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Special Issue:
Hunger, Nutrition, and Health

Susan Rice*

Everyday millions of Americans face barriers to accessing food, housing, and other supports——making the impossible decision of whether to put food on the table or cover other essential needs. Food insecurity and diet-related diseases, such as heart disease and diabetes, affect people of all ages and in all communities. It was for this reason that the Biden-Harris Administration hosted the White House Conference on Hunger, Nutrition, and Health in September 2022. As the President said at the Conference, "No child should go to bed hungry. No parent should die of a disease that can be prevented." It will require all of us to take these challenges head on in the coming years. This special issue of the *Journal of Food Law & Policy* extends the critical conversation conducted at the Conference to reduce diet-related diseases and make hunger a thing of the past.

Before the Conference—the first in more than 50 years—President Biden set a goal of ending hunger in America and improving healthy eating and physical activity by 2030 so fewer Americans experience diet-related diseases, all while reducing disparities. The Biden-Harris Administration released its National

* Ambassador Susan E. Rice is the former Domestic Policy Advisor in the Biden Administration. As Director of the Domestic Policy Council, she drove the formulation and implementation of President Biden's domestic policy agenda, from economic mobility and racial equity to health care and immigration. She previously served as President Obama's U.S. Permanent Representative to the United Nations and National Security Advisor from 2009-2017. She is the author of the New York Times best-selling memoir, Tough Love: My Story of the Things Worth Fighting For.
Rice was most recently a Distinguished Visiting Research Fellow at American University's School of International Service and a Non-Resident Senior Fellow at the Belfer Center for Science and International Affairs at Harvard University's Kennedy School of Government. Prior to the start of the Biden Administration, she was a contributing opinion writer for the New York Times.
Previously, Rice served as U.S. Assistant Secretary of State for African Affairs, Special Assistant to the President and Senior Director for African Affairs, and Director for International Organizations and Peacekeeping at the National Security Council under President Clinton from 1993-2001.
Ambassador Rice received her master's degree and Ph.D. in international relations from Oxford University, where she was a Rhodes Scholar, and her B.A. with honors in History from Stanford University.

Strategy in tandem with the Conference, laying out a roadmap with bold actions for achieving this goal. The Conference and strategy could not have come at a more important inflection point for our country.

In 2021, 1 in 10 households experienced food insecurity, meaning their access to food was limited by lack of money or other resources.[1] Additionally, diet-related diseases such as heart disease and diabetes are among the leading causes of death and disability in the U.S—with heart disease consistently being the number one killer, surpassing COVID-19 related deaths.[2] As with so many issues, the toll of food insecurity and diet-related diseases is not distributed equally. They disproportionately impact communities of color, people living in rural areas, people living in territories, people with disabilities, older adults, LGBTQI+ people, military families, and Veterans.[3] Their consequences are also significant and far reaching.

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[1] Alisha Coleman-Jensen et al., *Household Food Security in the United States in 2021,* U.S. DEP'T OF ARGIC. (Sept. 7, 2022), https://www.ers.usda.gov/publications/pub-details/?pubid=104655.

[2] *Leading Causes of Death*, CTR. FOR DISEASE CONTROL & PREVENTION (Jan. 18, 2023), https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm; Farida B. Ahmad et al., *Morbidity and Mortality Weekly Report (MMWR),* CTR. FOR DISEASE CONTROL & PREVENTION (Apr. 29, 2022), https://www.cdc.gov/mmwr/volumes/71/wr/mm7117e1.htm.

[3] Alisha Coleman-Jensen et al, *supra* note 1; *Military Family Support Programming Survey 2019 Results,* MIL. FAM. ADVISORY NETWORK, https://www.mfan.org/wp-content/uploads/2021/10/MFAN2019SurveyResults.pdf; Alisha Coleman-Jensen & Laura Hales, *Interactive Charts and Highlights,* U.S. DEP'T OF AGRIC. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/interactive-charts-and-highlights/#disability; *National Diabetes Statistics Report 2020: Estimates of Diabetes and Its Burden in the United States*, CTR. FOR DISEASE CONTROL & PREVENTION https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf; Nat'l Ctr. for Chronic Disease Prevention & Health Promotion, *Rural Health Preventing Chronic Diseases and Promoting Health in Rural Communities,* CTR. FOR DISEASE CONTROL & PREVENTION (Feb. 22, 2023), https://www.cdc.gov/chronicdisease/resources/publications/factsheets/rural-health.htm; Yechiam Ostchega et al., *Hypertension Prevalence Among Adults Aged 18 and Over: United States, 2017–2018.* NAT'L CTR. FOR HEALTH STAT. (Apr. 2020), https://www.cdc.gov/nchs/data/databriefs/db364-h.pdf; Thom File & Joey Marshall, *LGBT Community Harder Hit by Economic Impact of Pandemic: Household Pulse Survey Shows LGBT Adults More Likely to Report Living in Households With Food and Economic Insecurity Than Non-LGBT Respondents*, U.S. CENSUS BUREAU (Aug. 11, 2021) https://www.census.gov/library/stories/2021/08/lgbt-community-harder-hit-by-economic-impact-of-pandemic.html; Milken Inst. Sch. of Pub. Health, *Survey Finds 40 Percent of Puerto Rican Families Reporting Food Insecurity Due to COVID-19* THE GEORGE WASH. UNIV. (Sept. 23, 2020)

Food insecurity and diet-related diseases undermine academic achievement, mental health, and workforce productivity, all while increasing health care costs.[4] A web of complex factors cause food insecurity and diet-related diseases yet, with multi-faceted solutions, they are largely preventable.

Our National Strategy includes actions the federal government will take administratively, proposals that require congressional action, and a call to action for how the private sector, philanthropy, state and local governments, community-based organizations, and civil society can contribute to bringing about the changes necessary to meet our goals. To achieve our goal of ending hunger and reducing diet-related diseases and disparities, we must: ensure Americans have the resources to put food on the table; shift our health care system to focus on prevention not just treatment; make the healthy food choice the easier choice; allow everyone to have the same opportunity to be physically active; and bolster nutrition and food security research.

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https://publichealth.gwu.edu/content/survey-finds-40-percent-puerto-rican-families-reporting-food-insecurity-due-covid-19; Seung Hee Lee-Kwan et al., *Healthful Food Availability in Stores and Restaurants — American Samoa, 2014,* CTR. FOR DISEASE CONTROL & PREVENTION (Mar. 20, 2015) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4584804/.

[4] *Impacts of Food Insecurity & Diet-related Diseases: Individuals and Societal Costs*, COMMUNICATEHEALTH, INC. (Sept. 16, 2022); T. Burrows et al., *Is there an association between dietary intake and academic achievement: a systematic review,* 30 J. HUM. NUTR. AND DIET. 117 (2016); Sarah R. Dash et al., *Diet and Common Mental Disorders: The Imperative to Translate Evidence into Action*, FRONTIERS IN PUB. HEALTH (Apr. 29, 2016), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4850164/#B21; Joseph L. Dieleman et al., *US Health Care Spending by Payer and Health Condition, 1996-2016,* JAMA NETWORK (Mar. 3, 2020) https://pubmed.ncbi.nlm.nih.gov/32125402/; Di Fang et al., *The association between food insecurity and mental health during the COVID-19 pandemic,* BMC PUB. HEALTH (Mar. 29, 2021), https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-10631-0; Andrea Goettler et al., *Productivity loss due to overweight and obesity: a systematic review of indirect costs,* BMJ OPEN (Oct. 5, 2017), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5640019/; Cindy W. Leung et al., *Household Food Insecurity Is Positively Associated with Depression among Low-Income Supplemental Nutrition Assistance Program Participants and Income-Eligible Nonparticipants,* 145 J. OF NUTR. 622 (2015); Donald S. Shepard et al., *Hunger in America: Suffering We All Pay For,* CTR FOR AM. PROGRESS (Oct. 5, 2011) https://www.americanprogress.org/article/hunger-in-america/; Salim S. Virani et al., *Heart Disease and Stroke Statistics—2020 Update: A Report From the American Heart Association.* CIRCULATION (Jan. 29, 2020), https://doi.org/10.1161/CIR.0000000000000757.

There is a role for everyone to play in meeting our bold goal, and the legal community must be a key partner in bringing about these changes. Federal agency general counsels, for instance, interpret statutes, review draft regulations and defend Administration policies in court. There are exciting opportunities for law students to get involved, too. The next generation of food lawyers can join a food law organization, get hands-on experience at a food law clinic, or intern at non-profits, law firms or governmental entities working on food law. Good food lawyers can translate complex legal and policy issues into easy-to-absorb information, helping people, businesses, and others understand how they are impacted and empowering them to advocate for changes.

We have the policies and ideas to accomplish our goal—from "food is medicine" interventions, to increasing access to food in underserved communities, to providing a stronger safety net through federal assistance programs. Many of these ideas are discussed in this special issue.

As we have made clear, the White House Conference was not the end of our work on these issues. It was the launch. We must now maintain our momentum, including by continuing to partner with and rally commitments from stakeholders to build on the work outlined in our National Strategy. We know we have a long road in front of us. But, with the concerted effort of Americans across the country, we can lay the foundation for the future President Biden envisioned—a nation where no child goes to bed hungry and no parent dies of a disease that can be prevented.

VA's Work to Ensure Veterans' Food Security

Dr. Christine Going*

The Department of Veterans Affairs (VA) is uniquely positioned as the nation's largest integrated health care system, serving 9 million enrolled Veterans each year, to successfully embrace the power of an interdisciplinary team designed to meet the needs of Veterans challenged by food insecurity. The scope of the VA system supports large-scale innovation and sharing of best practices at a national level, keeping the Veteran at the center of everything we do.

In collaboration with the whole of government approach to ending hunger, VA is addressing food and nutrition security. The Food Security Office within the Veterans Health Administration (VHA) was established and has representation from nutrition, social work, and nursing focusing on the causes of food insecurity among Veterans. VA's Food Security Office and the Nutrition and Food Services Office lead efforts aligned with the White House's strategic initiatives shared at the White House Conference on Hunger, Health and Nutrition.

The Food Security Office is built on three pillars: partnerships, data management and research and education. By placing the Office under the umbrella of health care, VA has signaled its commitment to the importance of managing social determinants of health as part of its Whole Health approach to care. VA's Whole Health approach centers around **what matters to the Veteran**. This means a Veteran's health team will get to know the Veteran as a person before working with them to develop a personalized health plan based on their values, needs and goals.

The Food Security Office's first pillar is partnerships. Internal partnerships allow the agency to harness the depth of talent and knowledge within VA, as well as collaboration among clinical teams at all levels of the organization. The Office also provides support on policies and pilot initiatives that enable innovative approaches to care. Such initiatives are implemented at medical centers nationwide.

External partnerships allow VA to expand its reach and innovation and provide valuable information and resources to

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support the Food Security Office. Partnerships help to establish projects and research opportunities. One example of this is ongoing studies on the impact of produce prescription programs and medical nutrition therapy on Veteran populations. This therapy allows for a registered dietitian to apply nutrition care which focuses on the management of specific diseases. Another project looks at the impact food box delivery with medical nutrition therapy has on Veterans with substance use disorder.

Partners also provide insight into policy initiatives and data from other populations. VA and the United States Department of Agriculture (USDA) offer regular educational seminars for staff to ensure Veterans are aware of the many programs, like Supplemental Nutrition Assistance Program (SNAP) and Women, Infants, and Children (WIC), to supplement their needs.

The second pillar, data management, is centered around the information we obtain from screening Veterans during their visits to VA medical centers. As of FY 2022, more than 10 million Veterans have been screened since 2017 for food insecurity. These screenings include data such as age, period of service and other relevant clinical information for providers and enable the Food Security Office to assist each VA facility to better support their vulnerable populations.

Like many organizations, VA has a set of strategic goals to guide the organization. [1] The VA's current strategic goals prioritize food insecurity. The specific goal states: VA identifies Veterans and transitioning Service Members at-risk for food insecurity and connects them to resources, assistance programs and education to improve their health and well-being. With this as the guidepost, the goal of ensuring Veteran food security is then translated in several coordinated ways. For example, efforts to align with the VA Strategic Plan are further strengthened through the collaboration between the Food Security Office and Nutrition and Food Services. Nutrition and Food Services represents clinical dietitians and diet technicians, as well as food service staff that care for and feed the inpatient population, and Veterans in Community Living Centers and Residential Care Programs across the country. Together, these offices are committed to increasing food security awareness by participating in a variety of activities throughout FY 2023, to include opening onsite food pantries, holding healthy teaching kitchen

[1] *Fiscal Year 2022-2025 Veterans Health Administration Long-Range Plan Framework,* U.S. DEP'T OF VETERAN AFF. (Last Visited Apr. 10, 2023), https://www.va.gov/VHASTRATEGY/Docs/FY2022-2025VeteransHealthAdministrationLong-RangePlanFramework508.pdf.

programs focused on microwave recipes, how to shop on a budget and more.[2]

The third pillar, research and education, rounds out the approach to support both Veterans and staff in understanding the different interventions that impact both food and nutrition security. The Food Security Office serves as the point of contact and resource on issues related to food and nutrition security, coordinating national education opportunities, maintaining an environmental scan of research on related topics and facilitating the sharing of lessons learned across the enterprise, which are key to its forward development.

Ultimately, an integrated approach to health care, with a focus on Veteran-centered care, proves our greatest asset. The VA system allows for seamless communication through the electronic health record to ensure that once a Veteran is identified as food insecure, the entire health care team has awareness and provides unified, coordinated care which is Veteran centered.

As VA cares for the needs of Veterans and shares lessons learned in the hunger relief community, we look toward a future where no Veteran experiences food insecurity.

[2] *Nutrition and Food Services – Food Security,* U.S. DEP'T OF VETERAN AFF. (Last Visited Apr. 10, 2023), https://www.nutrition.va.gov/Food_Insecurity.asp.

Healthy School Meals for All: The Role of Food Law and Policy

Thomas J. Vilsack, JD*

On September 28, 2022, I had the tremendous privilege of kicking off the second, historic White House Conference on Hunger, Nutrition, and Health.[1] As I discussed in my opening remarks and in the United States Department of Agriculture (USDA) post-Conference report, the first Conference held more than 50 years ago by President Nixon in 1969 had significant impacts on our Department and the prevalence of food insecurity in our country.[2] Most notably, the Conference sparked significant expansions to Food Stamps, now known as the Supplemental Nutrition Assistance Program (SNAP), from 2 million in 1968 to 11 million by 1971.[3] The Conference also increased the reach of the National School Lunch Program (NSLP), which served 2.9 million low-income children at the time of the Conference and expanded to serving nearly 8 million low-income children by 1971.[4] Permanent authorization of the

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* The 32nd United States Secretary of Agriculture who was nominated by President Joe Biden to return to the role where he served for eight years under President Barack Obama. I am truly indebted to the staff at the United States Department of Agriculture (USDA) and the entire Federal family that worked to make the historic White House Conference on Hunger, Nutrition, and Health a meaningful reality and who are tirelessly working with our partners at the State, Tribal, US Territories, and local governmental levels, as well as with school districts, childcare centers and homes, community organizations, and other sites across the nation that help deliver our services. Citation support was provided by Sheila Fleischhacker, PhD, JD, RDN, Senior Technical Advisor for Nutrition Security at USDA, in addition to reviews provided by Sara Bleich, PhD, Former Director of Nutrition Security and Health Equity at USDA, leadership teams at the USDA Food and Nutrition Service Child Nutrition Program and Office of Policy Support, Kumar Chandran, MS, MPH, Senior Advisor for Nutrition USDA Office of the Secretary, along with other communication and general counsel staff at USDA.

[1] *President Biden Delivers Remarks at the White House Conference on Hunger, Nutrition, and Health*, YOUTUBE, https://www.youtube.com/watch?v=Xfp9Cn5A5Mc (last visited Apr. 26, 2023).

[2] *Id.*; *see also* FOOD & NUTRITION SERV., *Leveraging the White House Conference to Promote and Elevate Nutrition Security: The Role of the USDA Food and Nutrition Service* (Sept. 2022), U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/nutrition-security/fns-role (last visited Apr. 26, 2023).

[3] FOOD & NUTRITION SERV., *supra* note 2 at 5; *see also* FOOD & NUTRITION SERV., *Yearly Trends in SNAP Participants, Unemployment, and Poverty*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/yearly-trends (last visited Apr. 26, 2023).

[4] FOOD & NUTRITION SERV., *supra* note 2 at 5; *see also* FOOD & NUTRITION SERV., *National School Lunch Program: Participation and Lunches Served* (Data as of Apr. 14, 2023), U.S. DEP'T OF AGRIC., https://fns-prod.azureedge.us/sites/default/files/resource-files/slsummar-4.pdf (last visited Apr. 26, 2023).

School Breakfast Program occurred in 1975, which was also inspired by The Black Panther Party's Free Breakfast for School Children Program, started in 1969.[5] In addition, Congress authorized the pilot for the Supplemental Feeding Program for Women, Infants, and Children (WIC) in 1972, laying the foundation for WIC which now serves about half of all infants in the US.[6] Besides significantly expanding Federal nutrition assistance, the 1969 Conference set the stage for the development of the *Dietary Guidelines for Americans*, which serve as the cornerstone for ensuring the latest nutrition science guides the Federal nutrition assistance programs and our Federal nutrition education and promotion activities including MyPlate.[7]

Each and every day since the first Conference, our Federal nutrition safety net has helped put food on the table, especially when our country faces economic hardship.[8] Our suite of more than 15 Federal nutrition assistance programs complement and build on each other to meet nutritional needs from birth through childhood and beyond.[9] Our programs help provide access to healthy food, foster the development of healthy eating habits, and connect participants to other critical resources.[10] During the COVID-19 pandemic, the USDA leveraged every tool at our disposal and applied creative solutions with our partners across this great country to address unprecedented challenges.[11] Some of our actions included temporarily increasing the SNAP maximum benefit amount for tens of millions of participants and providing Emergency Allotments that boosted monthly benefits to the maximum amount for the household

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[5] FOOD & NUTRITION SERV., *supra* note 2 at 5; *see also* Erin Blakemor, *How the Black Panthers' Breakfast Program Both Inspired and Threatend the Government,* HISTORY CHANNEL (Jan. 29, 2021), https://www.history.com/news/free-school-breakfast-black-panther-party.

[6] FOOD & NUTRITION SERV., *supra* note 2 at 5; *see also* FOOD & NUTRITION SERV., *WIC Data Tables*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/pd/wic-program (last visited Apr. 26, 2023).

[7] FOOD & NUTRITION SERV., *supra* note 2 at 5; *see also Dietary Guidelines for Americans: Work Under Way: 2025 Advisory Committee*, https://www.dietaryguidelines.gov/2025-advisory-committee (last visited Mar. 27, 2023); *and* FOOD & NUTRITION SERV., *MyPlate*, U.S. DEP'T OF AGRIC., https://www.myplate.gov/ (last visited Apr. 26, 2023).

[8] FOOD & NUTRITION SERV., *FNS-101: Fact Sheets (All)*, U.S. DEP'T OF AGRIC., https://fns-prod.azureedge.us/sites/default/files/resource-files/FNS-101-Factsheets-All.pdf (last visited Apr. 26, 2023).

[9] FOOD & NUTRITION SERV., *supra* note 2 at 27-31.

[10] FOOD & NUTRITION SERV., *USDA Actions on Nutrition Security*, U.S. DEP'T OF AGRIC., https://www.usda.gov/sites/default/files/documents/usda-actions-nutrition-security-infographic.pdf (last visited Apr. 26, 2023).

[11] FOOD & NUTRITION SERV., *supra* note 2 at 8-9.

size or by $95 per month, whichever was larger.[12] We also replaced lost school meals through Pandemic-Electronic Benefits Transfer (P-EBT) that provided families with around $35 in grocery benefits per week per eligible child.[13] In addition, we rapidly expanded the ability for SNAP benefits to be used online, from only 5 States participating in March 2020 to 49 and the District of Columbia in March 2023.[14] We increased funding to The Emergency Food Assistance Program (TEFAP) and the Food Distribution Program on Indian Reservations (FDPIR).[15] We also allowed waivers for WIC services to be provided remotely.[16] Within our Child Nutrition Programs, we provided free meals to all children and permitted a variety of flexibilities that helped program operators and parents get food for their children.[17] None of this work would have been possible without the dedication and commitment of the USDA staff and their local, State, US Territory, and Tribal partners.[18]

COVID-19 shined a light on the power of our programs.[19] According to the USDA Economic Research Service's annual food security report, 33.8 million Americans lived in households that struggled against hunger in 2021.[20] This is a sobering number, but the report showed that the number of Americans experiencing food insecurity decreased by 5 million.[21] The report also found food insecurity among households with children was at a two-decade

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[12] FOOD & NUTRITION SERV., *SNAP COVID-19 Emergency Allotments Guidance*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/snap/covid-19-emergency-allotments-guidance (last visited Apr. 26, 2023).
[13] FOOD & NUTRITION SERV., *State Guidance on Coronvarius P-EBT*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/snap/state-guidance-coronavirus-pandemic-ebt-pebt (last visited Apr. 26, 2023).
[14] FOOD & NUTRITION SERV., *Stores Accepting SNAP Online*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/snap/online-purchasing-pilot (last visited Apr. 26, 2023).
[15] FOOD & NUTRITION SERV., *The Emergency Food Assistance Program*, U.S. DEP'T of AGRIC., https://www.fns.usda.gov/tefap/emergency-food-assistance-program (last visited Apr. 26, 2023); *and* FOOD & NUTRITION SERV., *USDA Boosts Food Assistance for Tribes During Pandemic* (July 17, 2020), https://www.fns.usda.gov/news-item/fns-000920 (last visited Apr. 26, 2023).
[16] FOOD & NUTRITION SERV., *WIC COVID-19 Waivers*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/disaster-assistance/wic-covid-19-waivers (last visited Apr. 26, 2023).
[17] FOOD & NUTRITION SERV., *Child Nutrition COVID-19 Waivers*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/disaster-assistance/child-nutrition-covid-19-waivers (last visited Apr. 26, 2023).
[18] FOOD & NUTRITION SERV., *supra* note 2 at 23.
[19] *Id.* at 8-9.
[20] Alisha Coleman-Jensen et al., *Household Food Security in the United States in 2021*, U.S. DEP'T OF AGRIC., ECON. RSCH. SERV., Economic Research Report Number 309 (Sept. 2022), https://www.ers.usda.gov/publications/pub-details/?pubid=104655 (last visited Apr. 26, 2023).
[21] *Id*. at 7-12.

low.[22] One possible reason for this progress is how our Federal nutrition assistance programs and the critical additional investments we have been making during the pandemic like SNAP Emergency Allotments and Pandemic EBT helped combat hunger.[23] While there was progress, the report also found that Black and Hispanic/Latino households were disproportionately impacted by food insecurity in 2021 with rates of 19.8 percent and 16.2 percent, respectively.[24] These rates were triple and double the rate of white households, which is 7.0 percent.[25] Native Americans are under-sampled in our report but other studies indicate high levels of food insecurity.[26]

It is truly humbling to know how the USDA plays a fundamental role in our nation's ability to improve the lives of all Americans. But the COVID-19 pandemic also exposed the negative repercussions of diet-related diseases and disparities.[27] One study estimated that nearly two-thirds of COVID-19 hospitalizations in the US were related to obesity, diabetes, hypertension, and heart failure.[28] According to the Centers for Disease Control and Prevention, heart diseases, cancer, and diabetes are the leading causes of death and disability in the US and all of these diseases have strong associations with diets low in fruits and vegetables and high in saturated fats, sodium, and added sugars.[29] Increasingly, individuals experience the co-existence of food insecurity and diet-related diseases.[30] People of color and from lower socioeconomic backgrounds experienced a disproportionate burden of COVID-19

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[22] *Id*. at 9, 12.
[23] *Id*. at 33.
[24] *Id*. at 17-19.
[25] *Id*. at 18.
[26] *Id*. at 18; *see also* Valerie Blue Bird Jernigan et al., *Addressing Food Insecurity in a Native American Reservation Using Community-Based Participatory Research*, 27 HEALTH EDUC. RES. 645, 645-655 (2012).
[27] Sara N. Bleich & Jamy D. Ard, *COVID-19, Obesity, and Structural Racism: Understanding the Past and Identifying Solutions for the Future*, 33 CELL METAB. 234, 234-241 (2021).
[28] Meghan O'Hearn et al., *Coronavirus Disease 2029 Hospitalizations Attributable to Cardiometabolic Conditions in the United States: A Comparative Risk Assessment Analysis*, 10 J AM. HEART ASSOC. 7-9, 1-17 (2021).
[29] CTR. FOR DISEASE CONTROL AND PREVENTION NAT'L CTR. FOR HEALTH STATS., *Leading Causes of Death*, U.S. DEP'T OF HEALTH & HUMAN SERVS., https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm (last visited Apr. 26, 2023).
[30] Edward A. Frongillo E & Jennifer Berna, *Understanding the Coexistance of Food Insecurity and Obesity*, 2 CURR. PEDIATR. REP. 285-288, 284-290 (2014); Barbara A. Laraia, *Food insecurity and Chronic Disease*, 4 ADV. NUTR. 205-2010, 203-212 (2013); *and* Sylvia L. Chowder et al., *A Review of Food Insecurity and Chronic Cardiovascular Disease: Implications During the COVID-19 Pandemic*, 60 ECOL. FOOD NUTR. 596-597, 596-611 (2021).

cases and death.[31] This increased risk was attributed in part to disparities in diet-related diseases that are associated with decades of structural inequalities in health and healthcare and other social and economic factors including limited access to retail food outlets that sell heathier foods.[32] These disparities are also rooted in other long-standing historical inequities spanning across our institutions and economy.[33] Therefore, much more needs to be done to address diet-related diseases and disparities and the corresponding economic, equity, and national security implications.[34]

