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

A snapshot of nutrition incentive adaptation during COVID-19: Consensus-building with practitioners

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Submitted October 7, 2022 / Revised March 6 and April 4, 2023 / Accepted April 5, 2023 / Published online May 24, 2023

Citation: Gusto, C., Diaz, J. M., Warner, L. A., Overdevest, C., Campbell, C., & Galindo, S. (2023). A snapshot of nutrition incentive adaptation during COVID-19: Consensus-building with practitioners. *Journal of Agriculture, Food Systems, and Community Development*, *12*(3), 239–254. https://doi.org/10.5304/jafscd.2023.123.013

Abstract

Exacerbated food insecurity has been among the many challenges presented by the emergence of the novel coronavirus 2019 in the United States. In the wake of the pandemic, expanded focus has turned to the capacities of established federal nutrition assistance programs and emergent nutrition access models to address these challenges. Supplemental Nutrition Assistance Program-based incentive programs, or nutrition incentive programs, are an emergent model designed to provide financial incentives (additional funds) to limited-resource, Supplemental Nutrition Assistance Program (SNAP)-enrolled shoppers to improve the affordability of fresh fruits and vegetables at farm-direct and other retail outlets. While policymakers, researchers, and other stakeholders have advanced efforts to evaluate the overall impact and efficacy of nutrition incentive programs, much remains to be understood about how these programs operate under pandemic conditions and how effective they

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Disclosure

No funding was received to conduct this study. We have no conflicts of interest to report.

Author Note

This article presents research collected as part of the corresponding author's dissertation study.

have been at mitigating the associated increase in food hardship for limited-resource families.

To examine the salient factors influencing nutrition incentive program operations during the pandemic, we applied a three-round, online Delphi process with an expert panel (*N*=15) of nutrition incentive practitioners between May and October 2021, analyzing the data using thematic analysis and descriptive statistics. The panelists reached consensus on several barriers, opportunities, and innovative adaptations in incentive programming operations, both in the early stages of the pandemic outbreak and that may persist long-term. The findings—which include barriers such as "staff burnout and/or turnover," opportunities such as "increased collaboration and networking between stakeholders," and innovative adaptions such as "targeted expansion of SNAP/EBT eligibility"—have implications for the operational and adaptive capacities of SNAP-based incentive program practitioners over the next several years. We provide recommendations for both researchers and nutrition incentive practitioners with an emphasis on further exploring and operationalizing the long-term barrier, opportunity, and innovative adaptation findings to aid the continued development of nutrition incentive program resilience in preparation for future pandemic events or comparable food system shocks.

Keywords
Adaptation, Consensus, COVID-19, Pandemic, Delphi, Food Access, Food Insecurity, Nutrition Incentives, SNAP, GusNIP

Introduction and Literature Review

Food Insecurity in the Pandemic Era

In the spring of 2020, COVID-19 disrupted the global food system. A destabilized food system was the consequence not only of the virus itself but of a series of policies issued to slow its spread, including lockdown mandates and related mobility restriction measures at the federal, state, and local level (Bender et al., 2022; Weersink et al., 2021). Early stay-at-home orders induced widespread layoffs and furloughs across multiple sectors, which preceded food business closures, consumer panic buying and product stockpiling, inflated food prices, and intensified reliance on emergency food assistance services, such as food banks (Campbell, 2021; Niles et al., 2020; Ziliak, 2021).

Of the pandemic's many adverse impacts on stakeholders within the food system—including food retail employers, food-service workers, and agricultural producers—the increase in food insecurity provoked prominent concern from public health practitioners, policymakers, researchers, and food justice advocates alike (Ahn & Norwoord, 2021; Bender et al., 2022; Campbell, 2021). Food insecurity, broadly defined as the restricted or disrupted access to sufficiently nutritious food for an individual or household due to the lack of financial resources, is a long-recognized metric of both acute and chronic economic distress in the U.S., and also one of the most significant public health issues under consideration by experts (Ahn & Norwoord, 2021; Gundersen & Ziliak, 2018; Lewis et al., 2021). As evidenced by surges in emergency food use, enrollment in nutrition assistance programs, and self-reported rates of food hardship in at-risk populations (such as seniors or communities of color), food insecurity worsened in 2020, aggravated both by the virus and subsequent measures implemented to mitigate its impact (Ahn & Norwoord, 2021; Fitzpatrick et al., 2021; Gundersen et al., 2021; Schanzenbach & Pitts, 2020; Siddiqi et al., 2021; Ziliak, 2021).

Recognizing the severity of food insecurity risks due to COVID-19, food system stakeholders in the United States increased their focus on the capacities of established nutrition assistance programs such as the Supplemental Nutrition Assistance Program (SNAP), as well as emerging programs such as Produce Prescription Programs and SNAP-based incentive programs (SBIPs; John et al., 2021; Parks, Mitchell et al., 2021). SBIPs, also known as nutrition incentive programs, have been particularly strongly advocated for as a critical nutrition intervention model to combat food insecurity "post-COVID" (John et al., 2021; Parks, Han et al., 2021).

SBIPs: Structure, Scope, and Operational Impacts During the Pandemic

SBIPs aim to reduce or eliminate financial barriers to fresh fruits and vegetables (FF&Vs) by provid-

ing SNAP-enrolled individuals with "immediate price discounts on produce purchased with SNAP" (Parks et al., 2019, p. 395). Conceived initially as local pilot interventions to help limited-resource shoppers afford cost-prohibitive fruits and vegetables at farm-direct outlets (FDOs) such as farmers markets, SBIPs have quickly spread and evolved, expanding into brick-and-mortar retail spaces such as grocery stores, and featuring product eligibility allowances beyond FF&Vs (John et al., 2021; Parks, Mitchell et al., 2021; Parks et al., 2020). Experiencing rapid growth and development, with widespread implementation across the country and bourgeoning coalitions co-creating and disseminating best practices, SBIPs reflect an emergent and adaptable nutrition assistance intervention model (John et al., 2021). Given the still-emergent status of SBIPS in the U.S., there remains significant variation across program characteristics such as outlet type, geographic focus or scale, methods for incentive distribution and redemption (e.g., enrollment requirements), product redemption eligibility, and amount of incentive match offered (Engel et al., 2020; Parks et al., 2020). While farmers markets have been the primary provider outlet for SBIPS, eligible outlets also include grocery stores (typically smaller-scale, independent grocers, or food cooperatives), convenience or corner stores, farm stands, mobile markets, and community supported agriculture (CSA) subscriptions (Parks et al., 2020).

Predictably, COVID-19's spread significantly complicated SBIP operations in the U.S. While nutrition incentive practitioners experienced substantial operational changes due to statewide and municipal emergency response orders (e.g., lockdowns), key operational changes were also triggered by targeted pandemic response actions from U.S. Department of Agriculture Food and Nutrition Service (USDA FNS; USDA FNS, n.d.-a). In the two years following the initial onset of COVID-19, the USDA FNS authorized a series of adaptations, or "key flexibilities," to SNAP/ Electronic Benefits Transfer (EBT) implementations at the state level. These waiver actions included approval for states to issue emergency supplements to SNAP households (i.e., emergency allotments), Pandemic-EBT (P-EBT) allowances for states to offer benefits to households with children who qualify for free or reduced school meals, expanded support for SNAP Online Purchasing, and much more (USDA FNS, n.d.-b).

