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RESEARCH ARTICLE

The impact of COVID-19 on CalFresh and Market Match spending at farmers markets

Emergency food benefits during the pandemic resulted in increased purchases by low-income consumers at farmers markets.

by Julia Van Soelen Kim, Yulia Lamoureaux, Susan Garcia, Suzi Grady, Vikram Koundinya, Gail Feenstra, Hanbing Liang and Edna Ely-Ledesma

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Abstract

What barriers and opportunities did low-income consumers face in shopping at farmers markets during COVID-19? To answer this question, we observed purchasing practices in Sonoma and Marin counties in Northern California, organized focus groups, and analyzed data from CalFresh and Market Match, which are public programs to support food access. We found that expanded federal food benefits during the pandemic increased financial access to farmers markets for low-income consumers, resulting in increased CalFresh and Market Match sales. While some consumers perceived outdoor shopping as safer, others were unsure whether farmers markets were strictly following pandemic precautions. Further, broader changes to shopping practices as a result of the pandemic indirectly impacted consumers' interest in shopping at farmers markets. To make farmers markets more accessible now and in preparation for future disasters, we recommend increasing awareness of farmers markets among low-income communities, strengthening public nutrition benefits that can be used at farmers markets, and linking public and nonprofit organizations that promote access to healthy food with farmers markets.

Alternative food movements challenge the negative consequences of industrial food systems, with sustainable community food systems and food justice being important subsets of the diverse movement (Galt 2017). Farmers markets are central to alternative food movements, and it is important to cultivate equitable access to these markets for all consumers. A variety of federal, state and local programs increase low-income consumers' financial access to farmers markets; these include the federal Supplemental Nutrition Assistance Program (SNAP) — called "CalFresh" in California — and the "Market Match" program.

CalFresh is the largest food program in California, offering monthly federal food assistance benefits to low-income households through Electronic Benefit Transfer (EBT) cards that can be used at grocery stores and participating farmers markets. Generally, households must earn less than 200% of the federal poverty level; monthly benefits are based on household size, income and deductible living expenses. At farmers



Ortiz Family Farm at Petaluma East Side Farmers Market. Expanded food benefits were important in increasing the buying power of low-income individuals at farmers markets during the pandemic, but these programs are now experiencing funding cuts. *Photo:* Paige Green.



A CalFresh sign at Petaluma East Side Farmers Market. *Photo*: Paige Green.

markets that accept CalFresh, customers swipe their EBT card at the information booth for the amount they want to spend and receive wooden tokens or paper scrip to use at vendors' booths to purchase eligible foods.

Market Match is a California-based program through the Ecology Center's Market Match Consortium, funded by the federal Gus Schumacher Nutrition Incentive Program (GusNIP). The program matches customers' CalFresh dollar-for-dollar up to $10 or $20 per day at participating farmers markets, to be spent on fruits, vegetables, fresh-cut herbs, and edible plant starts. By using Market Match, CalFresh customers can afford double the produce. As a result of the program, 73% of Market Match customers surveyed have increased the amount of produce purchased, 85% have purchased different kinds of produce, and 71% said their family's health improved (Ecology Center 2018). On a broader scale, every $1 in Market Match led to an additional $3 in the local economy (Ecology Center 2022).

Despite statewide stay-at-home orders . . . farmers markets in California remained open as "essential services" providing "important sources of fresh food in many communities."

Working together, CalFresh and Market Match lower price barriers and increase purchasing power for low-income customers. Yet they were underutilized at farmers markets in the California North Bay prior to the pandemic. This article draws from a broader study that was conducted in response to this challenge, in order to identify obstacles and opportunities for low-income residents to shop at farmers markets. For this article, we sought to understand the impact of the pandemic on low-income shoppers at farmers markets, specifically CalFresh users.