To meet this challenge, we continue to leverage all our assets to support moves towards healthier eating patterns in an equitable way.[35] On March 17, 2022, I launched our whole-of-Department approach to expand our aperture to focus on advancing food *and* nutrition security.[36] At USDA, nutrition security means having consistent and equitable access to healthy, safe, affordable foods essential to optimal health and well-being.[37] This new approach aims to recognize that structural inequalities make it hard for many people to eat healthy and be physically active; and emphasizes taking an equity lens to our efforts.[38] The USDA's food and nutrition security initiative is scaffolded by the following four pillars: (1) Providing meaningful nutrition support from pregnancy to birth and beyond;[39] (2) Connecting all Americans with healthy, safe, affordable food sources;[40] (3) Developing, translating, and enacting nutrition science through partnership;[41] and (4) Prioritizing equity every step of the

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[31] Ahmad Khanijahani et al., *A Systematic Review of Racial/Ethnic and Socioeconomic Disparities in COVID-19*, 20 INT. J. EQUITY HEALTH 5, 1-30 (2021).
[32] Bleich, *supra* note 27 at 235; *see also* Andrew Y. Chang et al., *The Impact of Novel Coronavirus COVID-19 on Noncommunicable Disease Patients and Heatlh Systems: A Review*, 289 J. INTERN. MED. 451-458, 450-462.
[33] Bleich, *supra* note 27 at 235-236.
[34] THE WHITE HOUSE, *Biden-Harris Administration National Strategy on Hunger, Nutrition, and Health* (Sept. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/09/White-House-National-Strategy-on-Hunger-Nutrition-and-Health-FINAL.pdf (last visited Apr. 26, 2023).
[35] FOOD & NUTRITION SERV., *supra* note 2 at 5.
[36] FOOD & NUTRITION SERV., *USDA Announces Actions on Nutrition Security: Secretary Vilsack to Give Speech Highlighting the U.S. Department of Agriculture's Robust Efforts to Tackle Nutrition Insecurity*, U.S. DEP'T OF AGRIC. (Mar. 17, 2022), https://www.fns.usda.gov/news-item/usda-0062.22.
[37] *Food and Nutrition Security*, U.S. DEP'T OF AGRIC., https://www.usda.gov/nutrition-security (last visited Apr. 26, 2023).
[38] *Id.*
[39] *Meaingful Support*, U.S. DEP'T OF AGRIC., https://www.usda.gov/nutrition-security/meaningful-support (last visited Apr. 26, 2023).
[40] *Healthy Food*, U.S. DEP'T OF AGRIC., https://www.usda.gov/nutrition-security/healthy-food (last visited Apr. 26, 2023).
[41] *Collaborative Action*, U.S. DEP'T OF AGRIC., https://www.usda.gov/nutrition-security/collaborative-action (last visited Apr. 26, 2023).

way.[42] We are focused on strengthening and building new partnerships with all levels of government, the private sector, community-based organizations, and families.[43]

One critical partner is food law and policy professionals. Because, at the root of our powerful tools to shape food and nutrition security are laws and policies, along with the food law and policy professionals who work hard to develop, implement, evaluate, and sustain them.[44] So, as we look to leverage the momentum of the historic White House Conference and the corresponding National Strategy released the day before by the Biden-Harris Administration, this essay calls on food law and policy professionals to help us bring the Conference to life by collaborating on an all-of-society approach to end hunger, improve nutrition and physical activity, and reduce diet-related diseases and disparities.[45] I was truly impressed by the more than eight billion dollars in non-Federal commitments to advance the Conference goals and encourage others to consider new and enhanced ways you can take to help end hunger and build healthy communities.[46] I encourage food law and policy professionals to consider ways you can help advance all of USDA's actions in the National Strategy.[47] In this commentary, I want to draw your attention to one of my top priorities from the National Strategy – ensuring healthy school meals for all.[48]

As a father, grandfather, uncle, and policymaker, I know first-hand a healthier future for our country starts with our children.[49] The pathway outlined in the National Strategy would reorient the school meal programs from being an ancillary service to an integral

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[42] *Equitable Systems*, U.S. DEP'T OF AGRIC., https://www.usda.gov/nutrition-security/equitable-systems (last visited Apr. 26, 2023).
[43] FOOD & NUTRITION SERV., *supra* note 2 at 23.
[44] *Id. at* 27-31.
[45] THE WHITE HOUSE, *supra* note 34 at 9.
[46] THE WHITE HOUSE, *FACT SHEET: The Biden-Harris Administration Annouces More Than $8 Billion in New Commitments as Part of Call to Action for White House Conference on Hunger, Nutrition, and Health* (Sept. 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/ (last visited Apr. 26, 2023); *and* U.S. DEP'T OF HEALTH & HUMAN SERV., *White House Conference on Hunger, Nutrition, and Health: White House Challenge to End Hunger and Build Healthy Communities*, https://health.gov/our-work/nutrition-physical-activity/white-house-conference-hunger-nutrition-and-health/make-commitment (last visited Apr. 26, 2023).
[47] FOOD & NUTRITION SERV., *supra* note 2 at 14-22.
[48] THE WHITE HOUSE, *supra* note 34 at 9.
[49] CTR. ON THE DEVELOPING CHILD, *The Foundations of Lifelong Health (InBrief)*, www.developingchild.harvard.edu (last visited Apr. 26, 2023).

component of the school day for all children across the nation.[50] Research consistently indicates that food insecurity negatively impacts a child's health, growth, development, and educational outcomes.[51] Children without consistent access to the nutrition they need are also at a higher risk for diet-related chronic conditions like hypertension and diabetes.[52] Unfortunately, the rates of children experiencing diet-related diseases are trending in the wrong direction.[53] The stakes are high and we can't afford to wait.[54] We must act now to improve child health and prevent more children from suffering the life-long impacts of poor nutrition.[55]

Strengthening school meals is one of the best ways we can keep kids healthy and help them reach their potential.[56] Recognized as a core intervention to improve our nation's health, school meals have been shown to establish healthy eating patterns early.[57] Each day, the National School Lunch and Breakfast Programs provide nutritious meals for around 30 million schoolchildren.[58] Participating in our school meal programs not only improves children's nutrition but has also been shown to support academic performance and attendance.[59] Evidence indicates meals students receive at school are the healthiest foods they eat all day.[60] But, we know that there is still

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[50] THE WHITE HOUSE, *supra* note 34 at 9.
[51] *See generally* Priya Shanka et al., *Association of Food Insecurity with Children's Behavioral, Emotional, and Academic Outcomes: A Systematic Review*, 38 JOUR. DEV. BEHAV. PEDIATR. 135-150 (2017).
[52] *See generally* Lauren E. Au et al., *Household Food Insecurity is Associated with Higher Adiposity among US Schoolchildren Ages 10-15 Years: The Healthy Community Study*, 149 JOUR. NUTR. 1642-1650; *and see generally* Heather Hartline-Grafton & Sandra Hassink, *Food Insecurity and Health: Practices and Policies to Address Food Insecurity among Children,* 21 ACAD. PEDIATR. 205-210 (2021).
[53] *See generally* Jean M. Lawrence et al., *Trends in Prevalence of Type 1 and Type 2 Diabetes in Children and Adolescents in the US, 2001-2017,* 326 JOUR. AM. MED. ASSOC. 717-727 (2021).
[54] Thiago Veiga Jardim et al., *Cardiometabolic Disease Costs Associated with Suboptimal Diet in the United States: A Cost Analysis Based on a Microsimulation Model*, 16 PLOS MED. 6-8, 1-15 (2019).
[55] Junxiu Liu et al., *Trends in Diet Quality among Youth in the United States, 1999-2016*, 323 JOUR. AM. MED. ASSOC. 1169-1173, 1161-1174 (2020).
[56] Juliana F.W. Cohen et al., *Universal School Meals and Associations with Student Participation, Attendence, Academic Performance, Diet Quality, Food Security, and Body Mass Index: A Systematic Review*, 13 NUTRIENTS 4-11, 1-41 (2021).
[57] *Id.* at 6-7.
[58] FOOD & NUTRITION SERV., *National School Lunch Program (NSLP) Fact Sheet*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/nslp/nslp-fact-sheet (last visited Apr. 26, 2023).
[59] Cohen, *supra* note 56 at 9-11.
[60] Liu, *supra* note 55 at 1169-1173.

more we can do to make them even healthier.[61] Over the past decade, the strides made in school nutrition show that healthier school meals are possible when everyone who plays a part – school nutrition professionals, parents, students, school meal partners, and the food industry – works together.[62] Following the 2012 update of the nutrition standards, the nutrition quality of school meals increased by more than 40%.[63] Schools that served healthier meals had higher school meal participation (rates 10 percentage points higher) than schools that served less healthy meals.[64] School meals also had a positive effect on participating students' overall diets; for example, studies found that students who ate lunches from school were more likely than their peers to eat nutritious foods like fruits, vegetables and dairy and less sugary beverages.[65]

During the pandemic and thanks to the heroic efforts across the school nutrition landscape, all children across the country were eligible for free school meals.[66] This academic year, as schools transitioned back from pre-pandemic meal operations, some states have continued healthy school meals for all.[67] So far, California, Colorado, Maine, Massachusetts, Minnesota, Nevada, New Mexico, and Vermont have found ways to combine state funds with Federal

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[61] *See generally* FOOD & NUTRITION SERV., *School Nutrition and Meal Cost Study: Summary of Findings,* U.S. DEP'T OF AGRIC. (Apr. 2019), https://www.fns.usda.gov/school-nutrition-and-meal-cost-study (last visited Apr. 27, 2023); *and* FOOD & NUTR SERV., *SNMCS Webinar Series – Meeting the Updated Nutrition Standards and the Nutritional Quality of School Lunches*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/snmcs-webinar-series-update-nutrition-standards (last visited Apr. 27, 2023).

[62] FOOD & NUTRITION SERV., *supra* note 61 at 1-4.

[63] *See generally* FOOD & NUTRITION SERV., *School Nutrition and Meal Cost Study: Volume 2, Nutritional Characteristics of School Meals,* U.S. DEP'T OF AGRIC. (Apr. 2019), https://fns-prod.azureedge.us/sites/default/files/resources-files/SNMCS-Volume2.pdf (last visited Apr. 27, 2023).

[64] *See generally* FOOD & NUTRITION SERV., *School Nutrition and Meal Cost Study: Volume 4 – Student Participation, Satisfaction, and Dietary Intakes (Summary)*, U.S. DEP'T OF AGRIC. (Apr. 2019), https://fns-prod.azureedge.us/sites/default/files/resources-files/SNMCS-Volume4-Summary.pdf (last visited Apr. 27, 2023).

[65] Jacey Greece et al., *Effects of a School-based Intervention on Middle School Children's Daily Food and Beverage Intake*, 4 HEALTH BEHAV. POLICY REV. 28-30, 24-36.

[66] FOOD & NUTRITION SERV., *supra* note 2 at 8-9.

[67] *School Meals Legislation and Funding by State,* FOOD RSCH. & ACTION CTR (Aug. 2022), https://frac.org/wp-content/uploads/School-Meals-State-Legislation-Chart.pdf (last visited Apr. 26, 2023); *and* Leah Butz, *States that Have Passed Universal Free School Meals (So Far)*, HUNTER COLL. N.Y.C. FOOD POL'Y. CTR. (Feb. 21, 2023), https://www.nycfoodpolicy.org/states-that-have-passed-universal-free-school-meals/ (last visited Apr. 27, 2023).

funds to provide healthy school meals for all.[68] These states are helping take the burden off parents to provide children consistent access to the healthy meals they need for a bright future.[69] Other states such as Virginia, Hawaii, and Washington have legislative initiatives underway to expand school meal access.[70] Additional States and school districts have utilized our expanded approach to the Community Eligibility Provision (CEP), which is a non-pricing meal service option for schools and school-districts in low-income areas.[71] CEP allows the nation's highest poverty schools and districts to serve breakfast and lunch at no cost to all enrolled students without

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[68] *California Universal Meals*, CA. DEP'T OF EDUC., https://www.cde.ca.gov/ls/nu/sn/cauniversalmeals.asp (last visited Apr. 27, 2023) (establishing California as the first state in the nation to provide free meals to all students); *HB22-1414: Healthy Meals For All Public School Students*, COLO. GEN. ASSEMBLY, https://leg.colorado.gov/bills/hb22-1414 (last visited Apr. 27, 2023) (creates a program that reimburses school food authorities that choose to participate in the program for free meals provided to students who are not eligible for free or reduced-price meals under the federal school meals program, among other provisions); *LD 1679 (SP 540): An Act to Address Student Hunger through Expanding Access to Free School Meals*, STATE OF ME. LEGIS. https://legislature.maine.gov/LawMakerWeb/summary.asp?ID=280080767 (last visited Apr. 27, 2023) (making permanent that public schools in Maine provide free school lunches and breakfasts); *H.714: An Act Relative to Universal School Meals*, THE 193RD GEN. CT. OF THE COMMONWEALTH OF MASS., https://malegislature.gov/Bills/192/H714 (last visited Apr. 27, 2023) (while universal school meals have not been made permanent yet, the State approved extending pandemic-era universal school free lunch into the 2022-2023 school year);, *HF 5*, MINN. LEGIS. OFF. OF THE REVISOR OF STATUES https://www.revisor.mn.gov/bills/bill.php?f=HF5&b=house&y=2023&ssn=0 (last visited Apr. 27, 2023) (making permanent free school lunch and breakfast for students, and appropriating relevant funding); *Students in Nevada Won't Worry about School Meals Next Year: Free School Meals Will be Available in Nevada Public Schools this Upcoming School Year, 2022-2023,* NEV. DEP'T OF AGRIC., (June 27, 2022), https://agri.nv.gov/News/2022/Students_in_Nevada_won%E2%80%99t_worry_about_school_meals_next_year/ (last visited Apr. 27, 2023) (using funding from the American Rescue Plan to provide free school meals during the 2022-2023 school year and approved additional funding through 2023-2024); *SB 4: Healthy Universal School Meals,* N.M. LEGIS. (Mar. 27, 2023), https://www.nmlegis.gov/Legislation/Legislation?Chamber=S&LegType=B&LegNo=4&year=23 (establishing universal school meals); *and S.100 (Act 151): An Act to Universal School Meals,* VT. GEN. ASSEMBLY (May 31, 2022), https://legislature.vermont.gov/bill/status/2022/S.100 (last visited Apr. 27, 2023) (extended free school meals into 2022-2023 while revising recommendations from a Task Force established by the state to make the program permanent).

[69] Cohen, *supra* note 56 at 9-11.

[70] Butz, *supra* note 67 (detailing how 21 states are currently planning, drafting, discussing or negotiating universal free school Meal legislation).

[71] FOOD & NUTRITION SERV., *Child Nutrition Programs: Community Eligiblity Provision*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/cn/community-eligibility-provision (last visited Apr. 27, 2023).

collecting household applications.[72] Collectively, these are all important approaches that food law and policy professionals can help accelerate at the state and local levels as we work to ensure the support of healthy school meals for all nationwide.

The first major step toward ensuring healthy school meals for all is already underway as the Biden-Harris Administration proposed in our budget to expand access to healthy, free school meals for 9 million more children by 2032.[73] The USDA also recently published a proposed rule with the intent to expand access to the Community Eligibility Provision by lowering the minimum identified student percentage participation threshold from 40% to 25%.[74] If made final, this rule would give more high-need schools the option to elect Community Eligibility Provision and offer all students healthy school meals at no cost when it is financially viable for them to do so.[75] Another recent, related milestone reached by the Biden-Harris Administration ensures children are fed year-round.[76] That is, using new Congressional authority, the USDA is now allowed to provide benefits to families nationwide to purchase groceries during the summer months through the Summer EBT program.[77] In pilots of the program, Summer EBT helped combat severe food insecurity as participants ate more nutritious fruits, vegetables, and whole grains.[78] Building on pandemic-era flexibilities, Congress also permitted USDA to allow non-congregational summer meals in rural areas.[79]

In addition to ensuring wider access to healthy meals year round, the USDA is actively working to strengthen the nutrition

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[72] *Id.*
[73] THE WHITE HOUSE, *supra* note 34 at 9.
[74] FOOD & NUTRITION SERV., *Community Eligiblity Provision - Summary of Proposed Rule*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/cn/community-eligibility-provision-summary-proposed-rule (last visited Apr. 16, 2023).
[75] *Id.*
[76] FOOD & NUTRITION SERV., *Consolidated Appropriations Act, 2023: Effect on Child Nutrition Programs*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/cn/consolidated-appropriations-act-2023-effect-programs (last visited Apr. 27, 2023).
[77] *Id.*
[78] Anne R. Gordon et al., *Summer Electronic Benefit Transfers for Children through the Supplemental Nutrition Assistance Program or the Special Supplemental Nutrition Program for Women, Infants, and Children: Benefit Use and Impacts on Food Security and Foods Consumed*, 117 JOUR. ACAD. NUTR. DIET. 370-373, 367-375 (2017).
[79] FOOD & NUTRITION SERV., *supra* note 76.

standards of school meals.[80] We are using the latest nutrition science and extensive feedback from our school meal partners to propose revisions to the school meal patterns that are consistent with the latest edition of the *Dietary Guidelines for Americans*.[81] For the first time, we are proposing standards for added sugars through a phased approach.[82] The proposed rule also takes a multi-year approach to sodium reduction aligned with the Food and Drug Administration's recommended sodium reduction goals for industry.[83] This approach aims to give school nutrition professionals time to implement the changes, the food industry time to develop new and improved products, and students time for their palates to adjust. For whole grains, we are proposing two options to prioritize whole grains, while providing flexibility for schools to occasionally offer non-whole, enriched grain options.[84] Taken together, these proposed changes will help us provide children and adolescents the right balance of nutrients for healthy and appealing meals. As we move forward with the rulemaking process and implementation, I encourage food law and policy professionals to elevate the importance of these updates. In addition, you can help us successfully implement and evaluate these critical changes thereby ensuring we have strong stakeholder and political support to maintain adequate appropriations for meal reimbursement and technical assistance.

We know a key part of successful implementation of school meal nutrition standards is helping to increase access to local and regional food systems, which we are working on through our broader Food Systems Transformation efforts and particular to schools the Healthy Meals Incentives initiative.[85] Other activities include

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[80] FOOD & NUTRITION SERV., *Proposed Updates to the School Nutrition Standards*, U.S. DEP'T OF AGRIC., https://www.fns.usda/gov/cn/proposed-updates-school-nutrition-standards (last visited Apr. 27, 2023).

[81] FOOD & NUTRITION SERV., *Comment Request on Proposed Rule: Child Nutrition Programs – Revisions to Meal Patterns Consistent with the 2020 DGAs*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/cn/fr-0207123 (last visited Apr. 27, 2023).

[82] FOOD & NUTRITION SERV., *Added Sugars*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/cn/nutrition-standards-proposed-rule-added -sugars *(last visited Apr. 27, 2023).*

[83] FOOD & NUTRITION SERV., *Sodium*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/cn/nutriton-standards-proposed-rule-added-sodium (last visited Apr. 27, 2023).

[84] FOOD & NUTRITION SERV., *Whole Grains*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/cn/nutrition-standards-proposed-rule-added-whole-grains (last visited Apr. 27, 2023).

[85] FOOD & NUTRITION SERV., *Healthy Meals Incentives*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/cnp/healthy-meals-incentives#:~:text=USDA%27s%20Food%20and%20Nutrition%20Service%20%28FNS%29%20has%20established,of%20innovative%20ideas%20and%20tested%20practices%2C%20and%20grants (last visited Apr. 27, 2023).

enabling more schools to cook meals from scratch by funding training and equipment purchases, investing in the school nutrition workforce, and expanding nutrition education for children.[86] We are also working on the following additional efforts to help schools provide nutritious meals to children: implementing updates and innovations that make our programs more convenient and effective for participants; lifting up what works through our Team Nutrition initiative; collecting and analyzing data and feedback on how our programs are working and using that to improve our efforts; testing out new ways to reach those who are eligible for our programs and make it easier for them to access our services; building on the incredible strides made by program partners to date to continue pursuing what's best for our children; and using lessons learned during the COVID-19 pandemic to propel our programs forward.[87]

Altogether, these activities have incredible promise. But the USDA cannot ensure healthy school meals for all alone. We will continue to leverage all of our programs, partners, initiatives, and influence to ensure children of all backgrounds have the food they need for good health.[88] In this essay, I am calling on food law and policy professionals to join us in this effort. Opportunities to help include making a White House Conference commitment to support children's health through healthier school meals.[89] Each of you can also play critical roles in advancing universal school meal legislation at the local, state, and federal levels, through advocacy, policymaking, and research. Without question, your research and evaluation can help shape our future child nutrition policies and programs. I appreciate the work of food law and policy professionals to examine the impact of our policies and identify where we can do better. You can also help us implement Summer EBT and the non-congregational summer meals in rural areas by helping administrating agencies as well as community-based outreach efforts. Whether a parent, caregiver, aunt, uncle, or grandparent, please help build awareness among decision makers, industry, child nutrition meal site operators, parents, and students about the

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[86] *Biden-Harris Administration Invests $80 Million to Improve Nutrition in School Meals*, U.S. DEP'T OF AGRIC. (Oct. 11, 2022), https://www.usda.gov/media/press-releases/2022/10/11/biden-harris-administration-invests-80-million-improve-nutrition (last visited Apr. 27, 2023).

[87] FOOD & NUTRITION SERV., *Child Nutrition Success Stories*, U.S. DEP'T OF AGRIC., https://www.fns.usda.gov/success-stories/child-nutrition-programs (last visited Apr. 27, 2023).

[88] FOOD & NUTRITION SERV., *supra* note 2 at 14-22.

[89] *White House Challenge to End Hunger and Build Healthy Communities*, U.S. DEP'T OF HEALTH & HUMAN SERV., https://health.gov/our-work/nutrition-physical-activity/white-house-conference-hunger-nutrition-and-health/make-commitment (last visited Apr. 26, 2023).

importance of these changes and the role they each have in ensuring all children in this country thrive.

In closing, we appreciate the critical role of food law and policy professionals have had thus far and can have going forward to ensure a shared vision for healthy school meals for all. We encourage you to reach out and share your success stories or pain points in the process and please do not hesitate to ask us how best we can help you meet this moment. As a lawyer, I am very encouraged by the next generation of food law and policy professionals to help us advance food and nutrition security. Each of us – even if a small step – has a key role in shaping a healthier future for our children, our community, and our country.

Putting the Dietary Guidelines for Americans into Action through the National Strategy on Hunger, Nutrition, and Health

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Introduction

The United States is facing a crisis of widespread food insecurity and exceedingly high rates of diet-related diseases like diabetes, obesity, and hypertension. To address this challenge and set a course for improved nutrition and food access nationwide, the Biden-Harris Administration hosted the first White House Conference on Hunger, Nutrition, and Health in over 50 years on September 28, 2022. In the National Strategy, released in conjunction with the Conference, the Administration identified a set of actions that the federal government will take to help achieve its goal of ending hunger and increasing healthy eating and physical activity by 2030, so that fewer Americans experience diet-related diseases.[1]

Underpinning many of these actions is the *Dietary Guidelines for Americans* ("*Dietary Guidelines*"), which provides scientific advice on nutrition intake to meet nutrient needs, promote health, and prevent disease and serves as the cornerstone of federal food and nutrition programs.[2] This manuscript details how expanded implementation of the *Dietary Guidelines* can help advance actions in the National Strategy and achieve the goals of the Administration.

Although the health and economic burden of diet-related diseases are not new issues, the imperative to address them has never been greater. Today, 60 percent of adults have one or more diet-related diseases posing extraordinary public health challenges. Thus,

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[1] THE WHITE HOUSE, *Biden-Harris Administration National Strategy On Hunger, Nutrition, And Health* 4-5 (Sept. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/09/white-house-national-strategy-on-hunger-nutrition-and-health-final.pdf [hereinafter *National Strategy*].

[2] U.S. DEP'T OF AGRIC., DIETARY GUIDELINES FOR AMERICANS 2020-2025 (9th ed. 2020) [hereinafter *Dietary Guidelines*.]

the need for improved access to high quality nutritious foods for all Americans could not be overstated.

Since 1980, the United States Departments of Agriculture ("USDA") and Health and Humans Services ("HHS") have updated and released the *Dietary Guidelines* every five years based on the current body of nutrition science. While the regular cadence of scientific review is mandated by the 1990 National Nutrition Monitoring and Related Research Act, there is no corresponding allocation of dedicated funds.[3] As such, the new National Strategy highlights the importance of appropriating adequate funding to HHS and USDA to regularly update the *Dietary Guidelines* and ensure its broad implementation.

Each edition of the *Dietary Guidelines* reflects the most up-to-date understanding of diet and nutrition science. HHS and USDA use an external Federal Advisory Committee comprised of nationally recognized experts in nutrition and medicine to review the evidence and produce a scientific report which is used by the Departments to update each edition of the *Dietary Guidelines*. This rigorous scientific foundation makes the *Dietary Guidelines* a valuable tool that can be applied across the food environment.

Unfortunately, most Americans fall short of the *Dietary Guidelines* recommendations. Seventy-five percent of Americans do not consume the recommended amounts of fruits, vegetables, or dairy, and most Americans greatly exceed recommended limits for sodium, saturated fats, and added sugars. Racial, ethnic and socioeconomic disparities also exist regarding nutrient intake and chronic disease prevalence.[4] The social conditions of most Americans' lives offer predominantly unhealthy food choices and limited opportunity for physical activity, making healthy eating and active living challenging for a great many.[5] To ensure that healthier,

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[3] National Nutrition Monitoring and Related Research Act of 1990, H.R.1608, 101st Cong. (1990).