Of these flexibilities, implementing P-EBT may have affected nutrition incentive providers (particularly farm-direct outlet operators) most directly within the first several months of the pandemic. Originally authorized under the Families First Coronavirus Response Act of 2020, P-EBT offers temporary emergency nutrition benefits for children who would have otherwise received free or reduced-price meals under the National School Lunch Act if their schools were not closed or forced to reduce operating hours (Balasuriya et al., 2021; USDA FNS, n.d.-b). With benefits loaded onto qualifying individuals' existing EBT cards, P-EBT is compatible with the nutrition incentive redemption process and has been eligible for incentive matches (the "doubling" of EBT funds) in various states across the country (Double Up Arizona, 2020; Feeding Florida, n.d.; Sustainable Food Center, n.d.).

Finally, another significant impact to SBIP operations involved a US$75 million appropriation authorized by USDA National Institute of Food and Agriculture (NIFA) in the spring of 2021. The Gus Schumacher Nutrition Incentive Program (GusNIP) COVID Relief and Response grants program (GusCRR) assists GusNIP grantees (SBIP providers) with their efforts to target vulnerable, limited-resource communities with additional pandemic relief (USDA, 2021). GusCRR grants have expanded the scope of work established under previous GusNIP awards to "address pandemic relief and respond to community needs in an impactful, timely, and authentic way" (USDA, 2021, para. 10). There is inconclusive evidence regarding how GusCRR has affected SBIP outcomes, signifying an opportunity for researchers to expand academic focus on evaluating SBIP efficacy.

The stability and adaptive capacity of SBIPs has become a vital area of inquiry since COVID-19's arrival in the U.S, and there is currently a lack of research emphasis on assessing the "on the ground" conditions of incentive program implementation, administration, and evaluation, as well as the experiences and perceptions of the practitioners, providers, and shoppers so central to those

processes (Garner et al., 2020). The limited examples of these process-oriented explorations have demonstrated value by providing a contextually grounded richness of data not typically found in outcome-focused impact assessments (Garner et al., 2020; Gusto et al., 2020; Savoie Roskos et al., 2017). The perspectives and expertise of SBIP practitioners—including FDO operators, technical assistance administrators, and regional program coordinators—became even more crucial after COVID-19's arrival, given the tumultuous and rapidly shifting SBIP operating conditions (Parker et al., 2021; Parks et al., 2021b).

Purpose and Objectives

To better understand how COVID-19 impacted and continues to impact SBIP operations across the country, we centered the expertise of a panel of SBIP practitioners who implement, administer, and evaluate of SBIPs across different regions in the U.S. The purpose of this study was to leverage practitioner expertise to identify and reach consensus on the barriers, opportunities, and innovative adaptations believed to be the most influential to SBIP operating conditions and adaptive capacities (the capacities of SBIP practitioners to adapt to system disruptions and mobilize newly learned best practices to improve overall system functioning) during, and beyond, the COVID-19 pandemic (Barasa et al., 2018). Three objectives guided this effort:

1. Identify and formalize an expert panel through an intentional and structured sampling procedure.
2. Collect, synthesize, and refine participant responses across data analysis rounds by applying validated consensus thresholds.
3. Assess results from third-round data collection to determine if consensus was achieved among the panelists.

By applying the Delphi technique with this expert panel, we were able to reach consensus on the most salient barriers, opportunities, and innovative adaptations affecting SBIP operations across both the early and latter stages of the COVID-19 pandemic. Our findings generated a snapshot of the conditions SBIP practitioners faced on the ground during COVID-19, with implications for how SBIP operational and adaptive capacities may evolve over the next few years.

Applied Research Methods

Design Overview

We facilitated a three-round Delphi technique approach remotely between February and October 2021 with a panel of experts (SBIP practitioners) operating in various states across the U.S. The Delphi technique is a long-established technique to develop and achieve expert-based consensus on a complex issue (Drumm et al., 2022; Niederberger & Spranger, 2020). Applied when "available knowledge is incomplete or subject to uncertainty" or when the aggregation and integration of diverse, emergent, and specialized knowledge are deemed critical, the classical Delphi technique typically involves an iterative, three-round procedure that begins with an open-ended elicitation round followed by two close-ended survey rounds that prompt the panelists to rate or rank items generated from round one (Brady, 2015; Linstone et al., 2002; Niederberger & Spranger, 2020, p. 1). In this study, we adapted the classical Delphi design format for virtual, remote facilitation with expert panelists, deploying each of the three rounds via Qualtrics, an online survey platform (Version 2021).

Soon after the University of Florida Institutional Review Board (IRB) approved this study (#IRB202100382) in late February 2021, we targeted prospective panelists for their knowledge of and experience with multiple elements of SBIP operations, including program implementation at FDOs and other retail providers, administrative and technical assistance protocols for incentive providers, and prevailing SBIP evaluation (i.e., impact assessment) norms. We initially identified 60 eligible individuals through prominent SBIP coalitions organizations such as the Nutrition Incentive Hub, the Farmers Market Coalition, and Wholesome Wave, as well as through publicly listed GusNIP grantees across all qualifying project types (e.g., pilot projects, standard projects, and large-scale projects; USDA NIFA, n.d.). We sent emails to 60 candidates, inviting them to participate

in an introductory phone call to share the study's objectives and participation expectations. In addition to this purposive outreach, several individuals who agreed to participate in the study also helped to identify additional candidates. This supplemental snowball sampling technique helped to meet our target panel threshold for this study (a minimum of 15 members), accounting for individuals who did not respond to initial outreach attempts, and for individuals who initially agreed to participate but later opted out due to scheduling conflicts (Naderifar et al., 2017; C. Parker et al., 2019). The final expert panel included 20 adult individuals representing a range of organization types and professional roles, including directors of statewide farmers market associations, administrative personnel at nationally focused SBIP organizations, and SBIP program coordinators at principal provider organizations in a given state or region.

Data collection

Round one

After consenting to participate in the study, the panelists (*N*=20) completed the first-round survey in early summer 2021. We prompted the panelists to respond to three open-ended question sets regarding their perceptions of the operational and adaptive capacities of SBIPs in the aftermath of COVID-19's emergence and spread in the U.S. Following two screening questions included to clarify the roles and characteristics of the organizations represented, we asked the panelists to provide feedback to three primary question sets regarding how SBIP practitioners operate during, and potentially beyond, the pandemic. These question sets, or constructs, included barriers, opportunities, and innovative adaptations. We invited the panelists to provide examples of each construct across two distinct time horizons: those that were salient or impactful in the early stages of COVID-19's emergence (early spring through late summer 2020) and those believed to be most likely to remain impactful over the long term (over the next several years). The panelists responded to each construct in both list and descriptive, long-response format. Table 1 depicts these constructs and time horizon categories.

