

No Food Left Behind



Second Helping: Can the Gig Economy Rescue Surplus Food from Farms?

ACKNOWLEDGMENTS

World Wildlife Fund (WWF) would like to thank the Walmart Foundation for their generous support of the research described in this report, the third in the No Food Left Behind series; IDEO, who facilitated the research through their design thinking approach; Harry de Gorter, Kevin Kastenholz, Emily Ma, Chris Coward, Lisa Johnson, Cannon Michael, Derek Azevedo, Erin Meyer, Greg Baker, Wood Turner, Bob Adams, and Chris Charlesworth who supported the first phase of conceptual prototype design and testing efforts; Edward Spang and Annie Gillman who provided tremendous insight on food rescue; and Elise Golan and Ron Clark who contributed invaluable feedback on the contents of this report.

If you are interested in learning more about the Second Helping concept and pilot, please contact Pete Pearson pete.pearson@wwfus.org

EXECUTIVE SUMMARY

Surplus produce left on farms, not often quantified by farmers, could be utilized to satisfy demand from the US food banking and food recovery networks if the right business case can be made. World Wildlife Fund (WWF)'s No Food Left Behind series is part of a growing body of literature examining post-harvest loss (PHL) rates and how they differ across types of crops, fresh vs. processed markets, and with regional and state variation. The series shines a spotlight on the surplus of fruits and vegetables grown across the US that is never harvested and explores what conditions cause these surplus quantities to become post-harvest loss. Based on findings from qualitative interviews with growers, the drivers of loss include market dynamics, strict cosmetic standards, and a dwindling and expensive labor force.

To explore what solutions exist to address these drivers and maximize the recovery of farm-level surplus, WWF worked with a multi-stakeholder group to develop concepts that could optimize two variables: (1) the value of surplus food for the farmer and (2) increase the quantity of fruits and vegetables delivered to those who need it. A human-centered design process led to the prototyping of Second Helping, a mobile application to connect farm surplus with food bank demand and source part-time 'gig economy' labor to harvest this surplus.

As labor challenges – both cost and shortage – arose in multiple interviews with growers, WWF chose to prototype the labor sourcing component of Second Helping to understand if and how it could work in practice, and if the model warranted further exploration. The prototype showed there may be an untapped domestic workforce willing to harvest food, given the right conditions. It also revealed an opportunity to improve grower and food bank communications, in addition to leveraging tax credits for donated surplus since most farmers currently do not take advantage of these benefits.

This report showcases results from research on what factors influence farmer decisions to harvest, the opportunities for recovering surplus from farms in California that have the potential to work in other farming regions across the US, and the learnings from in-field prototyping of a gig-based model for labor recruitment.



INTRODUCTION

Part III of the No Food Left Behind (NFLB) series leverages previous in-field measurements and qualitative research to further examine the issue of post-harvest loss and develop possible options for recovering surplus produce and decreasing those rates of loss. Specialty crop producers face many challenges in maintaining profitability and productivity, including increasingly erratic temperatures, shifting growing cycles, rising labor costs and shortages, unpredictable market dynamics, and strict cosmetic quality standards from buyers. Through interviews with growers, food bank staff, and other end market buyers, the one challenge that repeatedly arose as the primary limiting factor for getting surplus out of field was labor.

The current US agricultural labor supply is declining as workers age, and due to the challenging physical nature of the work, the younger generation's interest is declining. Farm labor is not backfilling, as the cost of living in agricultural production regions in the US is rising, and the economic conditions and education in Mexico are improving, where much of the labor pool arrives from.¹ According to a survey conducted by the California Farm Bureau Federation and reinforced during our interviews, growers faced the following labor challenges in 2019: 86% of farmers had to raise wages to attract labor, 37% adjusted cultivation practices such as delaying weeding, and 56% turned to labor-saving technology such as mechanized harvesters.²

Although the shift towards mechanized harvesters and planters is naturally evolving, labor challenges compelled some growers to move much more quickly than originally anticipated.

Since labor can account for 10% of total production costs³, a lack of affordable labor can result in growers harvesting only their best produce to maximize returns, leaving upwards of 20 to 30% of what's grown unharvested in field. As one component of this work, WWF and researchers at the Massachusetts Institute of Technology's (MIT) Sloan School of Management developed a model that mimics farmer decision-making based on market price and pick and pack-out (PPO) costs to understand what levers would drive more surplus off farms. Based on the current model's parameters, the two biggest determinants are: 1) the price the secondary market pays, which is often so low it's not feasible to pay labor to harvest those seconds; and 2) the risk of rejection from market. As eager as growers are to sell as much produce as possible, if surplus does not have an economically-viable outlet (market price is higher than the cost of labor to pick it) or has a high likelihood of rejection, then it is often abandoned in-field. Therefore, it is critical to explore solutions that are profitable for growers and accomplish the goal of getting edible, surplus food from farm to people.