[4] U.S. DEP'T OF HEALTH AND HUM. SERVS., HEALTH, UNITED STATES, 2015: WITH SPECIAL FEATURE ON RACIAL AND ETHNIC HEALTH DISPARITIES (2016); U.S. DEP'T OF AGRIC., SCIENTIFIC REPORT OF THE 2020 DIETARY GUIDELINES ADVISORY COMMITTEE: ADVISORY REPORT TO THE SECRETARY OF AGRICULTURE AND THE SECRETARY OF HEALTH AND HUMAN SERVICES, U.S. DEP'T OF AGRIC., AGRIC. RSCH. SERV. (2020).

[5] Chang Seung Ho & Kim Kijeong, *A review of factors limiting physical activity among young children from low-income families.,* J. OF EXERCISE REHAB., (2017); Angela Odoms-Young et al., *Retail Environments as a Venue for Obesity Prevention,* CURR OBES REP., June 2016; James F Sallis &, Karen Glanz, *The role of built environments in physical activity, eating, and obesity in childhood,* FUTURE CHILD, 2006; Pin-jane Chen & Marta Antonelli, *Conceptual Models of Food*

more affordable opportunities exist across communities, expanded implementation of the *Dietary Guidelines* is needed by the federal government and among external partners such as state and local public health organizations, non-profits, health systems, healthcare professionals, academic experts, the charitable food system, childcare settings, school systems, and the entirety of the food industry—from production to marketing to distribution.

The National Strategy is organized around five pillars, each with a detailed set of actions that the federal government will pursue to shift the country's food, nutrition, physical activity, and health trajectory over the next decade. The pillars include actions for specific agencies across the federal government; for example, sixty-three actions are specific to HHS. Below we describe how to achieve broader implementation of the *Dietary Guidelines* within each of the five pillars.

Pillar I: Improve Food Access and Affordability

A fundamental step to reduce hunger and associated disparities is helping all Americans become economically secure. Improving access to federal nutrition assistance programs is one tool toward economic security. Food assistance programs are guided by statutory requirements that inform program benefit delivery and define eligibility requirements to ensure that individuals and households most often affected by poor dietary quality and related chronic disease risks have sufficient access to federal nutrition assistance. The *Dietary Guidelines* offer a scientifically based roadmap by which these programs can deliver a consistent and effective response to improving dietary quality throughout the lifespan. However, fully leveraging these programs to provide the highest quality foods requires overcoming many challenges, such as access and affordability, particularly in underserved rural and urban communities. Further aligning federal food programs, such as the National School Lunch and School Breakfast programs with the *Dietary Guidelines* can significantly improve the nutrition quality available for the millions of Americans these programs serve.

Pillar II: Integration of Nutrition and Health

The growing burden of food insecurity and poor diet on health outcomes has triggered the health care system to identify and respond to specific needs for different types of foods. "Food is

Choice: Influential Factors Related to Foods, Individual Differences, and Society, Foods, FOOD CHOICE & CONSUMER PSYCH., 2020.

medicine" is an umbrella term for programs within the healthcare system that address nutrition at the individual level to prevent, manage, and potentially reverse chronic disease.[6] *Dietary Guidelines* are the foundation of "food is medicine" initiatives such as medically tailored meals and groceries as well as produce prescriptions (i.e., fruit and vegetable prescriptions or vouchers provided by medical professionals for people with diet-related chronic diseases or food insecurity).[7]

Centers for Medicare & Medicaid Services ("CMS"), an agency within HHS, is taking several steps to expand beneficiaries' access to "food is medicine" interventions, including providing guidance to states.[8] As described in the National Strategy, the Biden-Harris Administration supports legislation to create a pilot program to cover medically tailored meals for individuals in traditional Medicare who are experiencing diet-related health conditions.[9] Support for this legislative proposal builds on a demonstration initiative in Medicaid where CMS provides authority for states to test Medicaid coverage of additional nutrition services and supports using Medicaid section 1115 demonstration projects.[10] On the same day as the White House Conference, approval of Medicaid section 1115 demonstration initiatives in Massachusetts and Oregon was announced, expanding both states' authority to test coverage for evidenced-based nutritional assistance and medically tailored meals.[11] All of these efforts are guided by the body of evidence provided by the *Dietary Guidelines.*

Pillar III: Empower all consumers to make and have access to healthy choices

With increased affordability and access to healthier foods throughout the retail food environment (e.g., grocery and convenience stores, supermarkets, restaurants, food banks), along with greater nutrition literacy, it will be easier for more Americans

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[6] Sarah Downer et al., *Food is Medicine: Actions to Integrate Food and Nutrition into Healthcare*, THE BMJ, June 29, 2020, at 1.
[7] *See National Strategy, supra* note 1.
[8] *See Id.*
[9] *See Id.*
[10] Seifert R, Gershon R, & London K., *How Waivers Work: ACA Section 1332 and Medicaid Section 1115. Policy Brief*, October 2015., https://www.cthealth.org/wp-content/uploads/2015/10/R2T-Policy-Briefs-2.0-How-Waivers-Work-FINAL-2.pdf.
[11] *See HHS Approves Groundbreaking Medicaid Initiatives in Massachusetts and Oregon,* U.S. CTRS. FOR MEDICARE & MEDICAID SERVS., https://www.cms.gov/newsroom/press-releases/hhs-approves-groundbreaking-medicaid-initiatives-massachusetts-and-oregon. (last visited Feb. 17, 2023).

to consume a dietary pattern in alignment with the *Dietary Guidelines.*

A. Retail Food Environment

The *Dietary Guidelines* was an important input used to create the *Food Service Guidelines for Federal Facilities,* a set of standards for food and nutrition, facility efficiency, environmental support, community development, food safety, and behavioral design.[12] These guidelines can be adapted for use in other settings such as hospitals and healthcare facilities, colleges and universities, parks, private worksites, and state and local agencies.[13] If used more widely in public and private food service venues (e.g., cafeterias, cafes, snack bars, concession stands, and vending machines), offerings of healthier foods and beverages would reach more Americans.

B. Regulatory Action

Regulatory action can be a tool for facilitating industry innovation and empowering consumers to make healthy choices. The U.S. Food and Drug Administration ("FDA") has regulatory authority over the labeling of most packaged foods, including nutrition information, ensuring all populations can make informed food choices.[14] Examples of impactful FDA regulatory actions in the last decade include essentially removing Partially Hydrogenated Oils (i.e., artificial t*rans* fats) from the food supply, updating the Nutrition Facts label, including mandating added sugars declaration, establishing and implementing menu and vending machine labeling requirements, and issuing guidance on short-term voluntary sodium reduction targets for industry.[15] Developing a front-of-package labeling system and updating the criteria for when companies can use the claim "healthy" on food products—actions in the National

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[12] *See* U.S. DEP'T OF HEALTH & HUM. SERV., FOOD SERVICE GUIDELINES FOR FEDERAL FACILITIES (2017).
[13] *See Id.*
[14] *See Guidance for Industry: Food Labeling Guide,* U.S. DEP'T AGRIC. (Jan. 2013), https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-food-labeling-guide; *Changes to the Nutrition Facts Label,* U.S. DEP'T AGRIC., https://www.fda.gov/food/food-labeling-nutrition/changes-nutrition-facts-label (last visited Feb. 17, 2023).
[15] *See Trans Fat*, U.S. DEP'T AGRIC., https://www.fda.gov/food/food-additives-petitions/trans-fat (last visited Feb. 6, 2023); *FDA's Nutrition Initiatives*, U.S. DEP'T AGRIC., https://www.fda.gov/food/food-labeling-nutrition/fda-nutrition-innovation-strategy. (last visited Feb. 17, 2023).

Strategy—provide additional opportunities for regulatory action to improve the healthfulness of the food supply and nutrition literacy.

C. Nutrition Education

Nutrition education and communication provide actionable guidance, tools, and other resources to meet consumers "where they are" and help them to make informed decisions.[16] Americans are faced with a constant barrage of conflicting, provocative nutrition "clickbait headlines" and often-counterproductive food industry marketing.[17] Further, there is a current epidemic of misinformation continuously being spread by social media influencers, unreliable online sources, and news outlets, whose headlines sometimes stretch the truth to grab attention.[18]

Scientifically grounded messages through mass media and public education campaigns can be highly effective at increasing awareness and achieving favorable individual and population-level behavior changes.[19] It is important to note, however, that unlike "Click It or Ticket" as a slogan to motivate seatbelt wearing, diet-related behavioral change is not a simple, single action.[20] Nutrition intake and the decisions people make to determine what they eat and drink are complicated and highly personal. Thus, federal efforts in this area must be culturally sensitive and nuanced.

Unfortunately, federal communication campaigns lack the necessary funding to effectively reach and help the public make beneficial dietary changes.[21] As noted in the National Strategy, the Biden-Harris Administration will work with Congress to lead a national campaign to boost awareness of healthy eating recommendations and support all Americans in making healthy choices.[22] Federal nutrition efforts could put consumer nutrition guidance and tools in the context of MyPlate, the translation of the *Dietary Guidelines* that serves expressly as a common healthy eating

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[16] *See Dietary Guidelines, supra* note 2.
[17] *See* Chioma Ihekqeazu, *Is Coffee the Cause or the Cure? Conflicting Nutrition Messages in Two Decades of Online 'New York Times' Nutrition News Coverage,* 38 HEALTH COMMUNICATION, 260, 265 (2021); Jennifer L. Harris ET AL., FAST FOOD FACTS 2021, 41-45 (UConn Rudd Ctr. for Pol'y and Obesity, 2021), https://media.ruddcenter.uconn.edu/PDFs/FACTS2021.pdf.
[18] Vosoughi S, et al. *The spread of true and false news online*, 359 SCIENCE 1146 (2018).
[19] Melanie A. Wakefield et al., *Use of Mass Media Campaigns to Change Health Behaviour,* 376 THE LANCET 1261, 1261 (2010).
[20] *See Id.* at 1267.
[21] *See Id.* at 1261.
[22] *See National Strategy, supra* note 1.

resource for consumers, with consumer-tested tools that can be personalized for every life stage.[23]

Pillar IV: Support Physical Activity for All

Along with healthy eating, regular physical activity is strongly and positively correlated with a variety of health outcomes.[24] Similar to the *Dietary Guidelines*, the *Physical Activity Guidelines for Americans* is evidence-based and is updated regularly (every ten years, with a five-year interim report) but also does not have dedicated funding to support Guideline development.[25] The *Physical Activity Guidelines* provides information on the amounts and types of physical activity Americans need to get and stay healthy.[26] HHS leads the development of the *Physical Activity Guidelines* and information is woven into the *Dietary Guidelines* to emphasize the importance of including both healthy eating and regular physical activity into one's routine. Like expanding implementation of the *Dietary Guidelines*, increasing the use of the *Physical Activity Guidelines* will require efforts across the federal government as well as work from all sectors of society. Supporting increased physical activity for all includes expanding access to safe places to be active involving improvements to the built environment and active transportation, increasing opportunities to be active for youth at school, and increasing the knowledge and awareness of the importance of regular physical activity across life stages.

Pillar V: Enhance Nutrition and Food Security Research

Addressing diet-related chronic health conditions begins with research to better understand the relationship between diet and health. For example, one of the principal gaps identified through the *Dietary Guidelines* is our understanding of social determinants of health to advance health equity.[27] HHS is committed to enhancing diversity and inclusion in nutrition, health, and food security research.[28] For example, the National Institutes of Health (NIH) created a Common Fund Community Partnerships to Advance Science for Society ("ComPASS") Program to develop a health

[23] *See Dietary Guidelines, supra* note 2.
[24] *See Id.* at 94.
[25] *See* U.S. DEP'T OF HEALTH & HUMAN SERVS., PHYSICAL ACTIVITY GUIDELINES FOR AMERICANS 18 (2d ed. 2018).
[26] *See Id.* at 2.
[27] *See Id.* at 19.
[28] *See Id.* at 32.

equity research model for community-led, multisectoral structural intervention research across NIH and other federal agencies.[29] Recently, HHS and USDA announced the 2025 Dietary Guidelines Advisory Committee, with a membership that is reflective of diversity in the United States.[30] The Committee will broaden the perspectives brought to review the current body of nutrition science supporting the next edition of the *Dietary Guidelines*.

A. Nutrition Surveillance and Monitoring

There are vast disparities in the access, availability, and affordability of healthy foods.[31] Federally funded monitoring and surveillance can help to identify these gaps and draw increased attention to where resources are needed most.[32] Surveillance tools (often co-funded from multiple federal agencies) are used to examine the state of the American diet (i.e., how closely diets align with *Dietary Guideline*s) and assess the success of federal initiatives.[33] One data source is the National Health and Nutrition Examination Survey (or "NHANES"), a program of studies designed to assess the health and nutritional status of adults and children in the United States. It is conducted by Centers for Disease Control and Prevention's National Center for Health Statistics, with funding from several federal agencies on various components.[34]

B. Tracking Progress

Measuring the success of the Administration's goals can be tracked through several Healthy People objectives: (1) improving the diet quality of all Americans, (2) reducing food and nutrition insecurity, and (3) reducing the proportion of Americans with overweight and obesity.[35]

Healthy People 2030 provides science-based objectives with targets to monitor progress using publicly available, valid, reliable,

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[29] *See Id.* at 32-33.
[30] *See Id.* at 33.
[31] *See Access to Foods That Support Healthy Dietary Patterns,* OFF. OF DISEASE PREVENTION & HEALTH PROMOTION, https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/access-foods-support-healthy-dietary-patterns. (last visited Feb. 17, 2023).
[32] *See National Strategy, supra* note 1.
[33] *See Id.* at 34-35.
[34] *About NHANES*, CTR. FOR DISEASE CONTROL & PREVENTION (Dec. 20, 2022), https://www.cdc.gov/nchs/nhanes/about_nhanes.htm.
[35] *See Nutrition and Healthy Eating,* OFF. OF DISEASE PREVENTION & HEALTH PROMOTION, https://health.gov/healthypeople/objectives-and-data/browse-objectives/nutrition-and-healthy-eating (last visited Feb. 17, 2023).

and nationally representative data sources.[36] Using the specific targets set by the Nutrition and Weight Status Workgroup (which are based on the *Dietary Guidelines*), interim progress can be measured throughout the decade.[37]

Conclusion

Everyone has an important role to play in ending hunger and increasing healthy eating and physical activity. This includes local, State, territorial, and Tribal governments; Congress; the private sector; civil society; agricultural workers; food distributors; philanthropists; academics; and of course, the federal government.[38] Through widespread implementation of the *Dietary Guidelines* across federal programs and by multiple sectors, we can collectively advance actions within each pillar of the National Strategy, increase healthy eating for all Americans, and control the extraordinary epidemic of diet-related chronic disease.

[36] *See About the Objectives*, OFF. OF DISEASE PREVENTION & HEALTH PROMOTION, https://health.gov/healthypeople/objectives-and-data/about-objectives (last visited Feb. 17, 2023).
[37] *See, Nutrition and Status Workgroup,* OFF. OF DISEASE PREVENTION & HEALTH PROMOTION, https://health.gov/healthypeople/about/workgroups/nutrition-and-weight-status-workgroup#about (last visited Feb. 17, 2023).
[38] *See National Strategy, supra* note 1.

Climate Change, Food Security, and the Myth of Unlimited Abundance

Susan A. Schneider*

The Biden-Harris White House can be commended for convening the historic White House Conference on Hunger, Nutrition, and Health highlighting the critical connections between access to healthy food and sustaining a healthy population.[1] Similarly, this administration can be praised for its separate recognition of climate change as an existential threat and its efforts to reduce greenhouse gases.[2] However, the White House Conference failed to consider the impact that climate change will have on the issues of hunger, nutrition, and health. This article explores this impact and seeks to fill a critical gap in the national discussion. It argues that dramatic changes are needed in the way we think about domestic food security and that meaningful change will be required to assure an adequate supply of healthy food, as envisioned by the White House Conference.

Much of the focus of current climate change policy is on ways to reduce our impact. Public-private partnerships, incentives, regulations, and other policy tools are critical to our efforts to reduce greenhouse gases and mitigate the harm caused to our ecosystem. This article supports these vital initiatives but does not address them. Rather, it explores the impact of the changes to the climate that are already in motion and argues that there is an immediate need to prepare for the impact, even as we attempt to reduce further harm.

Climate change will likely prove to be the most devastating disruption to food security that the modern world has ever seen. It has already begun to impact food production, and it is a threat global

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[1] *White House Conference on Hunger, Nutrition, and Health, Washington, D.C.* (September 28, 2022), https://health.gov/our-work/nutrition-physical-activity/white-house-conference-hunger-nutrition-and-health.

[2] *See, e.g.,* Exec. Order No. 14008 (Jan. 27, 2021), *reprinted as* 86 Fed. Reg. 7619 (Feb. 1, 2021) (acknowledging the "profound climate crisis" and stating that "we have a narrow moment to pursue action").

food security. This is not just a problem for developing countries; it is a looming threat to agricultural food crops in the U.S., risking our supply of healthy foods and raising food prices far above current levels.

This article outlines the direct impact of climate change on food production. Accentuating the danger of this impact, it explores the U.S. dependency on concentrated production areas that are particularly vulnerable to climate change. It then reveals the lack of coordinated federal policies to protect our food system, calling into question the American myth of unlimited agricultural abundance that underlies agricultural policy. The article concludes with a call for a radical realignment of our attitude and policies regarding food.

I. The Direct Impact of Climate Change

In 2018, the United States Department of Agriculture (USDA) National Climate Assessment concluded:

> Rising temperatures, extreme heat, drought, wildfire on rangelands, and heavy downpours are expected to increasingly disrupt agricultural productivity in the United States. Expected increases in challenges to livestock health, declines in crop yields and quality, and changes in extreme events in the United States and abroad threaten rural livelihoods, sustainable food security, and price stability.[3]

Climate change impacts have only increased since this assessment.[4]

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[3] U.S. GLOB. CHANGE RSCH. PROGRAM, *Climate Change, Global Food Security, and the U.S. Food System*, U.S. DEP'T OF AGRIC., UNIV. CORP. FOR ATMOSPHERIC RSCH., NAT'L CTR FOR ATMOSPHERIC RSCH. (Dec. 2015), https://www.usda.gov/sites/default/files/documents/FullAssessment.pdf.

[4] Jeff Tollefson, *Climate Change Is Hitting The Planet Faster Than Scientists Originally Thought,* NATURE (Feb. 28, 2022), https://www.nature.com/articles/d41586-022-00585-7 (reporting on an IPCC climate report that warns that "rising greenhouse-gas emissions could soon outstrip the ability of many communities to adapt").

Climate change has already had a devastating impact on food production worldwide.[5] While mid- and low latitude regions have experienced the most negative impact to date, as the planet continues to warm, there is a looming threat to global food production, including U.S. food production. This puts our domestic food security at risk.[6] This initial section of the article introduces the six ways in which climate change directly hampers food production. Each is anticipated to increase in its negative impact as climate change becomes more pronounced. These six direct negative impacts are: 1) elevated temperatures impairing crop and livestock production; 2) the increased incidence of extreme weather causing increased damage to crops and livestock; 3) climate change-influenced conditions reducing the nutritive value of crops produced; 4) an increase in the range and damage associated with agricultural insect pests and diseases; 5) warmer temperatures and erratic weather events increasing the vulnerability of vital pollinators; and 6) sea level rise and the salinization of coastal soils reducing coastal agricultural acreage and productivity.

A. Elevated temperatures impair crop and livestock production.

The Climate Change Indicators posted by the Environmental Protection Agency (EPA) reveal that since the 1979, average temperatures in the contiguous forty-eight states of the U.S. have risen 0.32 to 0.55°F per decade.[7]

> Since 1896, average winter temperatures across the contiguous 48 states have increased by nearly 3°F. Spring temperatures have increased by about 2°F,

[5] Ariel Ortiz-Bobea et al., *Anthropogenic Climate Change Has Slowed Global Agricultural Productivity Growth*, 11 NATURE CLIMATE CHANGE 306 (2021) (finding that anthropogenic climate change has reduced global agricultural productivity growth by 21% since 1961).

[6] U.S. GLOB. CHANGE RSCH. PROGRAM, *supra* note 3.

[7] *Climate Change Indicators: U.S. and Global Temperature*, ENV'T. PROT. AGENCY, https://www.epa.gov/climate-indicators/climate-change-indicators-us-and-global-temperature (last visited Mar. 30, 2023).

> while summer and fall temperatures have increased by about 1.5°F.[8]

This is consistent with the increase in temperatures documented globally. The National Oceanic and Atmospheric Administration's (NOAA), survey of "Climate by the Numbers" provides:

> Earth's average land and ocean surface temperature in 2022 was 1.55 degrees F (0.86 of a degree C) above the 20th-century average of 57.0 degrees F (13.9 degrees C) — the sixth highest among all years in the 1880-2022 record.
>
> It also marked the 46th-consecutive year (since 1977) with global temperatures rising above the 20th-century average. The 10-warmest years on record have all occurred since 2010, with the last nine years (2014-2022) among the 10-warmest years.[9]

In our Northern Hemisphere, "surface temperature was also the sixth highest in the 143-year record at 1.98 degrees F (1.10 degrees C) above average."[10]

This increase in temperature has extended the average length of the growing season in all but two states within the contiguous United States.[11] The growing season has increased more than two weeks since 1901 with a "particularly large and steady increase" over the last 30 years."[12]

Some northern regions welcome the longer growing season. However, it comes with countervailing costs. Rising temperatures increase the volatility of weather patterns, making weather prediction increasingly difficult.[13] Pests, pathogens, and invasive species increase because the longer growing season allows for additional

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[8] *Id.*
[9] *2022 Was the World's 6th-Warmest Year on Record*, DEP'T OF COM., NAT. OCEANIC & ATMOSPHERIC ADMIN. (Jan. 12, 2023), https://www.noaa.gov/news/2022-was-worlds-6th-warmest-year-on-record.
[10] *Id.*
[11] *Climate Change Indicators: U.S. and Global Temperature*, *supra* note 7, (last visited Mar. 30, 2023) (referencing exceptions for Alabama and Georgia).
[12] *Id.*
[13] Josie Garthwaite, *Climate of Chaos: Stanford Researchers Show Why Heat May Make Weather Less Predictable*, STANFORD NEWS (Dec. 14, 2021), https://news.stanford.edu/2021/12/14/warming-makes-weather-less-predictable/.

generations, often without winter die-off.[14] And the hotter temperatures during the extended season are problematic, even in the north.[15] Elevated temperatures have been shown to reduce global crop yields for major row crops.[16] Warmer temperatures increase evaporation, drying out soil and vegetation, increasing the need for rainfall or irrigation and increasing the risk and severity of drought.[17] Increased heat and drought risk is predicted to impact cropping patterns, "displacing existing growers and affecting farming communities."[18]

Consider the following specific crop concerns associated with the increasing temperatures during the growing season:

- Heat stress during pollination can negatively impact fertilization and reduce production. For example, heat stress during pollination can impact fertilization and cause "kernel abortion," reducing the number of seeds that develop on the plant; temperatures above 93 degrees F. have "severe impacts on pollen viability" of small grains.[19] Similarly, corn pollen is "no longer viable once temperatures reach the mid 90's or

[14] Renee Cho, *How Climate Change Will Affect Plants*, STATE OF THE PLANET, COLUMBIA CLIMATE SCH. (Jan. 27, 2022), https://news.climate.columbia.edu/2022/01/27/how-climate-change-will-affect-plants/.

[15] For example, a 2020 Minnesota Extension Service blog discussed the problems that heat stress causes in small grain pollination. *See* Jared Goplen & Jochum Wiersma *Heat Stress on Small Grains*, MINN. CROP NEWS, UNIV. OF MINN. EXTENSION SERV. (June 24, 2020), https://blog-crop-news.extension.umn.edu/2020/06/heat-stress-on-small-grains.html.

[16] *See* Chuang Zhao et al., *Temperature Increase Reduces Global Yields of Major Crops in Four Independent Estimates*, 114 PNAS No. 35 (Aug. 15, 2017), https://www.pnas.org/doi/full/10.1073/pnas.1701762114, (finding a reduction in wheat, rice, maize, and soybean crops).

[17] *See Megadrought in Southwest is Now the Worst in 1200 Years*, COLUMBIA CLIMATE SCH. (Feb. 14, 2022), https://news.climate.columbia.edu/2022/02/14/megadrought-in-southwest-is-now-the-worst-in-at-least-1200-years-study-confirms/ (last visited Apr. 3, 2023).

[18] *See* Emile Elias et al., *Southwest Regional Climate Hub and California Subsidiary Hub Assessment of Climate Change Vulnerability and Adaptation and Mitigation Strategies*, 14, U.S. DEP'T OF AGRIC. (Aug. 2015), https://www.fs.usda.gov/research/treesearch/49341 (hereinafter, *2015 Southwest Regional Assessment*).

[19] Goplen & Wiersma, *supra* note 15.

> greater, especially with low relative humidity."[20]
>
> - Many crops depend on nighttime cooling periods that will not be met as temperatures rise. For example, high nighttime temperatures lower corn yield, reducing the kernel numbers produced and the weight of the kernels.[21]
>
> - Many perennial crops depend on "winter chilling" periods that are predicted to decrease below that necessary for production. For example, the winter chill periods for many California fruit and nut trees are projected to fall below that which is needed, resulting in lower yields and making some crops unviable.[22]

Elevated temperatures increase evaporation rates, exacerbating drought conditions. This was exemplified by conditions in the summer of 2022 when drought and elevated temperatures impacted large areas of the U.S. In September 2022, the Washington Post reported on the "hefty toll" that heat and drought had taken on U.S. agricultural crops, leading with the statement that 2022 "was a bad year for corn. And for tomatoes. And for many other crops."[23]

Similar problems are experienced in livestock production, with increasing production concerns apparent. Livestock productivity and health declines as heat stress disrupts animals' metabolisms.