Round two

Round two involved the distribution of a quantitative instrument to the panelists to collect ratings of all items synthesized from the first round's qualitative feedback (Drumm et al., 2022; Niederberger & Spranger, 2020). Four panelists could not continue their involvement in this round due to various personal circumstances unrelated to the study, resulting in a 16-member panel for round two. We presented the panelists with a set of item-statements for each construct (barriers, opportunities, and innovative adaptations) compiled from our thematic analysis (more detail about that step is below) of the first-round feedback. We additionally organized items for each construct into two distinct time horizons, requesting the panelists to rate how salient or impactful each item was in the early stages of the COVID-19 outbreak or would be over the long term. We used separate response scales to reflect the distinct chronologies between items. All early-stage items, which we situated as past dynamics (barriers, opportunities, or innovative adaptations) within SBIP operations, were rated by the panelists using a five-point Likert agreement scale (1=strongly disagree; 5=strongly agree). Long-term items across each construct, which we positioned as potential future dynamics in SBIP practice, were rated using a five-point Likert likelihood scale (1=extremely unlikely; 5=extremely likely).

Round three

The third and final survey round mirrored round two's format, with a change in response-scale design as a notable exception. We prompted the panelists (*N*=15) to rate all items that progressed from round two by achieving two-thirds consen-

Table 1. Constructs and Time Horizon Categories

Constructs	Time Horizons
Barriers	Early-stage barriers
	Long-term barriers
Opportunities	Early-stage barriers
	Long-term opportunities
Innovative Adaptations	Early-stage adaptations
	Long-term adaptations

sus, a consensus threshold commonly applied in Delphi studies (Drumm et al., 2022; Niederberger & Spranger, 2020). Using a seven-point Likert agreement scale (1=strongly disagree; 7=strongly agree) for all early-stage items, and a seven-point Likert likelihood scale (1=extremely unlikely; 7=extremely likely) for all long-term items, the panelists provided final appraisals of the impact of all remaining barriers, opportunities, and innovative adaptations to the operational conditions and capacities of SBIPs on the ground.

Data Analysis

Round one

We analyzed qualitative data generated from round one's elicitation questions using open, axial, and selective coding techniques (Glaser & Strauss, 1967). The lead analyst applied these techniques to break down, examine, compare, and group raw, discrete snippets of data until representative themes (codes) emerged to be further subjected to comparison and scrutiny by the rest of the research team (Bernard et al., 2016; Glaser & Strauss, 1967). We performed the analysis in NVivo, a qualitative analysis program (Version 12). We applied select techniques to address potential concerns about the credibility ("truth"), transferability (applicability), dependability (consistency and repeatability), and the confirmability (neutrality) of findings—such as audit trail reporting, peer debriefing, and analyst triangulation (Connelly, 2016; Kyngäs et al., 2019; Lincoln & Guba, 1985).

Rounds two and three

We analyzed survey data from rounds two and three using simple descriptive statistics in SPSS (Version 27). This is a technique frequently applied in Delphi studies to verify that items under consideration meet an identified consensus threshold (Drumm et al., 2022; Lange et al., 2020). To advance to the third and final round, we required that all early-stage round-two items under consideration (early-stage barriers, opportunities, and innovative adaptations) meet a two-thirds consensus threshold, whereby approximately 67% of the panelists rated a given item either a 4 ("somewhat agree") or a 5 ("strongly agree"). Similarly, we required that all long-term barrier, opportunity, and innovative adaptation items analyzed from round two data meet the ~67% consensus threshold to advance to round three. Each item required two-thirds of the panelists to provide a rating of either 4 ("somewhat likely") or 5 ("extremely likely").

In round three, we similarly determined consensus by calculating the panelists' rating frequencies and percentages for each item across all question sets. In this round, however, we applied this procedure to appraise expanded response scales, given that round three featured seven-point, rather than five-point, Likert scales. Where two-thirds of the panelists selecting either "somewhat agree/ strongly agree" or "somewhat likely/extremely likely" qualified an early-stage or long-term second-round item for advancement, an item achieving consensus in round three required that ~67% of the panelists rated it a 6 ("agree"/"moderately likely") or 7 ("strongly agree"/"extremely likely"). These response scale and scoring modifications were implemented to capture greater nuance in the panelists' perceptions of the items under consideration and more precisely reflect their views in the final round.

Results

Given the volume of data collected, we present results for rounds one and two of the Delphi study only in brief below, recounting themes the panelists initially identified (round one) and subsequently rated (round two) across six eligible categories: early-stage and long-term barriers, early-stage and long-term opportunities, and early-stage and long-term innovative adaptations. We describe round three's final consensus results in greater detail, supported by result tables illustrating the panelists' item ratings across all categories.

Round One

The panelists' (*N*=20) qualitative feedback generated 28 unique barrier themes, including 14 early-stage barriers (barriers to the operational capacities of SBIPs in the early stages of the COVID-19 outbreak in the U.S.), and 14 long-term barriers (barriers perceived to adversely impact the operational capacities of SBIPs over the next several years). The panelists identified nine opportunity themes,

including six early-stage opportunities (opportunities influential to SBIP operational capacities in the early stages of the COVID-19 outbreak in the U.S.) and three long-term opportunities (opportunities that may help influence SBIP success and resilience over the next several years). Finally, the panelists' responses produced 11 innovative adaptation themes, including seven early-stage innovative adaptations (adaptations most influential to the operational capacities of SBIPs in the early stages of the COVID-19 outbreak in the U.S.), and four long-term innovative adaptation (adaptations perceived to be most likely to influence the operational capacities of SBIPs over the next several years).

Round Two

Out of 28 reviewed barrier items, 13—including eight early-stage items and five long-term items—achieved panel consensus and were advanced to round three. Eight opportunity items—five of the six early-stage opportunities under consideration, and all three of the possible long-term opportunities—met the consensus threshold and qualified for round three. Finally, eight innovative adaptation items—six early-stage items and two long-term items—attained consensus and were advanced to the third and final round.

Round Three

Table 2 displays the frequencies and percentages for the panelists' (N=15) ratings of each early-stage barrier item under consideration. Only one early-stage barrier item, "Lack of Access to SNAP online and/or online ordering systems," qualified for consensus.

Of the five long-term barrier items rated using the seven-point likelihood scale, one item, "Staff burnout and/or turnover," achieved final panel consensus. Table 3 shows the panelists' rating frequencies (and percentages) for each long-term barrier item.