Farmers markets stayed open

Despite statewide stay-at-home orders that went into effect in March 2020, farmers markets in California remained open as "essential services" providing "important sources of fresh food in many communities" (CDFA 2020). However, these markets faced a set of challenges due to rapidly emerging public health measures during the pandemic (Durant et al. 2023). In addition, there was insufficient government support for farmers markets to meet increased demand for food assistance (Taylor et al. 2021).

In many regions, sales at farmers markets and direct marketing decreased because of the pandemic (Durant et al. 2023; O'Hara et al. 2021). California farmers reported losing sales in a number of market channels, especially sales through farmers markets (Durant et al. 2023; Taylor et al. 2021). In Sonoma County, sales of vegetable crops declined 37% and fruit and nut crops declined 46% in the first year of the pandemic (Sonoma County Department of Agriculture/Weights & Measures 2020).

Locally, farmers markets moved quickly to implement public health measures. They suspended taste testing, canceled community events, required masking, spaced vendors' stalls, set up hand-washing stations, and encouraged vendors to sell pre-bagged produce or to select items for customers. Despite significant impacts on direct marketing in Sonoma and Marin, farmers markets largely remained open — with some even opening earlier in the season than usual — providing a crucial pathway to market for local farmers and access to fresh, local food for communities.

Barriers already existed

Prior to the pandemic, low-income individuals experienced a variety of barriers to shopping at farmers markets. Barriers included lack of convenience (Freedman et al. 2016; Ritter et al. 2018) and inadequate marketing and outreach (Freedman et al. 2016; Freedman et al. 2017), including the need for signage, advertisements, and activities outside of and during markets. There are also cultural barriers (Freedman et al. 2016; Fulfrost et al. 2010; Klisch and Soule 2020), including the degree to which farmers markets are welcoming to the demographics of the surrounding population. In addition, there are economic barriers (Farmer et al. 2016; Ritter et al. 2018), including prices and limited financial incentives at farmers markets.

Community-engaged research

This study was part of a broader community-engaged research project from 2018 to 2022 conducted by an

interdisciplinary team of food systems scholars and practitioners. This included participants from the University of California Agriculture and Natural Resources, Petaluma Bounty (a farm-based food security program), the Northern California Center for Well-Being (a community health and nutrition nonprofit), and Farmers Market L.I.F.E. (Local Incentive for Food and Economy, further referred to as FM LIFE), a network of four farmers market organizations in Sonoma and Marin that accept CalFresh and Market Match.

Data were collected from 18 farmers markets, including 16 markets in Sonoma County and two markets in Marin County. In Sonoma County, there are eight year-round farmers markets and upward of 26 weekly markets at peak season, with markets every day of the week except Mondays, and most markets accepting CalFresh.

This study used a mixed-methods design, collecting data from CalFresh and Market Match datasets, consumer focus groups, and participant observation. Quantitative data on CalFresh and Market Match were collected by Petaluma Bounty through FM LIFE and the Market Match Consortium. Data were manually collected by market personnel on each market day, transcribed to digital spreadsheets, tallied by Petaluma Bounty for market reimbursement and reporting, and analyzed for the purpose of this study using MS Excel.

Qualitative data were collected from 12 consumer focus groups held from August to November 2020 with 39 participants. Of the 39 participants, 28 had shopped at farmers markets in the region and 21 self-identified as enrolled in CalFresh or another income-based program. Participants were a purposive sample of low-income Sonoma County residents who were recruited to participate in the study by market managers, project partners, and social media because they were receiving income-based services or identified as low income. Participants received a $20 farmers market gift certificate or grocery store gift card. Focus groups were conducted in English and Spanish by bilingual and bicultural facilitators from the Northern California Center for Well-Being who were skilled at multicultural community engagement and trained in best practices for conducting focus groups. Focus groups were virtual, using Zoom. Recordings were transcribed and coded in their original language by a pair of coders for each focus group to ensure inter-coder reliability. Researchers created a code book to identify themes, codes, and sub-codes, summarized in table 1. These methods were supplemented with participant observations at monthly meetings with participating market managers from 2018 to 2022 and at annual meetings with all market managers in Sonoma County.