> At higher temperatures, [cattle] reduce their feed intake by 3–5% per additional degree of temperature, reducing productivity. Heat stress

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[20] *See, e.g.*, *Corn Pollination: Effect of High Temperature and Stress,* IOWA STATE UNIV. EXTENSION & OUTREACH, https://crops.extension.iastate.edu/encyclopedia/corn-pollination-affect-high-temperature-and-stress (last visited Apr. 16, 2023) (discussing drought and heat stress in corn).

[21] *See, e.g.*, *Nighttime Temperatures Impact Corn Yield*, C.O.R.N. NEWSL., AGRONOMIC CROPS NETWORK, OHIO STATE UNIV., https://agcrops.osu.edu/newsletter/corn-newsletter/2018-24/night-temperatures-impact-corn-yield (last viewed Apr. 2, 2023) (discussing the importance of nighttime temperature ranges to corn production).

[22] *2015 Southwest Regional Assessment*, *supra* note 18 at 14.

[23] Laura Riley, *The Summer Drought's Hefty Toll on American Crops,* WASH. POST (Sept. 5, 2022), https://www.washingtonpost.com/business/2022/09/05/crops-climate-drought-food/ (addressing heat and drought conditions).

> increases respiration and mortality, reduces fertility, modifies animal behaviour, and suppresses the immune and endocrine system, thereby increasing animal susceptibility to some diseases. These changes can affect the economic performance of dairy and beef production systems.[24]

As a tragic example, in the summer of 2022, in Kansas, "thousands of cattle in feedlots in southwestern Kansas [] died of heat stress due to soaring temperatures, high humidity and little wind."[25]

Poultry are particularly vulnerable to heat stress, with severe implications for both egg and meat production. High temperatures have been found to cause a "decrease in growth rate, body weight, egg production, egg weight, egg quality, meat quality, semen quality, fertility and hatchability. . . Additionally, heat burden during transportation of birds from one place to another leads to reduced meat quality, increased mortality and welfare issues."[26] Recent commercial genetic selection strategies focused maximum production and feed efficiency have actually made poultry flocks more susceptible to heat stress.[27]

Pigs are also extremely sensitive to heat stress, with impacts that include reduced feed intake and growth, infertility, health problems for sows during pregnancy, reduced litters, reduced piglets surviving, decreased milk production in lactating sows (reducing piglet health and growth), and increased mortality.[28]

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[24] Phillip Thornton et al., *Impacts of Heat Stress on Global Cattle Production During The 21st Century: A Modelling Study*, 6 THE LANCET 192 (Mar. 2022).
[25] Roxana Hegeman, *Heat Stress Blamed for Thousands of Cattle Deaths in Kansas*, U.S. NEWS & WORLD REP. (June 16, 2022), https://www.usnews.com/news/us/articles/2022-06-16/heat-stress-blamed-for-thousands-of-cattle-deaths-in-kansas.
[26] Manoj Kumar et al., *Climate Change and Heat Stress: Impact On Production, Reproduction And Growth Performance Of Poultry and Its Mitigation Using Genetic Strategies,* 97 J. THERMAL BIOLOGY 102,867, 1 (2021).
[27] *Id*., at 5.
[28] *Heat Stress in Swine Affects Production*, UNIV. OF MINN. EXTENSION SERV. (2019), https://extension.umn.edu/swine-production-management/heat-stress-swine-affects-production#effects-on-the-breeding-herd-255311. *See also*, Ann Hess, *Improving Heat Stress Resilience Should Be Priority For Swine Industry,* NAT'L HOG FARMER (July 18, 2022), https://www.nationalhogfarmer.com/animal-health/improving-heat-stress-resilience-should-be-priority-swine-industry (discussing research on financial losses associated with heat stress in hog populations).

B. Extreme weather events have increased because of climate change.

"Extreme weather events" which include extreme heat, severe drought, heavy precipitation, flooding, and high winds have increased dramatically due to climate change. They "have more than doubled in frequency over the last 25 years."[29] The National Oceanic and Atmospheric Administration's monitoring of "Billion Dollar Weather and Climate Disasters" documents this increase.

> In 2021, there were twenty weather/climate disaster events with losses exceeding $1 billion each to affect the United States. These events included one drought event, two flooding events, eleven severe storm events, four tropical cyclone events, one wildfire event, and one winter storm event. Overall, these events resulted in the deaths of 724 people and had significant economic effects on the areas impacted. The 1980–2021 annual average is 7.7 events (CPI-adjusted); the annual average for the most recent five years (2017–2021) is 17.8 events (CPI-adjusted).[30]

In 2022, there were eighteen "billon dollar" disasters, including the record drought that impacted many areas of prime agricultural production.

> Drought coverage across the contiguous U.S. remained significant for the second year in a row, with a minimum extent of 44% occurring on September 6 and a maximum coverage of 63% on October 25 — the largest contiguous U.S. footprint since the drought of 2012.

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[29] Chase Sova et al., *Climate Change and Food Security: A Test of World Leadership in a Fragile World*, CTR FOR STRATEGIC & INT'L STUD. (October 15, 2019), https://www.csis.org/analysis/climate-change-and-food-security-test-us-leadership-fragile-world.

[30] *Billion-Dollar Weather and Climate Disasters*, NAT'L CTRS FOR ENV'T. INFO., DEP'T OF COM., NAT'L OCEANIC ATMOSPHERIC ADMIN., https://www.ncei.noaa.gov/access/billions/ (last viewed Apr. 2, 2023).

> In the western U.S., drought conditions reached a peak coverage of 91.3% of the region on May 3. Drought coverage across the West shrank as the summer monsoon reduced some of the coverage in the Southwest. The multi-year western U.S. drought resulted in water stress/shortages across many locations in 2022 as some major reservoirs dropped to their lowest levels on record.[31]

In addition to drought, in 2022, the U.S. had billion-dollar wildfires, flooding, tornadoes, tropical cyclones, winter storms, and severe wind/hail, including a derecho event in the central U.S for a total estimated damage cost of $165 billion.[32]

As climate change increases, these extreme events are predicted to continue to become more frequent.

> With increasing global surface temperatures, the possibility of more droughts and increased intensity of storms will likely occur. As more water vapor is evaporated into the atmosphere it becomes fuel for more powerful storms to develop. More heat in the atmosphere and warmer ocean surface temperatures can lead to increased wind speeds in tropical storms. Rising sea levels expose higher locations not usually subjected to the power of the sea and to the erosive forces of waves and currents.[33]

C. Food crops grown in climate change-influenced conditions have less nutritive value.

An increased level of carbon dioxide in the atmosphere, as is associated with climate change, can increase the growth rate of

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[31] *Record Drought Gripped Much of the U.S. in 2022*, NAT'L OCEANIC ATMOSPHERIC ADMIN. (Jan. 10, 2023), https://www.noaa.gov/news/record-drought-gripped-much-of-us-in-2022.
[32] *Id*.
[33] *How Can Climate Change Affect Natural Disasters*, U.S. GEOLOGICAL SOC'Y, https://www.usgs.gov/faqs/how-can-climate-change-affect-natural-disasters (last viewed Apr. 3, 2023); *see also, Extreme Weather and Climate Change*, CTR FOR CLIMATE & ENERGY SOL., https://www.c2es.org/content/extreme-weather-and-climate-change/ (last viewed Apr. 3, 2023).

some plants.[34] However, studies have also shown that increased levels of ozone and carbon dioxide, combined with increases in temperature, cause a marked decrease in the food quality and the nutritive values of crops produced.[35] Crops grown under elevated atmospheric CO2 concentrations are found to contain less protein; crops particularly affected include rice and wheat, important sources of dietary protein.[36]

> With elevated CO2, protein concentrations in grains of wheat, rice and barley, and in potato tubers decreased by 10 to 15 percent in one study. Crops also lose important minerals including calcium, magnesium, phosphorus, iron, and zinc. A 2018 study of rice varieties found that while elevated CO2 concentrations increased vitamin E, they resulted in decreases in vitamins B1, B2, B5 and B9.[37]

Additional studies have confirmed the loss of protein and found diminishing levels of zinc and iron in food crops raised at higher CO2 levels.[38] "[R]ecent research has shown that with highly elevated concentrations of atmospheric carbon dioxide (CO2), iron and zinc content in plants could fall by as much as 17 percent, accompanied by an increase in starches and sugar production in plants."[39]

> Livestock feed is also impacted. As the EPA notes:
>
> Elevated CO2 has also been associated with reduced protein and nitrogen content in alfalfa and soybean

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[34] Cho, *supra* note 14.

[35] Helena B. Evich, *The Great Nutrient Collapse*, POLITICO (Sept. 13, 2017), https://www.politico.com/agenda/story/2017/09/13/food-nutrients-carbon-dioxide-000511/. *See also*, 2018 NATIONAL CLIMATE ASSESSMENT, *Ch. 25 Southwest*, at 1127 (associating elevated temperatures with crop failures, reduced yields, and reduced quality).

[36] Danielle E. Medek et al., *Estimated Effects of Future Atmospheric CO2 Concentrations on Protein Intake and the Risk of Protein Deficiency by Country and Region,* 125 ENV'T HEALTH PERSP. (Aug. 2, 2017).

[37] Cho, *supra* note 14.

[38] *Climate Change and Nutrition*, HARVARD T.H. CHAN SCH. OF PUB. HEALTH https://www.hsph.harvard.edu/c-change/subtopics/climate-change-nutrition/ (citing "Research led by Sam Myers, Director of the Planetary Health Alliance at the Harvard Chan School, [that] found that when food crops like wheat, corn, rice and soy are exposed to CO2 at levels predicted for 2050, the plants lose as much as 10% of their zinc, 5% of their iron, and 8% of their protein content.").

[39] Sova *supra* note 29 (citing Matthew Smith & Samuel Myers, *Impact of Anthropogenic CO2 Emissions on Global Human Nutrition*, 8 NATURE CLIMATE CHANGE 834-39 (2018)).

> plants, resulting in a loss of quality. Reduced grain and forage quality can reduce the ability of pasture and rangeland to support grazing livestock.[40]

Elevated CO2 levels are similarly linked to a decline in protein concentration in goldenrod, a very important source of food for bees.[41]

D. Damage from agricultural insect pests is increasing because of climate change.

Increased pest damage is another consequence of climate change that impacts food production. Warmer temperatures, particularly in the winter, allow agricultural pests to thrive, with some pests surviving year-round and new pests and diseases emerging.

> Changes in climate can affect insect pests in several ways. They can result in an expansion of their geographic distribution, increased survival during overwintering, increased number of generations, altered synchrony between plants and pests, altered interspecific interaction, increased risk of invasion by migratory pests, increased incidence of insect-transmitted plant diseases, and reduced effectiveness of biological control, especially natural enemies. As a result, there is a serious risk of crop economic losses, as well as a challenge to human food security.[42]

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[40] *Climate Impacts on Agriculture and Food Supply*, CITY OF CHICAGO, ENV'T. PROT. AGENCY (citing Jerry Hatfield et. al., THIRD NATIONAL CLIMATE ASSESSMENT, 2014), https://climatechange.chicago.gov/climate-impacts/climate-impacts-agriculture-and-food-supply.

[41] Holly Holt, *Global Warming*, DEP'T OF ENTOMOLOGY, PENN STATE COLL. OF AGRIC. SCI., https://ento.psu.edu/research/centers/pollinators/resources-and-outreach/disappearing-pollinators/global-warming, (citing L.H. Liska, et al, *Rising Atmospheric CO2 Is Reducing the Protein Concentration of a Floral Pollen Source Essential For North American Bees,* PROC. R. SOC. B BIOL. SCI. 283, 20160414 (2016)).

[42] Sandra Skendžić et al., *The Impact of Climate Change of Agricultural Insect Pests*, INSECTS (May 2021), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8150874/.

As one concrete example, researchers at the University of California Davis found that the codling moth, a common agricultural pest of fruit and nut orchards may increase its lifespan from two to three or even four generations per year because of the long, warm summers and late, mild winters associated with climate change.[43]

E. The vulnerability of vital pollinators is exacerbated by climate change.

According to the USDA, "three-quarters of the world's flowering plants and about 35% of the world's food crops depend on animal pollinators to reproduce."[44] Over 100 U.S. crops, including some of our most healthy food crops, depend on pollinators.[45] "Pollination services from honeybees and other insects provide the backbone to ensuring our diets are diverse and plentiful with fruits, nuts, and vegetables."[46] The well-being of these insects is critical to "U.S. agriculture, food security, and the Nation's overall economy."[47] They "add tens of billions of dollars to the value of agricultural crops annually."[48] Many specialty crops including "almonds, cherries, and watermelons are completely dependent on insect pollination."[49]

Pollinator populations have declined drastically in recent years, due to a variety of physical stresses including pesticides, pathogens, and habitat loss.[50] Extreme weather and rising temperatures from climate change are now providing even further

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[43] *See 2015 Southwest Regional Assessment*, *supra* note 18 at 14. *See also*, Cho, *supra* note 14.

[44] *The Importance of Pollinators*, U.S. DEP'T OF AGRIC., https://www.usda.gov/peoples-garden/pollinators (last visited Apr. 3, 2023).

[45] Casey C. Keel, *The Buzz about Pollinators*, U.S. DEP'T OF AGRIC. (June 22, 2022), https://www.usda.gov/media/blog/2022/06/22/buzz-about-pollinators.

[46] U. S. DEP'T OF AGRIC., POLLINATORS, https://www.usda.gov/pollinators (last visited Apr. 15, 2023).

[47] *USDA Annual Strategic Pollinator Priorities Report,* OFFICE OF THE CHIEF SCIENTIST, U.S. DEP'T OF AGRIC. (2022), https://www.usda.gov/sites/default/files/documents/annual-pollinator-report-2022.pdf.

[48] *Id*.

[49] *2015 Southwest Regional Assessment*, *supra* note 18 at 14.

[50] *Disappearing Pollinators,* DEP'T OF ENTOMOLOGY, PENN STATE COLL. OF AGRIC. SCI., https://ento.psu.edu/research/centers/pollinators/resources-and-outreach/disappearing-pollinators (last visited Apr. 3, 2023).

stress to these vulnerable populations. Warmer temperatures are shifting the growing and the blooming seasons for many of the plants that the pollinators depend on.[51] This disrupts the pollinator's life cycle and can result "in a mismatch in pollinator availability and crops to be pollinated.[52] Weather stresses also can negatively impact the "quantity and quality of nectar and pollen" produced by plants.[53] Pollinator health can also be directly impacted by changing environmental conditions.

> For example, warmer winters are linked to lower survival of bee species that overwinter as adults. Unseasonably warm winters raise bees' metabolisms. As a result, bees burn more calories and deplete their energy stores at a faster pace. Indeed, bees may emerge earlier in the spring with lower body weight. Altered weather may also signal bees to emerge from quiescent phases when important plant species are not in bloom.[54]

F. Coastal Land Loss

While each of the prior climate change impacts applies in varying degrees across the country, coastal areas are distinctly vulnerable to sea level rise (SLR), one of the most widely recognized effects of climate change. Coastal areas are impacted by the direct loss of land to rising sea levels and to damage to adjacent land due to salt-water intrusion and increased soil salinity.[55] The eastern and southeastern regions are particularly vulnerable.

Recent studies on the Mid-Atlantic region of Maryland and Virginia show that SLR is already making "chronic change to the

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[51] *Pollinators and Climate Change*, NAT'L PARK SERV., https://www.nps.gov/articles/000/pollinators-climateimpact.htm (last visited Apr. 3, 2023).

[52] C.M Goode et al., *Impacts Of Climate Change On The Livestock Food Supply Chain; A Review Of The Evidence,* 28 GLOB. FOOD SEC. 100488, at § 2.114 (Mar. 2021).

[53] Holt, *supra* note 41.

[54] *Id.*

[55] *See generally*, Sadat Mazhar et al., *Impacts of Salinization Caused by Sea Level Rise on The Biological Processes Of Coastal Soils - A Review,* 10 J. FRONTIERS IN ENVTL. SCI. (2022).

landscape."[56] The USDA Northeast Climate Hub reports that "[s]altwater flooding, due to sea level rise and more frequent and intense storm events, has become an increasing problem for farmers near coastal lands."[57]

The Southeast Climate Hub describes soil salinization in the region as "becoming more prevalent as storm surges increase in frequency and sea level rises."[58] Salinization "reduces the productivity of working lands and can prevent crops from growing."[59] The outlook for coastal farmland in the southeast is concerning.

> Salinization is expected to increase in vulnerable areas as sea levels continue to rise. Rising sea levels will inundate lands, increase tide and storm surge levels, and push salt water farther inland through ditches and tidal creeks. Natural leaching of salts from soils is expected to decrease as precipitation patterns change to less frequent, but more intense storms, and longer periods of drought. Working land profitability using traditional management practices is expected to decline with increasing soil salinity.[60]

G. Conclusion

As demonstrated throughout this section, the threats to agricultural production, and by extension to our food system because of climate change are significant, with some already being realized. The impact will increase, even under the most optimistic scenarios.

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[56] Taryn A. Sudol et al., *Resisting-Accepting-Directing Sea Level Rise on the Chesapeake Bay: Agricultural Producers' Motivations and Actions,* 332 J. ENVTL MGMT. (2023).

[57] *Minimizing the Impacts of Saltwater Flooding on Farmland in the Eastern U.S.,* NORTHEAST CLIMATE HUB, U.S. DEP'T OF AGRIC., https://www.climatehubs.usda.gov/hubs/northeast/topic/minimizing-impacts-saltwater-flooding-farmland-eastern-us (last visited Mar. 29, 2023).

[58] *Saltwater Intrusion and Salinization on Coastal Forests and Farms,* SOUTHEAST CLIMATE HUB, U.S. DEP'T OF AGRIC., https://www.climatehubs.usda.gov/hubs/southeast/topic/saltwater-intrusion-and-salinization-coastal-forests-and-farms (last visited Mar. 29, 2023).

[59] *Id.*

[60] *Id.*

This creates an urgent need to address climate change but also demands a consideration of ways to mitigate the impact on our food system in an altered world. How do we address the challenges of "hunger, nutrition, and health" in an environment changed by climate change? The next section of this article explores another vulnerability that puts our food system at risk.

II. Food System Vulnerabilities

There are many ways in which current agricultural production and hence, our food system, lack resilience. It's dependence on monocultural production, limited genetic breeds, fossil-fuel based fertilizers and pesticides, and a lack of care for the soil as a vital natural resource are examples. Concentrated and industrialized production, a hallmark of the U.S. food system, offers certain efficiencies but carries much risk. Farmers of a generation ago recognized that diversified production was the best risk protection strategy, yet modern agriculture largely rejected that model for concentrated, specialized production that arguably now leaves us more vulnerable.

In addition to general concerns about the structure of U.S. agriculture, much of the U.S. domestic food supply is produced in areas that are particularly vulnerable to the impacts of climate change. A significant portion of U.S. food production is concentrated on large operations in the southwest, including California, a region that is experiencing a drought of historic proportions and that is already suffering the effects of climate change. This dependency on one of our most successful, but also most vulnerable regions for our food security puts our food system and our nation at risk.

A. The Vulnerability of Geography: California and the Southwest States

California leads the nation in the production of over fifty major food crops including many fruits and vegetables, nuts, and

dairy products (milk).[61] California farmers produce 99-100% of all our almonds, artichokes, celery, garlic, grapes for raisins, kiwifruit, honeydew melons, nectarines, olives, clingstone peaches, pistachios, plums, and walnuts.[62] While some of this production is practically limited to California because of its climate, other crops have shifted from other regions because of market forces, consolidation of production, and a belief in the efficiency of concentrated production. Year-round production is available for many crops, a decided financial advantage over states with harsh winters.

USDA NASS reports that there were 1.2 million areas of vegetables grown in California in 2017, the "largest total acreage for both fresh market and processing vegetables" and 42% of U.S. vegetable sales.[63] NASS Highlights note that "[f]our of the top five U.S. counties in vegetables sales are in California, with Monterey County accounting for 14 percent of the U.S. total (one third of California's). With $2.8 billion in vegetable sales, Monterey County had more vegetable sales than any state except California.[64]

The U.S. currently depends on California and the Southwest for much of the healthy food that we eat. Arizona is also a major source for our nation's vegetables, ranking second in the nation for the production of lettuce (head, leaf and romaine), cantaloupe and spinach.[65] Approximately, ninety percent of leafy green production in the U.S. is in California and Arizona.[66]

In 2015, The Southwest Regional Climate Hub Assessment considered the impact of climate change on the southwest region. It noted:

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[61] *California Agricultural Statistics Review 2021-22*, CAL. DEP'T OF FOOD & AGRIC., 7 (2022), https://www.cdfa.ca.gov/Statistics/PDFs/2022_Ag_Stats_Review.pdf.
[62] *Id.*
[63] *2017 Census of Agriculture: Vegetable Production,* U.S. DEP'T OF AGRIC., NAT'L AGRIC. STAT. SERV., https://www.nass.usda.gov/Publications/Highlights/2019/2017Census_Vegetable_Production.pdf (last visited Mar. 30, 2023).
[64] *Id.*
[65] *Vegetable Crops*, ARIZ. DEP'T OF AGRIC., https://agriculture.az.gov/plantsproduce/what-we-grow/vegetable-crops (last visited March 30, 2023).
[66] Ashley Kerna et al., *Arizona Leafy Greens: Economic Contributions of the Industry Cluster*, AGRIC. & RES. ECON, UNIV. OF ARIZ COLL. OF AGRIC. & LIFE SCI. (2017), https://economics.arizona.edu/arizona-leafy-greens-economic-contributions-industry-cluster.

> Southwestern agriculture is defined by water availability. More than 92 percent of the region's cropland is irrigated, and although the amount of water used varies regionally, agriculture accounts for 79 percent of all water withdrawals in the region. Future water availability depends on the annual distribution of precipitation, the proportion of winter precipitation falling as snow, groundwater resources, and changing urban and agricultural demands for water. . . Water availability may drive transformational shifts. . . Rising temperatures and shifting precipitation patterns, especially in the southern portion of the region, will alter crop-water requirements, crop-water availability, crop productivity, and costs of water access. Higher temperatures will increase losses from both evaporation and transpiration. Detrimental effects on crop health will in turn drive changes in cropland allocations and production systems.[67]

This report warned of many of the direct impacts of climate change noted in the prior section, including reduced yield and/or quality of some crops, some crops may no longer be viable, additional problems with pests.[68]

In 2018, the Fourth National Climate Assessment noted this stark warning as one of its key messages:

> Food production in the Southwest is vulnerable to water shortages. Increased drought, heat waves, and reduction of winter chill hours can harm crops and livestock; exacerbate competition for water among agriculture, energy generation, and municipal uses; and increase future food insecurity.[69]

Insufficient water increases the vulnerability of agriculture in the southwest and western states. The Bureau of Reclamation reports that it provides irrigation water for Western farmers that produce

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[67] *2015 Southwest Regional Climate Assessment, supra* note 18 at 13.
[68] *Id.* at 14.
[69] 2018: IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES: FOURTH NATIONAL CLIMATE ASSESSMENT, Vol. II, Chapter 25, Southwest, U.S. GLOB. CHANGE RSCH. PROGRAM, https://nca2018.globalchange.gov/chapter/25/ (last viewed Apr. 3, 2023).

60% of our nation's vegetables and 25% of its fresh fruit and nut crops.[70] This water source is rapidly diminishing due to warmer, drier weather and reduced precipitation associated with climate change.[71] This presents a looming crisis for our food system.

U.S. consumers can be grateful to farmers in the Southwest for the abundance of their production. However, it is imperative that we acknowledge that it is inevitable that this production will be disrupted and diminished as a result of climate change. Actions must be taken now to minimize the impact of that disruption, protecting our food supply while easing the transition for those farmers communities affected.

Market forces are already leading to change, but market change typically occurs in response to disruption rather than in anticipation. Agriculture, which is land-based and capital intensive cannot shift locations easily or quickly. Current policies that compensate farmers for losses actually worsen the problem because they distort the market influence.

The World Wildlife Funds' Market Institute found the "growing uncertainty in domestic food production as the climate changes as an urgent challenge of our time."

> . . .California's warming climate makes farming there less certain in the future, and the state will likely suffer from more chronic weather (e.g., increased droughts) as well as severe weather (e.g., heavy rains, flooding and freezes) in the future. Fires, while not especially important for annual crops, can pose serious threats to perennials and tree crops as well as infrastructure. The Sierra Nevada mountains are getting less average snowfall and coupled with warmer springs, this is leading to a faster melt and a lack of water by late summer for the third and fourth production cycles of many crops. This is also devastating for California's orchards since it can mean the loss of large trees due

[70] *About US Fact Sheet*, U.S. BUREAU OF RECLAMATION (Feb. 23, 2023), https://www.usbr.gov/main/about/fact.html.

[71] *Climate Change Contributed To Some of 2020's Worst Weather*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Dec. 15, 2021) (reinforcing the consensus that " humans have created a new climate") https://www.noaa.gov/news-release/report-climate-change-contributed-to-some-of-2020s-worst-weather.

> to water stress as opposed to a single planting of row crops. Over time, it is likely that farmers will have to become very efficient to maintain production and, even so, the state will need to decide which crops are going to receive the available water.[72]

The seriousness of this threat is compounded because many of the types of crops grown in the vulnerable southwest region are our most healthy food crops - vegetables, nuts, and fruits. While some of some of these food crops can only be grown in warm, dry climate of the southwest, many can be grown elsewhere. Much of the prime farmland in the Midwest and Plains is now devoted to corn and soybeans that are used for non-human food purposes including ethanol and livestock feed. Because of the investment in equipment, expertise, infrastructure, and processing facilities, and because of consistent government subsidies that favor these commodity crops, any effort to reinvigorate regional food production outside of the southwest will require planning, government incentives, and time.