Table 4 shows the frequency and rounded percentage selection rates for each early-stage opportunity item, with asterisks marking the items that attained final consensus. All five early-stage opportunity items reviewed by the panelists met final consensus, with one item, "Increased consumer

Table 2. Agreement Ratings for Final Early-Stage Barrier Items

	Likert response scale-points							
Early-stage barrier item	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)	Combined agreement %
Implementation of new safety protocols, guidelines, and market standards	0 (0.0%)	0 (0.0%)	2 (13.3%)	0 (0.0%)	6 (40.0%)	1 (6.7%)	9 (56.3%)	63.0%
Inadequate staffing support	0 (0.0%)	0 (0.0%)	2 (13.3%)	0 (0.0%)	4 (26.7%)	4 (26.7%)	5 (33.3%)	60.0%
Increased complexities with data collection and reporting	0 (0.0%)	0 (0.0%)	1 (6.7%)	0 (0.0%)	7 (46.7%)	4 (26.7%)	3 (20.0%)	46.7%
Lack of access to SNAP online and/or online ordering systems	0 (0.0%)	1 (6.7%)	1 (6.7%)	1 (6.7%)	2 (13.3%)	1 (6.7%)	9 (60.0%)	67.0%[a]
Issues with adapting to SNAP online and/or online ordering systems	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (40.0%)	3 (20.0%)	2 (13.3%)	4 (26.7%)	40.0%
Program promotion and communication challenges with SNAP clientele	0 (0.0%)	1 (6.7%)	2 (13.3%)	1 (6.7%)	5 (33.3%)	5 (33.3%)	1 (6.7%)	40.0%
Reduced transportation access for consumers	0 (0.0%)	0 (0.0%)	2 (13.3%)	4 (26.7%)	3 (20.0%)	3 (20.0%)	3 (20.0%)	40.0%
Reduced access to programming due to FDO closures and/or operation restrictions	1 (6.7%)	1 (6.7%)	1 (6.7%)	1 (6.7%)	3 (20.0%)	2 (13.3%)	6 (40.0%)	53.3%

[a] Item met the final consensus threshold

Table 3. Likelihood Ratings for Final Long-Term Barrier Items

	Likert response scale-points							
Long-term barrier item	Extremely unlikely (1)	Moderately unlikely (2)	Slightly unlikely (3)	Neither likely nor unlikely (4)	Slightly likely (5)	Moderately likely (6)	Extremely likely (7)	Combined likelihood %
Increased complexities with data collection and reporting	2 (13.3%)	2 (13.3%)	1 (6.7%)	2 (13.3%)	3 (20.0%)	4 (26.7%)	1 (6.7%)	33.4%
Lack of access to SNAP online and/or alternative program models	0 (0.0%)	2 (13.3%)	3 (20.0%)	1 (6.7%)	1 (6.7%)	3 (20.0%)	5 (33.3%)	53.3%
Issues with adapting to SNAP online and/or online ordering systems	0 (0.0%)	0 (0.0%)	4 (26.7%)	1 (6.7%)	2 (13.3%)	5 (33.3%)	3 (20.0%)	53.3%
Outreach challenges to limited resource/marginalized communities	1 (6.7%)	2 (13.3%)	1 (6.7%)	1 (6.7%)	5 (33.3%)	4 (26.7%)	1 (6.7%)	33.4%
Staff burnout and/or turnover	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (33.3%)	6 (40.0%)	4 (26.7%)	66.7% (67%)[a]

[a] Item met the final consensus threshold

Table 4. Agreement Ratings for Final Early-Stage Opportunity Items

	Likert response scale-points							
Early-stage opportunity item	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)	Combined agreement %
Increased consumer appreciation for small businesses	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (13.3%)	1 (6.7%)	4 (26.7%)	8 (53.3%)	80.0%[a]
Increased collaboration and networking between stakeholders	0 (0.0%)	0 (0.0%)	1 (6.7%)	0 (0.0%)	2 (13.3%)	8 (53.3%)	4 (26.7%)	80.0%[a]
Increased consumer interest in using SNAP and/or nutrition incentives for fruits and vegetables, food producing plants, and seeds	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (13.3%)	13 (86.7%)	100.0%[a]
Renewed stakeholder interest in structural inequities and access in the food system	0 (0.0%)	1 (6.7%)	1 (6.7%)	1 (6.7%)	3 (20.0%)	8 (53.3%)	4 (26.7%)	80.0%[a]
Renewed consumer interest in FDOs and/or local food	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (6.7%)	0 (0.0%)	6 (40.0%)	8 (53.3%)	93.3%[a]

[a] Item met the final consensus threshold

interest in using SNAP and/or nutrition incentives…," achieving unanimous agreement among the panelists.

Table 5 presents the panelists' rating results for all long-term opportunity items. Of the three items under consideration, only "Sustained collaboration and networking between stakeholders" met the final consensus threshold.

Table 6 depicts the frequency and percentage of the panelists' ratings for each early-stage innovative adaptation item, where two-thirds of the panelists rating either a 6 ("agree") or 7 ("strongly agree") qualified an item for final consensus. Two early-stage innovative adaptation items ultimately achieved consensus: "Deliberate redesign of physical spaces at FDOs" and "Targeted expansion of SNAP/EBT eligibility."

Table 7 shares the panelists' rating results for likelihood that two remaining innovative adaptation items ("Continued use of community-based

Table 5. Likelihood Ratings for Final Long-Term Opportunity Items

	Likert response scale-points							
Long-term opportunity item	Extremely unlikely (1)	Moderately unlikely (2)	Slightly unlikely (3)	Neither likely nor unlikely (4)	Slightly likely (5)	Moderately likely (6)	Extremely likely (7)	Combined likelihood %
Sustained collaboration and networking between stakeholders	0 (0.0%)	0 (0.0%)	1 (6.7%)	1 (6.7%)	2 (13.3%)	6 (40.0%)	5 (33.3%)	73.3%[a]
Sustained funding and/or resource support from federal and state legislatures	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (13.3%)	5 (33.3%)	6 (40.0%)	2 (13.3%)	53.3%
Sustained stakeholder interest in structural inequities and access in the food system	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (40.0%)	5 (33.3%)	4 (26.7%)	60.0%

[a] Item met the final consensus threshold

Table 6. Agreement Ratings for Final Early-Stage Innovative Adaptation-Items

	Likert response scale-points							
Early-stage innovative adaptation item	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)	Combined agreement %
Adoption of alternative retail to increase access to SNAP users	0 (0.0%)	0 (0.0%)	1 (6.7%)	1 (6.7%)	4 (26.7%)	4 (26.7%)	5 (53.3%)	60.0%
Deliberate redesign of physical spaces at FDOs	0 (0.0%)	0 (0.0%)	2 (13.3%)	0 (0.0%)	3 (20.0%)	4 (26.7%)	6 (40.0%)	67.0%[a]
Innovative outreach and communication strategies	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (20.0%)	7 (46.7%)	4 (26.7%)	1 (6.7%)	33.4%
Pivot towards SNAP online and/or online ordering	0 (0.0%)	1 (6.7%)	1 (6.7%)	2 (13.3%)	5 (33.3%)	2 (13.3%)	4 (26.7%)	40.0%
Changing incentive match limit amount (i.e., removed or increased caps on redemptions)	1 (6.7%)	0 (0.0%)	0 (0.0%)	4 (26.7%)	2 (13.3%)	4 (26.7%)	4 (26.7%)	53.4%
Targeted expansion of SNAP/EBT eligibility	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (20.0%)	0 (0.0%)	3 (20.0%)	9 (60.0%)	80.0%[a]

[a] Item met the final consensus threshold

Table 7. Likelihood Ratings for Final Long-Term Innovative Adaptation-Items

	Likert response scale-points							
Long-term innovative adaptation item	Extremely unlikely (1)	Moderately unlikely (2)	Slightly unlikely (3)	Neither likely nor unlikely (4)	Slightly likely (5)	Moderately likely (6)	Extremely likely (7)	Combined likelihood %
Continued use of community-based promotion and outreach strategies	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (6.7%)	4 (26.7%)	10 (67.0%)	93.4%[a]
Continued use of SNAP online and/or online shopping systems	1 (6.7%)	1 (6.7%)	2 (13.3%)	1 (6.7%)	2 (13.3%)	4 (26.7%)	4 (26.7%)	53.4%

[a] Item met the final consensus threshold

promotion and outreach strategies" and "Continued use of SNAP online and/or online shopping systems") would endure as best practices for SBIP practitioners long-term. Only one of these items, "Continued use of community-based promotion and outreach strategies," met the consensus threshold, achieving near unanimous likelihood agreement.