¹ World Wildlife Fund, "No Food Left Behind Part I". <https://www.worldwildlife.org/publications/no-food-left-behind-part-1-underutilized-produce-ripe-for-alternative-markets>

² California Farm Bureau Federation. <https://www.cfbf.com/wp-content/uploads/2019/06/LaborScarcity.pdf>

³ Specialty crops studies included: lettuce, fresh tomatoes, spinach, peaches, peppers, carrots, and potatoes

One possible solution could be flexible and longer-term contracts for surplus crops; agreements established between buyers and growers with prices determined pre-planting and acknowledgement that surplus quantities may vary from year-to-year, with loosened quality standards. For example, if a food service provider had a three-year contract with a farmer that included a ceiling volume, but no guaranteed volume, and floor price with minimal quality standards, the grower could utilize surplus from retail orders to generate additional revenue without the need for planting more to fully satisfy this order. In the absence of this contracting mechanism, the food bank and recovery network are often pointed to as a ‘market’ for surplus produce that can be a win-win-win for farmers, the environment, and food insecure populations. But for recovery to be efficient, maximized, and sustainable over time, it still needs to be economically viable and in most cases cash-based.

Much of the cost of food is in the harvesting and packing process, which means even for surplus, someone needs to cover those costs: either the secondary market channel through cash payments, or growers deriving a tax credit for the donated produce. However, research performed for this project by the University of California-Davis (UC Davis) confirmed that these tax incentives are often not consistently claimed by farmers, as they can be viewed as risky to track and prove and therefore not worth the effort by conservative accountants. Food recovery from farms—whether produce directed to food banks (e.g. California Association of Food Banks Farm to Family program) or imperfect product—has historically and currently been approached at the grassroots level, driven by relationships rather than technology. Food recovery agencies most often describe the key to unlocking produce donation supply as building farmer relationships, person to person.

This report, the third in a series focused on understanding the opportunities and challenges around addressing specialty crop surplus and post-harvest loss in the US, presents the results of an iterative design process. Leveraging prior research results, the research team set out to explore how growers could maximize surplus product left in-field to benefit growers financially and help food insecure populations, while minimizing product waste further along the supply chain.

The first and second phase of the ideation process yielded six concepts: Surplus Predictor, Crop Bonus, Pipeline, Crops for a Cause, Up Skill, and We Pick (all described in **BOX 1**). We then investigated a business plan for value-added processing (**BOX 2**). These initial concepts were taken into the field and tested through a process of interviewing multiple stakeholders, including several voices from Feeding America and the California Association of Food Banks (CAFB) to help refine the concepts into a single prototype. This research led to an initial prototype, Helping Harvest (**BOX 3**), which focused on restructuring the current labor model for recovering surplus crop and increasing grower awareness of the economic opportunity of harvesting surplus for food insecure populations. After a second round of interviews with stakeholders, including food bank staff, farmers, chefs, entrepreneurs, and academics to vet this idea, the team further refined Helping Harvest into a final prototype—nicknamed Second Helping—that utilizes technology to link farmers to the food rescue community and to part-time labor when needed.

As an output of a three-day multi-stakeholder ideation session, the following concepts were developed to address the two initial research questions: (1) How do we empower farmers to benefit from surplus? and (2) How do we maximize the value of surplus? Below you will find each concept in its early inception and lessons learned as they were pressure-tested in-field with various supply chain stakeholders.

SURPLUS PREDICTOR

A prediction platform that matches a grower's planting and operational information with trusted, historical datasets so their decision-making process can be simplified.

