



# PRODUCE PLUS DIRECT

PROGRAM EVALUATION

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# Executive Summary

Access to fruits and vegetables is important for promoting the health of individuals and communities. However, in the District of Columbia, disparities in access persist and are related to numerous “upstream” structural inequalities, including the location of grocery stores, farmers markets, and other food sources; transportation access; and disparities in employment and income.

The Produce Plus program, administered by DC Greens and the District of Columbia Department of Health, provides access to free produce to DC residents who qualify for at least one government assistance program (e.g., SNAP, Medicaid, and WIC). Prior to the COVID-19 pandemic, Produce Plus provided vouchers to customers to use at participating farmers markets. During the 2020 season, Produce Plus shifted to providing primarily grab-and-go prepackaged produce via pickup or home delivery through contracts with 17 vendors. This evaluation examined customers’ experiences with the new version of the program, Produce Plus Direct (PPD), including the program’s influence on participants’ food access and food consumption.

Findings include:

- Under the revised COVID-19 program model, which registered 4,500 customers through a website, hotline, or a food-based organization or social service provider, PPD provided half or more of household produce for 52 percent of program participants. Most customers (65 percent) reported consuming 75 to 100 percent of the produce they received from Produce Plus Direct.
- Most customers surveyed (80 percent) agreed or strongly agreed that PPD made it easier for them to access fruits and vegetables.
- PPD served a diverse customer population by age and qualifying program. Slightly more than half of participants enrolled in the 2020 season were aged 55 or older.
- More than half of customers (57 percent) said that PPD had introduced them to fruits and vegetables they had never tried before, and 55 percent reported that they ate fruits and/or vegetables they normally wouldn’t eat because they were in their Produce Plus Direct bags. Most respondents (78 percent) agreed or strongly agreed that they knew how to prepare the fruits and vegetables they received from the program.
- Some customers faced barriers in accessing and/or consuming their produce. In a given two-week period, between 67 and 71 percent of customers received their produce. Unclaimed produce bags were donated daily to non-profit organizations addressing food insecurity and individuals in need of food. Interviews with 36 PPD customers and open-ended responses to the survey suggest that mobility limitations and the perceived quality

and usefulness of the box contents played a role in customers' ability and willingness to access and consume the produce provided by PPD. Some customers also noted that the quantity of food received appeared less than what they had been able to purchase in the previous voucher-based version of the program. Customers provided recommendations of best practices for food distribution including providing a variety of produce, offering a more even distribution of fruit and vegetables, and including a list of produce and tips for preparing the produce in each bag.

- Customers highly value the Produce Plus program for many reasons, including access to fresh produce to promote health, the ability to socialize with other participants and volunteers, and the role of the program in reducing financial and other stresses. Many customers expressed their gratitude and desire for the program to continue next year and offered recommendations for how to strengthen the program.

# Introduction

Only about one in ten Americans eat enough fruits and vegetables (F&V) to meet federal dietary guidelines (CDC 2017). Largely as a result of structural inequities (Poppendieck 2012), a lack of F&V consumption is a key contributor to malnutrition (Eilender 2016) and thus chronic health problems in the United States (Bowers, Francis, and Kraschnewski 2018; Giovannucci et al. 2018; Aune et al. 2017). Demographic factors such as age, sex, and income are influential, with young men living in economically disadvantaged households consuming the fewest F&V relative to other groups (CDC 2017). Other important demographic factors include education, race, and cultural perceptions of health (Braveman et al. 2010; Eilender 2016), alongside disability status (Ornstein et al. 2015; Lee and Frongillo 2001), that limit F&V access and consumption.

Access to F&V is a multidimensional component of F&V consumption (Hsiao et al. 2018; Caspi et al. 2012; Charreire et al. 2010). These dimensions include more than accessibility in terms of convenience or ability to reach a food source. Food “access” also includes the supply, variety, and types of food sources, like grocery stores, farmer’s markets, food assistance programs, etc. in an area; perceived food acceptability/quality; and accommodations, which involve store hours and accepted forms of payment (White et al. 2018). Affordability of nutritionally fulfilling food, like F&V, is also a critical aspect of food access (Bowers, Francis, and Kraschnewski 2018). In several studies of food choice, affordability has been mentioned by participants as the most important factor when making food purchases, more important even than taste (Lee et. al 2013).

In order to purchase healthy foods like F&V, available healthy food must first be accessible. Due to the absence of private transportation, the distance from grocery stores and supermarkets, and limited family income, many Americans are either forced to rely on unhealthy food from convenience stores, or inconvenient public transportation to access healthier food (Tach and Amorim 2015). Areas where these factors are extremely heightened and accessibility to healthy food is especially difficult are categorized as food deserts, broadly defined as a geographic area where healthy, affordable food is unavailable or difficult to obtain (Sadler, Gilliland, and Arku 2016). While the term food deserts is most commonly used to describe areas with limited access to healthy foods, this term does not fully capture the structural, political, or racialized issues that actively limit access to healthy foods in racially marginalized areas such as Washington DC (Sustainable DC 2020). Historically, Washington DC has been home to a high population of Black residents (United States Census Bureau 2019), living in areas with limited access to supermarkets due to racial marginalization and structural racism (Kelley 2020). Therefore, utilizing food desert to describe the experiences of Black Washington, DC residents does not appropriately capture their experiences.

Food apartheid more accurately encapsulates the issue of food access for residents of Washington DC, as this term describes “the structural, political and experiential limits on the availability of nutritious, healthy, affordable, and culturally appropriate foods, and/or limited or uncertain access to foods” (A.A. Akom et al. 2012:77). More importantly, describing the food

landscape of marginalized areas as food apartheid brings together food justice, environmental justice, and sustainability movements, and places the need for these initiatives in the “context of structural racialization, racial formation and racialized geographies” (A.A. Akom et al. 2012:77).

Issues captured by food apartheid include the racialized power dynamics accompanied with grocery store ownership in majority black communities (Turshen 2018), the racialized distribution of farm subsidies to predominantly white farmers and the stigmatization attributed to food assistance (Brones 2018). The structurally-founded racial marginalization of predominantly black communities produces a seriously negative impact on access to healthy food and overall health outcomes of residents living in food apartheid areas. Therefore, racial inequality must be a focal point in discussions of food justice to ensure that resources are allocated equitably to adequately increase access to healthy foods for all communities.

Available free time is another variable that influences the quality of food an individual can access, and the availability of friends and/or family to transport them or pick it up for them (White et al. 2018). Walking to and from stores and/or waiting on public transportation is time consuming. Being without a vehicle often requires more trips to and from the store given restraints on the number of food bags a person can realistically carry home if walking or traveling by bus. Important here, too, is physical ability, as the frail (Pérez-Zepeda et al. 2016) and people with disabilities (Lee and Frongillo 2001) can encounter more challenges accessing food sources (Ornstein et al. 2015). Long lines at food access points present another challenge for individuals with disabilities or limited physical mobility, including many seniors (White et al. 2018). There are almost two million American seniors who are either completely or mostly homebound, and an additional 5.3 million who are functionally limited, making it difficult to leave home on their own (Ritchie and Leff 2016).

Food access programs have the potential to provide a multitude of benefits to participants. For example, “Meals on Wheels” (MOW), a program with two million volunteers and paid employees nationally, helps alleviate hunger and food insecurity for over 800,000 of those lower on the mobility scale through food delivery (Meals on Wheels 2017). Beyond providing a healthy meal (Thomas et al. 2018; Mabli et al. 2017) and a greater degree of autonomy for recipients (Lloyd and Wellman 2015) programs like MOW function in several ways, providing social benefits as well. For example, both delivery drivers and recipients tend to emotionally benefit from their interactions with one-another (Thomas et al. 2018), with recipients experiencing lower rates of depression and loneliness (Berkowitz et al. 2018; Thomas, Akobundu, and Dosa 2016; Wright et al. 2015). Delivery drivers at times develop close relationships to recipients, going as far as calling to check on them and/or providing assistance with minor tasks (Thomas et al. 2018). A further health benefit for recipients of home delivered meals is a reduction of self-reported falls (Thomas et al. 2018) and hospitalizations (Xu et al. 2010). Delivery programs for the homebound therefore not only increase their access to healthy meals, but also promote their emotional and physical health.

Some studies have shown recipients of delivered, prepackaged meals from food assistance programs, like the Nutrition Services Program, overwhelmingly report (95 percent) they like the meals (Mabli et al. 2017). One study done on the satisfaction of 209 MOW users in Lubbock, Texas, suggested recipients were mostly happy with the food they received (Joung 2009). Another study involving 140 MOW recipients in Edmonton, Alberta, showed up to 25 percent of recipients indicated vegetables were too firm and/or meats were too tough, and that they did not like some of the vegetables they received (Lirette et al. 2007). These survey-based studies suggest variation in program quality and/or recipient perceptions. Those disliking aspects of meals may not eat the whole meal and therefore not get the nutrients they need for a healthy life.

Outward expressions of satisfaction in interviews and observed interactions in other studies are questionable in terms of validity, however, due to culturally sanctioned expectations of gratitude and deservingness (Oorschot 2000; Berking 1999). Therefore, in some instances, there can be a contradiction between what is said and observed in terms of performed and genuine feelings of gratitude, appreciation, and thankfulness. This may be especially relevant when a program operates as part of a “gift economy.” Participants may believe that items given, like pre-packaged meals and produce, must be accepted lest the recipient display ingratitude (Berking 1999) and risk potentially being seen as less deserving or undeserving (Oorschot 2000) of gifts. Power dynamics are also at play in a gift economy, involving feelings of indebtedness on the part of the recipient (Marcoux 2009; Berking 1999). Although the gift economy promotes social relationships, and can build trust and reciprocity (Cheal 2016), lack of choice and power dynamics between giver and recipient in a gift economy can significantly decrease recipient autonomy.

As a result of the above tricky issues with the gift economy, recipients of food may prefer receiving it through a “market economy” framework (Marcoux 2009). Sidestepping the fraught element of gift exchange in traditional anti-hunger food distribution is a primary appeal of market-based models to improve food access and distribute food. Although there is an aspect of “giving” in the market economy—say, checks, coupons, or vouchers provided to recipients—the recipient becomes autonomous in their ability to choose the items they want and their ability to clearly reciprocate currency in exchange for food (Cheal 2016). This ability to choose shifts power to the recipient, as they are free to avoid merchants and markets at their will, and pick the food they want that meets their standards.

In addition to food access, food waste is another factor relating to F&V consumption that is important to consider. An estimated 30 to 40 percent of food goes to waste at the retail and consumer levels in the United States (USDA 2019). Especially in terms of fresh F&V consumption, fast spoilage is an issue (White et al. 2018). Indeed, one major barrier to F&V consumption in one study was spoilage (Singleton et al. 2018), reported by almost 20 percent of respondents. In addition to waste, lack of cooking knowledge is another non-access related barrier to increased F&V consumption (Singleton et al. 2018). These findings complicate the usual explanation that limited F&V consumption is exclusively a result of individual choices and behaviors and points to



the value of combining education and access for participants who could benefit from additional food education.

Whether and how frequently a user cooks depends on factors such as available free time (Bowen, Brenton, and Elliott 2019), the availability of cooking equipment used to store and prepare foods (i.e. refrigerator, stove and oven) and the required cooking skills and food knowledge to be able to plan and prepare meals with consideration of budget constraints (Caswell et al. 2013). Cooking classes, demonstrations, and recipe cards on how to cook quick, convenient meals are therefore important ways to increase home-cooked meal frequency and the amount of F&V consumed (Gans et al. 2016; Sharma et al. 2017). Respondents receiving recipe cards in one large-scale study (Sharma et al. 2017) wanted additional information, like techniques for food preparation and food storage, the latter of which would help alleviate food waste.

## Program Context

The setting for this study, Washington, D.C., has a marginally larger number of food insecure households compared to the United States (11.6 percent versus 11.5 percent, respectively; see Feeding America 2020a). The COVID-19 pandemic is projected to have increased this number to 14 percent (Feeding America 2020b).

Food insecurity and food access are racially patterned in DC and stem from longstanding policies and practices that have discriminated against and led to disinvestment in majority-Black communities. One way in which historical and ongoing patterns of food apartheid are visible in DC is in the racial grocery gap. The grocery gap refers to existing disparities in access to supermarkets. The three wards with Black-majority populations and lower levels of household income (Wards 5, 7, and 8) are home to much fewer grocery stores than wards with Black-minority and more affluent populations (D.C. Hunger Solutions 2020).