Discussion

Since the emergence of COVID-19 in early 2020, policymakers, researchers, and other food system stakeholders have broadened their attention on the resilience of the food system, and the adaptive capacity of specific policies and programs designed to mitigate the pandemic's devastating impacts on food insecurity across vulnerable populations (Gundersen et al., 2021).

Despite SBIPs being recognized as a critical intervention model to alleviate food hardship and food insecurity, a significant lack of understanding of COVID-19's consequences on these programs prevented practitioners from fully anticipating the pandemic-related challenges and opportunities that arose (John et al., 2021; Parks, Han et al., 2021). We therefore determined that our decision to solicit the expertise of SBIP practitioners through a structured and systematic group consensus process (the Delphi technique) was appropriate and necessary to better understand the evolving state of nutrition incentive programming following COVID-19's arrival in the U.S. Our findings demonstrate that consensus was reached across the three core constructs evaluated in this study: barriers, opportunities, and innovative adaptations. To better reflect the highly variable and rapidly shifting operating conditions for SBIP operators, we prompted the panelists to additionally consider these dynamics across two timeframes: in the early stages of the pandemic (the first several months of 2020) and long-term (over the next several years).

Within the barrier construct, the panelists reached consensus on only one early-stage barrier item: "Lack of access to SNAP online and/or online ordering systems." This finding indicates that the panelists considered the adoption of online systems to be cumbersome and/or exclusionary for both FDO operators and SNAP shoppers alike and corroborates existing literature that suggests that the unintentional exclusion of market shoppers who had limited technology access or were not "tech savvy" was indeed a critical barrier to SBIP operations in the early stages of the pandemic (Broadaway & Wolnik, 2020; Nutrition Incentive Hub, 2020a, 2020b).

Panelists agreed that "Staff burnout and/or turnover" was a critical long-term barrier, a finding supported by prior research demonstrating that operational shifts at FDOs in response to COVID-19 placed "immense stress and new responsibilities on market operators, market staff, and volunteers" (Broadaway & Spencer, 2021, p. 1) and predictions that the pandemic's lingering effects could remain a strain on operators for the foreseeable future (O'Hara et al., 2021).

We found that consensus was achieved for all five early-stage opportunity items considered in the final round. "Increased consumer appreciation for small businesses" was a reference to practitioners' recognition that market shoppers in early 2020 were broadly supportive of small, locally owned businesses hurt by lockdown measures. This item paralleled panelist support for another, very similar item: "Renewed consumer interest in FDOs and/or local food." With near-unanimous agreement, the panelists identified a significantly boosted interest in farmers markets and locally grown produce in the first several months of the pandemic, a likely consequence of disruptions to conventional food supply chains and prolonged stay-at-home orders (Hobbs, 2020; Kolodinsky et al., 2020). Although heightened local food interest and consumption from consumers in the early pandemic period were widely recognized, practitioners and researchers alike have expressed doubts that this interest would persist long-term (Broadaway & Spencer, 2021; Klisch & Soule, 2020; Nutrition Incentive Hub, 2021a; Parker et al., 2021).

Another early-stage opportunity that reached final consensus, "Increased collaboration and networking between stakeholders," reflects recent literature suggesting that the building of community partnerships ("social bridging") was a unique opportunity for SBIP practitioners in the early stages of the pandemic (Nutrition Incentive Hub, 2020a, 2021a, 2021b; Worstell, 2020). Finally, the panelists

agreed that "Increased consumer interest in using SNAP and/or nutrition incentives…" was a highly salient opportunity in the early stages of the pandemic—a result supported by an empirically documented increase in consumer demand for food assistance programming, with nutrition incentive use accounting for dramatic spikes in SNAP use in 2020 compared with 2019 data (Nutrition Incentive Hub, 2021a; M. Parker et al., 2021).

Only one long-term opportunity reached panel consensus: "Sustained collaboration and networking between stakeholders." This finding, which also emerged as an evidence review theme, suggests that the social bridging that was recognized in the early stages of the pandemic was also identified as a dynamic that could remain positively influential to SBIP operations, altering existent practitioners' collaboration and partnership-building models for years to come (Nutrition Incentive Hub, 2021b).

The panelists reached consensus on two early-stage innovative adaptation items: "Deliberate redesign of physical spaces at FDOs" and "Targeted expansion of SNAP/EBT eligibility." The former item was positioned as a prominent health and safety practice in the early stages of the pandemic, with the implementation of limited entry designs, directional tape to manage customer flow, and other capacity control measures at farmers markets and other FDOs considered salient early-stage adaptations to COVID-19 (Broadaway & Spencer, 2021; Broadway & Wolnik, 2020; Klisch & Soule, 2020). The panelists' consensus on the "Targeted expansion of SNAP/EBT eligibility" is supported by literature emphasizing the number of FDO operators who were successful in modifying both the distribution timing and amount of nutrition incentives to improve FF&V access and mitigate food insecurity during the early 2020 period (Nutrition Incentive Hub, 2021c; M. Parker et al., 2021; Thilmany et al., 2020).

Finally, the panelists reached near-unanimous consensus on one long-term innovative adaptation item: "Continued use of community-based promotion and outreach strategies." With recent practitioner literature explicitly acknowledging the long-term value of adopting innovative community-based promotion and outreach models (such as "Market Navigator" projects) to help SBIP practitioners better access limited-resource communities, this finding spotlights a potential avenue for practitioners to mitigate a suite of barriers related to increasing consumer access (Klisch & Soule, 2020; Nutrition Incentive Hub, 2021b).

Limitations

Although the Delphi technique has been applied frequently to generate solutions and other targeted, contextually grounded outcomes for complex topics across contexts, long-standing critiques about the validity and rigor of the method (attributable primarily to its plasticity and lack of standardization) should be considered when evaluating findings (Hasson & Keeney, 2011). While we applied techniques to improve the overall trustworthiness of results (such as peer debriefing), qualitative standards for rigor may not be compatible with the standards of rigor typically applied in quantitative or experimental studies and should therefore be assessed accordingly (Mays & Pope, 2000).