B. The Vulnerability of Concentration

Recent examples of food production disruptions unrelated to climate change have given consumers a sense of what food shortages feel like and have showcased the dangers of concentrated food production. Each example is tied to a concentrated, consolidated industry and a marketplace that lacks resilience.

- During the peak of the COVID pandemic, when workers in meat processing plants fell ill, production slowed and was briefly halted in our highly concentrated meat and poultry processing facilities. While this did not lead to any shortages, it did back up the supply chain and leave farmers with no place to bring their market-ready animals for slaughter. Hundreds of thousands of healthy animals were "depopulated," i.e., killed, often suffering a cruel death through over-heating when the

[72]Julia Kurnik, *The Next California*, WORLD WILDLIFE FUND (2020), https://c402277.ssl.cf1.rackcdn.com/publications/1306/files/original/The_Next_California_Phase_1_Report_02-27-20.pdf?1582813424.

ventilation system of a concentrated farm facility was shut down.[73] The meat and poultry industries are highly concentrated, with few slaughter options for livestock and poultry producers.[74]

- The closure of the Abbott manufacturing plant in Sturgis, Michigan for serious food safety violations triggered a nationwide shortage of infant formula. The industry is dominated by four major manufacturers, so the shutdown of the plant in Michigan seriously reduced supply. At one point, it was reported that 43 percent of formula was "out of stock nationwide."[75]
- Concerns about the spread of avian flu led to killing of 43 million egg-laying chickens potentially exposed to the disease, reducing the supply of eggs and sending prices up to record levels in 2022.[76]

These instances give us a glimpse into the future, as disruptions associated with climate change events are almost certain impact our food supply. They can be sudden and unexpected, such as from an extreme weather event, or gradual as in crop losses due to lack of winter chilling or pollination problems. In 2019, a fire at one Kansas meat processing plant sent ripple effects across the cattle industry.[77] What happens when a super cell tornado strikes a major meat processing facility? Or drought impacts all the wheat producing states of the northern plains. By focusing on the recognized

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[73] *See*, Laura Reiley, *In One Month, the Meat Industry's Supply Chain Broke. Here's What You Need to Know*, WASH. POST. (Apr. 28, 2020). For a startling look at the depopulation process, see, Jamie McLaughlin, *Not Humane, Not AVMA Approved and Definitely Not Euthanasia: Welfare and Efficiency Issues of Swine Depopulation by Ventilator Shutdown*, 27 DRAKE J. OF AGRIC. L. 159 (2022).

[74] Claire Kelloway & Sarah Miller, *Food and Power: Addressing Monopolization in America's Food System*, OPEN MKTS INST., 3-5 (Mar. 2019), https://static1.squarespace.com/static/5e449c8c3ef68d752f3e70dc/t/5ea9fa6c2c1e9c460038ec5b/1588198002769/190322_MonopolyFoodReport-v7.pdf.

[75] Hassan z. Sheikh et al., *Infant Formula Shortage: FDA Regulation and Federal Response*, CONG. RES. SERV. (May 21, 2022), https://crsreports.congress.gov/product/pdf/IF/IF12123.

[76] *Avian Influenza Outbreaks Reduced Egg Production, Driving Prices to Record Highs In 2022*, U.S. DEP'T OF AGRIC, ECON. RSCH. SERV., https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=105576 (last visited Apr. 3, 2023).

[77] Michael Nepveux, *Impacts of the Packing Plant Fire in Kansas*, FARM BUREAU (Sept. 10, 2019) https://www.fb.org/market-intel/impacts-of-the-packing-plant-fire-in-kansas.

efficiencies of concentrated production, we have created vulnerabilities that we tend to ignore until a problem comes up. Suddenly, we are shocked, and the myth of unlimited abundance is shattered.

III. A Radical Realignment of Farm and Food

Because of the bounty of our land and water resources, the U.S. has never had to develop a true food security initiative. The U.S. lacks coordinated federal policies to protect domestic food production and the resilience of our food system. The U.S. has farm policy but not food policy. Climate change imposes a new reality.

While many countries across the world have struggled with basic food security, the U.S. has largely viewed food security as a problem of poverty, affordability, and access. The bounties of U.S. natural resources have created problems of over-production rather than concerns of whether adequate food was available.[78] Policies have been developed around an American myth of unlimited agricultural abundance. Debunking that myth and preparing for a future that depends on resilient food systems may be greatest the policy challenge of our time.

Since the Great Depression and the Dust Bowl, the federal government has influenced our food system through farm programs that provide financial support to farmers. Since that time, approximately every five years, Congress adopts a Farm Bill, providing programs that support agricultural production by providing financial assistance to farmers. This assistance has primarily been tied to commodity crops and/or it has been linked to environmental practices.[79] While this support is frequently justified as supporting food production under the mantra of "feed the world," it only does so indirectly, and in fact, much of the support goes to

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[78] Allen H. Olson, *Federal Farm Programs – Past, Present and Future—Will We Learn from our Mistakes?,* 6 GREAT PLAINS NATURAL RESOURCES J. 1, 2-14 (2001) (providing an excellent history of federal farm programs and the recurring concern of farm surpluses).

[79] *Id.*

non-food crops such as crops grown for biofuel or for livestock feed and cotton.[80]

For example, the U.S. is the largest producer of corn in the world, with U.S. farmers planting about 90 million acres of corn each year, the majority of which is grown in the Heartland region.[81] Iowa and Illinois alone account for almost one-third of this production.[82] Forty-five percent of this production is used to create ethanol; another forty percent is used as livestock feed.[83] Corn farmers receive significant financial support through farm bill programs. They are aided by crop insurance protections that protect both physical loss and revenue loss. And they receive further financial support through the Department of Energy's biofuels program and the Renewable Fuel Standards. These are strong government incentives for farmers to plant as much corn as possible, with food crops as a far less lucrative or secure crop to produce.

Farm programs support farmers but not food. The farm safety net that is established through the farm programs in the farm bill are designed to protect the livelihoods of American farmers. That may well be a noble goal, but it should not be confused with policies that promote food security. For example, when a disaster occurs, the farmer is likely to receive support through crop or livestock insurance or direct disaster assistance. Even farm workers are left out of the protection scheme.[84] There is no safety net for consumers; no mechanism whatsoever for addressing the disaster's impact on our food supply or food system.

Nutrition assistance programs such as the Supplemental Nutrition Assistance Program (SNAP) and the Women's, Infants, and Children program (WIC) support individuals and families in need, under the assumption that food is available but not affordable. The infant formula shortage revealed the fallacy in that assumption

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[80] Susan A. Schneider, *A Reconsideration of Agricultural Law: A Call for the Law of Food, Farming, and Sustainability*, 34 WM & MARY J. ENVTL. L. & POL'Y REV. 935, 949 (2010).

[81] *Feed Grains Sector at a Glance*, U.S. DEP'T OF AGRIC. ECON. RSCH. SERV., https://www.ers.usda.gov/topics/crops/corn-and-other-feed-grains/feed-grains-sector-at-a-glance/.

[82] *Id.*

[83] *Id.*

[84] For a critical analysis of agricultural policy regarding farmworkers, see Jessica Guarino, *The Injustices of Agricultural Exceptionalism: A History and Policy of Erasure*, 27 DRAKE J. OF AGRIC. L. 321 (2022) (examining the embedded oppression of farmworkers throughout U.S. agricultural history).

and showcased a significant gap in food security.[85] In Congressional testimony in March 2023, Frank Yiannas, FDA's former Deputy Commissioner for Food Policy and Response stated that "The nation remains one outbreak, one tornado, flood or cyber-attack away from finding itself in a similar place."[86]

Exacerbating the urgency of the situation, the challenges faced by farmers in the U.S. will be faced by farmers across the world. Indeed, projections are that countries in the middle latitudes will be more greatly impacted than the U.S. "A general rule of thumb in the equatorial tropics is that every 1°C rise in mean temperature is associated with a 10 percent drop in crop yields. Temperature spikes during critical phases of a plant's growth can lead to outright crop failure."[87] Food security will be a global concern.

A radical realignment in the way we think about farm and food policy is required. This begins with a recognition that they myth of unlimited agricultural abundance as applied to our ability to produce food is just that – a myth. We must "understand and agree to the proposition that there is 'this much and no more'"[88] and use our resources wisely.

What would be the principles that underlie a U.S. food policy? They are simple, common-sense principles. It is both frustrating and oddly reassuring, that most of these principles have been proposed by this author and by many other agricultural and food law scholars over the last two decades. They have been proposed in one form or another to promote food democracy, to increase resilience, to promote rural economies, to connect consumers to their food source, to promote food justice, to protect the environment and to promote resilience. The difference is that now they are proposed with new urgency as climate change threatens our food security. Before, there was the argument that we should pursue a new direction

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[85] Martine Paris, *Why the Baby Formula Shortage Continues in the U.S.,* WASH. POST (July 15, 2022).

[86] Helena Bottemiller, *The National Security Risks We Don't Think About*, FOODFIX, (Mar. 31, 2023) https://foodfix.co/the-national-security-risks-we-dont-think-about/.

[87] Sova, *supra* note 29.

[88] Wendell Berry, *The Agrarian Standard*, ORION MAGAZINE (2020), https://orionmagazine.org/article/the-agrarian-standard/ (describing the principal of agrarianism and stating, "Everything that happens on an agrarian farm is determined or conditioned by the understanding that there is only so much land, so much water in the cistern, so much hay in the barn, so much corn in the crib, so much firewood in the shed, so much food in the cellar or freezer, so much strength in the back and arms — and no more.").

for farm and food policies, now there is the argument that we must. A radical realignment of our approach to food and agriculture is desperately needed.

Six principles are proposed to guide this realignment.

1) The production of food crops should be prioritized over non-food crops; agricultural policies and agricultural use water rights should favor the production of food. Recognizing that we do not have an unlimited supply of water and that fertile soil is a natural resource that is being depleted should cause policy makers to prioritize the use of both. Food, being essential to life, has to be our priority.

2) Soil and water, including groundwater should be recognized as limited resources required for our national security. As such, they should be protected. In his recent book, THE LAND REMAINS: A MIDWESTERN PERSPECTIVE ON OUR PAST AND OUR FUTURE, agricultural scholar Neil Hamilton makes a compelling case for the importance of assuring soil health and conserving agricultural land.[89] Agricultural lawyers and scholars, Allen Olson and Edward Peterson argue that soil erosion and water availability are among the greatest threats to future agricultural production.[90] A recent report suggests that worldwide "soil is eroding 10 to 100 times faster than it is being formed, a process accelerated by climate change impacts like drought and high-intensity rainfall."[91] Legally, soil is recognized primarily as connected to the land, with property rights associated with the land. While it is not the intent of this article to challenge property law or the rights of property owners, given the connection between soil and food production, it is in our national interest to consider ways to preserve soil quality through either incentives or reasonable regulation.

Similarly, while an analysis of water law, typically a matter of state law, is beyond the scope of this article, it is important to recognize that at this time, there is no priority established for food

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[89] *See generally*, Neil D. Hamilton, THE LAND REMAINS: A MIDWESTERN PERSPECTIVE ON OUR PAST AND FUTURE (2022) (examining farm policy through the lens of the land on which we depend and promoting positive solutions to protect the soil).

[90] Allen H. Olson & Edward J. Peterson, *Pandemic, Climate Change, Farm Subsidies*, 17 J. FOOD L. & POL'Y 36, 43 (2021).

[91] Sova, *supra* note 29 (citing a report issued by the Intergovernmental Panel for Climate Control (IPCC)).

crops. Even as communities battle farmers and states battle each other in the Colorado River watershed, there is no priority of usage within agriculture. Food security depends primarily on soil and water; it is imperative that we protect them.

3) Farm policy should coordinate and be consistent with nutrition policy; the crops that are incentivized should be the same crops that Americans are encouraged to consume. Federal support to agriculture has long been criticized for having a negative impact on diet and nutrition. Marion Nestle, a leading nutrition researcher and author noted the "serious disconnect between agriculture and health policy" in the U.S.[92] The farm programs' focus on commodity crops has led to the massive production of feed grains, providing cheap livestock feed and low-cost ingredients for processed and ultra-processed ingredients. U.S. farm programs have never encouraged "specialty crops,"[93] and over time the farm programs have discouraged the production of healthy crops such as fruits and vegetables.[94] The impact of these farm programs is to keep the price of commodity crops low for food manufacturers, pricing that has been instrumental to the proliferation of processed and ultra-processed foods.[95]

Domestic food production has been inconsistent with the dietary guidance recommendations released by the USDA and U.S. Department of Health and Human Services for decades.[96]

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[92] Tracie McMillan, *The U.S. Doesn't Have Enough of The Vegetables We're Supposed to Eat*, THE SALT, NAT'L PUB. RADIO (Sept. 19, 2015) https://www.npr.org/sections/thesalt/2015/09/19/441494432/the-u-s-doesnt-have-enough-of-the-vegetables-were-supposed-to-eat, (quoting Marion Nestle and noting that "while Americans are told to eat fruits and vegetables for their health, the government has meanwhile mostly just subsidized other crops that end up in cheaper, less healthy processed food").

[93] "Specialty crops are defined in law as fruits and vegetables, tree nuts, dried fruits and horticulture and nursery crops including floriculture." *USDA Definition of Specialty Crop*, U.S. DEP'T OF AGRIC., AGRIC. MKT. SERV. https://www.ams.usda.gov/sites/default/files/media/USDASpecialtyCropDefinition.pdf (last visited Apr. 3, 2023).

[94] Schneider, *supra* note 80 at 948-49.

[95] *Id.*

[96] The Dietary Guidelines for Americans are issued by the USDA and the U.S. Department of Health and Human Services each five years pursuant to a mandate included in the 1990 National Nutrition Monitoring and Related Research Act, Pub. L. 101-445 §301, 104 Stat. 1034, 1042 (Oct. 22, 1990) (codified at 7 U.S.C. § 5341).

[96] *From Farm to Kitchen: The Environmental Impacts of U.S. Food Waste*, ENVTL PROT. AGENCY, ii (Nov. 2021), https://www.epa.gov/system/files/documents/2021-

> Although meats and total grains were supplied generally in recommended proportions, total vegetables, total fruit, whole fruit, and milk were supplied in suboptimal proportions that changed very little over time. Saturated fat, sodium, and calories from solid fat, alcoholic beverages, and added sugars were supplied in varying degrees of unhealthy abundance over the years. Supplies of dark-green/orange vegetables and legumes and whole grains were entirely insufficient relative to recommendations, with virtually no change over time. [97]

Climate change provides the imperative to revisit this conflict. To assure nutritional security, farm policy should incentivize the production of the same foods that are encouraged by health professionals through the dietary guidance.

4) Regional food systems supporting the production of healthy foods should be established across the country, minimizing risk of loss to extreme weather events. For decades, food policy advocates have argued for that regional food systems were key to revitalizing rural communities, re-connecting consumers to their food source, and supporting local farmers. Climate change now makes this imperative as a risk-management strategy. Support for "local food" has been a part of USDA's ongoing activities for some time and was enhanced by the Local Agriculture Market Program (LAMP) enacted as part of the 2018 Farm Bill.[98] The USDA has also promised significant funding for local and regional food systems as part of its Transforming the Food System Initiative.[99] The USDA can be commended for these investments.

5) Food production research should be promoted, including research into more sustainable indoor production

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11/from-farm-to-kitchen-the-environmental-impacts-of-u.s.-food-waste_508-tagged.pdf.

[97] Susan M. Krebs-Smith et al., *Healthfulness of the U.S. Food Supply*, 38 AMERICAN JOURNAL OF PREVENTATIVE MEDICINE 472 (May 2010), https://www.ajpmonline.org/article/S0749-3797(10)00085-1/fulltext.

[98] 7 U.S.C. § 1627c (2022).

[99] Press Release, *USDA Announces Framework for Shoring Up the Food Supply Chain and Transforming the Food System to Be Fairer, More Competitive, More Resilient*, U.S. DEP'T OF AGRIC. (June 1, 2022), https://www.usda.gov/media/press-releases/2022/06/01/usda-announces-framework-shoring-food-supply-chain-and-transforming.

methods, the development of new varieties of fruits and vegetables that are resilient and adapted to climate change conditions, and new technologies such as cell-culturing and fermentation. While research and technology are essential tools for mitigating the impact of climate change on food security, there is not a technology fix to address climate change and food security. Rather, combined efforts that include technology must be coordinated to mitigate its effects.

6) Americans need a culture of respect and appreciation for the importance of healthy food. This culture would result in a closer connection to food sources, more interest in food, better eating habits, better health and the reduction of food waste. We currently waste approximately thirty-five percent of the food produced in the U.S., with about half of this waste lost at the consumption stage at home or in restaurants.[100] This wasted food contains "enough calories to feed more than 150 million people each year."[101] It is also a waste of all the resources that went into its production, transportation, and marketing. Decaying food is a significant contributor of greenhouse gas emissions.[102] A culture of food appreciation, reflected in schools, local communities, and throughout government would alleviate this problem.

The 2021 White House Conference on Hunger, Nutrition and Health began an important discussion about food security and has elevated the issue into greater prominence in policy discussions. As Chef Jose Andres, one of the leaders at the conference has been quoted as saying, "Food is national security. Food is craft. Food is everything, when you think about it."[103] We must build a culture that recognizes this.

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[100] *From Farm to Kitchen: The Environmental Impacts of U.S. Food Waste, supra* note 96.
[101] *Id.*
[102] *Id.*
[103] *Changing the World Through the Power of Food: A Thanksgiving Address by Chef Jose Andres*, THE RICHMOND FORUM (Nov. 2021), https://richmondforum.org/programs/power-of-food/ (providing quotes from Chef Andres).

IV. Conclusion

The purpose of this article is to accelerate a difficult conversation. Many of the problems within our food system that are referenced here have been raised before by this author[104] and by many others.[105] Climate change increases the stakes and raises the urgency. While our food security may not seem under threat now - most Americans have access to sufficient food if they can afford it today – climate change and its impacts are progressing more quickly than researchers have feared. As the authors of the United Nations report issued in March 2023 stated, "There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all."[106] This call to action applies to not only efforts to reduce greenhouse gasses, it applies to efforts to adjust to the world that we have created.

The changes needed to prepare for food security challenges are significant and they will take time. The answers that are proposed may seem straightforward, but they reflect a radical realignment of farm and food policy that will bring economic pain to some and opportunities to others. Time is needed for the transition.

The issues raised in this article should have impacted our policies decades ago. Had they done so, we would have had more time for a smooth transition. For decades, we have largely ignored the risks of climate change and exhausted natural resources, relying on the myth of unlimited agricultural abundance. We still have a chance to correct course and recognize the true value of food and the risks we have created. Will we take it?

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[104] Schneider, *supra* note 80, at 963.

[105] Hamilton, *supra* note 89; Olson & Peterson, *supra* note 90; Nicole Civita, *Agrarians Feeding Communities: Reconnecting Federal Farm Policy & Nutrition Assistance for a More Just Agri-Food System*, 7 NW INTERDISC. L. REV. 1 (2014) (examining the problems with past and current farm policy and proposing a responsible reconciliation of producer and consumer interests as the new direction).

[106] Hoesung Lee et al., *Climate Change 2023: Synthesis Report of the IPCC Sixth Assessment Report (AR6), Summary for Policymakers*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), UNITED NATIONS, 25 (Mar. 2023).

Leveraging Housing Programs: Ensuring that Food Access Investments Do Not Displace People

Heather Latino

I. Introduction

> *"I see one-third of a nation ill housed, ill clad, ill nourished. ... The test of our progress is not whether we add more to the abundance of those who have much; it is whether we provide enough for those who have too little."*
>
> Franklin Delano Roosevelt, January 20, 1937[1]

In September 2022, the Biden-Harris Administration convened a White House Conference on Hunger, Nutrition, and Health ("conference").[2] From the conference, the Administration committed to a whole-of-government approach to addressing hunger, nutrition, and health, including leveraging federal housing programs to improve food access.[3] Among the specific strategies outlined by the Administration is a directive that the Department of Housing and Urban Development ("HUD") "increase access to neighborhood markets, grocery stores, farmers' markets, urban gardens, food incubators, and/or the conversion of vacant buildings into food hubs. . . ."[4] While some may celebrate the Administration's commitment to investing in low-income and underserved communities, others fear that these forms of intervention and reinvestment may worsen current disparities. Incentives for renovating or constructing local grocery stores have been criticized for inviting "gentrifying forces such as real estate developers and corporate chains" into lower-income Black and Hispanic neighborhoods.[5]

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[1] President Franklin Delano Roosevelt, Second Inaugural Address (January 20, 1937).

[2] THE WHITE HOUSE, *BIDEN-HARRIS ADMINISTRATION NATIONAL STRATEGY ON HUNGER, NUTRITION, AND HEALTH*, (SEPT. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/09/white-house-national-strategy-on-hunger-nutrition-and-health-final.pdf.

[3] *Id.* at 2

[4] *Id.* at 13.

[5] Silvia M. Radulescu, *Segregation, Racial Health Disparities, and Inadequate Food Access in Brooklyn*, 29 GEO. J. ON POVERTY L. & POL'Y 251, 269 (Winter 2022)

Gentrification is generally understood as the process by which low-income communities are physically and culturally displaced from their homes and communities, typically as a result of increased real estate values, as higher-income populations move into areas undergoing revitalization.[6] Disinvestment and abandonment are conditions that precede gentrification and occur when public and private parties assume that long-term investments in a community will not be profitable and divest of ownership.[7] Disinvestment in racially segregated communities has resulted in the loss of neighborhood amenities such as supermarkets and neighborhood grocers.[8] As a result, terms such as "supermarket redlining" have been coined to shine a light on how major grocery stores relocated from urban to suburban areas, divesting from these communities and impeding residents' access to healthy foods.[9] Later reinvestments in these same communities attract higher-income populations and, in the process, displace current residents, often along racial lines, due to economic pressures, physical changes, and a sense of exclusion in their community.[10] As long-term residents are displaced, they relocate to communities similarly characterized by disinvestment.[11]

Hunger, food insecurity, and diet-related diseases disproportionately impact individuals and households of color.[12] Improving food access is key to reducing these disparities, but initiatives must ensure that current residents—who are the intended beneficiaries of such programs—will be able to afford to stay in their

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(citing Lia Warner, *The FRESH Approach to Food Insecurity: NYC's Market-Based Food Movement,* COMPASS, https://wp.nyu.edu/compass/2019/04/22/the-fresh-approach-to-food-insecurity-nycs-market-based-food-movement/).

[6] Isabelle Anguelovski, et. al., *Assessing Green Gentrification in Historically Disenfranchised Neighborhoods: A Longitudinal and Spatial Analysis of Barcelona*, 39 URB. GEOGRAPHY 458, 460-61 (2017).

[7] Peter Marcuse, *Gentrification, Abandonment and Displacement*: *Connections, Causes, and Policy Responses in New York City,* 28 WASH. U. J. URB. & CONTEMP. L., 195, 200, 228-29 (1985).

[8] Kelly M. Bower, et. al., *The Intersection of Neighborhood Racial Segregation, Poverty, and Urbanicity and its Impact on Food Store Availability in the United States,* 58 PREVENTIVE MED., 33 (2014); *see, e.g.*, Richard C. Sadler, et. al., *Linking Historical Discriminatory Housing Patterns to the Contemporary Food Environment in Baltimore,* 36 SPATIAL AND SPATIO-TEMPORAL EPIDEMIOLOGY (2021).

[9] Renée Johnson & Nyah Stewart, *Defining Low-Income, Low-Access Food Areas (Food Deserts)*, CONG. RES. SER. at 2 (June 1, 2021), https://crsreports.congress.gov/product/pdf/IF/IF11841.

[10] *See* Marcuse, *supra* note 7 at 204-08 (1985).

[11] *See* Isabelle Anguelovski, *Healthy Food Stores, Greenling and Food Gentrification: Contesting New Forms of Privilege, Displacement and Locally Unwanted Land Uses in Racially Mixed Neighborhoods*, 39 INT'N J. OF URB. & REG'L RES. 1209, 1211-12 (Nov. 2015).

[12] *See infra* II.D.

homes and benefit from such investments.[13] Linking food access investments to federally subsidized housing is a potentially promising approach as nearly 1.8 million low-income Americans live in public housing, and an additional 1.4 million families live in HUD-assisted properties.[14] Moreover, the nation's 970,000 public housing units are located in all fifty states and several territories but tend to be concentrated in racially segregated neighborhoods experiencing disinvestment, due in large part to a history of systemic racism.[15] Focusing food access investments in public housing and HUD-assisted communities would mitigate against the risk of gentrification, and the displacement of low-income residents that can follow urban food system investments.