The existence of a racial grocery gap in DC can be traced to ““White and middle-class flight, changing consumer culture, and the growth of supermarkets – all touched by anti-Black racism in one way or another” (Reese 2019:45). At the same time that supermarkets began to replace smaller-scale neighborhood grocery stores, the federal government began investing heavily in suburban housing development and transportation systems that provided homeownership opportunities for White middle-class residents. Racially restrictive covenants and the practice of redlining prevented Black families from purchasing homes in the new suburban communities being built in Virginia and Maryland. Redlining refers to the federal government’s discriminatory practice of designating neighborhoods as more or less desirable based on their racial composition and denying loans to Black families who wished to purchase homes in predominately White neighborhoods (Kijakazi et al. 2016). Within DC, “...supermarkets followed a national trend, choosing to leave predominately Black inner-city neighborhoods in favor of more affluent, white suburban areas” (Reese 2019:35). From 1968 to 1978, the number of major chain supermarkets in DC decreased from 91 to 42 (Hazzard, Towner and Wheeler 2020 citing Green 1978), and by 1982, the number of supermarkets in DC had decreased to 33 (Reese 2019).

The ongoing reluctance of major supermarket chains to establish stores in majority-Black inner-city neighborhoods is part of a process that Eisenhower (2001) has termed supermarket redlining. To address the grocery gap, community-based organizations in DC have stepped up to provide access to fresh, affordable food through farmers markets, CSAs, and cooperative social enterprise initiatives (Chaput et al. 2018; Nguyen 2019; Dreaming Out Loud 2020). Many of these programs are examples of community supported agriculture (CSA) that provide high quality produce to consumers and living wages for farmers (Alkon and Agyeman 2011). A recent analysis found that Wards 5, 7, and 8 have “some of the highest numbers of farmers markets and stands in the District” and a greater number of Healthy Corner stores than other areas in DC (D.C. Hunger Solutions 2020:11). Even with these critical resources, the report (D.C. Hunger Solutions 2020:4) concluded that residents in Wards 5, 7, and 8 “still lack sufficient and reliable access to healthy and affordable food.”

Ensuring the affordability of fresh fruits and vegetables provided through CSAs and farmers markets is important, given that these sources of food can be prohibitively expensive for low-income individuals (Freedman et al. 2016). Availability of healthy food alone without attention to affordability can result in a “food mirage” (Short, Guthman, and Raskin 2007, as cited in Tach and Amorim 2015), where healthy food is physically accessible but remains inaccessible due to other factors, like affordability (Tach and Amorim 2015), a lack of accommodations for people with disabilities, and perceived quality (Hsiao et al. 2018; Caspi et al. 2012; Charreire et al. 2010). Subsidies and discounts provided to low-income individuals and families have been shown to increase participation in CSAs and thus increase F&V consumption (Olsho et al. 2015).

Federal programs such as the Supplemental Nutrition Assistance Program (SNAP); Senior Farmers’ Market Nutrition Program; and Women, Infant, and Children (WIC) Program act as subsidies in themselves (Nguyen 2019). Further discounts may be implemented on a smaller scale. DC Fresh Match, a coalition of farmers markets, provides dollar for dollar matching for SNAP recipients, doubling the purchasing power of EBT funds. Produce Plus is also instrumental in improving food access. In years prior to the COVID-19 pandemic, Produce Plus provided checks to DC residents who are enrolled in certain government assistance programs to use at participating farmers markets (DC Produce Plus 2020; Nguyen 2019).

Prior research (Pellegrino et al. 2018) shows Produce Plus users consume more F&V than DC Behavioral Risk Factor Surveillance System (BRFSS) respondents, although this difference was not statistically significant. Users who reported preparing home-cooked meals *did* consume a statistically significant larger amount of F&V than BRFSS respondents, underscoring the importance of attending to both food access and food preparation.

The COVID-19 pandemic increased food insecurity in Washington D.C. while at the same time disrupting the ordinary operation of many food access programs. This evaluation focuses on assessing participants’ experiences with a modified version of the Produce Plus program, Produce Plus Direct, and the influence of the program on participants’ food access and consumption.

## Produce Plus and Produce Plus Direct

The Produce Plus program connects DC residents who participate in at least one government assistance program with fresh produce from local farmers markets. The program also aims to support local farmers by increasing participation in neighborhood farmers markets. Under the previous Produce Plus model, participating customers were eligible to receive two sets of \$5 checks each week to spend at a local farmers market, totaling \$20.

Produce Plus has been implemented by DC Greens since 2016 with funding from the DC Department of Health. During the first four years of implementation, the number of customers participating in the program has increased from 7,045 in 2016 to 8,586 in 2019 (DC Greens and DC Health 2019). The percent of checks distributed that were used at a market have also increased during this period. In 2018, the program distributed \$886,970 in checks, 95 percent of which was redeemed at a farmers' market.

During its first few years of operation, Produce Plus primarily served seniors and customers over 50 years of age. In 2019, the program utilized a companion DC Greens' program, the Market Champions, to lead outreach efforts to engage mothers with infants or children who were WIC recipients. As a result, the program saw increases in enrollment among WIC recipients in Ward 7 and 8 neighborhoods that were targeted for outreach (DC Greens and DC Health 2019).

Since the program's inception, DC Greens and DC Health have made several changes to the administration of Produce Plus, including limiting the distribution of the program to areas in DC with the highest concentration of eligible residents. DC Greens also continued its existing Market Champions (now called Food Champions) program, which hires Produce Plus customers to conduct program outreach, as well as welcome potential customers to farmers markets. In addition, the program has maintained a Farmers Market Brigade volunteer program which distributed Produce Plus checks at local farmers markets from 2015-2019.

For the 2020 season (June 1-September 30), DC Greens had planned to make two additional changes to the Produce Plus program: 1.) move the initial registration for the program off-site and 2.) modify distribution of Produce Plus funds from the opportunity to receive up to \$20 in checks per week to a debit card method of payment, which would likely have been paid monthly. Due to the COVID-19 pandemic, these administrative changes were placed on hold, and the program modified its structure to adopt social distancing measures.

The 2020 version of the program, rebranded as Produce Plus Direct, included the following elements:

- Expanding methods by which customers could register for the program by establishing a website, hotline, and bulk enrollment process to enroll customers through community and social service organizations and making the registration process contactless

- Contracting with 17 vendors to provide prepackaged or market-style produce to customers rather than providing vouchers to customers
- Providing delivery and pickup options for customers to access their produce and requiring customers to select a method and, if applicable, a pickup site at registration
- Providing multiple “box sizes” of fresh produce (\$10, \$20, or \$25) and asking customers to select a particular box size at registration
- Depending on the vendor selected, providing produce weekly or biweekly to customers
- Engaging Food Champions, the new name for Market Champions, to assist customers with understanding food assistance programs, food access, and nutrition

For the 2020 season, prior to the COVID-19 pandemic, DC Greens received funding from the DC Department of Health to implement an evaluation of the Produce Plus program. This evaluation was originally designed to assess the implementation of the off-site registration and introduction of the debit card method of providing vouchers. As the program structure changed to accommodate social distancing requirements due to the COVID-19 pandemic, the evaluation goals and methodology were also adjusted.

The evaluation study presented here was designed with two goals: 1.) to conduct an analysis of process and outcome evaluation data to assess the impact of the COVID-19-related program changes on program participation and customer experience and 2.) to examine how the program affected households’ food access and food consumption during the 2020 Produce Plus Direct season. The following sections describe the methodology used to conduct the study and present the results of the evaluation.

# Methodology

This evaluation was designed to answer four research questions:

- 1.) How do Produce Plus Direct participants experience program changes (i.e., contactless delivery, transition to prepared produce packages) in light of their previous experience and their current experience in the pandemic? What thoughts do they have about how to make the program more accessible and user-friendly?
- 2.) What barriers exist to increased participation in Produce Plus Direct under the current structure of contactless delivery/pick-up?
- 3.) Has the transition to prepackaged produce introduced participants to new vegetables? Has it changed their eating patterns in any way?
- 4.) How do participants describe the effect of the Produce Plus Direct program on their food access?

To answer these questions, the research team engaged in a mixed-methods study in partnership with DC Greens that included an analysis of administrative data, interviews with PPD customers, and a survey of registered Produce Plus Direct customers.

Mixed methods research is beneficial for its ability to capture breadth and depth of understanding for program assessment. Survey instruments, such as questionnaires, are designed to gain feedback from a large block of program participants, identifying themes and patterns common to the broad base of participants, providing valuable assessment of barriers and constraints, and measurement of program impact. Qualitative semi-structured interviews offer depth of understanding. Because interviews are open ended and inductive, they allow categories to emerge from the participants themselves. Interviews capture process- and context-driven elements of participants' experience. They represent subjective assessments, offering a window into participants' meanings, which direct behavior and engagement with program services. Utilizing mixed methods yields a more comprehensive understanding of program participants' engagement as well as barriers to greater engagement.

## Administrative Data

To assess who was served by the program and how many customers received produce, two sources of data were analyzed: enrollment data from phone, website, and bulk enrollments and vendor data submitted by the 17 organizations that contracted with PPD to provide produce. DC Greens shared enrollment and vendor data with the research team for analysis.

Enrollment data were cleaned to remove duplicate entries by matching on phone numbers and email addresses provided by customers. Frequencies were calculated related to the percent of

participants who were returning customers and customers' age, household size, zip code of residence, and qualifying program.

Vendor data were compiled from individual vendors' reports into a single database for analysis. Biweekly averages were calculated for the number of customers assigned and the number of customers who received produce for most vendors due to one vendor providing produce biweekly.

## Interviews

PPD Food Champions recruited the interview participants by going to their assigned Farmers Markets and asking customers if they would like to participate in the survey. A total of 68 customers were recruited from the following markets: Arcadia - Anacostia, Arcadia - Bellevue, Arcadia - Deanwood, Arcadia - Edgewood, Arcadia - Oxon Run Park, Common Good City Farm, Dreaming Out Loud - Kelly Miller, FRESHFARM - Columbia Heights, FRESHFARM - Minnesota Ave & Benning Rd, and RFK farms.

All 68 customers recruited by the Food Champions were contacted by the research team, using the customer's preferred method of communication (phone, text, or email). Of the 68 customers contacted, 28 agreed to participate in an interview and were interviewed by phone. Customers who were interviewed were asked to recommend anyone they knew who might want to participate in an interview to share their feedback about the program. An additional 11 customers were identified through this method, our "snowball" sample. From the snowball sample, eight customers were interviewed by phone.

Taken together, the research team completed 35 interviews with a total of 36 customers in September and October 2020. (One interview included both a mother and son who were prior program participants.) Of the 36 customers interviewed, 31 were returning customers, three were new to the program in the 2020 season, and two participated in prior years but were not able to register this year. We focused primarily on interviewing returning customers to understand how customers with experience with the pre-pandemic model of Produce Plus had experienced program changes related to the pandemic. All interviews were recorded and transcribed for analysis.

Interviews were designed to understand different aspects of the registration process, how participants accessed food provided by PPD, and barriers to access. Interviews also investigated participants' assessments of the prepackaged content in terms of quantity, quality, and variety and in relation to food preparation, food consumption, and food waste. Questions were largely open-ended to elicit richly detailed responses.

The qualitative analysis of the interviews proceeded in two stages: an open coding process and a focused coding process. During the open coding process, the qualitative research team divided

into two groups to analyze a subset of 10 interviews. Each team began by analyzing a set of five interviews to identify themes related to the project's research questions. Each researcher analyzed the five interviews independently and then discussed the codes they had developed with their group. Open coding proceeds line-by-line and is intended to open inquiry to consider all possibilities. Recurring themes and patterns are noted and then refined. The process was repeated with the second set of five interviews until both teams had open coded the full subset of 10 interviews. The team met over a period of several weeks to discuss themes that had been identified and to come to a consensus on the set of codes that would be applied to the full set of 35 transcripts during the focused coding process.

Prior to the focused coding process, a codebook was developed detailing the codes for the project, a description of each code, and examples of the codes to aid in ensuring a high level of consistency and reliability in how the codes were applied by research team members. Following open coding, the codebook was organized by four broad themes: content of box/food evaluation, experiential/encounters with PPD, consumption/behavior change, and mediating factors or externalities, with several focused codes relating to each. Many subcodes were developed within each of these focused codes, within the broad themes.