Learning from the pandemic

Based on the broader community-engaged research project, we knew about pre-pandemic barriers for low-income shoppers to access farmers markets in Sonoma and Marin counties. These included lack of knowledge about food assistance benefits at farmers markets and about the locations, days and times of markets. Other barriers included perceptions that farmers markets have high prices, combined with a lack of clear price signage. While these barriers predated the pandemic, the pandemic created a new set of barriers and opportunities for accessing farmers markets. First, expanded federal food benefits helped increase financial access to farmers markets for low-income consumers; in fact, CalFresh and Market Match sales at farmers markets increased during the pandemic. Second, perceptions of COVID safety and risk positively or negatively impacted whether consumers chose to shop at farmers markets. Finally, broader changes to shopping practices because of the pandemic influenced consumers' interest in shopping at farmers markets.

CalFresh and Market Match sales

CalFresh and Market Match saw sharp increases from pre-pandemic to pandemic levels. Figures 1 to 6 demonstrate the dollar amount of distributions and number of transactions under the two programs, with usage stagnating prior to the pandemic (2018 and 2019), and then increasing notably during the pandemic (April 2020 to 2022).



Rodriguez Farm at Petaluma East Side Farmers Market. *Photo*: Paige Green.

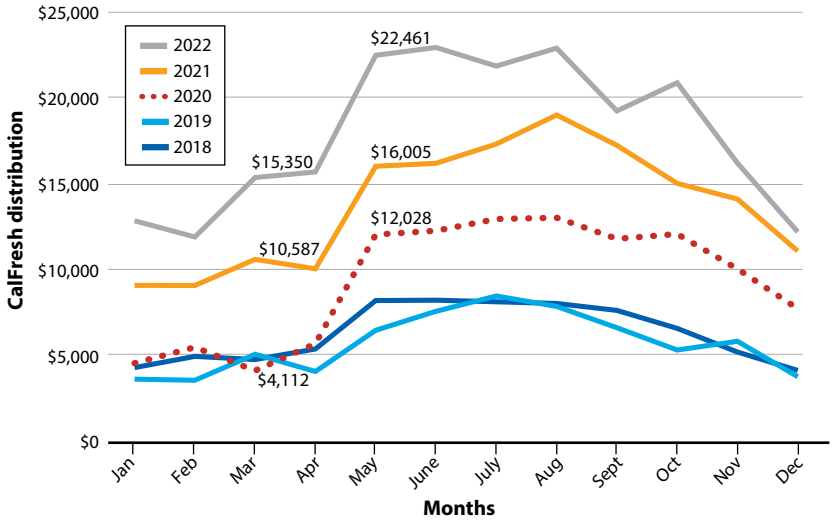


FIG. 1. A comparison of month over month total CalFresh distributed at FM LIFE markets from pre-pandemic levels (2018–2019) to pandemic levels (2020–2022).