Another potential limitation involves the scale design modification between rounds two and three. Though we made the decision to shift the response format across all constructs from five-point to seven-point Likert scales to more precisely capture the panelists' actual opinions on each item under consideration, evidence suggests that using different rating scales of equivalent reliability with the same audience produces different consensus results (Lange et al., 2020). Round three's changed rating format is therefore likely to have restricted the number of items that qualified for final consensus. It is also expected, however, that the panelists' views were more accurately reflected in the third round (Drumm et al., 2022).

Conclusion and Recommendations

In this study, we applied the Delphi technique with a panel of SBIP practitioner experts to examine salient factors influencing the operating conditions of nutrition incentive program practitioners in the pandemic era. We used a three-round Delphi approach with an expert panel (N=15) of nutrition incentive practitioners between May and October of 2021, analyzing data from three online surveys through both thematic analysis and descriptive statistics. Panelists identified and reached consensus

on several barriers, opportunities, and innovative adaptations in incentive programming operations, both in the early stages of the pandemic outbreak and those that may persist long-term.

We provide key recommendations for both practitioners and researchers below. These recommendations are not meant to be exhaustive, but rather provide a starting point for future engagement with the topic of SBIP resilience to COVID-19, future pandemic events, or other system shocks.

Recommendations for Practitioners

Given that operating conditions and dynamics have changed drastically since COVID-19's emergence in early 2020, the early-stage barrier, opportunity, and innovative adaptation findings likely have diminished relevance for SBIP practitioners operating today. Practitioners may be very interested, however, in further examining all long-term variables that were under consideration by expert panelists in round three and were identified as salient themes in the rapid review of emergent SBIP literature. Communicating and collaborating with practitioners may help to identify the most appropriate format for disseminating these results. Key long-term findings could be incorporated into an accessible and adaptable checklist tool for practitioners operating at various levels of SBIP practice (such as statewide coordinators vs. FDO operators). Relevant coalition bodies, such as the Nutrition Incentive Hub, the Farmers Market Coalition, and the Local and Regional Food System Recovery and Resilience Project 2.0, may also consider representing the following topics at their annual convenings or scheduled monthly webinar events:

- "Staff burnout and/or turnover" was a long-term barrier that achieved consensus in the final Delphi round. The belief that staff burnout would likely persist over the next several years should warrant structured discussion on how FDO operators can be better supported at markets and other retail outlets where nutrition incentives are provisioned. Whether it is because FDOs are critically understaffed, or personnel are undertrained to manage core responsibilities while also maintaining COVID-related health and safety protocols, targeted knowledge-sharing exchanges could help to mitigate this phenomenon.
- "Sustained collaboration and networking between stakeholders" was a long-term opportunity perceived to be likely to endure as a positively influential dynamic in SBIP practice over the next several years. Relevant organizations and coalition bodies could continue to host and expand facilitated, cross-sectoral discussions designed to share best practices related to networking and encourage even greater inter-organizational collaboration. The Nutrition Incentive Hub is the most prominent example of this currently in practice targeting technical support and guidance for nutrition incentive practitioners. For broader food system networking aimed at fostering cross-agency and cross-sector learning, collaboration, and strategic action planning in the post-COVID era, the Local and Regional Food System Recovery and Resilience Project 2.0 serves as a valuable coalition model.
- "Continued use of community-based promotion and outreach strategies" was a final long-term innovative adaptation consensus item. With support for the potential long-term value of adopting innovative community-based promotion and outreach models, the Nutrition Incentive Hub or the Farmers Market Coalition could drastically expand promotion of existing outreach models, such as the "Market Navigator" projects, to help SBIP practitioners (particularly FDO operators) better access the limited-resource communities most in need of nutrition incentive programming.

Recommendations for Future Research

We believe that additional research using the Delphi technique or related group consensus methods (such as the Nominal Group Technique) with this population should be pursued (Harvey & Holmes, 2012). Considering the extremely variable operating conditions for SBIP practitioners due to the evolution of the coronavirus and the rapid shifts in pandemic adaptation policies (such as mask mandates) within the study period, the findings generated in this study may not be wholly rep-

resentative of the most salient dynamics practitioners face today. As such, identifying the most current and relevant factors affecting nutrition incentive programming though a structured consensus technique should be regularly performed to monitor—in a contextually grounded way—the operational capacities of SBIPs and SBIP practitioners over the next several years.

Additionally, there are opportunities to evaluate whether there are distinctions in the needs of specific practitioner groups (and/or the types of organizations they represent) to improve their adaptive capacities for future pandemic or disaster events. In our study, the inclusion criterion we developed stipulated that any individual who had direct experience with the implementation, administration, or evaluation of SBIPs was eligible to participate. This criterion facilitated a high degree of variability in the specific types and scales of SBIP operations participants represented. Directors of statewide farmers market associations, administrative personnel at nationally focused SBIP organizations, and nutrition incentive program managers in regional nonprofit organizations were all included in the final expert panel. Beyond two screening questions in the round-one survey, this study did not advance a mechanism to operationalize or appraise the variability between participants representing distinct SBIP operation types and scales. Future researchers, whether they are applying a similar group consensus-building technique or some other research method with this population, should consider developing a more robust participant segmentation protocol to capture the diversity of practitioner roles and more explicitly operationalize them for future studies.

References

Ahn, S., & Norwood, F. B. (2021). Measuring food insecurity during the COVID-19 pandemic of spring 2020. *Applied Economic Perspectives and Policy*, *43*(1), 162–168. https://doi.org/10.1002/aepp.13069

Balasuriya, L., Berkowitz, S. A., & Seligman, H. K. (2021). Federal nutrition programs after the pandemic: Learning from P-EBT and SNAP to create the next generation of food safety net programs. *Inquiry: The Journal of Health Care Organization, Provision, and Financing*, *58*. https://doi.org/10.1177/00469580211005190

Barasa, E., Mbau, R., & Gilson, L. (2018). What is resilience and how can it be nurtured? A systematic review of empirical literature on organizational resilience. *International Journal of Health Policy and Management*, *7*(6), 491–503. https://doi.org/10.15171/ijhpm.2018.06

Bender, K. E., Badiger, A., Roe, B. E., Shu, Y., & Qi, D. (2022). Consumer behavior during the COVID-19 pandemic: An analysis of food purchasing and management behaviors in U.S. households through the lens of food system resilience. *Socio-Economic Planning Sciences*, *82*(A), Article 101107. https://doi.org/10.1016/j.seps.2021.101107

Bernard, H. R., Wutich, A., & Ryan, G. W. (2016). *Analyzing qualitative data: Systematic approaches* (2nd ed.). SAGE.