For the focused coding process, the research team used Dedoose software to facilitate team-based coding virtually. The research team divided into three pairs for the focused coding process, each pair coding a third of the transcripts. Each member of a coding pair coded a set of transcripts independently and then met with their coding partner to compare how codes were used and applied, with the goal of achieving agreement on how codes were applied to the transcripts. Coding pairs met as a whole group weekly to discuss any questions and discrepancies and to refine how the codes were being applied. The teams achieved a high-level of consistency in coding. This consensus model of coding has been adopted in previous nutrition and food access-based studies (Cotter et al. 2017, Blondin et al. 2014).

## Survey

In October 2020, PPD customers were invited to participate in an online survey about their experiences with the program. The survey was designed to collect feedback about the influence of the Produce Plus Direct program on participants' food access and consumption. Participants were asked to share information about how much of their household produce came from PPD and the percent of produce provided by PPD that they consumed. Participants were also asked to indicate their agreement or disagreement with statements that asked about whether PPD made it easier for them to access fruits and vegetables, whether they had been introduced to any new fruits and vegetables through PPD, and whether they consumed fruits and vegetables they normally wouldn't eat because they received them from PPD.

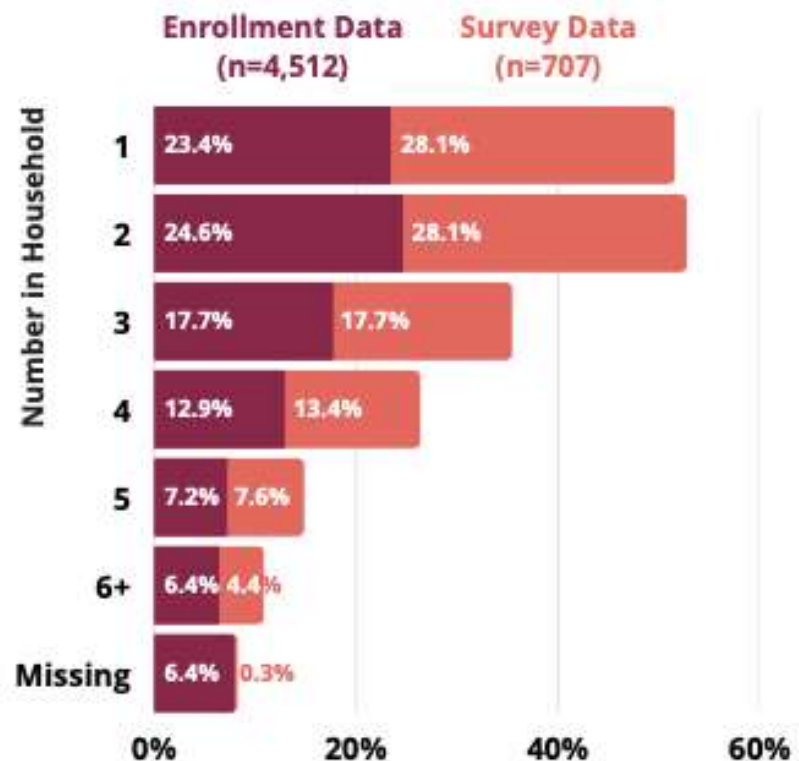
Survey data were collected using Qualtrics software. The survey was distributed by DC Greens to 4,392 customers by email and 1,232 customers by text on October 9, 2020. (Customers who provided email addresses and indicated they could receive texts received the survey via both

distribution methods.) The survey remained open until the last day of October, and participants were sent a reminder at the midpoint of the survey. Customers who completed the survey were provided with the opportunity to enter a raffle to win one of 10 gift cards in the amount of \$35 to CVS, Mahogany Books, Good Vibes Clea, or Planting with P. Customers could indicate their preferred gift card in the raffle form. The raffle form was kept separately from the online survey to maintain confidentiality in survey responses.

Once all survey responses were received, the data were cleaned and duplicate responses were removed using a combination of IP addresses, length of time to complete the survey, and matching open-ended responses. Survey data was analyzed in SPSS. For close-ended questions, descriptive statistics (percent frequencies) and bivariate analyses (e.g., Pearson r correlation coefficient, Kendall’s tau, and Spearman’s rho) were conducted to assess the relationship between demographic characteristics and outcomes of interest. Open-ended questions were analyzed through an open and focused coding process similar to the analysis of the interview data.

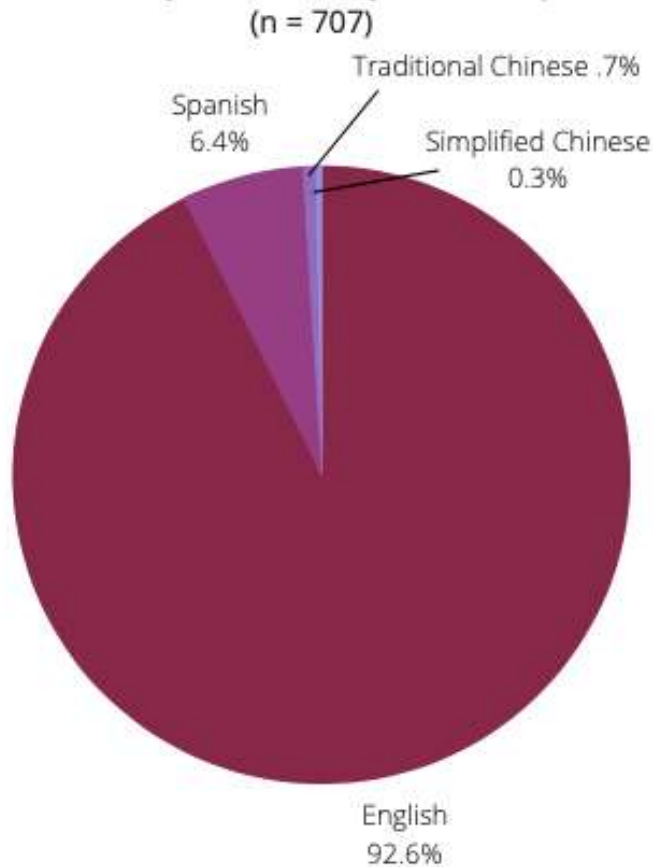
More than 700 customers responded to the survey. Compared to the number of customers enrolled (estimated at 4,512), we estimate that the response rate for the survey was about 15.7 percent. A comparison of household size between registration data at enrollment and survey participants suggests that the sample of customers who completed the survey is likely representative of the larger population of Produce Plus Direct customers (Figure 1).

**Figure 1: Comparison of Household Size between PPD Enrollment Data and Survey Data**





**Figure 2: Language Selected by Participants to Complete Survey**

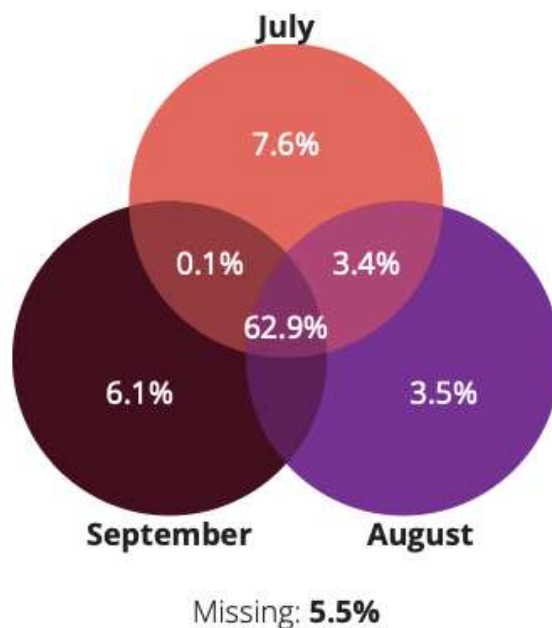


The survey was translated into three languages - Spanish, Traditional Chinese, and Simplified Chinese. About six percent of survey respondents completed the survey in Spanish, and less than one percent of survey respondents completed the survey in Traditional or Simplified Chinese (Figure 2).

Open-ended survey responses were translated from Spanish, Traditional Chinese, or Simplified Chinese into English for analysis.

Most participants surveyed (62.9 percent) reported participating in PPD for the whole season (Figure 3). Slightly less than one-fifth of participants (17.2 percent) participated in PPD for a single month, and about 10 percent participated in the final two months of the program. Fewer than 5 percent participated only in the first two months of the program, and very few (0.1 percent) participated in only July and September.

**Figure 3: Length of Participation in Produce Plus Direct** (n = 707)



## Study Limitations

This study examines the implementation of Produce Plus Direct primarily from the perspective of customers who attempted to or were successfully enrolled in the program. The Project Director attended biweekly meetings with PPD staff to receive program updates and feedback on the emerging data analysis but did not formally assess PPD staff members' experiences of program implementation. Likewise, the Project Director attended two feedback meetings with PPD vendors and documented vendors' feedback but did not formally survey or interview vendors about their experiences with the program. Thus, this evaluation should be considered as reflective primarily of the perspectives and experiences of program participants.

Each of the methods employed in this study has its own strengths and limitations. The interviews with 36 PPD customers, while not representative of all customers, provide an important perspective primarily from returning customers who have multiple years of experience with the program and, as evidenced from the interviews, strongly value the program and are invested in its success. We did not collect demographic information as part of the interviews and thus, cannot assess how representative our sample of interviewees are in terms of race, gender, age, household size, and place of residence.

The survey of over 700 PPD customers provides a more representative perspective of the program's influence on participants' food access and food consumption. While this survey appears to be representative of the larger PPD customer base in terms of household size, this claim could have been strengthened with the addition of more demographic questions on the survey, such as age. The method by which the survey was administered proved to be limiting for at least a few customers who had difficulty accessing the online survey. Customers who contacted PPD and reported difficulty accessing the survey were provided with the opportunity to complete the survey by phone.

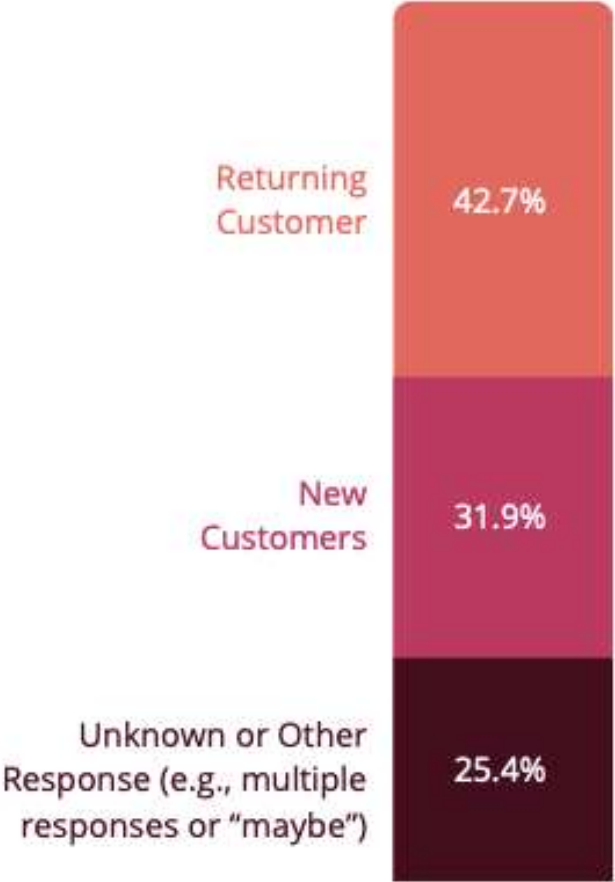
# Results

## Who Participated in Produce Plus Direct?

More than 4,500 customers participated in Produce Plus Direct during the 2020 season. Due to differences in the program structure between Produce Plus and Produce Plus Direct, PPD served about half the number of customers as the Produce Plus program had served in years past. (Previously, Produce Plus served between 8,000 and 9,000 customers per year.) In the pre-COVID version of the program, some customers may have participated in the program once or for

a few weeks, whereas during the 2020 season, the program was designed to guarantee participating customers produce every week for all twelve weeks of the season. This created the potential for more consistent access to produce for a smaller number of customers during the COVID-19 pandemic.