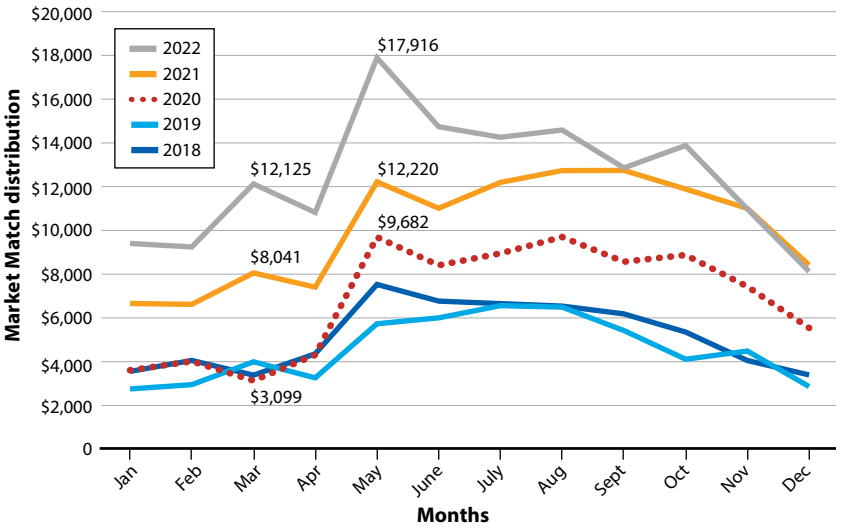


FIG. 2. A comparison of month over month total Market Match distributed at FM LIFE markets from pre-pandemic levels (2018–2019) to pandemic levels (2020–2022).

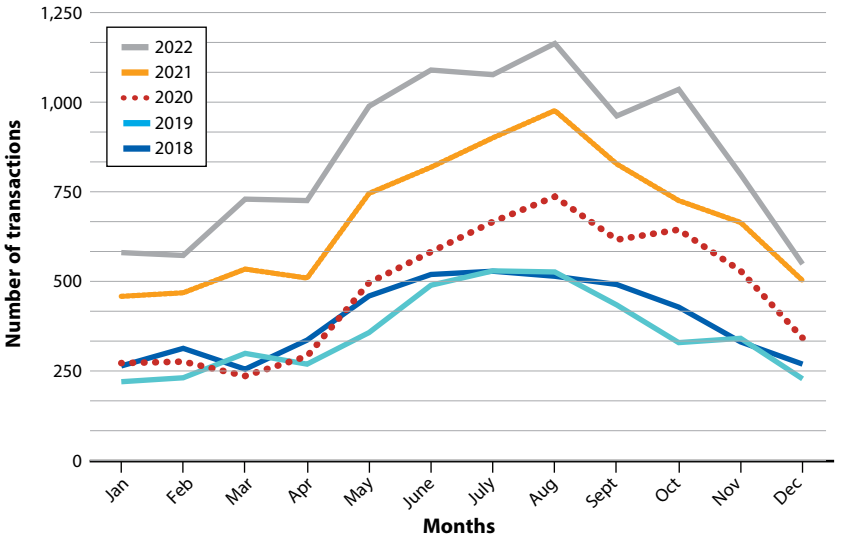


FIG. 3. A comparison of monthly transactions at FM LIFE markets from pre-pandemic levels (2018–2019) to pandemic levels (2020–2022).



A customer holds CalFresh tokens and Market Match scrip. *Photo*: Paige Green.

Looking specifically at changes in monthly CalFresh distribution from pre-pandemic to pandemic levels, the amount of CalFresh benefits distributed for use at farmers markets in March 2020 declined, compared to the same time in previous years (fig. 1). Some of this decline can be attributed to stay-at-home orders. Farmers market managers observed low customer counts in March 2020, due in part to households limiting the number of people who went shopping. The amount of CalFresh distributed consistently increased beginning in May 2020 and continuing through the end of December 2022. The amount of CalFresh distributed nearly tripled from approximately $4,000 in March 2020, to approximately $12,000 in May 2020, consistent with farmers market managers' observations that sales were up in May 2020, and vendors sold out of product. This pattern of increased distributions continued through December 2022, with similar trends in Market Match distributions (fig. 2). Additionally, figures 1 and 2 illustrate the annual rise and fall of the harvest season, a trend present across all years, except for increases in May that were attributable in part to CalFresh Awareness Month — an annual campaign providing additional Market Match — and slight declines in June attributable to customers rationing extra Market Match distributed in May. This is supported by the number of transactions, which increased steadily during harvest season (fig. 3).