Part II of this article will explore the ways in which housing and food security are interrelated. Not only is the United States facing an affordable housing crisis, it is also facing a nutrition-related health crisis, and both crises disproportionately impact low-income individuals and communities of color.[16] Efforts aimed at addressing the nutrition-related health crisis, such as initiatives investing in healthy food outlets, are thought to invite gentrification, increase property values, and displace current residents,[17] all of which intensify the affordable housing crisis. Rather than improving health outcomes, gentrification's displacement of low-income residents further exacerbates disparities in food access and health outcomes.[18]

Then Part III introduces the White House National Strategy on Hunger, Nutrition, and Health, which promises to leverage housing programs to increase food access. Part IV discusses gentrification as related to food access investments, laying the foundation for understanding why food access initiatives implemented in disinvested communities must include affordable housing safeguards. Part V provides a framework for evaluating food access initiatives to address concerns that food access investments invite gentrification, displacing the same populations who were supposed to benefit from such programs. Part V also offers examples

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[13] *See* Radulescu, *supra* note 5, at 270-72.
[14] HOUS. & URB. DEV., Overview of Rental Assistance Programs (2022).
[15] A. Mechele Dickerson, *Systemic Racism and Housing*, 70 EMORY L. J., 1535, 1546 (2021); *HUD's Public Housing Program,* Hous. & Urb. Dev., https://www.hud.gov/topics/rental_assistance/phprog (last visited Mar. 4, 2023); *Policy Basics: Public Housing,* CTR ON BUDGET AND POL'Y PRIORITIES (June 16, 2021), https://www.cbpp.org/research/public-housing.
[16] *See infra* II.A and II.B.
[17] *See infra* IV.
[18] *See infra* V.

of food access initiatives in public housing and HUD-assisted housing developments that can serve as models, inspiration, or offer lessons learned for future projects in disinvested communities.

II. The Intersection of Housing and Food Security

The United States is currently facing both an affordable housing crisis and a nutrition-related health crisis. The significant and far-reaching consequences of both disproportionally fall on low-income, minority, and historically underserved communities. Housing assistance programs, even those that do not explicitly target food security, can improve food access and nutrition-related health outcomes by alleviating financial pressures.[19] Families with limited financial resources are often forced to make tradeoffs as they struggle to pay for the competing costs of housing, food, medical treatment, and transportation.[20] Household members who have trouble paying rent, or other bills, may opt to economize on food.[21] Because housing costs are typically one of the most significant expenses for American households, limiting those costs reduces the risk of household food insecurity by freeing up financial resources to access sufficient food.[22] Conversely, and as discussed in more depth below, food insecurity and nutrition-related adverse health outcomes can be exacerbated by food access investments that displace residents from their current housing.

A. The Affordable Housing Crisis

Housing cost burdens, particularly those felt by lower-income households and households of color, continue to mount due to soaring housing costs.[23] In 2020, rent or mortgage payments for thirty percent of all American households were deemed "unaffordable"—exceeding thirty percent of a household's monthly income.[24] Fourteen percent of all households were "severely"

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[19] Veronica E. Helms, et. al., *Household Food Insecurity and U.S. Department of Housing and Urban Development Federal Housing Assistance*, ERR-277, U.S. DEP'T. OF AGRIC., at 1 (Nov. 2020) https://www.ers.usda.gov/webdocs/publications/99781/err-277.pdf?v=3798.7.
[20] *Id.*
[21] *Id. (citing* Sharon I. Kirkpatrick & Valerie Tarasuk, *Housing Circumstances are Associated with Household Food Access among Low-income Urban Families*, 88 J. OF URB. HEALTH 284-296 (2011)).
[22] *Id.* at 1-2.
[23] *The State of the Nation's Housing,* at 1, JOINT CTR. FOR HOUS. STUD. OF HARVARD UNIV. (2022) https://www.jchs.harvard.edu/sites/default/files/reports/files/Harvard_JCHS_State_Nations_Housing_2022.pdf.
[24] *Id.* at 6.

burdened—spending more than half of their income on housing.[25] Renters are particularly burdened with forty-six percent paying "unaffordable" housing costs.[26]

In the first quarter of 2022, rent prices increased twelve percent nationwide, with some cities seeing increases of more than twenty percent.[27] With rental vacancy rates at historically low levels, competition for rentals is intense.[28] In addition, home values are rapidly appreciating,[29] and sharp rises in interest rates have made purchasing housing even less affordable.[30]

Systemic racism and discrimination have prevented many persons of color from buying homes and the homeownership gap as compared to white households is progressively expanding.[31] In 2022, fifty-five percent of Black households and fifty-one percent of Hispanic households were renting.[32] In contrast, twenty-six percent of white households were renting.[33] For those who own, the value of their home is impacted by the racial composition of their community. Homes in mostly Black communities are, on average, valued at $48,000 less than homes in mostly white communities, even when factoring in differences in housing and neighborhood quality.[34] Consequently, existing wealth disparities between white and Black households have continued to widen.[35]

Income disparities also persist, with median incomes for households of color lagging behind those of white households. In 2021, Hispanic households and Black households earned $57,981 and $48,297, respectively, while the median income for white households was significantly higher at $77,999.[36] All of these factors

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[25] *Id.*
[26] *Id.*
[27] *Id.* at 1.
[28] JOINT CTR. FOR HOUS. STUD. OF HARVARD UNIV., *supra* note 23 at 32-33.
[29] *Id.* at 1 (reporting that in March of 2022, home prices appreciated more than 20 percent, the biggest jump in 30 years.)
[30] *Id.* at 25.
[31] *Id.* at 19.
[32] *Id*.
[33] JOINT CTR. FOR HOUS. STUD. OF HARVARD UNIV., *supra* note 23.
[34] Andre M. Perry, et. al., *The Devaluation of Assets in Black Neighborhoods*, THE BROOKINGS INST., at 15 (Nov. 27, 2018) https://www.brookings.edu/wp-content/uploads/2018/11/2018.11_Brookings-Metro_Devaluation-Assets-Black-Neighborhoods_final.pdf.
[35] JOINT CTR. FOR HOUS. STUD. OF HARVARD UNIV., *supra* note 23 at 28.
[36] Jessica Semega & Melissa Kollar, *Income in the United States: 2021 Current Population Reports*, U.S. CENSUS BUREAU, at 2 (2022),

combined function to put disinvested communities at a heightened risk for gentrification and people of color at an increased risk of displacement as competition for affordable housing intensifies. These factors also compound nutrition and diet-related health concerns as housing costs consume increasingly higher proportions of household income and as lower-income minority populations are increasingly concentrated in communities lacking sufficient food access.

B. The Nutrition-Related Health Crisis

Diet-related diseases—including obesity-related health conditions, such as heart disease, stroke, and type 2 diabetes—are now among the leading causes of preventable deaths and disabilities in the United States.[37] Nineteen states and two territories have adult obesity prevalence rates at or above thirty-five percent.[38] Ten years ago, no state's adult obesity rate was above thirty-five percent.[39] Individuals living in subsidized public housing experience even higher obesity prevalence, with rates that are nearly twice as high as those in the general population.[40]

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https://www.census.gov/content/dam/Census/library/publications/2022/demo/p60-276.pdf.

[37] Leading Causes of Death, CTR. FOR DISEASE CONTROL & PREVENTION, (Jan. 18, 2023), https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm; Adult Obesity Facts, CTR. FOR DISEASE CONTROL & PREVENTION, (May 17, 2022), https://www.cdc.gov/obesity/data/adult.html.

[38] Adult Obesity Prevalence Maps, CTR. FOR DISEASE CONTROL & PREVENTION, (Sept. 27, 2022), https://www.cdc.gov/obesity/data/prevalence-maps.html.

[39] *State of Obesity 2022: Better Policies for a Healthier America*, TR. FOR AMERICA'S HEALTH, at 5 (Sept. 2022), https://www.tfah.org/wp-content/uploads/2022/09/2022ObesityReport_FINAL3923.pdf (These trends are tied to a combination of social, economic, and environmental factors, many of which are outside of an individual's control. Factors affecting diet and nutrition include the availability, cost, and accessibility of nutrient-rich foods like fruits and vegetables versus high-calorie, low-nutrient foods like junk food and soda. Other factors, like poverty, economic opportunity, and food insecurity also play a role.).

[40] Eleni C. Digenis-Bury, et. al., *Use of a Population-Based Survey to Describe the Health of Boston Public Housing Residents*, 98 AMERICAN J PUB. HEALTH, 4, 85-91 (Jan. 2008); Vickie L. Shavers & Sharanda Shankar, *Trend in the Prevalence of Overweight and Obesity Among Urban African American Hospital Employees and Public Housing Residents*, 94 J NATL MED ASSOC. 566, 568 (July 2002); Craig Gundersen & James P. Ziliak, *Food Insecurity and Health Outcomes*, 34 HEALTH AFF. 1830, 1831-35 (2015); Alison GM Brown, et. al., *Food Insecurity and Obesity: Research Gaps, Opportunities, and Challenges*, 9 TRANSLATIONAL BEHAVIORAL MED. 980, 980 (2019).

C. The Relationship Between Food Security and Diet-Related Diseases

There is a strong correlation between food security and diet-related illnesses such as obesity, diabetes, heart disease, and malnutrition.[41] Most research on food security and its health impacts has focused on children, with studies finding that food-insecure children are at an increased risk of obesity, are more prone to developmental problems, and suffer negative mental health effects.[42] Overall, children experiencing food insecurity are twice as likely to be in fair or poor health.[43] The impacts of food insecurity on adults are less well-researched.[44] But the research that exists suggests that food-insecure adults are also at increased risk for obesity and suffer higher rates of chronic disease.[45]

Food security is defined by the United States Department of Agriculture ("USDA") as the ability to acquire enough food for a healthy and active life.[46] In 2021, nearly 34 million people in the United States, including five million children, lived in food-insecure households that were either uncertain they would have enough food or were unable to get enough food because of financial or resource constraints.[47] A portion of this population experienced a more serious level of food insecurity, very-low food security.[48] Very-low food security exists when one or more household member's normal eating patterns are disrupted and food intake reduced due to a lack of

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[41] Gundersen & Ziliak, *supra* note 40.

[42] Danruo Zhong, et. al., *Household Food Insecurity and Obesity Risk in Preschool-Aged Children: A Three-Year Prospective Study*, 307 SOC. SCI. & MED. 2 (2022); Michael P. Burke, et. al., *Severity of Household Food Insecurity Is Positively Associated with Mental Disorders among Children and Adolescents in the United States*, 146 J. NUTRITION 2019, 2020 (2016).

[43] See John T. Cook, et. al., *Child Food Insecurity Increases Risks Posed by Household Food Insecurity to Young Children's Health*, 136 J. OF NUTR. 1073, 1075–76 (2006).

[44] Gunderson & Ziliak, supra note 40, at 1833.

[45] Daphne. C. Hernandez, et. al., *Food insecurity and adult overweight/obesity: Gender and race/ethnic disparities*, 117 APPETITE 373, 375 (2017); A. Gregory & Alisha Coleman-Jensen, *Food Insecurity, Chronic Disease, and Health Among Working-Age Adults*, ERR-235, U.S. DEP'T OF AGRIC. at 20 https://www.ers.usda.gov/webdocs/publications/84467/err-235.pdf?v=6645.

[46] Food Security in the U.S., U.S. DEP'T OF AGRIC, https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/key-statistics-graphics/ (last updated Oct. 17, 2022) (defining food security as households having "access, at all times, to enough food for an active, healthy life for all household members").

[47] *Id.*

[48] *Id.*

resources.[49] In other words, people in households with very-low food security sometimes go without eating. In 2021, approximately 8.6 million adults and 521,000 children lived in households with very-low food security.[50]

D. The Disparate Impacts of Food Insecurity and Diet-Related Diseases

Hunger, food insecurity, and diet-related diseases disproportionately impact individuals and households of color. In 2021, 10.2 percent of the U.S. population was affected by food insecurity.[51] Black non-Hispanic households were nearly twice as likely to be food insecure, with around twenty percent experiencing some level of food insecurity.[52] Hispanic households experienced similar disparities, with rates of food insecurity at just over sixteen percent.[53] Across all races, households with children were most likely to be food-insecure.[54]

People who are food-insecure are diagnosed with diet-related diseases and chronic health conditions at higher rates than the general population.[55] Lower food security tends to be associated with a higher probability of hypertension, coronary heart disease, stroke, and diabetes, along with an assortment of other chronic diseases.[56] In fact, food security levels tend to be more predictive of chronic illness than income.[57]

People of color are diagnosed with diet-related diseases at higher rates than the general population. According to the Department of Health and Human Services Office of Minority Health, Black women have the highest rates of obesity or being overweight as compared to other groups in the United States (approximately 4 out of 5 Black women have obesity or struggle with being overweight).[58] In addition, non-Hispanic Blacks are 1.3 times more likely to have obesity than non-Hispanic whites.[59] Obesity is a

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[49] *Id.*
[50] *Id.*
[51] Food Security in the U.S., *supra* note 46.
[52] *Id.*
[53] *Id.*
[54] *Id.*
[55] Gregory & Coleman-Jensen, *supra* note 45, at 20.
[56] *Id.*
[57] *Id.*
[58] *Obesity and African Americans*, U.S. DEP'T OF HEALTH & HUM. SERV., https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=25 (last visited Mar. 5, 2023).
[59] *Id.*

risk factor for several other diseases, including diabetes, hypertension, and stroke.[60] Thus, it is not surprising that the Centers for Disease Control report that, "diabetes is highest among American Indians/Alaska Natives (14.7%), people of Hispanic origin (12.5%), and non-Hispanic blacks (11.7%), followed by non-Hispanic Asians (9.2%) and non-Hispanic whites (7.5%)."[61] Hypertension also presents at higher rates among non-Hispanic black (57.1%) than non-Hispanic white (43.6%) or Hispanic (43.7%) adults.[62] Diet-related diseases are caused in part by poor eating patterns, including not consuming enough fresh fruits, vegetables, and whole grains while consuming too much saturated fat, added sugar, and salt.[63]

E. The Food Landscape

Food security and food access depend on having sufficient physical and economic access to appropriate foods. Some initial interventions aimed at improving food security focused on addressing physical access; for example, proximity to a grocery store.[64] Through programs like the Healthy Food Financing Initiative, funding was directed to grocery stores in communities considered "food deserts."[65] Food deserts are areas in predominantly lower-income neighborhoods and communities "with limited access to affordable and nutritious food."[66] They are believed to be linked

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[60] *Id.*

[61] *National Diabetes Statistic Report 2020: Estimates of Diabetes and Its Burden in the United States*, CTR. FOR DISEASE CONTROL & PREVENTION, https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf (2020).

[62] Yechiam Ostchega, *Hypertension Prevalence Among Adults Aged 18 and Over: United States, 2017–2018*, at 2, CTR. FOR DISEASE CONTROL & PREVENTION (April 2020) https://www.cdc.gov/nchs/data/databriefs/db364-h.pdf.

[63] *Dietary Guidelines for Americans 2020-2025*, at 3-7, 26, 30-47, U.S. DEP'T OF AGRIC. (Dec. 2020), https://www.dietaryguidelines.gov/resources/2020-2025-dietary-guidelines-online-materials.

[64] See Steven Cummins, et. al., *New Neighborhood Grocery Store Increased Awareness of Food Access but Did Not Alter Dietary Habits or Obesity*, 33 HEALTH AFF. 283, 283-84 (2014); Kirsten A. Grimm, et. al., *Access to Healthier Food Retailers—United States*, 2011, MORBIDITY AND MORTALITY WKLY. REP. SUPPL., Nov. 22, 2013, at 20, 25; Donald Rose, *Access to Healthy Food: A Key Focus for Research on Domestic Food Insecurity,* 140 J. NUTRITION, 1167, 1167–68 (2010).

[65] See Kristen Cooksey-Stowers, et. al., *Food Swamps Predict Obesity Rates Better Than Food Deserts in the United States*, 14 INT. J. ENV'T. RES. PUB. HEALTH., Nov. 14, 2017, at 2.

[66] Johnson & Stewart, *supra* note 9 at 1 (quoting Food, Conservation, and Energy Act of 2008, Pub. L. No. 110-246, §7527 122 Stat. 1651, 2039 (2008)) (although referenced in the 2008 farm bill, the term "food desert" has not been defined by statute).

to poor diet and increased risk of obesity.[67] The USDA largely identifies food deserts based on proximity to the nearest supermarket and, thus, public policies have emphasized increasing geographic access to grocery stores.[68]

Some studies evaluating the impact of new grocery stores suggest that while perceived access to healthy food improved—the ease of buying and the selection, quality, and price of fruits, vegetables, whole grain foods, and low-fat items—the stores did not appear to impact the quality of residents' diets or their body mass index.[69] These findings have been interpreted to suggest that the impact of increased proximity to healthier foods may be negated or tempered when unhealthy foods are even more accessible.[70] As a result, the term "food swamp" was developed to capture the idea that access to healthy and unhealthy food is equally important and is now used to describe neighborhoods where fast food and junk food are the predominant options.[71]

Studies have shown that people of color are more likely than white people to live near unhealthy food retailers, such as fast food outlets, and less likely to have access to supermarkets selling fresh fruits and vegetables.[72] We now believe that "food swamps" tend to predict obesity rates more accurately than the existence of "food

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[67] *See* Cooksey-Stowers, *supra* note 65 at 1-2 (citing Nicole Larson & Mary Story, *A Review of Environmental Influences on Food Choices*, 38 ANNALS OF BEHAV. MED. 56; Kathryn M. Neckerman, et. al., *Measuring Food Access in Urban Areas*, COLUMBIA U. BUILT ENV'T & HEALTH Feb. 9, 2009, at 1; Peter E. Wilde, et. al., *Household Food Expenditures and Obesity Risk*, CURRENT OBESITY, Sept. 2021, at 127-30.

[68] Johnson & Stewart, *supra* note 9 at 1.

[69] *See* Cooksey-Stowers, *supra* note 65 at 2 (citing Tamara Dubowitz, et. al., *Diet and Perceptions Change with Supermarket Introduction in a Food Desert, But Not Because of Supermarket Use,* 34 HEALTH AFF. 1858–1868 (2015)); *see* Steven Cummins, et. al., *New Neighborhood Grocery Store Increased Awareness of Food Access but Did Not Alter Dietary Habits or Obesity*, 33 HEALTH AFF. 283, 283-84 (2014); Bonnie Ghosh-Dastidar, et. al., *Distance to Store, Food Prices, and Obesity in Urban Food Deserts*, 47 AM. J. PREVENTIVE MED. 587, 587 (2014); Brian Elbel, et. al., *Assessment of a Government-Subsidized Supermarket in a High-Need Area on Household Food Availability and Children's Dietary Intakes*, 18 PUB. HEALTH NUTR. 2881, 2881, 2889 (2015).

[70] Cooksey-Stowers, *supra* note 65 at 1-2.

[71] *See* Cooksey-Stowers, *supra* note 65 at 2 (citing Donald Rose, et. al., *Deserts in New Orleans? Illustrations of Urban Food Access and Implications for Policy*, U. OF MICH. NAT'L POVERTY CTR. (Feb. 2009)).

[72] *See* S.E. Fleischhacker, et. al., *A Systematic Review of Fast Food Access Studies*, 12 OBESITY REV. 460, 465 (2010) (reviewing research on fast food access and finding evidence that fast food restaurants are more likely to locate in areas with higher concentrations of ethnic minorities); Naa Oyo A. Kwate, *Fried Chicken and Fresh Apples: Racial Segregation as a Fundamental Cause of Fast Food Density in Black Neighborhoods*, 14 HEALTH & PLACE, 32, 34 (2008).

deserts" and "Black communities in particular may be at risk for environmental-linked diet-related health inequities."[73] Thus, interventions aimed at increasing physical access to healthy food retailers continue to be relevant but should not be viewed as a singular solution.

Both terms, "food desert" and "food swamp," have been criticized by advocates for their negative connotations and for implying that unequal food access occurs naturally, as part of a landscape, rather than capturing the underlying structural inequities that lead to unequal access, such as racial discrimination and poverty.[74] Moreover, both advocates and researchers have raised concerns that these terms focus policy solutions on increasing supermarkets, while other policy solutions are needed to reduce economic barriers to food access.[75]

Thus, some advocate for use of the term "supermarket redlining" to highlight how major grocery stores have relocated from urban to suburban areas, divesting low-income communities of color.[76] Others use the term "food apartheid" to draw attention to "structural conditions that limit food access (including access to land and resources) and emphasizes discriminatory conditions (such as predatory marketing)."[77] Both terms highlight social and racial inequalities and discriminatory systems that have created barriers to food access for low-income people in minority communities.[78] They also focus attention on the complexities of addressing the range of social determinants of health, including poverty, housing, and racism, which impact the extent to which low-income, minority, and underserved communities can access sufficient food.[79] Complexities

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[73] *See* Kristen Cooksey-Stowers, et. al., *Racial Differences in Perceived Food Swamp and Food Desert Exposure and Disparities in Self-Reported Dietary Habits*, 17 INT'L J. ENV'T RSCH. PUB. HEALTH, Sep. 29, 2020 at 1, 1, 9.

[74] *See e.g., id.*

[75] *See* Johnson & Stewart, *supra* note 9.

[76] *See Id.*

[77] *Id.*

[78] *See* Yasamin Shaker, et. al., *Redlining, Racism and Food Access in US Urban Cores*, AGRIC. HUM. VALUES, July 22, 2022, at 1 (finding that greater racial/ethnic minority composition was associated with reduced food access); Nina Sevilla, *Food Apartheid: Racialized Access to Healthy Affordable Food*, NAT. RES DEF. COUNCIL (April 2, 2021), https://www.nrdc.org/experts/nina-sevilla/food-apartheid-racialized-access-healthy-affordable-food.

[79] About Social Determinants of Health (SDOH), CTR. FOR DISEASE CONTROL & PREVENTION (Dec. 8, 2022), https://www.cdc.gov/socialdeterminants/about.html [hereinafter About SDOH]; Social Determinants of Health, OFFICE OF DISEASE PREVENTION & HEALTH PROMOTION, https://health.gov/healthypeople/priority-

that must be integrated into any policies aimed at improving hunger, nutrition, and health for underserved and marginalized individuals and communities.

III. 2022 White House National Strategy on Hunger, Nutrition, and Health

In September 2022, the Biden-Harris Administration convened a White House Conference on Hunger, Nutrition, and Health with the aim of developing a national strategy for ending hunger and improving our nation's health and nutrition by 2030.[80] It was the first conference of its kind in more than fifty years.[81] The national strategy developed as part of the conference is set out across five pillars, which include "improving food access and affordability" (Pillar 1) and "empowering consumers to make and have access to healthy food choices" (Pillar 3).[82] Among the strategies identified for advancing these goals is a specific directive to "[l]everage housing and other community programs to increase food access."[83]

More specifically, the Administration directs HUD to:

- "promote regulatory flexibilities that allow owners of HUD-assisted properties and Public Housing Authorities to use federal funds to *renovate and maintain spaces in public housing developments to improve food access*."[84]
- use an array of federal funding, as appropriate, to "support food access, including to *increase access to neighborhood markets, grocery stores, farmers' markets, urban gardens, food incubators, and/or the conversion of vacant buildings into food hubs, as well as case management to help residents connect with health providers*."[85]
- "provide technical assistance to facilitate the use of HUD and other federal funding to finance the conversion of spaces into *corner market stores and*

areas/social-determinants-health (last visited Mar. 5, 2023) (defining social determinants of health as "conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.").

[80] THE WHITE HOUSE, *supra* note 2 at 6.

[81] *Id.* at 2.

[82] *Id.* at 8-16, 22-28.

[83] *Id.* at 12.

[84] *Id.* at 13.

[85] THE WHITE HOUSE, *supra* note 2 at 12.

the development of grocery stores in areas with limited access to affordable and nutritious foods, develop case studies to highlight best practices and, with USDA, support the development of *urban agriculture programs*."[86]

- together with the USDA "cross-promote their programs to the owners of HUD-assisted properties and incentivize Public Housing Authorities to *implement urban agriculture projects, food banks, and summer meal programs* in affordable housing developments."[87]

This national strategy is consistent with the Administration's broader agenda of "Advancing Racial Equity and Support for Underserved Communities."[88] This agenda directs federal policymakers to pursue "a comprehensive approach to advancing equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality."[89] It follows then, that in advancing food access policies and programs for underserved or marginalized communities, the federal government must consider whether such policies might exacerbate barriers or inequalities (e.g., displacing low-income communities of color as housing costs rise).[90] This raises the question of whether certain investments in food access spur gentrification and displacement of vulnerable communities? And, if so, what measures can be taken to ensure that "people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality" actually benefit from such investments?[91]

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[86] *Id.*
[87] *Id.* at 25.
[88] EXEC. ORDER NO. 13,985, 86 Fed. Reg. 7009 (2021).
[89] *Id.*
[90] *Id.*
[91] *Id.*

IV. Investments in Place That Lead to Displacement of People

The term "gentrification" was first used in the 1960s by Ruth Glass, a British sociologist.[92] Gentrification is now commonly understood as the process by which low-income communities are physically and culturally displaced by middle- and high-income populations, typically through increased real estate values.[93] In addition to direct displacement due to economic forces, long-term residents may feel pressure to relocate as they see their neighborhood change, friends and social support systems leave, businesses they patronize close, and public facilities change.[94]

As lower-income residents are displaced, they are forced to move to even poorer neighborhoods, widening existing socio-economic gaps and disparities among neighborhoods.[95] Those who are displaced experience *long-term* negative health impacts associated with poor access to adequate health care, less access to healthy food, and increased food insecurity.[96] Exposure to higher crime rates and reduced educational and employment opportunities further exacerbates poor health outcomes following displacement.[97]

Though significant residential gentrification and displacement has taken place in some of the nation's largest cities, it is actually rare in most places, including in most medium to small-sized cities.[98] A study by the National Community Reinvestment Coalition (NCRC) found that between 2010 and 2013, almost half of the nation's gentrification was confined to seven cities (New York City, Los Angeles, Washington, D.C., Philadelphia, Baltimore, San

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[92] Jason Richardson, et. al., *Shifting Neighborhoods: Gentrification and Cultural Displacement in American Cities*, NAT'L CMTY. REINVESTMENT COAL., at 8 (March 19, 2019) https://ncrc.org/?smd_process_download=1&download_id=122784.
[93] Anguelovski, *supra* note 6 at 460-61.
[94] Marcuse, *supra* note 7 at 207-08.
[95] Anguelovski, *supra* note 6 at 1211-12.
[96] Roshanak Mehdipanah, et. al., *Urban Renewal, Gentrification and Health Equity: A Realist Perspective*, 28 EUROPEAN J. OF PUB. HEALTH, 243, 246 (April 2018) (citing Yingling Fan, *Reexamining Contemporary Urbanism in the United States: Convenient Mix of the Old and New*, 42 ENV'T. & PLAN. A: ECON. & SPACE 2897 (Dec. 2010); Danya E. Keene & Arline T. Geronimus, '*Weathering' HOPE VI: The Importance of Evaluating the Population Health Impact of Public Housing Demolition and Displacement,* 88 J. URB. HEALTH 417 (2011)).
[97] *Id.* (citing Ade Kearns & Phil Mason, *Defining and Measuring Displacement: Is Relocation from Restructured Neighbourhoods Always Unwelcome and Disruptive?*, 28 HOUS STUD 177 (2013); John Betancur, *Gentrification and Community Fabric in Chicago*, 48 URB. STUDIES 383 (2011)).
[98] Richardson, *supra* note 92 at 5.