**Figure 4: New and Returning Customers (n = 4,512)**

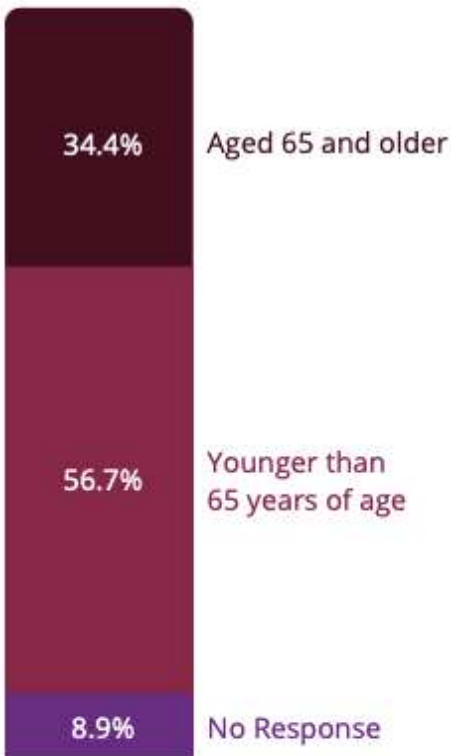


*New and Returning Customers:* At least 43 percent of enrolled Produce Plus Direct customers were returning customers and at least 32 percent of customers were new customers (Figure 4). About a quarter of customers did not respond to this question either in the web form or as part of bulk enrollment.

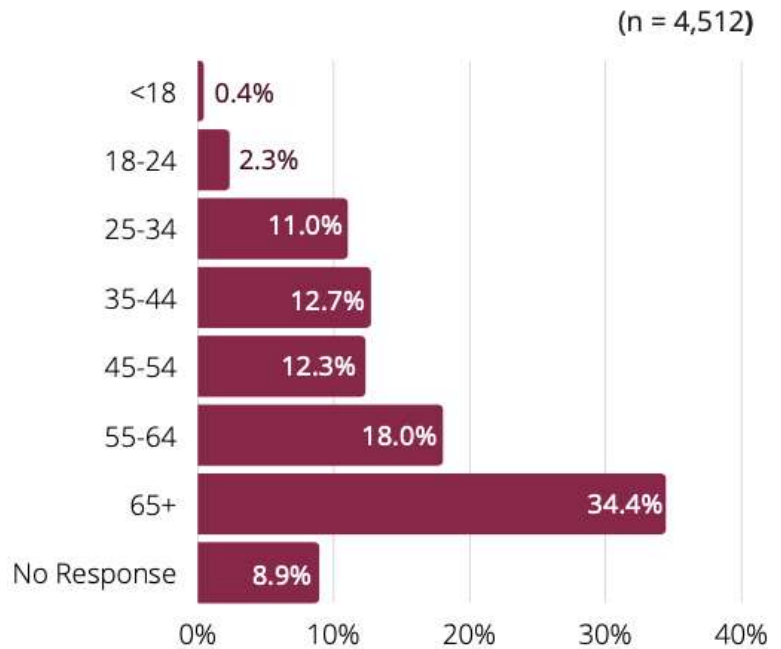
*Customer Age:* About a third of customers enrolled were senior citizens, meaning that they are 65 years of age or older (Figure 5). Another 18 percent of customers were aged 55-64 (Figure 6).

One quarter of participants were aged 35 to 54, and about 14 percent of participants were younger than 35. The average age of customers who provided this information was 58, and the median age was 59 (DC Greens and DC Health 2019).

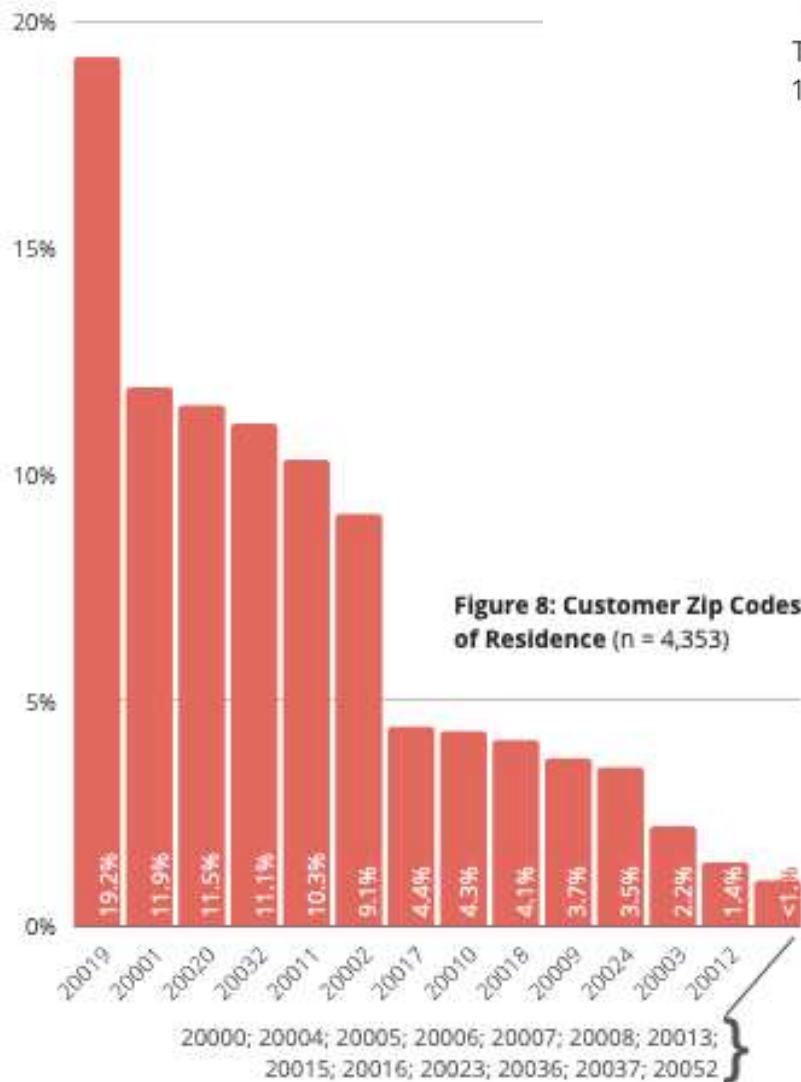
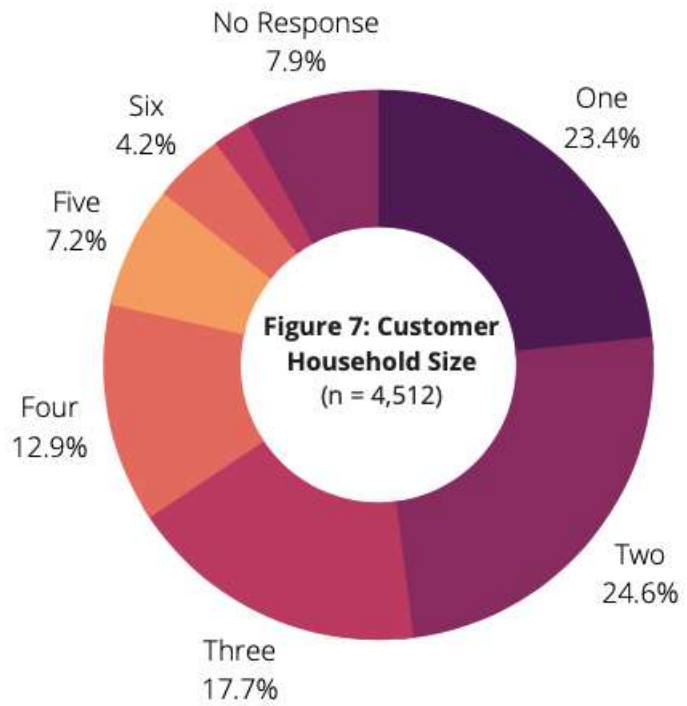
**Figure 5: Percent of Customers who are Senior Citizens**



**Figure 6: Age Distribution of Customers**

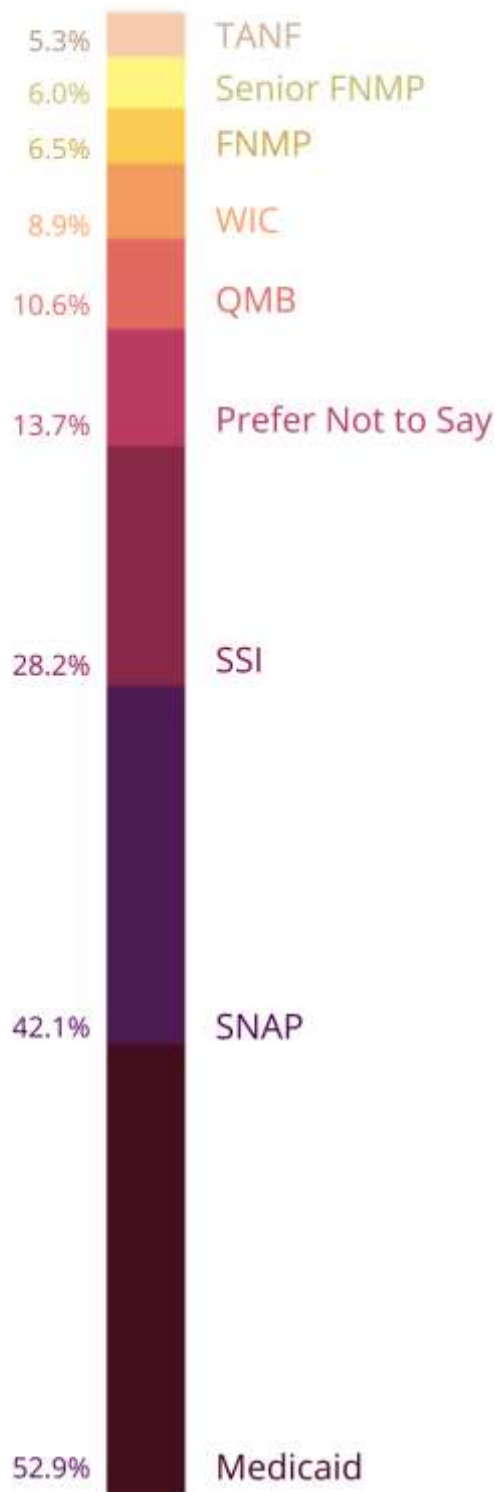


Household Size: About a quarter of customers enrolled lived in a single-person household (Figure 7). Another quarter lived in a two-person household, and about 30 percent lived in a three- or four-person household. About 14 percent of customers lived in a household of five or more members. There was a small to moderate (-0.419,  $p < 0.01$ ) statistically significant negative correlation between household size and age among participants, such that as household size increased, participant age decreased.



Customer Zip Code: Of the customers who provided zip codes at enrollment, nearly 20 percent lived in zip code 20019 (Ward 7). Slightly more than 10 percent lived in zip codes 20001 (Wards 1, 2, 5, and 6); 20020 (Wards 7 and 8); 20032 (Ward 8); and 20011 (Wards 1, 3, 4, and 5).

**Figure 9: Qualifying Programs**  
(n = 3,519)\*



*Customer Qualifying Program:* Medicaid, SNAP, and SSI were the qualifying programs most frequently mentioned by customers at enrollment (Figure 9). More than half of all customers who responded to this question were receiving Medicaid, and more than 40 percent were receiving SNAP. More than a quarter of customers were receiving SSI. About 10 percent or fewer customers were receiving QMB, WIC, FMNP, Senior FMNP, or TANF. About 14 percent of customers indicated that they preferred not to answer this question.

During the 2019 season, Produce Plus targeted outreach to women receiving WIC in Wards 7 and 8 to diversify its customer base and saw increases in the number of WIC participants enrolled in neighborhoods targeted by this outreach. Under the PPD model, the percent of WIC customers also increased from 5 percent of participants in 2019 to 9 percent of participants in 2020.

\*Percent total is greater than 100% due to many customers listing multiple qualifying programs. 994 customers did not provide a response or one was not collected as part of bulk enrollment.

# Experiences with Produce Plus Direct

## Registration Process

During the 2020 season, there were several different ways that participants could register for Produce Plus Direct. Participants could sign up directly online via a web form or by phone by calling a hotline. Some customers were also enrolled directly by vendors and organizations. All of these forms of registration were new during the 2020 season. Previously, participants would have to register in person for the program at a participating farmers market.