The increase in the total amount of CalFresh and Market Match distributed annually (fig. 4) over the course of the pandemic is attributable in part to higher rates of CalFresh enrollment in the region, which increased by 63% in Sonoma and 73% in Marin from 2019 to 2022 (CDSS 2023), and in part to federal emergency allotments issued to CalFresh households, which raised monthly allotments to maximum benefit rates based on household size. Emergency allotments were first issued at the start of the pandemic and were extended every month thereafter. Furthermore, the data include "Pandemic EBT" (P-EBT). P-EBT provided additional food benefits to CalFresh-eligible families that had young children, as well as families with school-age children who were eligible for subsidized meals at childcare or school but missed those meals because of pandemic closures. When taken together, there were substantially more federal food benefit dollars available in the region to be spent at participating farmers markets than prior to the pandemic.

Increases in CalFresh and Market Match usage at farmers markets were due to both an increase in the number of CalFresh shoppers at farmers markets, as represented by increases in the annual number of transactions (fig. 5), and increases in the dollar amount of purchases made per visit, as represented by increases in the annual average amount of CalFresh distributed per transaction, from approximately $16 before to over $20 during the pandemic (fig. 6).

Expanded federal food benefits

Findings from focus groups support the idea that expanded federal food benefits increased financial access to farmers markets for low-income individuals (table 1). Overall, focus group participants relied on federal food benefits to purchase food. Participants who used their benefits at farmers markets felt a sense of gratitude. Those who were not previously aware were excited by the possibility once they learned of the opportunity. For instance, one farmers market shopper expressed appreciation for CalFresh and the emergency allotments provided during the pandemic, adding, "I love that I could go to the farmers market and double it." Another shared, "I am thankful for CalFresh, and they are continuing to give the full amount of benefits. So that's been really wonderful to use at the farmers market."

Safety and risk while shopping

Participants' shopping decisions during the pandemic were influenced by their perceptions of COVID safety and risk (table 1). These differing perspectives explain why some participants continued to shop at farmers markets during the pandemic or were interested in visiting for the first time, deeming outdoor environments safer than indoors. Others stopped shopping

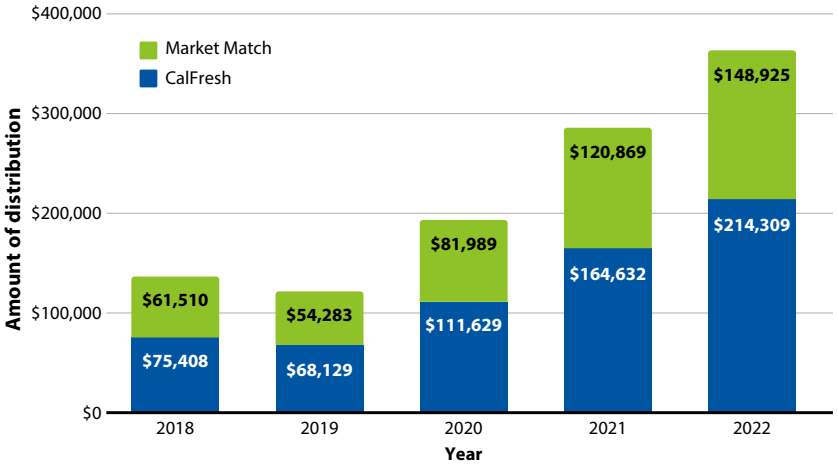


FIG. 4. A comparison of year over year total CalFresh and Market Match distributed at FM LIFE markets from pre-pandemic levels (2018–2019) to pandemic levels (2020–2022).