Diego, and Chicago).[99] An analysis of Chicago's census data through the year 2020 shows continuing patterns of gentrification as median household incomes increase along with increases in the numbers of white residents in some areas of the city.[100] Gentrification often pushes lower-income Black and Hispanic residents from their homes and neighborhoods, and, as a result, they miss out on any benefits or opportunities that accompany revitalization efforts.[101] According to NCRC, 20,000 Black residents were displaced in Washington, D.C., and thirteen percent of the Black community in Portland, Oregon, was displaced between 2010 and 2013.[102] While the affordability crisis has worsened in some of the nation's largest cities, many low- to moderate-income cities were not the subject of revitalization efforts nor impacted by gentrification.[103] However, these communities may be vulnerable to gentrification and displacement in the future.[104]

The relationship between neighborhood revitalization through food system investments and gentrification has been garnering increasing attention as changing food landscapes are now thought to play a role in advancing gentrification.[105] The resulting concern is that public policies, for example, those incentivizing renovation or construction of supermarkets in low-income communities, may attract more affluent residents to the neighborhood.[106] In particular, the presence of healthy food retailers can be interpreted as a sign that a community is changing to become more trendy and primed for gentrification.[107] Gentrification concerns are not limited to investments in neighborhood grocery stores, rather, they accompany other types of food system investments, including

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[99] *Id.* at 4, 15.
[100] Esther Yoon-Ji Kang, *New Census Data Confirms the Continuation of Chicago Neighborhoods' Gentrification*, WBEZ CHICAGO, (Mar. 19, 2022), https://www.wbez.org/stories/census-data-shows-continuing-gentrification-in-chicago/c1663c00-c3a2-41c4-845a-a76b717d8499.
[101] Richardson, *supra* note 92 at 5.
[102] *Id.* at 4, 20.
[103] *Id.* at 4-5.
[104] *Id.* at 4-6.
[105] Nevin Cohen, *Feeding or Starving Gentrification: The Role of Food Policy*, CUNY URB. FOOD POL'Y INST., at 4-5 (March 27, 2018) https://urban-foodpolicy.squarespace.com/s/Policy-Brief-Feeding-or-Starving-Gentrification-20180327-Final.pdf.
[106] *Id.* at 3-5.
[107] *Id.*

those in urban agriculture and farmers markets.[108] Thus, the potential paradox—that by channeling food access investments into divested communities, the people living in those communities may ultimately be displaced and miss out on any corresponding benefits.[109]

A. Grocery Stores

Disparate access to grocery stores based on income, race, and ethnicity is well documented.[110] As compared to predominantly white, middle- or higher-income communities, low-income minority communities generally have had fewer grocery stores and thus reduced access to healthy foods, like fresh fruits and vegetables.[111] At the same time, low-income minority communities generally have had greater access to convenience stores and dollar stores, which tend to offer more highly processed, energy-dense foods with fewer healthy options.[112] Initial interventions, such as the Healthy Food Financing Initiative, sought to improve health outcomes by funding grocery store renovations and construction in "food deserts," thereby increasing physical proximity to healthy food retailers.[113] Some have criticized these efforts for contributing to gentrification.[114]

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[108] Radulescu, *supra* note 5, at 269; Jason K Hawes, et. al., *Does Urban Agriculture Lead to Gentrification?*, 225 LANDSCAPE & URB. PLAN. 104447 (2022); *See e.g.,* Pascale Joassart-Marcelli & Fernando J. Bosco, *Alternative Food Projects, Localization and Neoliberal Urban Development: Farmers' Markets in Southern California*, MÉTROPOLES, 2014; Alison Hope Alkon & Josh Cadji, *Sowing Seeds of Displacement: Gentrification and Food Justice in Oakland*, CA, 44 INT. J. URB. REG. RES. 108 (2020).

[109] Jennifer R. Wolch, et. al., *Urban Green Space, Public Health, and Environmental Justice: The Challenge of Making Cities 'Just Green Enough'*, 125 LANDSCAPE & URB. PLAN. 234, 235 (2014).

[110] Renee E. Walker, et. al., *Disparities and Access to HealthyFood in the United States: A Review of Food Deserts Literature,* 16 HEALTH & PLACE 876 (2010) (summarizing a systematic review of food access studies, many of which evaluate racial, ethnic and socioeconomic disparities in access to grocery stores); Bower, *supra* note 8 at 35 (examining the availability of grocery store access as related to neighborhood racial, ethnic and socioeconomic composition).

[111] Carolyn C. Cannuscio, et. al*., Urban Food Environments and Residents' Shopping Behaviors*, 45 AM. J. PREV. MED. 606, 606-607 (2013).

[112] *See* Erica Cavanaugh, et. al., *Nutrition Environments in Corner Stores in Philadelphia*, 56 PREV. MED. 149, 149–51 (2013); Shannon N. Zenk, et. al., *Fruit and Vegetable Access Differs by Community Racial Composition and Socioeconomic Position in Detroit, Michigan*, 16 ETHN. DIS. 275, 278-79–80 (2006); Jerry Shannon, *Dollar Stores, Retailer Redlining, and the Metropolitan Geographies of Precarious Consumption*, 111 ANNALS OF THE AM. ASS'N OF GEOGRAPHERS 1200, 1212-14 (May 2020).

[113] *See* Cummins, *supra* note 64; *see* Grimms, *supra* note 64; *see* Rose *supra* note 64; *see* Radulesco, *supra* note 5.

[114] Radulesco, *supra* note 5.

Urban housing prices are sensitive to the existence of food amenities, such as specialty grocery stores.[115] One study found that nearby specialty grocery stores, with a mix of traditional, organic, specialty, and deli-prepared foods, resulted in a housing price premium ranging from between 5.8 percent and 29.3 percent, and an estimated average increase of 17.5 percent.[116] Thus there is a valid concern that certain investments in grocery stores may trigger property price increases leading to gentrification and displacement.[117]

An additional concern is that specialty grocery stores catering to middle-class residents may increase food prices.[118] The Healthy Food Financing Initiative's approach to eliminating "food deserts" was premised on the idea that all grocery stores were roughly equivalent, such that any full-service grocery store would enhance food access.[119] However, a survey by researchers Betsy Breyer and Adriana Voss-Andreae showed substantial variances in prices between grocery stores, even those in the same city, such that many stores were not affordable for low-income residents.[120] Such variances in price may push current residents to relocate as food prices in their neighborhoods become increasingly unaffordable. [121]

Urban planning scholar Isabelle Anguelovski researches the impacts of gentrification on historically marginalized communities, including gentrification associated with food environments.[122] From 2011 to 2014, she studied the conflict surrounding the development of a Whole Foods grocery store in Jamaica Plains, Massachusetts, a neighborhood just outside of Boston.[123] Although Jamaica Plains was characterized as a "food desert," the development of a Whole Foods store was not adding a grocery store but rather replacing a local Hi-Lo grocery store that had served the neighborhood for nearly 50 years.[124] Drawing on her analysis of business trends, changes in

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[115] JOHNSON GARDNER, AN ASSESSMENT OF THE MARGINAL IMPACT OF URBAN AMENITIES ON RESIDENTIAL PRICING 26-29 (Johnson Gardner, 2007).
[116] *Id.* at 21, 32.
[117] Anguelovski, *supra* note 11 at 1219.
[118] Betsy Breyer & Adriana Voss-Andreae, *Food mirages: Geographic and economic barriers to healthful food access in Portland, Oregon*, 24 HEALTH & PLACE 131, 136 (2013).
[119] *Id.*
[120] *Id.*
[121] *Id.*
[122] Isabelle Anguelovski, BARCELONA LAB'Y FOR ENV'T JUST. AND SUSTAINABILITY, https://www.bcnuej.org/isabelle-anguelovski-bio/ (last visited Mar. 6, 2023).
[123] Anguelovski, *supra* note 11 at 1215-16.
[124] *Id.* at 1217-1219.

property prices, population changes, as well as field visits and interviews, Anguelovski found that this food system investment was accompanied by an increase in middle-class residents, displacing racially diverse and lower-income residents due to reduced affordability.[125] She argues that gentrification resulting from the development of healthy, specialty grocery store chains is a form of privilege that further marginalizes low-income and minority residents.[126] She dubs this trend "supermarket greenlining," capturing both the targeting of certain neighborhoods for "healthy" food investments and the resulting decrease in minority and low-income communities' access to resources, including reasonably priced and culturally appropriate foods.[127]

B. Urban Agriculture

Anguelovski, and other scholars, have researched and written about additional forms of gentrification associated with investments in and expansion of urban green space, including "environmental gentrification" and "green gentrification."[128] Researchers Juliana Mantaay and Andrew Moroko from the City University of New York explain that "gentrification as an outcome/product/consequence of the greening efforts and other environmental improvements in lower-income communities, often results in the benefits of such greening being shifted to the incoming affluent populations, and causing the poor and more vulnerable existing populations to be additionally burdened through displacement from the newly improved neighborhood into worse environments."[129] These forms of gentrification are particularly relevant to efforts aimed at developing or supporting agriculture in urban spaces.

One of the most common forms of urban agriculture in the United States is the community garden.[130] In some cities, community gardens have been developed through municipal policies and initiatives, while others are tied to Public Housing Authorities or community service agencies.[131] In addition to providing access to

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[125] *Id.* at 1209-15.
[126] *Id.* at 1221.
[127] *Id.* at 1211.
[128] *See, e.g., id*. at 1209-30. Juliana A. Maantay & Andrew R. Maroko, *Brownfields to Greenfields: Environmental Justice Versus Environmental Gentrification*, 15 INT. J. ENV'T. RES. PUB. HEALTH 2233 (2018); Hawes, supra note 108, at 1.
[129] Maantay & Maroko, *supra* note 128 at 13.
[130] Neil D. Hamilton, *Greening Our Garden: Public Policies to Support the New Agriculture*, 2 DRAKE J. AGRIC. L. 357, 366 (1997).
[131] *Id.*

fresh, local, and culturally appropriate foods, community gardens can provide educational opportunities, support community resilience, and enhance community well-being.[132] Some communities develop and value their gardens as "spaces of resistance" or "counter-spaces"—spaces in which to organize efforts to shift resources away from the industrialized corporate food system and into marginalized communities.[133] Community gardens have been supported through a variety of public funding mechanisms, including funding from cities, HUD, USDA, and through Community Development Block grants.[134] Just as concerns have been raised regarding gentrification following grocery store investments, there is a developing body of research attempting to assess the impact of urban gardens on residential gentrification.

Similar to specialty grocery stores, community gardens appear to raise property values.[135] In New York City, community gardens significantly increased surrounding property values, especially in the poorest neighborhoods where gardens increased "neighboring property values by as much as 9.4 percentage points within five years of the garden's opening."[136] However, there is limited information on the geographic distribution of urban agriculture nationally, including the locations of home and community gardens.[137]

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[132] Hawes, *supra* note 108 at 2.

[133] Joassart-Marcelli & Bosco, *supra* note 108, at ¶ 2 (citing Rachel Rinaldo, *Space of Resistance: The Puerto Rican Cultural Center and Humboldt Park*, 50 CULTURAL CRITIQUE 135, 135-74 (2002)); Karen Schmelzkopf, *Incommensurability, Land Use, and the Right to Space: Community Gardens in New York City*, 23 URB. GEOGRAPHY 323, 323-343 (2013); Lynn A. Staeheli, et. al., *Conflicting Rights to the City in New York's Community Gardens*, 58 GEOJOURNAL 197, 197-205 (2002); Efrat Eizenberg, *Actually Existing Commons: Three Moments of Space of Community Gardens in New York City*, 44 ANTIPODE 764-782 (2012); Efrat Eizenberg, FROM THE GROUND UP: COMMUNITY GARDENS IN NEW YORK CITY AND THE POLITICS OF SPATIAL TRANSFORMATION (Ashgate, 2013).

[134] *See* Hamilton, *supra* note 130, at 366; *Urban Agriculture and Innovative Production Grants*, U.S. DEP'T OF AGRIC., https://www.usda.gov/topics/urban/grants (last visited Mar. 6, 2023).

[135] Ioan Voicu & Vicki Been, *The Effect of Community Gardens on Neighboring Property Values*, 36 REAL EST. ECON. 241, 270, 277 (2008).

[136] *Id*.

[137] Hawes, *supra* note 108, at 2 (Though it appears that the USDA may be attempting to gather this sort of information through its People's Garden Initiative. This initiative encourages school gardens, community gardens, urban farms, and small-scale agriculture projects to register with the USDA if they meet certain criteria, including benefitting the community, working collaboratively, incorporating conservation practices, and educating the public. As gardens are registered, they are

Limited data on the geographic distribution of urban gardens and a similarly narrow body of research assessing the relationship between urban gardens and neighborhood characteristics like racial composition, income, and housing, means that there is also little *quantitative* information about urban agriculture's role in gentrification.[138] Existing research is mostly focused on specific urban areas, including the following cities and related findings:

- **Portland, Oregon.** Home gardens are disproportionately concentrated in neighborhoods in the early to mid-stages of gentrification.[139]
- **New York City, New York.** Community gardens were associated with significant increases in residents' income levels during a five-year study period, which is indicative of gentrifying areas.[140]
- **St. Louis, Missouri**. Early studies found signs of gentrification (higher rents and mortgage payments) in areas within close proximity to gardens but no evidence of displacement of lower-income populations during the 10-year study period.[141] A later study found increases in the socioeconomic status of residents in neighborhoods near gardens, an indication of gentrification.[142]

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also mapped); *see USDA Opens People's Garden Initiative to Gardens Nationwide*, U.S. DEP'T OF AGRIC., https://www.fsa.usda.gov/news-room/news-releases/2022/usda-opens-peoples-garden-initiative-to-gardens-nationwide (last visited Mar. 6, 2023); *Welcome to the USDA's The People's Garden*, U.S. DEP'T OF AGRIC., https://www.usda.gov/peoples-garden (last visited Mar. 6, 2023).

[138] Hawes, *supra* note108, at 2.

[139] Nathan McClintock, et. al., *Socio-spatial differentiation in the Sustainable City: A mixed-methods assessment of residential gardens in metropolitan Portland, Oregon, USA*, 148 LANDSCAPE & URB. PLAN. 1, 12 (2016) (noting that home gardens in Portland, Oregon were disproportionately located in neighborhood in the early to mid-stages of gentrification).

[140] Maantay & Maroko, *supra* note 128, at 13 (finding an association in New York City between proximity to community gardens and significant increases in income over a five years study period, which is indicative of neighborhoods undergoing gentrification. Potential implications include likely displacement of lower-income residents after green space community improvements); Voicu & Been, *supra* note 135, at 277 (finding an association between community gardens and increased property values, especially in the poorest neighborhoods in New York City).

[141] Mark Tranel & Larry B. Handlin, Jr., *Metromorphosis: Documenting Change*, 28 J. OF URB. AFFS. 151, 164 (2006).

[142] Taylor H. Braswell, *Fresh Food, New faces: Community Gardening as Ecological Gentrification in St. Louis, Missouri*, 35 AGRIC. AND HUM. VALUES 809, 810 (2018).

- **Detroit, Michigan.** Community gardens were more predominant in neighborhoods with younger, wealthier, and more educated residents, while home gardens were more predominant in areas with high home ownership rates. Gardens tend to be sited in areas with otherwise limited access to fresh produce. No correlation was detected between urban gardens and gentrification.[143]

To date, no research appears to have systematically assessed the *quantitative* associations between urban agriculture and gentrification across cities.[144] In contrast, there is a more developed body of *qualitative* research examining the role of urban gardens on gentrification, which includes discussions about the intrusion of whiter and more-affluent populations into urban spaces with green amenities.[145] This intrusion is sometimes accompanied by the appropriation of Black and Brown investments and labor.[146] Based on the *quantitative* research in Detroit and a review of the existing research and literature, researchers concluded that urban agriculture and green infrastructure projects in cities with declining populations, such as Detroit, may result in different distributions of urban gardens as compared to cities with more typical development patterns (increasing urban populations after periods of decline).[147] They further cautioned that it should not be presumed that urban agriculture leads to gentrification in all cities.[148] In line with the *qualitative* research on urban gardens and gentrification, they observed evidence of "racialized dynamics affecting the distribution of gardens at play, including the adoption of community gardens as a revalorization strategy for developers and the city."[149] Caution must be used when undertaking urban agriculture projects, such as

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[143] Hawes, *supra* note 108 at 9, 12, and 14.
[144] *Id.* at 5.
[145] *Id.* at 2 and 5 (citing Nathan McClintock, *Cultivating (a) Sustainability Capital: Urban Agriculture, Ecogentrification, and the Uneven Valorization of Social Reproduction*, 108 ANNALS OF THE AM. ASS'N OF GEOGRAPHERS 579 (2018)); Noah Quastel, *Political Ecologies of Gentrification*, 30 URB. GEOGRAPHY 694 (2009); and Joshua Sbicca, URBAN AGRICULTURE, REVALORIZATION, AND GREEN GENTRIFICATION IN DENVER, COLORADO (2019) T Bartley (Ed.), THE POLITICS OF LAND, 149 (Emerald Publishing Limited) (2019).
[146] *Id.* at 13 (citing Brandon M. Hoover, *White Spaces in Black and Latino Places: Urban Agriculture and Food Sovereignty*, 3 J. OF AG., FOOD SYSTEMS, & CMTY. DEV. 109 (2013)); Prita Lal, *Appropriating a People's Movement: The Relationship Between Gentrification and Community Gardens in New York City*, STONY BROOK UNIV. at 52-53 (2016); McClinktock, *supra* note 145.
[147] Hawes, *supra* note 108 at 14.
[148] *Id.*
[149] *Id.*

community gardens, to assess the risk of gentrification and the potential displacement of current residents. Even in the absence of any seeming risk of displacement, attention must be paid to the role of race to protect against the appropriation of investments in minority and underserved communities by more affluent and whiter populations.

C. Farmers Markets

The role of farmers markets in facilitating gentrification has also been questioned, as some view them as "exclusive spaces serving affluent customers."[150] Similar to "healthy" grocery stores, farmers markets tend to attract whiter and more-affluent residents in search of distinct urban settings, particularly those with unique food retailers.[151] Take, for example, the experience of food justice organization Phat Beets Produce, which saw its urban agriculture and food access projects used to market neighboring real estate.[152]

Phat Beets was established with the aim of creating a healthier and more equitable food system in North Oakland, California, by providing access to affordable produce and connecting farmers of color to urban consumers.[153] Phat Beets supported and partnered with farmers of color through their farmers market and community supported agriculture programs.[154] The goal of these programs was to develop economic opportunities for youth, immigrants, and food entrepreneurs of color.[155] Highlighting one of the ways in which urban agriculture and farmers markets serving low-income minority communities can be used as a revalorization strategy, Phat Beets' community garden and farmers market were used to market real estate to potential buyers.[156] A real estate agent's promotional materials quoted a new homeowner as saying, "We're super psyched that there's a community garden across the street—it's definitely a bonus to this block."[157] The agent's website further gushed that, "[t]he fabulous edible garden movement is in full swing," and it is "not uncommon to find neighbors crop swapping their homegrown edibles and frequenting the local Farmer's

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[150] Cohen, *supra* note 105 at 5.
[151] Alkon & Cadji, *supra* note 108 at 109-118.
[152] *Id.* at 109.
[153] *Id.* at 108.
[154] *Id.* at 109.
[155] *Id.*
[156] Alkon & Cadji, *supra* note 108 at 117-119.
[157] Lauren Markham, *Gentrification and the Urban Garden*, THE NEW YORKER (May 21, 2014) https://www.newyorker.com/business/currency/gentrification-and-the-urban-garden.

Markets."[158] The site inventoried the neighborhood's community-gardening programs, including Phat Beets.[159] One of Phat Beets' founders expressed his objection to the marketing materials by explaining that, "[o]ur work wasn't the cause of gentrification, but our programs and our aesthetics were being used to sell land and help displace people."[160] Although not a quantitative assessment of the relationship between community gardens, farmers markets, and gentrification, Phat Beets' experience highlights the importance of protecting food access investments in low-income minority communities from being converted into revalorization efforts that raise property prices, attract more affluent residents to the community, and potentially displace current residents.[161]

In an article examining farmers markets in San Diego, California, researchers paid particular attention to the agendas behind such initiatives and their role in reshaping San Diego's communities along racial and class lines.[162] They further examined the participation of marginalized groups and neighborhoods in those initiatives.[163] Focusing on three farmers markets, the authors examined how one market, the Little Italy Mercato, was developed by urban developers and entrepreneurs to capitalize on the popularity of local food, while two others, City Heights Farmers' Market and People's Produce Market, were created with more inclusive goals (helping refugees living in the neighborhood) or as a form of community activism.[164] Consistent with the motives underlying its formation, the Little Italy Mercato promoted gentrification of the surrounding neighborhood.[165] The City Heights Farmers' Market, created to serve refugee farmers and families in the area, garnered significant attention, and the area has since seen gentrification trends, including more white and English-speaking customers.[166] Consequently, the market began to cater to a new customer base, seemingly neglecting the ongoing food access needs of the low-

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158 *Id.*
159 *Id.*
160 *Id.* (Oakland has been described as an area experiencing "super-gentrification," a phenomenon in which both long-term residents and early gentrifiers are displaced); Alkon & Cadji, *supra* note 108, at 113 (As of 2016, it was among the top five most expensive housing markets in the United States with rents having increased by more than 100% on average since 2010).
161 Alkon & Cadji, *supra* note 108.
162 Joassart-Marcelli, *supra* note 108 at ¶ 3.
163 *Id.*
164 *Id.* at ¶¶ 27, 32, 38, and 44.
165 *Id.* at ¶ 44.
166 *Id.* at ¶ 45.

income residents who inspired its formation.[167] Well-intentioned underlying motives created the potential to develop a more just, sustainable, and inclusive food landscape, however, they did not guarantee those results.[168] The People's Produce Farmer's Market, motivated by food advocacy and community activism, was intended to serve communities living in Southeastern San Diego, an area considered a food desert.[169] It struggled to attract the very people it intended to serve, prompting concern that the market may be alienating or failing to meet the needs of local residents.[170] Despite these concerns, the market was instrumental in supporting community grassroots movements and food advocacy[171] and, as of 2022, continued to serve residents through a night farmers market and a mobile produce truck.[172]

Thus, the goals underlying the development of farmers markets, and other food access investments, may correlate with the risk of gentrification. Investments that are purposely developed to revitalize urban communities appear to be successful in attracting higher-income residents. However, even investments intended to create more just and inclusive food landscapes risk having their successful efforts used to promote trendy or healthy food landscapes that can alienate and displace current residents.

If successful food access projects—whether in the form of grocery stores, urban agriculture, or farmers markets—ultimately push out lower-income or minority communities, they have failed to fulfill their intended purpose. Further, they may actually exacerbate existing disparities, including disparities in health outcomes and equities, by displacing current residents. Thus, measures must be taken to guard against these risks.

V. Creating More Equitable Food Landscapes Requires Consideration of the Impacts of Food Access Initiatives on Affordable Housing

To further racial, socio-economic, and health equities, food access investments must be part of a broader and more intentional

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[167] Joassart-Marcelli, *supra* note 108.
[168] *Id.*
[169] *Id.* at ¶ 38.
[170] *Id.* at ¶ 46.
[171] *Id.* at ¶ 41.
[172] Who We Are, PROJECT NEW VILLAGE, https://projectnewvillage.org/who-we-are/ (last visited Mar. 7, 2023).

approach to creating equitable and sustainable cities.[173] This requires policymakers and planners to consider the relationships between housing and food landscapes, and not just the ways in which housing programs can be leveraged to support food access.[174] It is imperative that policymakers further consider the ways in which food access investments may impact housing and potentially negate the intended beneficial impacts of such projects. The following considerations must be taken into account when evaluating proposed initiatives to increase food access, improve food security, and reduce the incidence of diet-related diseases, particularly in low-income urban communities of color:

A. Assess whether the communities where food access investments are proposed are undergoing or likely to undergo gentrification.

