentives by decreasing user stigma and the need to keep track of multiple payment methods; helping food retailers' bottom lines by increasing purchases, reducing produce spoilage, and eliminating the need to distribute coupons or tokens; and reducing administrative costs by streamlining programs.

NEXT STEPS

NYU Stern CSB has passed the baton for this project to Field & Fork Network, the program administrator for Double Up Food Bucks New York and the program most likely to pilot integration given its programmatic eligibility requirements (e.g., only fruits and vegetables), technical expertise, and relationships with retailers and farmers markets across the state. The Field & Fork Network is seeking support to continue discussions and project planning with nutrition incentive program operators, OTDA, and other relevant state agencies; Fidelity National Information Systems (FIS), NYS' current EBT contractor; and national technical-assistance providers.



Food as Medicine

PROBLEM

Starting around 2010, a movement that came to be known as Food as Medicine (FAM) began to address food insecurity and diet-related health conditions by connecting patients with healthy food and nutritional support via a healthcare provider's "prescription." Many FAM studies and reports illustrate direct improvements in health outcomes as well as cost savings and efficiencies. To date, however, the programming, research, and evaluation of these initiatives have almost exclusively addressed Medicaid, Medicare, or SNAP-eligible populations, and the evaluation metrics related to the economics of these interventions have been defined through the lens of public health and society.

While Medicaid, Medicare, and SNAP-eligible populations are critical groups to support with FAM, diet-related health conditions and associated healthcare costs affect a broader population. With the nation at large seeing unprecedented levels of diabetes, cardiovascular disease, and food insecurity, and with the direct healthcare costs associated with diet-related health conditions estimated at \$650 billion per year,¹⁵ there is an opportunity for *private* insurers to adopt FAM programs as a way of addressing widespread diet-related health conditions while also improving their bottom line. The business case, however, has not yet been demonstrated for the private sector.

SOLUTION

The Food as Medicine team, led by equitable food-systems consultants DAISA Enterprises, designed a two-year pilot and randomized controlled trial in Buffalo, NY, to demonstrate the



business case for private health insurers and employers to deploy FAM programs, specifically Produce Prescriptions (PRx), as a benefit for plan members and employees. Pilot partners include Highmark BCBS of Western NY; Kaleida Health; Cornell University's Figueroa Interdisciplinary Group (FIG) Lab; Buffalo Go Green; and DAISA Enterprises.

IMPACT

With these collaborators, the decision-making model that was developed as a part of the pilot and the evaluation of the pilot will reveal long-awaited evidence for the business case for a private insurer and an employer, as well as the associated health outcomes for a privately insured, employed, lower-wage population.

NEXT STEPS

Buffalo Go Green is leading this project with written commitments from DAISA, Highmark BCBS and Kaleida Health, and seeking funds to implement this innovative pilot.

¹⁵ Calculated from Deuman, K.A., et al., Food is Medicine Institute, Friedman School, Tufts University. *True Cost of Food: Food is Medicine Case Study*. September 2023, https://tuftsfoodismedicine.org/wp-content/uploads/2023/09/Tufts_True_Cost_of_FIM_Case-Study_Report_Sep_2023.pdf

Food Finance

PROBLEM

The food system comprises a wide range of activities across the value chain, from growing and processing, to distributing and selling. Each link can support greater access to healthy and affordable food, reduce food insecurity, and help build healthy, sustainable, and economically resilient communities.¹⁶ Many barriers limit food-system work and growth, but the inability to access to capital can doom farms and food-related businesses, especially smaller ones. The USDA is the primary provider of grants, loans, and other support for farms and food-related businesses. State-level investment focuses primarily on local improvements, such as connecting farmers with new markets, supporting producer and retailer marketing, and improving school nutrition.

Private-sector financing and investment could enhance the food system's ability to address food insecurity. More efficient private-sector investment is hindered, however, by a lack of transparency, and the absence of credit histories, income and employment histories, collateral, and savings in lower-income communities.¹⁷ Too often, conventional financial tools are not well-structured for food-system solutions. There is a need for gap financing for farmers and food-related businesses that differs from the offerings currently provided by traditional banks and financial institutions. Investments from foundations, banks, community investment funds, crowdfunding, venture capital (VC) funds, donor-advised funds (DAFs), and community development financial institutions (CDFIs) might overcome the current risk aversion and lack of flexibility that has resulted in less capital

being allocated toward investments that could produce greater impact. Blended finance, concessionary financing, and catalytic capital could help advance more pilot projects.

SOLUTION

Led by NYU Stern CSB, the Food Finance team investigated a roadmap for providing flexible capital to meet the needs of a range of farm and food enterprises that are focused on making healthy food accessible to lower-income communities and supporting an equitable and sustainable food system. In partnership with the Federal Reserve Bank of New York, the team convened a set of stakeholders from government, philanthropy, and the private sector to identify promising paths for investors to provide flexible capital for food enterprises that increase access to healthy affordable food in NYS. Some identified needs included technical assistance with project development, capacity building for nonprofits, and blended finance offerings.

IMPACT

This project has the potential to generate more low-cost, patient capital from philanthropy and impact investors, in support of mission-focused farms and food enterprises, enabling these enterprises to scale their operations and reach underserved populations more effectively, and helping to reduce food and nutrition insecurity by increasing sustainable access to healthy, affordable food for all New Yorkers. The project could also help expand the network of mission-focused enterprises across NYS, driving innovation, efficiency, and sustainability



in the food supply chain; reducing the cost of food; and supporting greater food security. Furthermore, it could strengthen the capacity of nonprofit organizations to address food insecurity and promote economic sustainability in their communities.

NEXT STEPS

The NYU CSB team is seeking funding to develop collaborations with regional food finance efforts, broaden stakeholder engagement, conduct further research and outreach, build collaboration between philanthropy and impact investors, and mobilize capital investment statewide.

¹⁶ Rittner, T., Rowland, A., and Miller, A., Council of Development Finance Agencies. *Food Systems & Access to Capital*. April 2019. <https://www.cdfa.net/cdfa/cdfaweb.nsf/ordredirect.html?open&id=KelloggWhitePaper2.html>.

¹⁷ World Food Policy Center, Duke Sanford School of Public Policy. *How Innovative CDFIs Fund Equitable Food Oriented Development*. September 2020. <https://www.cdfa.net/cdfa/cdfaweb.nsf/ordredirect.html?open&id=CDFIsfundEFOD.html>

An Invitation To Act

Over more than two years, FoodMap NY has harnessed the resources of NYU and Cornell to engage stakeholders from both the public and private sectors, foster cross-sector collaboration, and develop targeted, impactful strategies to address significant food-system challenges. Beyond academic research, FoodMap NY has operated as a think tank and incubator, delving deeply into complex issues and drawing on the expertise of specialists from various fields. This cross-pollination of ideas has led to the incubation of innovative, real-world opportunities for the private sector to help build a better food system that ensures all New Yorkers have access to healthy, affordable food.



Together, we have developed concrete, innovative projects in food production and distribution designed to leverage private capital for long-term change. These projects are grounded in empirical evidence and tailored to address real-world challenges, making them highly relevant and actionable for public, private, and philanthropic actors and investors.

As the pandemic has receded and emergency food assistance has diminished, it's clear that food insecurity remains a continuing challenge for vulnerable New Yorkers. We invite the active and committed participation of the private sector to take on this challenge.

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