In interviews with customers and in open-ended responses to the customer survey, PPD participants shared their feedback on the registration process. Many returning customers shared appreciation for the new registration process, specifically the ability to avoid waiting in long lines and having to bring documentation:

*Produce Plus is a great program in theory but the implementation, especially the practice of waiting in line to receive checks on a weekly basis, is a huge burden. I really appreciate that they did away with that this year, even though it was because of the pandemic. I hope in future years, they do more to make the program easier to access.*

*I initially thought that it would be um, busy. And I think they did that for fear that it would be crowded. Cause I remember in years past um, you would have to get a ticket and people would actually show up like an hour - couple hours early before the market even opened to get a number to be called. So, um, it was- (laugh) It was the scariest thing. Like people would show up to get a number. Cause I- I've seen it at other farmer's markets I - I would not go to because I would see like a line. Like it was- it was serious. But uh- I just chose, you know, the one I went to on um- called Upshur, because it was- as convenience. It was close to my house and it wasn't that type of um- what's the word- anxiety of not receiving something.*

*Before this year, anyway, you have to like, wait in line to get the vouchers. And then, you know, um, wherever you went to get the vouchers might not necessarily have something that you want to purchase. So then you have to run around and find, you know, like a farmer's market or something that has what you're looking for.*

*Well, I- I would say it's less cumbersome. Because last year you have had to come up with all these documents. And then you stood in the line and then you waited for them to wait on you and you go through whatever you had to go through. Here, you just went online, signed up and that was it. So, to me, I think it was- to me was a little- it was better. Because I didn't have to stand in a line and wait and I didn't have to come up with all these documents and all this other stuff.*

*I liked the fact that we did not have to wait in a long line for P.P. vouchers.*

*Well, I actually, I actually like this better...Because standing in line. [Laughs] Ugh, the standing in line was just crazy, especially during the heat. And um, I didn't like that, but in order to receive it and get the quality that I wanted, I knew I had to continue to do it so I did it. But I like this better. Um, this, this this way, what we're actually doing now. Not because of Covid, but because of the um... it's less time that you um, have to stand. Because, um, you can be there for hours and still the, uh, during the earlier times, you would have to be there for hours and um, sometimes you had to go across town to actually get something that particular week. And it just was really tiresome and it's like, okay, is it really worth it? A lot of people just stopped doing it because of, um, the time crunch of trying to get it, to get the, the vouchers, then use them before they expire. So um, some people, uh, like me, I try to get them in bulk and use them, um, you know, at a, at a place where I could use a lot of them rather than just, um, using here and there, where I actually get the fruits and vegetables from. So I like to, you know, accumulate and then use them.*

*The best thing for me was um because I they cut back on volunteers and I couldn't volunteer this year so the best thing that happened was that we didn't have to stand in line because when I was a volunteer, you would have people lining up before the market even opened, so if it opened at 9:00, there'd be people in line at 8:00 but now, because they way they're doing it, it was really good the prepackaged, all you had to do was just go pick up the box. No line. I've never had to stand in a line for the last two and a half months.*

*No, actually, it went smoother. When I went to Deanwood the Saturday before last, it was smooth sailing. I didn't have to stand in the long line. I went up and I didn't have to show ID. I just gave the lady my name and she handed the box to me, and I was out of there. So no, I can't think of anything to add, and I'm very satisfied with the program.*

Many returning customers who we interviewed appreciated being able to register by phone or online and be guaranteed to receive produce each week. They reported that the new registration and distribution process saved them time. They didn't have to wait in line to register and receive vouchers. They did not confront the hurdle of proving their eligibility with documentation. Customers also did not have to go to multiple markets if the market where they received their voucher did not have the produce they wanted to buy. The new registration process also reduced the uncertainty and anxiety related to not being sure that there would be vouchers available after waiting in a line for an hour or more.

In contrast, some participants shared that they or individuals they knew experienced difficulty with the phone enrollment, and that these difficulties led to delays or an inability to access the program.

*They tried to sign up. The line is continuously busy. And it is. It is. And uh, you know, I tried to console them by saying, you got some other people that's trying to sign up. But it's ridiculously busy...But it's a lot of people that have not received produce this summer because they cannot get in contact with, uh, Produce Plus...And I am one of them.*



*They gave us, um, a flyer to call, give your name and number. And they didn't call back. No one never called me back (audible frustration in voice). I went over to the, um, stadium market and when I - and, you know, asked did they have my name they said "no"...So, when I got back home, I put my uh, name - called the number, and the lady took my name, phone number, all the information she needed then, and I was put on the waiting list.*

Due to high demand for home delivery and certain pick-up sites, some customers encountered waiting lists at registration or after they were unable to access an available pickup site. Being placed on a waitlist affected customers' ability to access produce.

*Cause I actually forgot about the process. I- I forgot like- there was like a window when it opened...I had different friends reminding me. Another time I went, I don't know what day it was um- like half the locations were on waitlist. So- and this was like maybe the week after it opened up.*

*I was sad I was not able to make it to the site on Elm Street NW on Wednesdays. When I requested home delivery I was placed on the waitlist. Therefore, I did not receive any boxes after July 2020.*

One question that is not directly answered by our research is how changes to the registration process influenced the types of customers served by PPD this year. For example, one interview participant mentioned that senior citizens she knew had difficulty navigating the online system and waiting on hold with the phone enrollment system. As the program continues to collect feedback from participants, collecting information about which outreach and enrollment strategies are most effective for different populations of participants could be helpful for supporting the enrollment of a diverse group of participants.

## ***Pickup & Delivery Process***

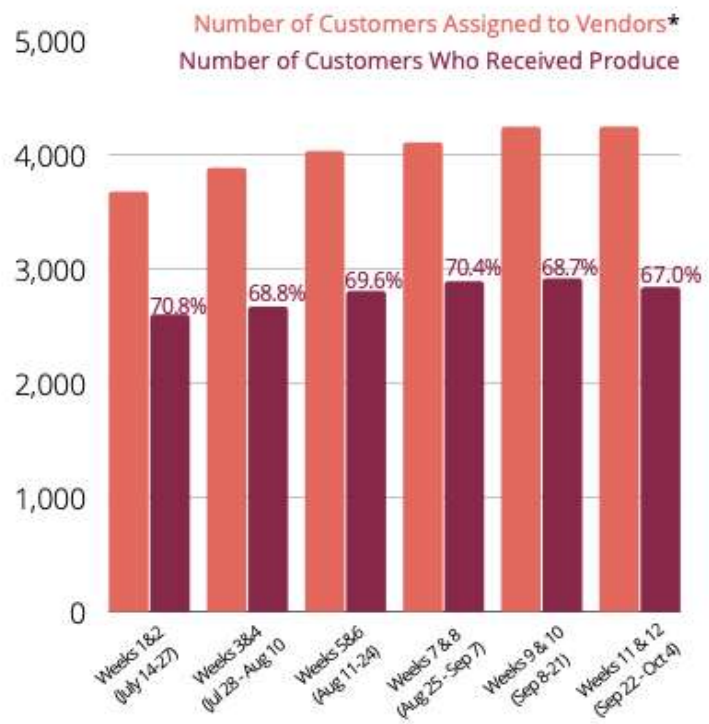
Most Produce Plus Direct customers (88 percent) were assigned to pick up their produce at a specified location versus having it delivered (12 percent). Pickup locations included farmers markets; schools, churches, and community centers; and apartment complexes or temporary housing for homeless families.

Depending on which vendor customers were assigned to, they received produce every week (86 percent of customers) or every other week (14 percent of customers).

Figure 10 details the number of customers assigned to vendors and the percent of customers assigned who received produce. Because some customers received produce every two weeks, the figure shows biweekly averages for the 12 weeks of the Produce Plus Direct programs.

Over the 12 weeks of the program, the number of customers assigned to vendors ranged from 3,670 customers in Weeks 1 and 2 to 4,238 customers in Weeks 11 and 12. The percent of customers who vendors reported received produce ranged from 67.0 percent in the final two weeks of the program to 70.8 percent in the first two weeks of the program. The percent of customers who received produce varied by delivery or pickup type (Table 1).

**Figure 10: Customers Assigned and Receiving Produce, Biweekly Average**



\*In Week 1, customers were still being assigned to vendors.

**Table 1: Percent of Customers Who Received Produce by Delivery or Pickup Method**

	Delivery	Pickup at Apartment Complex or Shelter	Pickup at Farm or Farmer's Market	Pickup at School, Church, or Community Center
<b>Weeks 1 &amp; 2</b>	97.8% (n = 491)	91.8% (n = 360)	63.6% (n = 2,289)	62.5% (n = 531)
<b>Weeks 3 &amp; 4</b>	98.0% (n = 487)	91.4% (n = 360)	60.8% (n = 2,478)	64.0% (n = 554)
<b>Weeks 5 &amp; 6</b>	98.4% (n = 493)	88.6% (n = 360)	62.6% (n = 2,578)	64.8% (n = 594)
<b>Weeks 7 &amp; 8</b>	97.1% (n = 499)	97.1% (n = 328)	62.2% (n = 2,675)	70.3% (n = 598)
<b>Weeks 9 &amp; 10</b>	98.1% (n = 500)	97.6% (n = 328)	60.6% (n = 2,785)	66.4% (n = 624)
<b>Weeks 11 &amp; 12</b>	90.2% (n = 554)	97.6% (n = 328)	59.3% (n = 2,786)	61.1% (n = 624)

Customers who were assigned to receive produce via delivery or pickup at customers' place of residence were more likely to receive produce than were customers assigned to pick up their produce at a farm, farmers market, school, church, or community center. Below, we describe several barriers to participants receiving produce, such as transportation and mobility challenges, that may help to explain these differences.

## Barriers to Receiving Produce

Interviews and surveys with customers illuminated several barriers customers encountered to receiving produce, particularly for customers who were assigned to pick up their produce.

### 1. Mobility and transportation issues

Participants with access to cars generally did not report difficulty accessing their assigned location. Participants with physical mobility limitations who were not able to access the delivery option generally found a family member or caregiver to serve as a proxy, although as the third customer below demonstrates, this was not always the case. Several customers who used public transportation to access a pickup location not in their immediate neighborhood found the process to be time-consuming and expensive.

*It used to take me over a hour...because I caught two busses...By me looking at the travel, at the transport app, I knew when to leave the house...But when I get down, got down to H street, I might have just missed a bus or a bus didn't come until 20, 25 minutes later.*

*The reason I was unable to get all my produce was I didnt have \$ for transportation to the location. Last year I could easily get to Dupont Circle. This year I had to take 2 buses so I had to pay metro access which kinda defeated the point of free vegs.*

*It's not that far. But if you're not drivin', you get on a bus and then I'm disabled. Uh, I just have to go across the bridge to Anacostia. I use the bus and I have Metro Access, but I didn't wanna wait for them, so.*

### 2. Vendor Variation

During the 2020 season, PPD contracted with 17 farmers and food-based organizations to provide produce to customers. Vendors had flexibility in the types of produce they provided to participants, as long as the dollar value of the produce matched the dollar value of the box size assigned to participants. Nearly all vendors provided prepackaged produce, while four vendors provided market-style shopping to pickup customers. Vendors also varied in how they communicated with participants, with some providing prior or same-day notice about the types of produce included in the weekly pickup or delivery and some providing recipe cards with tips on how to prepare the produce.

Some customers enthusiastically reported a positive experience with their vendor, appreciating the ease of pickup or delivery, and the freshness and amount of the food. (We did not explicitly ask customers to share their perceptions of individual vendors in interviews or the survey, so it is not clear the proportion of customers who were satisfied with their vendor vs. those who were not. The information below is from customers who volunteered information about their vendor as part of the open-ended question on the survey or as part of interview conversations.)