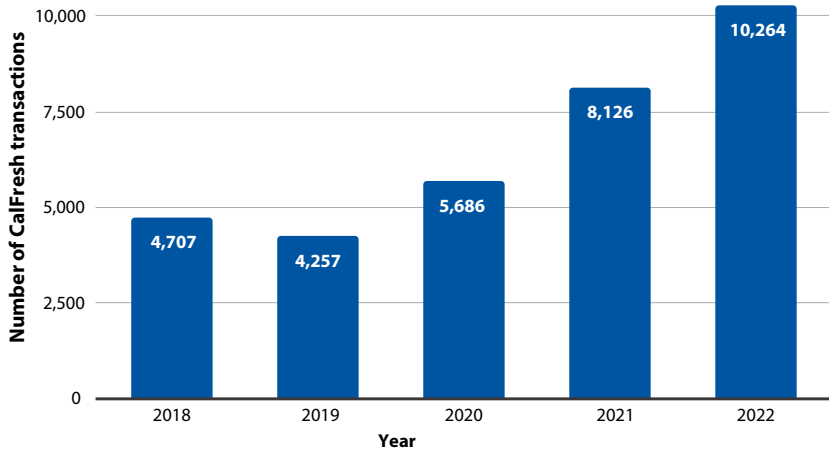


FIG. 5. A comparison of year over year total CalFresh transactions at FM LIFE markets from pre-pandemic levels (2018–2019) to pandemic levels (2020–2022).

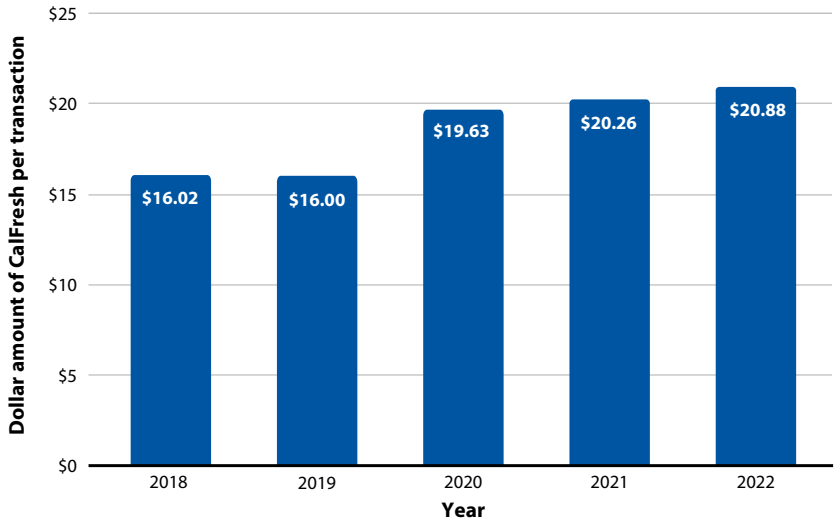


FIG. 6. A comparison of year over year average amount of CalFresh distributed per transaction at FM LIFE markets from pre-pandemic levels (2018–2019) to pandemic levels (2020–2022).

at farmers markets, choosing to shop at grocery stores, which they deemed to have stronger public health protocols. Some participants developed new shopping strategies at farmers markets, including making fewer trips, keeping shopping trips brief, and going to less-crowded farmers markets.

Fresh air and fewer hands

Participants who had shopped at farmers markets in the early months of the pandemic noted the new public health measures implemented at the markets, including masking and vendors selecting produce on customers' behalf. Participants expressed a sense of safety associated with being outdoors and confidence in sourcing their food from farmers markets, which they felt provided trusted relationships and reduced risk of surface contamination due to short supply chains. As one participant shared, "Farmers markets are outdoors, for one thing, so it's safer outdoors and also there's less people handling your food. I know who handled my food from the field to my basket." Another participant shared that farmers markets are better because they are outdoors and "when you go to a store, you are locked up."

Lack of masks and distancing

In contrast, other participants had perceptions of decreased safety, stating that public health measures were either minimally implemented or insufficiently followed at farmers markets, as well as concerns about lack of social distancing and risk of exposure to shoppers not wearing masks. One participant shared her experience generally: "I would go out and there would be people who were belligerently not wearing masks. And I felt very threatened, kind of alarmed at people's lack of care about whether they infected somebody or not." Another participant explained, "If somebody's not wearing a mask appropriately or somebody is coughing, I'm just trying to walk the other way. I don't feel an obligation to anybody to make them feel good . . . I leave and I tell the farmer, 'Hey dude, I'll be back in five minutes.'"