Brady, S. R. (2015). Utilizing and adapting the Delphi method for use in qualitative research. *International Journal of Qualitative Methods*, *14*(5). https://doi.org/10.1177/1609406915621381

Broadaway, D., & Spencer, E. (2021). *Alternative farmers market models.* University of Kentucky AEC Extension Publication LSF-IB-14. https://lfscovid.localfoodeconomics.com/resources/3519-2/

Broadaway, D., & Wolnik, D. (2020). Iteration, innovation, and collaboration: Supporting farmers markets' response to COVID-19. *Journal of Agriculture, Food Systems, and Community Development*, *10*(1), 233–236. https://doi.org/10.5304/jafscd.2020.101.014

Campbell, C. (2021). The impact of COVID-19 on local government stakeholders' perspectives on local food production. *Journal of Agriculture, Food Systems, and Community Development*, *10*(2), 71–88. https://doi.org/10.5304/jafscd.2021.102.035

Connelly, L. M. (2016). Trustworthiness in qualitative research. *Medsurg Nursing*, *25*(6), 435–436. https://www.proquest.com/openview/44ffecf38cc6b67451f32f6f96a40c78/1?pq-origsite=gscholar&cbl=30764

Double Up Arizona. (2020, June 5). *Double your P-EBT benefits.* https://www.doubleupaz.org/blog/2020/6/5/double-your-p-ebt-benefits

Drumm, S., Bradley, C., & Moriarty, F. (2022). 'More of an art than a science'? The development, design and mechanics of the Delphi Technique. *Research in Social and Administrative Pharmacy*, *18*(1), 2230–2236. https://doi.org/10.1016/j.sapharm.2021.06.027

Engel, K., & Ruder, E. H. (2020). Fruit and vegetable incentive programs for Supplemental Nutrition Assistance Program (SNAP) participants: A scoping review of program structure. *Nutrients*, *12*(6), Article 1676. https://doi.org/10.3390/nu12061676

Feeding Florida. (n.d.). *How to double your SNAP/EBT for Florida-grown produce with Fresh Access Bucks.* Retrieved June 2022 from https://www.feedingflorida.org/food-access/fresh-access-bucks/how-fab-works

Fitzpatrick, K. M., Harris, C., Drawve, G., & Willis, D. E. (2021). Assessing food insecurity among US adults during the COVID-19 pandemic. *Journal of Hunger & Environmental Nutrition*, *16*(1), 1–18. https://doi.org/10.1080/19320248.2020.1830221

Garner, J. A., Coombs, C., Savoie Roskos, M. R., Durward, C., & Seguin-Fowler, R. A. (2020). A qualitative evaluation of *Double Up Food Bucks* farmers' market incentive program access. *Journal of Nutrition Education and Behavior*, *52*(7), 705–712. https://doi.org/10.1016/j.jneb.2019.11.010

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Aldine.

Gundersen, C., Hake, M., Dewey, A., & Engelhard, E. (2021). Food insecurity during COVID-19. *Applied Economic Perspectives and Policy*, *43*(1), 153–161. https://doi.org/10.1002/aepp.13100

Gundersen, C., & Ziliak, J. P. (2018). Food insecurity research in the United States: Where we have been and where we need to go. *Applied Economic Perspectives and Policy*, *40*(1), 119–135. https://doi.org/10.1093/aepp/ppx058

Gusto, C., Diaz, J. M., Warner, L. A., & Monaghan, P. (2020). Advancing ideas for farmers market incentives: Barriers, strategies, and agency perceptions from market managers. *Journal of Agriculture, Food Systems, and Community Development*, *9*(3), 245–260. https://doi.org/10.5304/jafscd.2020.093.022

Harvey, N., & Holmes, C. A. (2012). Nominal group technique: An effective method for obtaining group consensus. *International Journal of Nursing Practice*, *18*(2), 188–194. https://doi.org/10.1111/j.1440-172X.2012.02017.x

Hasson, F., & Keeney, S. (2011). Enhancing rigour in the Delphi technique research. *Technological Forecasting and Social Change*, *78*(9), 1695–1704. https://doi.org/10.1016/j.techfore.2011.04.005

Hobbs, J. E. (2020). Food supply chains during the COVID-19 pandemic. *Canadian Journal of Agricultural Economics/Revue canadienne D'Agroéconomie*, *68*(2), 171–176. https://doi.org/10.1111/cjag.12237

John, S., Lyerly, R., Wilde, P., Cohen, E. D., Lawson, E., & Nunn, A. (2021). The case for a national SNAP fruit and vegetable incentive program. *American Journal of Public Health*, *111*(1), 27–29. https://doi.org/10.2105/AJPH.2020.305987

Klisch, S., & Soule, K. E. (2020). Farmers markets: Working with community partners to provide essential services during COVID-19. *Journal of Agriculture, Food Systems, and Community Development*, *9*(4), 175–179. https://doi.org/10.5304/jafscd.2020.094.035

Kolodinsky, J., Sitaker, M., Chase, L., Smith, D., & Wang, W. (2020). Food systems disruptions: Turning a threat into an opportunity for local food systems. *Journal of Agriculture, Food Systems, and Community Development*, *9*(3), 5–8. https://doi.org/10.5304/jafscd.2020.093.013

Kyngäs, H., Kääriäinen, M., & Elo, S. (2019). The trustworthiness of content analysis. In H. Kyngäs, K. Mikkonen, & M. Kääriäinen (Eds.), *The application of content analysis in nursing science research* (pp. 41–48). Springer, Cham.

Lange, T., Kopkow, C., Lützner, J., Günther, K.-P., Gravius, S., Scharf, H.-P., Stöve, J., Wagner, R., & Schmitt, J. (2020). Comparison of different rating scales for the use in Delphi studies: Different scales lead to different consensus and show different test-retest reliability. *BMC Medical Research Methodology*, *20*, Article 28. https://doi.org/10.1186/s12874-020-0912-8

Lewis, E. C., Colón-Ramos, U., Gittelsohn, J., & Clay, L. (2021). Food-seeking behaviors and food insecurity risk during the coronavirus disease 2019 pandemic. *Journal of Nutrition Education and Behavior*, *54*(2), 159–171. https://doi.org/10.1016/j.jneb.2021.05.002

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE.

Linstone, H. A., & Turoff, M. (2002). Introduction. In H. A. Linstone, M. Turoff, & O. Helmer (Eds.), *The Delphi method: Techniques and applications* (pp. 3–12). Addison-Wesley.

Mays, N., & Pope, C. (2000). Assessing quality in qualitative research. *BMJ*, *320*(7226), 50–52. https://doi.org/10.1136/bmj.320.7226.50

Naderifar, M., Goli, H., & Ghaljaie, F. (2017). Snowball sampling: A purposeful method of sampling in qualitative research. *Strides in Development of Medical Education*, *14*(3). Article e67670. https://doi.org/10.5812/sdme.67670

Niederberger, M., & Spranger, J. (2020). Delphi technique in health sciences: A map. *Frontiers in Public Health*, *8*, Article 457. https://doi.org/10.3389/fpubh.2020.00457

Niles, M. T., Bertmann, F., Belarmino, E. H., Wentworth, T., Biehl, E., & Neff, R. (2020). The early food insecurity impacts of COVID-19. *Nutrients*, *12*(7), Article 2096. https://doi.org/10.3390/nu12072096

Nutrition Incentive Hub. (2020a, July 1). *Grantee spotlight: Forsyth Farmers Market.* https://www.nutritionincentivehub.org/news-events/news/forsyth-farmers-market