*Wonderful, thanks. I enjoyed package boxed. This is a great program. I enjoyed getting my box on Saturdays, to see what was different in the box...Veggie and fruit were great.*

*PPD made it easy for me to access fresh produce this 2020 season. Appreciate the delivery service for this 70 year old senior with underlying conditions. Also, most of my items were actually organic, a plus. Thanks to Produce Plus Direct!*

*I appreciated that at the farmer's market I participated in (with Licking Creek Farm) that the Produce Plus program was \$20 towards my own selection of produce. I appreciated having the autonomy to select and purchase the produce that was most relevant/enjoyable to me (which still included a great selection of in-season produce)! Thanks again for the program.*

*This is a fabulous program the city must extend indefinitely. I never have enough money to buy produce at a farmers' market. Produce Plus makes that possible for me. I also appreciated the flexibility of "my" farmer, Ashton Farms at Eastern Market. They let me pick up produce occasionally on the weekend when I couldn't make it on Tuesday, their regular Produce Plus day (plus they have the sweetest peaches!). I hope Ashton Farms is in the program next year.*

Other customers encountered challenges, relating that they were not able to use some or most of the produce they received and felt discouraged by their box contents. These challenges affected some participants' interest and willingness in picking up their box. Challenges to food use, and eventually food consumption included food preferences, food allergies, lack of variety, and/or perceived freshness of the food. The importance of care in selecting the produce provided was emphasized by customers, who connected receiving fresh produce that they preferred and valued with feeling respected and connected to the program.

*I appreciate the produce. Um, it's just the things that I've been getting are really not what I like to eat...I mean, last year was my first year and I enjoyed, you know, certain produce like peaches to make peach cobbler...a lot of fruit, that this year I only got like maybe 3 or 4 peaches in the boxes. A lot of zucchini. I think it was zucchini and squash, you know. So I just gave that away to people that, you know, neighbors that enjoy, those produce.*

*I think this year, I didn't really use it as much as I have the prior years. Um, I only picked up actually two boxes uh this year and the only thing I would say about the prepacked boxes are [pauses], there should be some type of um sheet that possibly is of the produce, what is offered that particular week that the person could take the items because the box that I did pick up, most of the items I could not eat or could not eat because of allergies. So, you know, from the first box, I kind of gave away most of the stuff there because I didn't want it to go to waste so I went ahead and give it away okra, don't eat okra. corn on the cob, I love it but I'm allergic to [it].*

*The produce program last year was more beneficial. Last year you were able to choose the items your household wanted such as peaches, cherries, apples, potatoes, tomatoes etc. This*

*year we were given a small box with veggies that I didn't know how to cook. I was grateful but this year I stopped coming to pick up because it wasn't really anything in the box.*

*I did not like that I was not able to choose my own produce, what the farmers gave me I felt was what did not sell well. I felt extremely disappointed and stopped going.*

*While I definitely appreciated and was most grateful for the FREE vegetables & fruit Produce Plus Direct allowed me access to on a weekly basis, I found that the Vendor I was assigned to gave us the same items (in some cases) each week, and some of those items were not the most fresh on the inside (onions).*

*Perfect solution for accessing fresh produce during a pandemic. Only suggestion I have is to include fruits, as I received none all season.*

### 3. Less Autonomy, Flexibility and Choice

Many returning customers who had experience with the voucher system in the previous version of Produce Plus missed having more choice, autonomy, and flexibility in the program. Some customers expressed a desire to have more freedom to choose which markets and which vendors to shop from or the types of produce delivered. Apart from having to wait in the lines to claim a voucher, customers reported immense pleasure in the act of shopping, selecting the freshest of items based on personal preference. Given the historically fraught experiences of shopping as a Black or Brown person or having to stretch pennies on a limited income, that the previous version of Produce Plus provides a pleasant consumer experience is not surprising, and suggests the genuine social benefits beyond improved food access the program provides the communities it serves.

*Yeah, because see, when I got my coupon, we went to one, two, three, four, we went to five different places. You know? We, we got our, you know, we got, uh, coupons at different places and we shopped at six places because Dupont, Dupont Circle, they take coupons but they don't issue coupons.*

*I like this market, so I didn't mind it. But it's- it was- if it came down to maybe going to a market that I didn't prefer or maybe that would have- my response would have been different...The food I received this year, it was fine. I was already use to the- the produce there. Um, there were other markets that I preferred to go to as well um, during the week when I had the option. Um, in different parts of the city. And, you know, with this I didn't have the option. So- I mean, it's- it's what it is.*

*Last year I-, we had vouchers and we went to two different places, so we picked what we wanted to pick...And we had more of a choice, but here now we don't, so, you know.*

*My family love the way produce plus worked this year with delivery. I only wish we could have selected what thing we wanted.*

Some participants missed the flexibility of being able to save up vouchers and spend them all at once, especially during times of the season when desired produce was more abundant.

*And then sometime we would get the coupon and we'll, we'll hold, we'll hold, we'll hold some until like this month. You know, and then we'll go, you know, then we'll go around to all, all the different places, you know, and um, you know, and spend, you know, and spend the money...And then, you know, then sometime, you know by us, you know, keeping the coupons until the last month or two, sometime we'll have the coupon, and, you know, if some, if, if ever person in line and they give their, and they may be you know, five dollars short or something like that, I would give them, you know, I'd give them a coupon.*

*But other than that like I said last year, it was and like I said I had the vouchers, so I was able to pick and choose what I wanted you know and precook and freeze them and the lasted up until about February, I think, February, March, so that was good.*

*And we had to do it every week...I don't want to spend my twenty dollars every week. Okay? I don't want to do that. If I want to go out and get 20 ears of corn because I'm making corn, uh, I'm, I'm canning my corn this week, that's what I want to do.*

Many customers also desired the ability to select produce that they preferred, were not allergic to, and met their desired balance of fruits and vegetables and different types of produce.

*They gave a squash. I don't eat squash. I don't eat zucchini. You know, I, you know, uh, some vegetables I didn't eat. Other people in, you know, in the house, they ate it. But I didn't eat it. So, you know, if I, it was, if it was like the last two years and I use my coupons, I was able to get what I wanted, you know, wanted.*

*Yeah, you were able to pick more, the variety. I don't know who packs the boxes. I don't know, you know, last year, I had a variety. I was able to get like peaches and plums and that small watermelon. The only thing I got this year was the melon.*

*Last year, um, you had more options. Where in this year, you were only limit to one market. So that's the only place you can go and get it. Versus you can go anywhere within the city to purchase your veggies; your fruit and veggies...So, I might cannot get a watermelon, big watermelon at Arcadia. I might can go to Stadium Armory and get myself a big watermelon, you know...And then I can also go and pick what I want versus me just go getting whatever they want to give me.*

Other customers missed the pleasure of purchasing their own food and visiting farmers markets.

*Yea, I mean when you pick it yourself you just- it's a process that you- that you go about it that makes it enjoyable. Cause you just pick your own food.*

*I think the options. To go somewhere else to see what other things they have. They have different things that are offered um, at either market. Like vice versa- like you go to one to get what they don't have at the other. And just uh- the atmosphere and it's just nice. I like going to farmer's markets.*

#### 4. "Market" versus "Gift" Economy

Several customers discussed the discernible shift they felt this year when the program shifted from a market-based model, where customers were given vouchers they could spend at farmers markets, to a gift-based model, where customers were given free produce, often without being able to choose the produce they received. Customers discussed the dignity inherent in having more choice and control related to food and being a "paying" customer with a voucher vs. receiving a "gift" - and how this affected their perceptions of the quality of the food they received.

*Now, as far as shopping, I think everybody miss that. You know, cause th- uh- what- whatever you picked out is yours. And you know that you picked that out. You know, if you bring it home and it's bruised on the other side, you can say, "Well, oh, I didn't see that." But, if somebody give it to you, the first thing you say is, "Why they give me messed up stuff?," you know?*

*Oh, it was much better because, you're standing at the stand and you walk up to the people and you tell them what you want. And you, you see what you're getting. You know, the, the guys that give you the corn on the cob. Or either you pick your own corn on the cob. Yea, cause I was even doing that. At the table, I pick out the – and the, the the cantaloupes would, would look good. Yea, last year, before the Coronavirus, it was always better. Because you was picking your own food, more so. Or, or even if they gave it to you, because you're in their face, they're going to give you something good. They're not going to- they know you not going to take your coupons and pay for something that's bad...Those coupons is money. So, if I walk up to the stand and say I want 3 corn on the cob, and I, you know- Or I pick out 3 corn on the cob, I'm going to pick out the corn that I feel that is good. Or, I might say I want, um, uh, a cucu-um, cantaloupe. And I want a good, I want a good cantaloupe. I want one that's ripe and not, you know. And the, the guy will actually go to the cantaloupes and find you a nice one. Cause he wants that 5 dollars. Or he wants the 10 dollars. If you get 2 of them, that's 10 dollars. He- That's money to them. So, they going to give you the best of what, you know- Otherwise, you'll just walk away and go somewhere else. They don't want you to go nowhere else.*

## Best Practices for Food Distribution

Based on their experiences with the PPD program this year, customers had recommendations about best practices for providing prepackaged and market-style produce. These recommendations included:

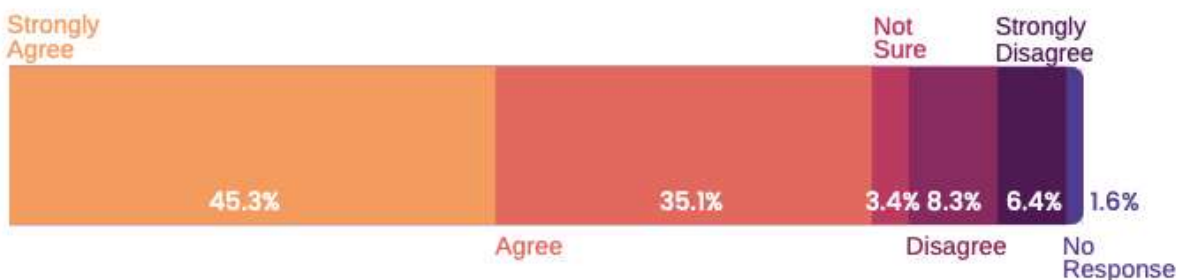
- Offering both fruit and vegetables
- Offering a diversity of fruit and vegetables over the season
- Offering the same produce to PPD customers as is offered to paying customers
- Including list of items included in box/bag and recipes
- Ensuring that the amount of items provided matches value of box/bag
- For market-style shopping, keeping prices of produce consistent to the extent possible throughout the season to keep the value of the box/bag consistent

## Food Access, Knowledge, and Consumption

### Food Access

The majority of the survey respondents (80.4%) “Agreed” or “Strongly Agreed” that Produce Plus Direct made it easier for them to access fruits and vegetables (Figure 11). There was a weak, statistically significant positive correlation (0.099,  $p < 0.01$ ) between household size and access, such that the larger the household size, the more likely respondents were to report agreement that PPD made it easier for them to access produce.

**Figure 11: How Much Do You Agree With the Following Statement: Produce Plus Direct Made It Easier for Me to Access Fruits and Vegetables?**

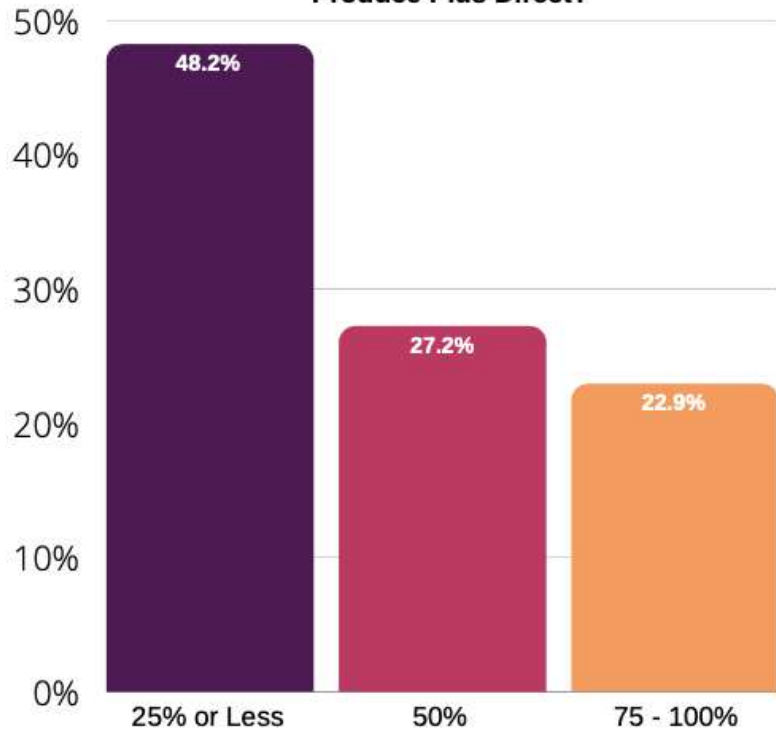




A slight majority of respondents reported that produce from the program accounted for half (27 percent) or 75% to 100% (23 percent) of produce in their homes (Figure 12). Slightly less than half of the respondents reported that Produce Plus Direct accounted for 25% or less (48 percent) of the produce brought into their household each month. There was not a statistically significant correlation between household size and percent of household produce that came from PPD.