Shifting values and social norms

Some focus group participants valued farmers markets as a place to source fresh food; others valued them as a place for community building; and others felt that social norms were threatened by those not following public health guidelines. One participant stated: "Everybody's going to have a different kind of relationship to farmers markets. Right now, during COVID, I don't go to farmers markets that are very crowded and I don't stay long. I get what I need and I get out." Another participant appreciated the benefits that markets provide: "I think it feeds the soul: to work with plants and to eat fresh food and to see the person [who is growing your food]. . . . The farmers market is just filled with that kind of energy." In contrast, another explained how she felt about some people's disregard for others: "I don't want to subject myself to this . . . not only the germs, but I don't want to subject myself to this kind of attitude of another person."

Broader shopping changes

Financial hardship exacerbated by the pandemic created additional barriers to accessing farmers markets for low-income consumers. This included an increased focus on effectively managing household food budgets, changes to shopping practices, and greater reliance on emergency food (table 1).

Many participants shared that the pandemic impacted their food budgets and their ability to provide food for themselves and their families. One participant shared:

> *It has had a big impact on the high prices of food, and the economy is getting worse every day . . . . So, thank God there are people who have jobs, but those who don't . . . we have difficulty acquiring all the products for the house, including rent and food and bills. Because those don't wait for you.*

Participants highlighted shopping strategies that ensured the most food for the least cost, which

TABLE 1. Qualitative themes and codes identified from consumer focus groups

Themes	Codes
The role of federal food benefits at farmers markets	• Role of supplemental nutrition programs • Supplemental nutrition benefits increase during COVID-19 pandemic • Awareness about supplemental nutrition programs
Perception of safety and risk at farmers markets	• COVID-19 safety measures at farmers markets • Perceptions of safety at farmers markets • Impact of implemented safety measures on shopping experiences • Farmers markets play role by providing opportunity to socialize beyond providing food
Changes to food access and shopping habits due to COVID-19 pandemic	• Changes to food access during the pandemic • Use of emergency food aid during the pandemic • Alternatives to in-person shopping • Changes to shopping strategies

participants found challenging to do at farmers markets. For instance, one participant said, "Well, if it's about saving money . . . you can go and get a little more for less, because that's the best. It is what one is looking for right now in these times. How to try to economize as much as possible."

Participants reported changes to their shopping practices in response to the pandemic. Some reduced the frequency of trips or stopped attending markets due to risk of exposure, others relied on their home pantry, and others considered shopping online, although most had not utilized online ordering at that point in time. One participant said "It changed. [We] used to go almost every day . . . But now [we] don't want to be exposed to people." As another participant explained, "I developed a pantry in my house . . . to stock up on food." Another said, "We try to think about what we're going to make so we can prepare the food in advance."

Due to reduced incomes, increased household expenses, and smaller budgets allocated to food, participants shifted to obtaining food from emergency food providers during the pandemic. For example, one participant shared that when they were sick with COVID, they relied on emergency food providers to deliver food: "Otherwise, I don't know what we would have done." Another participant used food banks more: "I also go to [the food bank]. It's a lot easier to get the food from the free shelf there." Similarly, some volunteered with emergency food organizations in exchange for food, explaining "One of the reasons I love volunteering . . . is they compile food boxes from farmers markets." Another explained: "We volunteer at the food bank so we have a chance to also bring home [food]."