Nutrition Incentive Hub. (2020b, June 3). *Grantee spotlight: Double Up Food Bucks Mississippi*. https://www.nutritionincentivehub.org/news-events/news/double-up-food-bucks-mississippi

Nutrition Incentive Hub. (2021a). *Incorporating Community Supported Agriculture (CSA) & box programs* [Video]. https://youtu.be/dlQ2DXUKg-Q

Nutrition Incentive Hub. (2021b). *Pivots, innovations, and adaptations to COVID-19* [Video]. https://youtu.be/ITpZXgrPYrc

Nutrition Incentive Hub. (2021c). *Gus Schumacher Nutrition Incentive Program Training, Technical Assistance, Evaluation, and Information Center (GusNIP NTAE): Summary of Impact Findings: Year 1: September 1, 2019 to August 31, 2020*. https://www.nutritionincentivehub.org/media/swvfnmn4/gusnip-ntae-summary-of-impact-findings_year-1.pdf

O'Hara, J., Wolnik, D., & Broadaway, D. (2021). *Using budgets to help farmers markets adapt to COVID-19's disruptive impacts* (Local Food Systems Response to COVID: Building Better Beyond, Case Study 01). Retrieved from the Local and Regional Food Systems Response to Covid: Recovery and Resilience website: https://lfscovid.localfoodeconomics.com/resources/using-budgets-to-help-farmers-markets-adapt-to-covid-19s-disruptive-impacts/

Parker, C., Scott, S., & Geddes, A. (2019). Snowball sampling. *SAGE Publications.* https://doi.org/10.4135/9781526421036831710

Parker, M. K., Hedrick, V. E., Hedges, S., Borst, E., Ledlie Johnson, M. , Best, M., & Misyak, S. A. (2021). SNAP participants' purchasing patterns at a food co-op during the COVID-19 pandemic. *Journal of Agriculture, Food Systems, and Community Development*, *10*(2), 147–156 . https://doi.org/10.5304/jafscd.2021.102.043

Parks, C. A., Han, P., Fricke, H. E., Parker, H. A., Hesterman, O. B., & Yaroch, A. L. (2021). Reducing food insecurity and improving fruit and vegetable intake through a nutrition incentive program in Michigan, USA. *SSM-Population Health*, *15*, Article 100898. https://doi.org/10.1016/j.ssmph.2021.100898

Parks, C. A., Mitchell, E., Byker Shanks, C., Nugent, N. B., Fricke, H. E., & Yaroch, A. L. (2021). Descriptive characteristics of nutrition incentive projects across the U.S.: A comparison between farm direct and brick and mortar settings. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, *58*, Article 00469580211064131. https://doi.org/10.1177/00469580211064131

Parks, C. A., Stern, K. L., Fricke, H. E., Clausen, W., Fox, T. A., & Yaroch, A. L. (2019). Food insecurity nutrition incentive grant program: Implications for the 2018 farm bill and future directions. *Journal of the Academy of Nutrition and Dietetics*, *119*(3), 395–399. https://doi.org/10.1016/j.jand.2018.12.005

Parks, C. A., Stern, K. L., Fricke, H. E., Clausen, W., & Yaroch, A. L. (2020). Healthy food incentive programs: Findings from food insecurity nutrition incentive programs across the United States. *Health Promotion Practice*, *21*(3), 421–429. https://doi.org/10.1177/1524839919898207

Savoie Roskos, M. R., Wengreen, H., Gast, J., LeBlanc, H., & Durward, C. (2017). Understanding the experiences of low-income individuals receiving farmers' market incentives in the United States: A qualitative study. *Health Promotion Practice*, *18*(6), 869–878. https://doi.org/10.1177/1524839917715438

Schanzenbach, D., & Pitts, A. (2020, May 13). *Estimates of food insecurity during the COVID-19 crisis: Results from the COVID impact survey, week 1 (April 20–26, 2020)* (IPR Rapid Research Report). Institute for Policy Research, Northwestern University. https://www.ipr.northwestern.edu/documents/reports/food-insecurity-covid_week1_report-13-may-2020.pdf

Siddiqi, S. M., Cantor, J., Dastidar, M. G., Beckman, R., Richardson, A. S., Baird, M. D., & Dubowitz, T. (2021). SNAP participants and high levels of food insecurity in the early stages of the COVID-19 pandemic. *Public Health Reports*, *136*(4), 457–465. https://doi.org/10.1177/00333549211007152

Sustainable Food Center. (n.d.). *Double Up Food Bucks*. Retrieved June 2022 from https://sustainablefoodcenter.org/double-up-food-bucks

Thilmany, D., Jablonski, B., Angelo, B., Low, S., & Tropp, D. (2020). *Mitigating immediate harmful impacts of COVID-19 on Colorado farms and ranches selling through local and regional food markets*. National Sustainable Agriculture Coalition. https://mountainscholar.org/bitstream/handle/10217/217134/REDI_UCSU6_69.2_M69_2020.pdf

U.S. Department of Agriculture [USDA]. (2021, April 13). *USDA invests more than $330 million in specialty crops grants, incentives to purchase fruits and vegetables, and help for cotton producers* [Press Release No. 0071.21]. https://www.usda.gov/media/press-releases/2021/04/13/usda-invests-more-330-million-specialty-crops-grants-incentives

USDA Food and Nutrition Service [USDA FNS]. (n.d.-a). *SNAP COVID-19 waivers*. Retrieved July 2022 from https://www.fns.usda.gov/programs/fns-disaster-assistance/fns-responds-covid-19/snap-covid-19-waivers

USDA FNS. (n.d.-b). *State guidance on Coronavirus P-EBT*. Retrieved July 2022 from https://www.fns.usda.gov/snap/state-guidance-coronavirus-pandemic-ebt-pebt

USDA National Institute of Food and Agriculture [USDA NIFA]. (n.d.). *Gus Schumacher Nutrition Incentive Program (GusNIP)*. Retrieved July 2022 from https://nifa.usda.gov/program/gus-schumacher-nutrition-incentive-grant-program

Weersink, A., von Massow, M., Bannon, N., Ifft, J., Maples, J., McEwan, K., McKendree, M. G. S., Nicholson, C., Novakovic, A., Rangarajan, A., Richards, T., Rickard, B., Rude, J., Schipanski, M., Schnitkey, G., Schulz, L., Schuurman, D., Schwartzkopf-Genswein, K., Stephenson, M., … Wood, K. (2021). COVID-19 and the agri-food system in the United States and Canada. *Agricultural Systems*, *188*, Article 103039. https://doi.org/10.1016/j.agsy.2020.103039

Worstell, J. (2020). Ecological resilience of food systems in response to the COVID-19 crisis. *Journal of Agriculture, Food Systems, and Community Development*, *9*(3), 23–30. https://doi.org/10.5304/jafscd.2020.093.015

Ziliak, J. P. (2021). Food hardship during the COVID-19 pandemic and Great Recession. *Applied Economic Perspectives and Policy*, *43*(1), 132–152. https://doi.org/10.1002/aepp.13099