In addition to the factors mentioned above related to participants' experiences with the program, another factor that may account for differences in the amount of households' produce that came from PPD is the box size that households received. PPD offered three box sizes: small (\$10 worth of produce), medium (\$20 worth of produce), and large (\$25 worth of produce).

**Figure 12: How much of household produce came from Produce Plus Direct?**



**Figure 13: Percent of Customers Assigned to Each Box Size (Weeks 11-12 Average)**  
(n = 4,238)

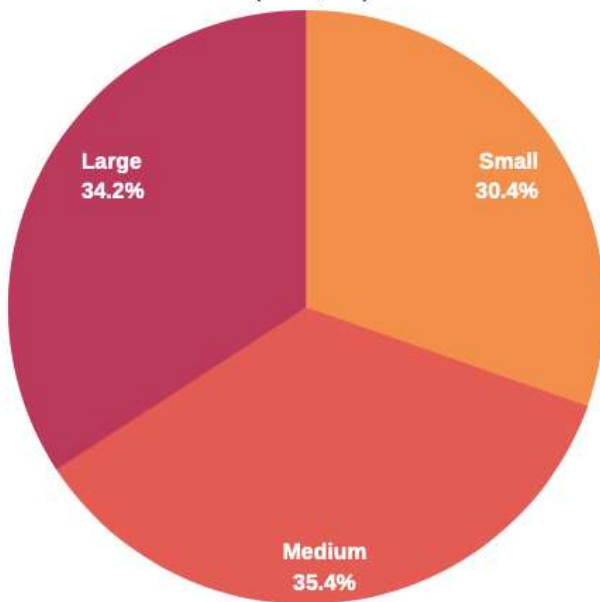


Figure 13 shows the percent of customers assigned to each box size in the final two weeks of the program, during which the maximum number of customers were assigned to vendors. Slightly less than a third of customers were assigned to receive the equivalent of a small box, and slightly more than a third of customers were assigned to receive the equivalent of a medium or large box. The medium box size was equivalent to the maximum amount that customers would have received in vouchers under the prior version of the program.

In surveys and interviews, some participants reported that they felt like

they received enough food from the box size they had been assigned.

*The amount was reasonable. You know, reasonable.*

*It's more than enough as a \$20. So, the size, the- I'm not sure about what the small one is, but the medium is a lot of different...it's enough food for folks.*

In other cases, customers felt like they did not receive enough produce and that they received less produce than they had in years past.

*When I got my bag...I really didn't get a lot lot. I think I got onions and potatoes and I'm pretty sure I got carrots...I think I got like 3 cucumbers. Uh, the little pickily cucumbers. And I think I got maybe a tomato, maybe. I think that's what it was in the bag. That's why I kept saying, this can't be 25 dollars' worth of stuff.*

*Last year when I could buy like the maybe greens or kale or whatever. I was in a routine of blanch them or quick cook them and put it in the freezer. It was pretty good because it lasted me all winter. This year, you know, because you get so little. You cook them and you eat them the same week and you don't have anything to freeze. You know, or put aside for the winter or something like that.*

*Shelly: Okay, so you, so um, if you had to guess like a percentage, what percentage of the, the produce in your house do you, would you say comes from Produce Plus?*

*Interview Participant 7: Uhh, about a quarter.*

*Shelly: Okay...so a quarter of it. And what other sources, um, do you get it from? Do you find yourself needing to purchase?*

*Participant 7: Purchase, and I get a lot of canned goods.*

*Shelly: Okay...in years past, did you also need to purchase so much or, um, or not?*

*Participant 7: Um, I never purchased much before, no.*

*Shelly: Okay, so this year you find yourself with an added expense? Is that correct?*

*Participant 7: Yes, yes.*

As the customer above describes, in some cases, customers reported needing to supplement the produce they received from Produce Plus Direct, whether due to the lack of choice most customers had in selecting their produce, the variety of produce offered by a particular vendor, or the size of the produce box they were assigned. This was especially the case when customers were assigned to a vendor that provided little or no fruit.

*I buy my own fruit from the grocery store.*

*We- We like fruit. Like my kids like um, berries. I would- well I have to buy strawberries and blueberries or whatever else they wanted that wasn't in the box.*

*Well most I got from other sources, because I eat a lot of broccoli, I eat a lot of spinach. Um, what other kinds of things I eat... I do eat cabbage, but, that cabbage that came, um, I think we did have cabbage earlier - a smaller cabbage that, that I used. Um, but fruits and stuff, that, I bought a lot of fruits elsewhere.*

One question that was not addressed by our analysis was the amount of household produce that Produce Plus is meant to supplement. The previous amount offered through the voucher version of the program - \$20 a week - might be the right amount for a one or two-person household but feel limited to a household of four or five. For returning customers who were familiar with receiving \$20 of vouchers per week, the small box size felt “scanty” or “not enough.”

If Produce Plus decides to continue with different box sizes, it could be helpful to inform customers, particularly returning customers familiar with the voucher version of the program, about the possibility of registering for larger box sizes, even for households with only one or two people. This would allow some of the seniors who we talked with who were used to buying extra produce and freezing it to extend the life of the produce through the winter months to continue this practice.

## *Food Knowledge*

Most survey respondents (78 percent) “Agreed” or “Strongly Agreed” that they knew how to prepare the fruits and vegetables received from the program. More than half of survey respondents (57 percent) also stated that Produce Plus Direct had introduced them to new fruits and/or vegetables they hadn’t tried before. These fruits and vegetables included leeks, eggplant, beets, Asian pears, a radish variety, and a hybrid fruit that was a combination of an Apricot and a plum.

For some participants, receiving unfamiliar fruits and vegetables led them to try new produce:

*Some things I try like the eggplant. I never eat that before but I tried the eggplant and that was pretty good the way I cooked it.*

*I was introduced to some new vegetables such as leeks which were very good.*

*They gave me the string beans, they gave string beans, they gave me some, uh, what are -- beets. I had never cooked fresh beets, and they were delicious.*

*You should have seen us...They had some purple stripe something, and everybody was trying to figure out what it was, so we made an assumption that it was a purple yam, right? This striped, purple yam. So, you know, uh, we were trying to figure out how to cook this striped purple yam, which nobody knew what the heck it was, and come to find out, it was a four inch radish.*

*I started uh, eating Asian pears. I didn't know to think about them until I started actually*

*going to the market. And they had like samples out. And I said oh, this is uh, pretty good. The Asian pear, I never had it before in my life until I started going to the market. So, it's a lot of um, vegetables and fruits that the seniors weren't aware of, that they are buying now. And are eating, yea. And so am I.*

*I'm learning a lot. Like the other day I got some, what is the one... combination of apricot and plum. The "plumcot" (?). Whatever, but it's a combination of plum and apricots. And it's quite tasty! It was really good.*

For other participants, receiving unfamiliar produce led participants to give away the food or throw it away.

*Same produce were repeated often and if you didn't know them or how to prepare them, it became either regular giveaway or thrown out.*

*I'm in here trying to call some people and ask them, I got this, do you want this, and do you want that, and... Because I couldn't use it... And I'm, I'm really, I going to be eighty next year...I wasn't trying to even though I know about leeks, I just had never bought them. I wasn't interested in learning to cook them now.*

*The eggplants. I gave it because my mom never fixed it for us. But my neighbor, I gave it to her because she knows how to prepare it.*

Customers who decided to try unfamiliar produce reported using a variety of sources to learn about how to prepare the produce, including vendors, Pinterest, and YouTube. Customers found it helpful when vendors provided them with a list of produce included in their box, tips and recipes on how to prepare the produce, and/or were available to answer questions about types of produce and preparation.

*I went on YouTube, just like the YouTube told me to water and put a little vinegar in it, and that's what I did. And they were simply delicious!*

*So it's introducing me to new, new vegetables, new stuff that I normally wouldn't even go in the store and buy....but because they are in there and sometimes they give you the recipes...it makes a lot easier to be able to cook it and prepare it.*

*You didn't have to think about what you were getting. I like that they sent an email to tell you what you were getting. And um- with um, vegetables they would actually like send a recipe with it. And um, if you weren't familiar with it you can um, try the recipe that they provided.*

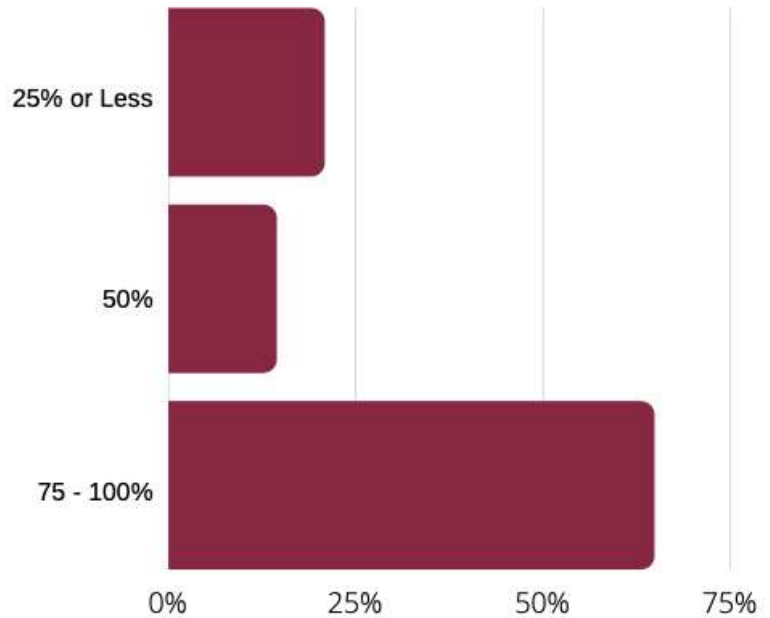
*The persons giving out the bags were very friendly and knowledgeable on how to prepare some of the foods that I had not had.*

## Food Consumption

The majority of survey respondents (65 percent) reported they ate 75% to 100% of all the produce they received from the program (Figure 14). About one-fifth of the respondents (21 percent) reported eating 25% or less of the produce they received, and 14 percent reported consuming about half of the produce they received. There was not a statistically significant correlation between household size and amount of PPD produce consumed.

Respondents indicated a number of reasons why they were unable to eat all the produce provided by the program (Figure 15). The single most common reason cited for not eating the produce received was that customers were not able to eat all of the produce before it spoiled (57.1 percent of customers reporting a challenge related to consumption). Challenges to consuming all of the produce provided also included not being familiar with a particular item (24.6 percent), not liking the taste (19.0 percent), and/or not knowing how to prepare the fruit or vegetable (15.1 percent).

**Figure 14: How much of Produce Plus Direct produce was consumed?**  
(n = 707)



**Figure 15: If there was some produce that you received from Produce Plus Direct that you and/or the people in your household did not end up eating, why not?**

Percent (n = 126)\*



While not all customers consumed all of the produce provided, the majority of customers (62.5 percent) reported eating more fruits and/or vegetables than they normally would eat because they were in their Produce Plus Direct bags (Figure 16). There was not a statistically significant correlation between household size and whether participants reported eating more produce as a result of participating in PPD.

**Figure 16: How much do you agree with the following statement: I ate more fruits and/or vegetables than I normally would eat because they were in my Produce Plus Direct bag?**  
(n = 707)



Just over half of respondents (55.0 percent) reported they ate fruits and/or vegetables they normally wouldn't eat because they were in their Produce Plus Direct bag (Figure 17). There was no statistically significant correlation between household size and whether participants reported eating produce they normally wouldn't eat as a result of participating in PPD.

**Figure 17: How much do you agree with the following statement: I ate fruits and/or vegetables I normally wouldn't eat because they were in my Produce Plus Direct bag?**  
(n = 707)



# Customers Highly Value Produce Plus

It was clear among the more than 700 customers who participated in the survey and the 36 customers who participated in interviews how highly customers value the Produce Plus program. Even when offering constructive criticism, many customers followed this up with a statement asking us to make sure the program continued next year. Customers value Produce Plus for many reasons, including access to fresh produce to promote health, and the role of the program in reducing financial and other stresses.