More access to farmers markets

Findings indicate that the pandemic drove increases in CalFresh and Market Match spending at farmers markets despite many preexisting and pandemic-induced barriers to access. This "pandemic bump" in CalFresh and Market Match at farmers markets is attributable to expanded federal food benefits provided because of the pandemic. A greater total number of individuals enrolled in CalFresh likely drove the pandemic bump. Maximum benefit allotments apparently provided further flexibility in family budgets to spend a greater portion of benefits at farmers markets than they typically would, or to try shopping at farmers markets for the first time. P-EBT may have attracted families who had not been receiving CalFresh to farmers markets for the first time, expanding financial access among a new demographic. Thus, expanded federal food benefits worked alongside the state Market Match program to improve financial access to farmers markets, to support farms' economic viability, and to bring federal dollars into the local economy.

Other factors also could have contributed to increases in CalFresh and Market Match usage at farmers markets. Increases in the average amount of CalFresh per transaction could be driven by higher prices at farmers markets, leading to greater spending. Additionally, perceptions that farmers markets held less risk of transmission of COVID than grocery stores, a greater desire for social connection due to isolation experienced during the pandemic, increased interest in locally produced food, and additional outreach coupled with expanded federal food benefits were likely effective in bringing more people to the markets, offsetting preexisting and new barriers created by the pandemic.



A family pauses for a photo opportunity at Petaluma East Side Farmers Market. *Photo*: Paige Green.

The findings presented here cannot be generalized because of the qualitative research design and narrow geographic scope. The extent to which datasets can be integrated is limited because of differences in demographics between the quantitative and qualitative datasets, combined with a different study frame used for the broader community-engaged research project. Future research should explore the demographics of CalFresh and Market Match shoppers at farmers markets and the drivers behind increases in the average amount of CalFresh spending per transaction. Future research using predictive modeling to ascertain the degree of influence of increased CalFresh enrollment, maximum benefit allotments, P-EBT and their respective impacts on Market Match distribution at farmers markets, would further elucidate the findings presented here. Additional exploration of the unique shopping experiences of individuals from other linguistic and cultural backgrounds who were not systematically recruited in this study would be informative.

The pandemic drove increases in CalFresh and Market Match spending at farmers markets despite many preexisting and pandemic-induced barriers to access.

Improving access in future disasters

The following recommendations are derived from study findings:

Expand government food programs that support financial access to farmers markets for low-income consumers. Expanded federal food benefits were important in increasing the buying power of low-income individuals at farmers markets. Policymakers should ensure that these programs grow, through support of

federal, state and local funds for Market Match and similar nutrition incentives.

Increase awareness about farmers markets as open, safe and essential services. Communicating to consumers that farmers markets remained open and safe during the pandemic was important. Strategic messaging about farmers markets' locations, days, times, and public health measures in place during disasters is needed. Expanding the availability of farmers markets' online ordering platforms, ensuring CalFresh acceptance on these virtual platforms, and providing home delivery could expand financial and physical access to fresh food for low-income consumers.

Support initiatives linking emergency food organizations with farmers markets. Emergency food organizations were important during the pandemic. There is potential to expand collaboration between emergency food organizations and farmers markets to increase access to fresh, healthy food for low-income consumers and to mitigate lost market channels for producers. Educational resources on emergency food should include information on accessing farmers markets. Initiatives supporting the purchase of local produce by emergency food organizations have the potential to expand nutrition security, improve community preparedness, and support farmers and local food systems during future disasters. These initiatives include the USDA Local Food Purchase Assistance Cooperative Agreements (USDA 2022) and local produce boxes distributed to food insecure communities (for example, FEED Sonoma's FEED Bins and Agricultural Institute of Marin's Bounty Boxes in the North Bay).

Reducing barriers

As part of a larger community-engaged research project, this study focused on the shopping patterns of low-income consumers at farmers markets during the pandemic. The pandemic created a new set of barriers and opportunities for low-income consumers to access farmers markets. The recommendations proposed can work together to provide multiple pathways to enhance access to local food for low-income consumers, as well as supporting farmer livelihoods and increasing local food systems' resilience.

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