Although gentrification is a serious and significant concern in many of our nation's largest cities, it is not common in most places, including in most medium to small-sized cities.[175] However, impoverished neighborhoods that have not yet been subject to investment and development efforts and are not currently undergoing gentrification are particularly susceptible to future gentrification.[176] As HUD, USDA, and other governmental agencies implement the Administration's National Strategy on Hunger, Nutrition, and Health, they must consider whether food access investments are being proposed in areas undergoing or likely to undergo gentrification.[177] For projects in gentrifying neighborhoods, or areas at risk of future gentrification, agencies should mitigate the risk of displacement by 1) supporting projects that are less likely to spur gentrification, such as low-profile projects or those designed to exclusively serve low-income community members, and 2) requiring

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[173] Christina D. Rosan, *Making Urban Agriculture an Intentional, Equitable City Redevelopment Strategy*, FRONTIERS SUSTAINABLE FOOD SYST., June 2020, at 3 (2020).
[174] *Id.* at 3.
[175] Richardson, *supra* note 92 at 4-5.
[176] *Id.*
[177] THE CDFI FUND, HEALTHY FOOD FINANCING INITIATIVE-FINANCIAL ASSISTANCE (HFFI-FA) APPLICATION GUIDANCE (2022) (Proposals for Healthy Food Financing Initiatives projects are evaluated based on the "extent to which the Applicant's activities will provide healthy food-related goods and services in communities" lacking healthy food options; with patterns of non-healthy food consumption; suffering from poor health indicators; and with high concentrations of persons participating in food assistance programs. They are not evaluated based on their potential to provide positive long-term food access and health impacts for current residents, including whether such projects might displace current residents).

that projects be implemented in conjunction with affordable housing safeguards, such as subsidized housing or regulations controlling rent increases.

B. Engage the community in considering whether the project design is likely to trigger gentrification and potentially displace current residents.

The Administration's strategy envisions that agencies will use a range of approaches beyond promoting the development of grocery stores, urban gardens, and farmers markets to increase food access.[178] Potential suggested approaches include cross-promoting programs and funding food pantry spaces and summer meal programs in affordable housing developments.[179] Because visible investments in grocery stores, urban gardens, and farmers markets in low-income neighborhoods can spark the influx of newcomers in search of lower real estate prices coupled with healthy, unique, or trendy food experiences, some affected communities may prefer approaches that carry less risk of gentrification.

Just as some environmental justice advocates have adopted a "just green enough" strategy in an attempt to balance the need for environmental improvements with the need to protect against "green gentrification," some food policy advocates suggest an analogous "just food enough" strategy.[180] This strategy should engage community members, advocates, public policymakers, and planners in developing initiatives that increase access to healthy, affordable, and culturally-appropriate food without espousing community revalorization.[181] A "just food enough" strategy could potentially include investments that are only accessible to current residents, such as food pantries, lunch programs, or facilitating food deliveries in housing developments.

Affordable housing providers are well-suited to partner with food banks and other service providers to offer their residents on-site food pantries, summer lunch programs, and food deliveries. Food banks commonly serve as centralized repositories for donated food that is then distributed to other community organizations and food pantries that can provide food access closer to low-income residents'

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[178] THE WHITE HOUSE, *supra* note 2 at 25.
[179] *Id*.
[180] Cohen, *supra* note 105 at 7 (citing Winifred Curran & Trina Hamilton, Just Green Enough: Contesting Environmental Gentrification in Greenpoint, Brooklyn, 17 LOCAL ENV'T 1027 (2012)).
[181] Cohen, *supra* note 105 at 7.

homes.[182] An example of one such partnership is the Arlington Food Assistance Center in Arlington, Virginia, which complements its centralized distribution site with regular deliveries to affordable housing communities and senior living facilities.[183] The Central Texas Food Bank similarly partners with the Housing Authority of the City of Austin to offer two programs: 1) a Summer Lunch Program for youth residents; and 2) a Senior Grocery Program providing qualified senior residents with monthly supplies of shelf-stable groceries and cheese.[184] The Housing Authority in Portland, Oregon, partnered with local teens and other providers to create a pilot program offering monthly fresh food distributions and food literacy courses to low-income teen residents.[185] The program was launched in a mixed-use housing development after the community raised concerns that the school lunch program was insufficient and teens expressed feeling stigmatized when seeking food assistance.[186]

Affordable housing providers can also assist low-income households wanting to purchase their own food but that face barriers using grocery delivery services, such as a lack of internet access or difficulties coordinating deliveries.[187] By providing internet access and facilitating deliveries—for example, accepting grocery deliveries during business hours or installing storage lockers to securely hold deliveries—affordable housing providers can remove barriers that may otherwise limit food access.[188]

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[182] Allison Charette, et. al*., Food at Home: Affordable Housing as a Platform to Overcome Nutritional Challenges*, ENTERPRISE, at 22 (April 2014) https://assets.aecf.org/m/resourcedoc/Enterprise-FoodatHome-2014.pdf.

[183] AFAC Fact Sheet (FY22), ARLINGTON FOOD ASSISTANCE CTR., https://afac.org/about/hunger-facts/fact-sheet/ (last visited Mar. 7, 2023).

[184] Community Partners: Those We Trust, HOUSING AUTH. OF THE CITY OF AUSTIN, https://www.hacanet.org/residents/community-partners/ (last visited Mar. 7, 2023).

[185] Martha M. Galvez, *Exploring Teen Food Insecurity in Portland, Oregon*, URB. INST., at 1 (April 12, 2018) https://www.urban.org/sites/default/files/publication/98011/exploring_teen_food_insecurity_in_portland_oregon.pdf.

[186] *Id.* at 1-2, 13, 19. ("An important and innovative aspect of this work that can be replicated elsewhere is the service partnership between the Home Forward housing authority, the Oregon Food Bank, and Food Works. Breaking down service silos allowed the three organizations to develop something new and promising for the teens in their community. And, by adapting the ⌈Teen Food Literacy Program⌉ and Harvest Share or developing new approaches in collaboration with teens, communities can experiment with ways to help teens develop food literacy, strengthen leadership skills, and improve access to food assistance.").

[187] Charette, *supra* note 182 at 11.

[188] *Id.*

A "just food enough" strategy could also include increased awareness regarding the underlying food and health equity goals of food access programs and efforts to ensure that such programs are not coopted to promote real estate investments. Rather than siting food access projects to enhance visibility to the general public, food access projects could be incorporated into sites in less visible ways (for example, siting community gardens in the center or on rooftops of affordable housing developments). There are numerous other creative ways housing programs have or could be leveraged to improve residents' access to healthy, affordable, and culturally appropriate food without triggering gentrification. Cataloging and documenting these efforts through developing case studies highlighting best practices, as directed by the Administration in its national strategy, would provide helpful resources to support community engagement and facilitate dialogue about the range of potential options and associated benefits and risks.[189]

C. For projects in areas that are gentrifying or likely to gentrify, especially projects that signal changing or unique food landscapes, policymakers and planners should ensure that such investments will not negatively impact current residents' access to affordable housing.

A common theme throughout the literature on the role of urban food and agriculture initiatives in triggering gentrification is the need for safeguards protecting the rights of current residents to live in their communities, even as revitalization efforts transform them.[190] Targeted food access investments in subsidized housing developments would mitigate the risk of displacing current residents as changes in the food landscape trigger increased property values and housing expenses. Federal agencies should solicit food access projects to be implemented at HUD-assisted properties and public housing developments, particularly in disinvested urban areas. For food access projects not integrated into subsidized housing developments, federal agencies should condition support on the existence of other affordable housing safeguards mitigating the risk of displacement (e.g., regulations controlling rent increases). Such efforts are consistent with, but go one step further than, the Administration's directives to promote and incentivize food access projects at HUD-assisted properties and public housing developments.[191]

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[189] THE WHITE HOUSE, *supra* note 2 at 12.
[190] Rosan, *supra* note 173 at 3; Cohen, *supra* note 105 at 7.
[191] THE WHITE HOUSE, *supra* note 2 at 13 and 25.

There are numerous examples of HUD-assisted properties and Public Housing Authorities incorporating food access into their housing programs, efforts that may serve as models, inspiration, or offer lessons learned for future projects. Although some programs highlighted below facilitate the same sort of local grocery store, urban agriculture, and farmers market initiatives discussed above, these projects are unique in that they are integrated into subsidized housing developments, addressing, in part, the economic pressure that can lead to displacement in areas undergoing gentrification.

Village Market. Village Market is a nonprofit, community-run grocery store built as part of a mixed-income housing development in Portland, Oregon.[192] New Columbia, the housing development where the store is sited, was funded through the Hope VI program administered by HUD.[193] Opened in 2011, the market carries a full line of food products, including bulk and ethnic foods appealing to the community's immigrant and refugee populations, and fresh produce, some of which is grown by local farmers.[194] Before Village Market opened, more than a third of the families in New Columbia lacked access to a vehicle, and the nearest grocery store was over a mile away, in an area not serviced by a direct public transit route.[195] Founders envisioned that the market would promote health and wellness, empower community members, and create employment opportunities for the housing development's residents.[196]

Although organizers initially hoped that store profits would help fund other programs, the store has struggled to break even.[197] Initially funded with approximately $800,000 in grants, the market

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[192] *Healthy Food for New Columbia: The Journey of the Village Market,* at 5, OR. PUB. HEALTH INST., https://ophi.org/download/PDF/village%20market-web.pdf (last visited Jan. 3, 2023).
[193] *Id.* at 6.
[194] Rebecca Kaufman, *Village Market, A Healthy Corner Store, Opens in North Portland's New Columbia*, THE OREGONIAN (May 31, 2011), https://www.oregonlive.com/portland/2011/05/village_market_a_healthy_corne.html; Carolyn E. Zezima, *Healthy Food Access: Improve Resident Health, Save Site Money*, ASSISTED HOUS. MGMT. INSIDER (Sept. 27, 2014), https://www.assistedhousinginsider.com/article/healthy-food-access-improve-resident-health-save-site-money-0.
[195] OR. PUB. HEALTH INST., *supra* note 192, at 4.
[196] *Id.* (Eleven years later, Village Market's website suggests that it employs more than a dozen staff, most of whom reside in the community. See Meet Our Staff, OUR VILL. GARDENS, http://www.villagegardens.org/our-staff (last visited Mar. 7, 2023).
[197] *Id.*

continues to rely on local and federal funding.[198] In 2020, it was awarded a $65,422 Healthy Food Financing Initiative grant to renovate the store's produce department.[199] As a small store, the higher prices that Village Market must pay for inventory significantly impact its pricing, and financially strapped New Columbia residents are understandably sensitive to pricing.[200]

In addition to the challenges of meeting its customers' price points, Village Market has found that its small size makes it difficult to accommodate the diverse needs of its community.[201] Perishable products, such as fresh fruits and vegetables, must be ordered carefully so that they do not go to waste.[202] This has proven particularly challenging in a community with a wide range of social, economic, racial, and ethnic diversity impacting food preferences.[203] Consequently, many residents use the store only occasionally or for emergencies.[204]

Opening and sustaining a small market requires committed stakeholders with some level of expertise running similar programs.[205] Owners of HUD-assisted properties or Public Housing Authorities that are considering incorporating grocery stores into their properties should consider whether they have sufficient stakeholder interest and expertise, how to best meet their community's pricing and food preference needs, and what sources of funding might be available to sustain the project. Further, federal agencies should provide ongoing financial support, if needed, to ensure the long-term viability of such projects. Where this is not feasible, policymakers and developers should consider less resource-intensive food access investments, such as those described below.

Urban Agriculture. To enhance food access, Public Housing Authorities have incorporated a wide variety of urban agriculture into their properties, including through community gardens, edible landscaping, community orchards, and by hosting

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[198] Jane Therese Waddell, The Village Market: New Columbia Goes Shopping for Food Justice, 196 (Oct. 21, 2016) (Ph.D. dissertation, Portland State University), https://doi.org/10.15760/etd.3279.
[199] Historical Award Impacts Impact Numbers for 2019 & 2020, AM.'S HEALTHY FOOD FIN. INITIATIVE, https://www.investinginfood.com/impact-22/past-impact/ (last visited Mar. 7, 2023).
[200] *See* Waddell, *supra* note 198 at 24.
[201] *Id.* at 261-62.
[202] *Id.*
[203] *Id.* at 262-63.
[204] *Id.* at 264.
[205] *See* Waddell, *supra* note 198 at 208.

urban farms.[206] While many urban Public Housing Authorities recognize the value of dedicating space to residents wishing to grow

[206] *E.g.*, David J. Hess & Langdon Winner, *Case Studies of Community Gardens and Urban Agriculture*, DAVID J. HESS (2005), https://www.davidjhess.org/uploads/3/4/8/1/34811322/sustloccasescommgard.pdf (describing the involvement of public housing authorities in community garden programs in Boston and Seattle); *From the Ground Up: Improving Community Health Through Collaboration*, CMTY. COMMONS, https://www.communitycommons.org/collections/From-the-Ground-Up-Improving-Community-Health-Through-Collaboration (last visited Mar. 7, 2023) (describing community gardens at a public housing complex in Lewiston, Maine; Lots to Gardens partnered with the Lewiston Housing Authority to provide fourteen families living at the complex with the tools and guidance to plant, tend, and harvest their own garden plot); Urban Growing and Gardening, N.Y.C. FOOD POL'Y, https://www.nyc.gov/site/foodpolicy/programs/urban-growing-and-gardening.page (last visited Mar. 7, 2023) (describing the New York City Housing Authority's Garden and Greening program which provides year-round technical assistance and other resources to thousands of residents across the city's 328 public housing developments; Garden and Greening supports over 700 gardens and three urban farms); *Awarding NYCHA's Gardeners*, NYCHANOW (Jan. 2019), http://nychanow.nyc/awarding-nychas-gardeners/ (describing how, with support from corporate sponsors, the New York City Housing Authority hosts a competition and award ceremony for the more than 1,000 resident gardeners living in New York City Housing Authority properties); Tapiz Community Garden, DENVER URB. GARDENS, https://dug.org/garden/tapiz/ (last visited Mar. 7, 2023) (describing the Tapiz Community Garden run by Denver Housing Authority residents that live in South Lincoln Homes, a low-income family site, and the Tapiz at Mariposa, a site for low-income seniors and people with disabilities; Denver Botanic Gardens provides technical support in the form of classes on planning, planting, composting, and harvesting, with garden produce used at the Osage Café, a non-profit student-run restaurant); *E.g.,* Patricia E. Salkin & Amy Levine, *Regional Foodsheds: Are Our Local Zoning and Land Use Regulations Healthy?*, 22 FORDHAM ENV'T L. REV. 599, 630-31 (2011) (describing the San Francisco Housing Authority's planting of fruit and nut trees on public housing properties); *E.g.*, Zezima, *supra* note 205 (describing Project HOME in Philadelphia, Pennsylvania, that grows most of its fruits and vegetables for its meals program, using fresh produce during the season and freezing produce to be used during the winter); SUSTAINABLE COMTYS. LEARNING NETWORK, GROWING THE LOCAL/REGIONAL FOOD SYSTEM: STRATEGIES FOR SUSTAINABLE AND EQUITABLE ECONOMIC DEVELOPMENT PROJECT PROFILES (2015) (describing how the Rockford Housing Authority in Illinois contracts with Angelic Organics Learning Center to run its Blackhawk Courts Farm and Garden; Angelic Organics pays residents, including youth, "market money" for volunteering at the farm and as an incentive to participate in trainings and surveys); *EPA Commits to Helping 13 Communities Revitalize Neighborhoods by Developing Local Food Systems*, ENV'T PROT. AGENCY (June 2, 2021) https://www.epa.gov/newsreleases/epa-commits-helping-13-communities-revitalize-neighborhoods-developing-local-food (describing how the Housing Authority in the City of Tulsa, Oklahoma is implementing the "Envision Comanche" plan to improve low-income residents' access to healthy foods; the plan includes an urban farm and suggests exploring partnerships with non-profit community organizations to develop a micro-grocery, farm stand, and food processing kitchen).

food, seemingly little information about their experiences has been reported.[207]

Anecdotal reports suggest that some communities may be resistant to urban agriculture programs. For example, the Boston Housing Authority has over fifty housing developments serving more than 17,000 people, but urban agriculture is seemingly rare in its public housing developments, with only five properties hosting community gardens (as of 2016).[208] A representative from COG Design, a firm that designs community and open spaces in subsidized housing properties, opined that there may be some aversion to vegetable gardens in public housing developments, as they require staff oversight and time investments that may not be feasible for very low-income populations.[209] Other potential explanations may include some residents' concerns around gardens as a tool for gentrification; historical trauma rooted in slavery and a corresponding lack of culturally sensitive engagement practices; use of involuntary labor (e.g., youth or mandated service hours); and restrictions on the use of community gardens to promote income generation.[210]

For some communities, however, gardens offer spaces where specific racial and ethnic groups can meet their physical, social, and psychological needs, celebrate their cultural heritage, and transfer food knowledge.[211] In fact, several studies have found that Latinos, refugees, immigrants, and indigenous groups use community gardens to grow culturally familiar foods, cultivate a sense of place and security, and connect with people from similar backgrounds.[212]

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[207] ENV'T PROT. AGENCY *supra* note 206.

[208] Missions and Values, BOS. HOUS. AUTH., https://www.bostonhousing.org/en/About-Us.aspx (last visited Mar. 7, 2023); Jill Eshelman, The Social Ownership of Community Gardens: Implications for Environmental Justice, Food Access and the Right to the City (Dec. 2016) (Ph.D. dissertation, Northeastern University) http://hdl.handle.net/2047/D20234893.

[209] *E.g.,* Eshelman, *supra* note 208, at 60; Hess & Winner, *supra* note 206, at 71 (Furthermore, the Housing Authority in Seattle, Washington has one full-time staff person dedicated to its community garden program).

[210] Jennifer F. Jettner, Community Gardens: Exploring Race, Racial Diversity and Social Capital in Urban Food Deserts Capital in Urban Food Deserts, at 13 (May 2017) (Ph.D. dissertation, Virginia Commonwealth University), https://scholarscompass.vcu.edu/cgi/viewcontent.cgi?article=5867&context=etd.

[211] *Id.*, *see also,* Tina M. Waliczekz, et. al., *Benefits of Community Gardening on Quality-of-Life Issues*, 14 J. OF ENV'T HORTICULTURE 204, 207 (1996).

[212] Jettner, *supra* note 210 (citing Laura R. Barraclough, *South Central Farmers and Shadow Hills Homeowners: Land Use Policy and Relational Racialization in Los Angeles*, 61 THE PROF. GEOGRAPHER 164 (2009)); Erika Mundel & Gwen

Not unlike other food access projects, the suitability and success of urban agriculture projects are highly dependent on the specific needs, interests, values, and limitations of the community. And, in dense urban areas where land is at a premium, conflicting needs for space can create tensions between affordable housing and urban agriculture programs.[213] Thus, projects must engage and be driven by affected residents.

Although there are at least some resources guiding HUD-assisted properties and Public Housing Authorities who want to create urban agriculture spaces for residents,[214] efforts to incorporate urban agriculture into subsidized housing would benefit from more comprehensive information on: 1) the incorporation of urban agriculture in subsidized housing developments; 2) project impacts, including impacts on gentrification indicators; and 3) lessons learned. Additionally, projects should ensure permanent or long-term land tenure so that gardeners and farmers are not displaced after making substantial investments in the land.[215]

Farmers Markets and Mobile Markets. Some housing authorities, such as the San Antonio Housing Authority in Texas, [216]

Chapman., *A Decolonizing Approach to Health Promotion in Canada: The Case of the Urban Aboriginal Community Kitchen Garden Project*, 25 HEALTH PROMOTION INTL. 166 (2010); Laura Saldivar-Tanaka & Marianne E. Krasny, *Culturing Community Development, Neighborhood Open Space, and Civic Agriculture: The Case of Latino Community Gardens in New York City*, 21 AGRIC. & HUMAN VALUES 399 (2004); Karen Schmelzkopf, *Urban Community Gardens as Contested Space*, 85 GEOGRAPHICAL REV. 364 (1995); Sarah Wakefield, et. al., *Growing Urban Health: Community Gardening in South-East Toronto*, 22 HEALTH PROMOTION INTL. 92 (2007).

[213] Jaisal Noor, *A Baltimore Urban Farm Fights for Food Sovereignty in the Face of Eviction*, CIVIL EATS (Dec. 3, 2021), https://civileats.com/2021/12/03/a-baltimore-urban-farm-fights-for-food-sovereignty-in-the-face-of-eviction/ (reporting on the Cherry Hill Urban Community Garden in Baltimore, Maryland, a 1.5 acre farm that had annually provided more than 3,000 pounds of fresh, affordable, and culturally relevant food to neighborhood residents for more than a decade but was served with an eviction order when the Housing Authority decided it needed to reclaim the land to build affordable housing).

[214] *See, e.g.,* Melanie Meisenheimer, *Integrating Food Access and Affordable Housing*, VT. HOUS. & CONSERVATION BD. (Feb, 2015), https://www.hungercenter.org/wp-content/uploads/2015/07/HFCR_Montpelier_VT_2015_Meisenheimer.pdf; Zezima, *supra* note 194; Carolyn Zezima, *Take 10 Steps to Create a Successful Community Garden*, ASSISTED HOUS. MGMT INSIDER (Sept. 26, 2013) https://www.assistedhousinginsider.com/article/take-10-steps-create-successful-community-garden-residents; and Charette, *supra* note 182.

[215] Cohen, *supra* note 105, at 8.

[216] Zezima, *supra* note 206.

operate traditional seasonal farmers markets on-site, while others have partnered with mobile markets to increase access to fresh fruits and vegetables. For example, in Boston, Massachusetts, the nonprofit *About Fresh* partners with the Boston Housing Authority to offer residents access to a mobile market with a diverse selection of produce that reflects the cultures and traditions of the communities it serves.[217]

Mobile produce markets offer a promising opportunity to optimize access to healthier foods, such as fresh fruits and vegetables, because they are flexible and adaptable.[218] A systematic review of studies on mobile food vendors revealed an association between mobile produce markets and higher reported fruit and/or vegetable intake.[219] Location was the most commonly cited reason that people gave for using mobile produce markets, which is an especially compelling reason supporting use at subsidized housing developments.[220] Mobile markets, and to a lesser degree traditional farmers markets, allow housing providers to offer a convenient point of access for residents to use food-assistance benefits and incentives, without investing substantial resources, such as those required to construct neighborhood grocery stores.

Grocery stores, urban agriculture, farmers markets, and mobile markets are just a few of the ways in which subsidized housing providers have attempted to improve residents' food access. Integrating food access projects in subsidized housing developments can address some of the social and economic pressures that low-income communities can feel following neighborhood reinvestment projects, especially food-focused projects. However, as explored above, low-income and minority communities are increasingly wary of food access projects which may be perceived as tailored to whiter,

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[217] 2020 Annual Report 4, 10, ABOUT FRESH, (2020) (according to About Fresh's 2020 Annual Report, $615,000 in SNAP/Healthy Incentive Program benefits was spent at Fresh Truck markets, demonstrating the role that mobile markets have in increasing access to fresh food); John Lynds, *Nonprofit Fresh Truck in Charlestown on Thursdays*, CHARLESTOWN PATRIOT-BRIDGE (Nov. 25, 2020), https://charlestownbridge.com/2020/11/25/nonprofit-fresh-truck-in-charlestown-on-thursdays/; BMC FRESHCONNECT, BOSTON UNIV. MED. CTR. https://portal.nifa.usda.gov/web/crisprojectpages/1020866-bmc-freshconnect.html (last visited Mar. 7, 2023) (A randomized controlled trial is underway to establish scientific evidence regarding the effectiveness of the program).

[218] Sean C. Lucan, *Local Food Sources to Promote Community Nutrition and Health: Storefront Businesses, Farmers' Markets, and a Case for Mobile Food Vending*, 119 J. ACAD. NUTRITION DIETETICS 39-44 (Jan 2019).

[219] Bi-Sek Hsiao, et. al., *A Systematic Review of Mobile Produce Markets: Facilitators and Barriers to Use, and Associations with Reported Fruit and Vegetable Intake,* 119 J ACAD. NUTRITION DIETETICS 76, 77 (Jan. 2019).

[220] *Id.*

more-affluent populations. Given these concerns and the potential gentrification concerns for residents in and around subsidized housing developments, federal agencies must implement projects in partnership with affected communities.

VI. Conclusion

Gentrification is a serious and significant concern in many of our nation's largest cities.[221] Although most underserved neighborhoods are not being revitalized nor undergoing gentrification, future investment and development efforts could pave the way for gentrification.[222] Gentrification is often followed by the displacement of long-term residents, particularly low-income, Black, and Hispanic communities.[223] Gentrification and displacement have short- and long-term adverse health impacts for affected communities, including heightened levels of food insecurity.[224] Yet many food access investments are believed to drive gentrification.

As federal agencies consider measures to improve food access in underserved communities, they must consider the potential for displacement and whether safeguards exist to protect current residents' access to affordable housing, and specifically, whether residents are protected against increased living costs. Projects should be evaluated based on their potential to improve *long-term* food access for *existing residents,* and impacts should be measured based on that same criterion. In contrast, impacts on and benefits to incoming populations should be evaluated in light of any corresponding harm to displaced communities. As case studies are developed to highlight best practices for leveraging housing to improve food access, they should specifically address gentrification and displacement markers, successful strategies for engaging and allowing affected communities to lead food access investment efforts, and strategies for guarding against gentrification.

Just as certain neighborhoods and communities have been subject to disinvestment, so too has subsidized housing, especially public housing.[225] Not only is this an opportunity to leverage housing to improve food access, it is also an opportunity to leverage food system investments to improve housing, housing that has suffered

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[221] Richardson, *supra* note 92 at 4.
[222] *Id.*
[223] *Id.* at 4-5.
[224] Mehdipanah, *supra* note 96.
[225] Maggie McCarty, *Introduction to Public Housing*, CONG. RES. SER., at 40 (Feb. 13, 2014) https://crsreports.congress.gov/product/pdf/R/R41654/14.

from years of underfunding and neglect.[226] In the process, perhaps our nation will better house and nourish those who have too little rather than adding to the abundance of those who have much.

[226] *Id.*