*I started out with the coupons for the last three years and it feed my family fruits and vegetables it helped so much that I could get cereal's, meats, milk, juices and other groceries to keep complete meals in my home.*

*In all honesty, I think it's a great program. And I just hope everyone that could take advantage of it did. You know, I think the majority of us have experienced some type of loss with COVID. And it...helped remove a lot of stressors.*

*It's always good to have fresh produce in the house. And um, lately, when I didn't have fresh produce, I was using canned, and I don't like canned vegetables. And I have high blood pressure, so I'm trying to keep my blood pressure down. So, I'm just saying I appreciate you, is all.*

*No, I think the Produce Plus program is fantastic...I don't get that much Food Stamps...I noticed that the vegetables are fresher at farmers markets but you because of the vouchers and stuff it makes it more. It's really good. It saves money out of our pockets and the vegetables are better, you know. And I spend the little bit that I get [in SNAP] on meat.*

Customers also shared how much they value the program for the ability to meet and socialize with other participants and volunteers.

*I'm completely satisfied...I love the produce, but I enjoy it...it's a socialize thing, it helps me, you know, and I can use the produce but other than that I just enjoy socializing and meeting other people.*

The participants' statements in interviews and surveys illustrate how the Produce Plus program is an integral aspect of the social infrastructure of these communities. As the Produce Plus program provides residents with produce, it also operates as a program to build relationships and social bonds, and provide networks for increased community engagement (Latham and Layton 2019). Statements similar to the one above were continuously declared by participants within the majority of interviews, indicating the factors of socialization that the program brings within the community. While the Produce Plus program provides fresh produce to the community residents of DC, the program also strengthens social solidarity within and between community members that

participate in the program. Produce Plus is facilitating social solidarity that promotes collective action within the communities the program serves (Douwes, Stuttaford, and London 2018).

Within the model of social solidarity and collective action developed by Douwes, Stuttaford, and London (2018), here are 3 types of individual acts that are necessary to produce social solidarity through collective actions: trust, altruism, and reciprocity .

The Produce Plus program design facilitated each type of individual action detailed in the model. Trust is defined as “voluntary action based on expectations of how others will behave in the future in relation to yourself,” or the enhancement of cooperation among individuals (Douwes, Stuttaford, and London 2018:188). Trust was developed within the Produce Plus program through the routine produce pick-up process. As program participants followed routine pick-ups established by Produce Plus, they would begin to notice the same individual picking up their produce each week. Participants steadily were becoming more comfortable with each other and increasing communication with other program members. The trust between these members was developing each time they communicated, as the participants expected to speak with these same people each week to discuss the program and other aspects of life. Eventually, friendships were formed from these patterns of encounters through the Produce Plus program. Participants even discussed that they would discuss the contents of their produce boxes with other participants and communicate their feelings with one another about the program. As trust became established and acted upon by these program participants, altruism and reciprocity would follow.

Altruism is defined as “behavior that reflects an unselfish desire to live for others,” as altruism is “considered to be the opposite of selfishness and involves placing what is good for others above what is good for oneself” (Douwes, Stuttaford, and London 2018:188). More importantly, altruism is marked as voluntarily and intentionally performed. Altruistic behavior was described by our participants to be occurring within the Produce Plus program, as participants were making routine actions of sacrifice for one another once trust was established. Examples of altruism include participants describing that they act as proxies, picking up produce for people that had challenges to accessing the program locations. Participants would learn of other participants that may have physical or mental disabilities or challenges that did not allow them easily access their produce and would get their produce for that participant. Some participants even described that they would travel to the house of a customer with a physical disability to pick them up and take them to the program location, so they would not have to worry about accessing public transportation. This altruistic behavior extended to individuals that did not have mobility limitations, as participants would often carpool just to avoid having to get on public transportation and the public health anxieties associated with this method of travel during the COVID-19 pandemic. This behavior was indicative of altruism, as these participants may have even traveled in the opposite direction of the program, increasing their mileage and their normal time spent when just picking up groceries for themselves. Participants would recognize the generosity of their altruistic friends and an exchange of reciprocity would occur between program members.



Reciprocity is defined as “assistance to an individual or a group provided by another individual or group under the assumption that the favor may be returned in the future” (Douwes, Stuttaford, and London 2018:189). Within a reciprocal action, there is an expectation of future rewards or a quid pro quo system, that makes these individual acts differ from altruism (Douwes, Stuttaford, and London 2018). While the expectation of future rewards may imply a negative connotation towards these actions, reciprocity contributes to equal relationships, promoting “solidarity and shared interests by fostering repeated interactions among community members” (Douwes, Stuttaford, and London 2018:189). Reciprocity became established within the interactions between the Produce Plus program participants, being facilitated by the acts of trust and altruistic behaviors previously discussed. The reciprocal behaviors exhibited by the program participants were most notably the sharing of produce and other foods with one another.

An example of this reciprocity was a participant traveling to pick up another program participant that had limited mobility and driving them to the program location to pick-up their produce, with the reciprocal exchange being that the participant who extended the generosity of traveling accommodations would receive extra produce from the participant they gave transportation. The relationship remained equal here, as the participant that gave away their food would only give away produce that they could not eat due to health or dietary restrictions, such as food allergies, making the exchange ideal for both participants. These types of reciprocal behaviors initiated lasting relationships between program participants, as returning customers would even help each other register for the program in consecutive years, mitigating issues of technology or language access issues, with the intention to continue the reciprocal exchanges. These trusting, altruistic and reciprocal acts have the potential to develop into collective acts that would enhance social solidarity throughout the community (Douwes, Stuttaford, and London 2018).

Our research provides evidence that the individual acts of trust, altruism and reciprocity did produce collective actions for the Produce Plus program participants. (Douwes, Stuttaford, and London 2018). Collective action is defined as “the behavior and actions of a group working toward a common goal”, which for Produce Plus program participants was the increased access to and consumption of fresh produce (Douwes, Stuttaford, and London 2018:187). With the overall common goal of these Produce Plus program participants being healthy eating or improved dietary health, the collective actions that work to achieve this goal are all initiated through the individual actions previously discussed. Collective actions that were expressed by program participants include the sharing of produce with one another, making sure that participants are aware of program start times, ensuring that participants have adequate transportation or a designated proxy to receive their produce and ensuring that participants know how to prepare their foods.

These participants’ actions reflect the social solidarity that is produced within the Produce Plus program. Social solidarity “emphasizes the cohesive social bond that holds a group together, which is valued and understood by all group members” (Douwes, Stuttaford, and London 2018:187). Participants often declared simple statements regarding the social solidarity within the program, stating “we take care of each other,” or “we make sure that everybody has what

they need.” These participants expressed that as a community of residents living in DC, they live together and recognize the hardships that DC residents face; including food access issues, gentrification and other socioeconomic disadvantages (Mitchell 2020). The COVID-19 pandemic has heightened these issues for these residents as well.

Eric Klinenberg’s definition of social infrastructure supports Produce Plus as a form of social infrastructure, as Klinenberg argues that “Community organizations, including churches and civic associations, act as social infrastructures when they have an established physical space where people can assemble, as do regularly scheduled markets for food, furniture, clothing, art, and other consumer goods” (Latham and Layton 2019:3). As a community program that partners with farmers and farmers markets to facilitate access to fresh produce, Produce Plus acts as social infrastructure by promoting sociality and healthy consumption habits through community engagement and increased access to healthy foods (Latham and Layton 2019). Therefore, the Produce Plus program has an integral role within the social infrastructure of the DC community and is a necessary component to the social well-being of DC residents.

# Conclusions and Recommendations

During the 2020 season, Produce Plus made several significant changes to its program structure, including providing primarily prepackaged produce instead of vouchers, offering the choice of different amounts of produce (box sizes) to customers, assigning customers to a single vendor, and ensuring both pickup and delivery options. This evaluation examined customers' experiences with the new model of the program and the program's influence on customers' food access and food consumption.

Produce Plus Direct provided potential customers with several different entry points into the program this year. Customers could enroll via a website or hotline, and some customers were also enrolled through a vendor or organization. Some returning customers experienced difficulty with the registration process, particularly with accessing the hotline. At the same time, the program also reached many new customers, with at least 32 percent of customers in 2020 reporting that they were new to the program. The program also had a diverse customer base in terms of age and qualifying program. Slightly more than half of participants enrolled in the 2020 season were aged 55 or older. Nine percent of customers were women with infants or children who reported receiving WIC.

Overall, most customers surveyed (80 percent) agreed or strongly agreed that Produce Plus Direct made it easier for them to access fruits and vegetables. Most respondents (78 percent) also agreed or strongly agreed that they knew how to prepare the fruits and vegetables they received from the program. More than half of customers (57 percent) said that PPD had introduced them to fruits and vegetables they had never tried before, and 55 percent reported that they ate fruits and/or vegetables they normally wouldn't eat because they were in their Produce Plus Direct bags. In interviews, customers stated that having access to a list of produce included in their prepackaged box and tips and recipes for preparing the produce was helpful in being able to identify and prepare produce.

For about half of program participants (52 percent), PPD provided half or more of their household's produce. Most participants (65 percent) reported consuming 75 to 100 percent of the produce they received from Produce Plus Direct. Customers who consumed less produce reported challenges with the type, variety, and freshness of produce they received. For some customers, the box size they received provided an adequate amount of produce; for others, the box size felt too small, especially for customers who were used to maximizing their vouchers.

In a given two-week period, between 67 and 71 percent of customers received their produce by delivery or pickup, indicating that most customers were able to receive their produce and about a third of customers experienced challenges with accessing their produce. Interviews with 36 PPD customers and open-ended responses to the survey suggest that mobility limitations and the perceived quality and usefulness of the box contents played a role in customers' ability and willingness to access and consume the produce provided by PPD. Customers provided

recommendations of best practices for food distribution including providing a variety of produce, offering a more even distribution of fruit and vegetables, and adding a list of produce and tips for preparing the produce to each bag.

The Produce Plus Direct program provides numerous benefits to customers, including access to fresh produce to promote health, the ability to socialize with other participants and volunteers, and the role of the program in reducing financial and other stresses. Many customers expressed their gratitude and desire for the program to continue next year and offered recommendations for how to strengthen the program.

Based on this analysis, which was drawn primarily from the perspectives of Produce Plus Direct customers, we recommend the following:

- Registration: Continue to pursue strategies to reduce waiting times for registration and voucher pick-up experienced in the previous version of the program. Customers were grateful for the decreased wait times to enroll and receive produce in the Produce Plus Direct model of the program. One interview participant and one survey participant who were familiar with the pre-COVID plan for Produce Plus to transition to a debit card format offered their support for continuing to move in that direction:

*I do hope we PPD can transition to the planned debit card next year, and I would like to be part of the planning process once again.*

*Like, I hope they return to that because, you know, the idea of having people have, like, some kind of card, you know like, that has your voucher money on, like, put on a card electronically instead of having to wait in line to pick up a paper voucher and all that. Like, that idea would actually mesh with, um, you know, work for physical distancing because you're -- then you're not waiting in line to get the voucher. You have your card, the money's being put on it electronically, and all you have to do is walk down to the farmer's market, which is open anyways and there's all these people walking around down there anyway...And, you know like, that idea still would work. So I hope that they return to that conversation and are able to see, like, how to do that, and then, you know, just enable people to be independent with the money and what they choose to buy.*

- Consider multiple types of produce access and distribution to meet different customers' needs (e.g., a combination of vouchers and delivery). Some customers expressed gratitude at the ease and safety of being able to receive prepackaged produce via delivery, while other customers lamented the loss of autonomy, choice, and flexibility that the voucher system provided.
- If a vendor system is used in future seasons, consider best practices offered by customers, Produce Program stakeholders, and the possibility of “bundling” smaller vendors to offer

a greater variety of fruits and vegetables to customers. Several customers also suggested a CSA model with some customer choice built in as a potential alternative model.

- Continue to engage customers as partners in program planning and implementation. Many customers expressed a desire to provide ongoing feedback on program changes. Data from interviews also demonstrated that volunteering and social aspects of the program are important to some customers, especially seniors. Finding ways to continue and expand the Food Champions program could continue to aid program outreach while providing valued opportunities for customers.

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