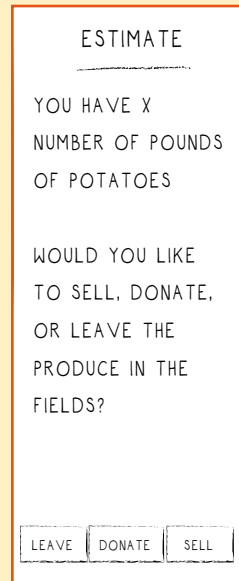
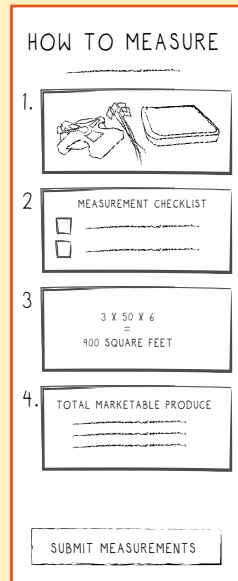


Lessons learned:

- The prior year yield and sales may not be the greatest indicator for future planning, as annual weather fluctuations can make one year's data a poor predictor of future yields.
- USDA's market forecasts could be used in place of specific farm data to provide a look at overall market conditions for a crop.
- Small fresh market operations are more reactive by design (they grow to sell), while larger contracted farms require more planning.

CROP BONUS

A surplus measurement platform that helps growers record, price, and publish surplus so that they can move of what they grow.

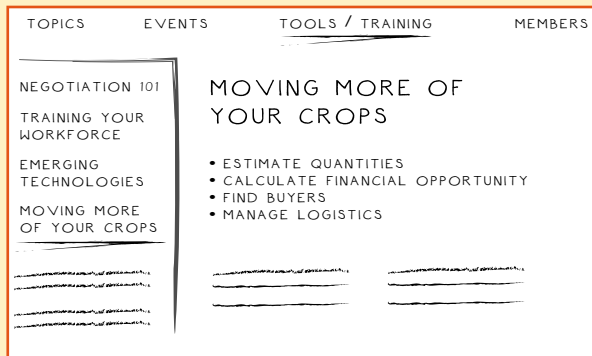


Lessons learned:

- Minimal concerns about measuring or pricing product. Growers were more concerned with who they'd sell the surplus product to. Growers are curious about paths of diversifying buyers.
- Labor: who will pick when there is a buyer?
- Risk of harvesting surplus without a secured buyer.
- Sales transactions can be complicated.
- Growers have limited time to spend measuring surplus themselves.

PIPELINE

A knowledge sharing hub and online classroom for growers to connect and learn from one another in order to build new skills.

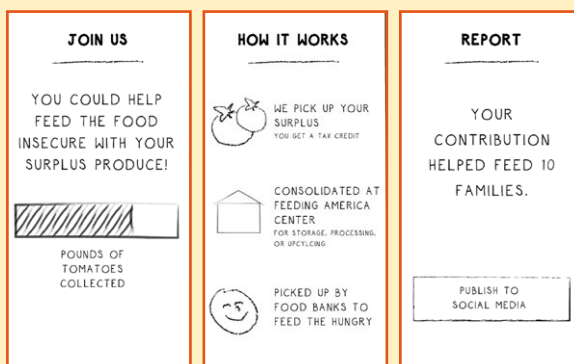


Lessons learned:

- Growers are highly relationship-oriented and want to build reciprocity.
- Growers have gatherings to connect, but they're not necessarily interested in learning from their peers.
- Internal-facing learning goals are more intriguing.

CROPS FOR A CAUSE

A food access campaign manager/app that helps growers with surplus connect to food collectors (donation centers/food banks/other non-profits that distribute food) who can transport the produce to a centralized hub for distribution.

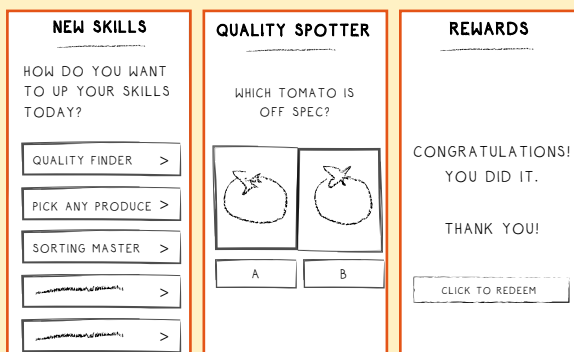


Lessons learned:

- The issue most often raised was who would/how to pay for cost of labor.
- Growers do not necessarily want to broadcast they have surpluses.
- The cause that growers donate to sometimes matters.

UP SKILL

A worker development tool that provides training, incentives, and growth for workers so that growers can improve the efficiency of their harvests and develop new capabilities.



Lessons learned:

- There's more interest in training salaried workers than pickers (unless the operation is vertically integrated)
- More interest in helping workers increase consistency of quality versus building new capabilities
- Labor has more influence over picking than anticipated

WE PICK

A shared harvesting platform that invites local communities to farms to pick surplus crops, strengthening the relationship between farmer and community. Farmers can also invite community members for other fee-based farm education/community building activities.



Lessons learned:

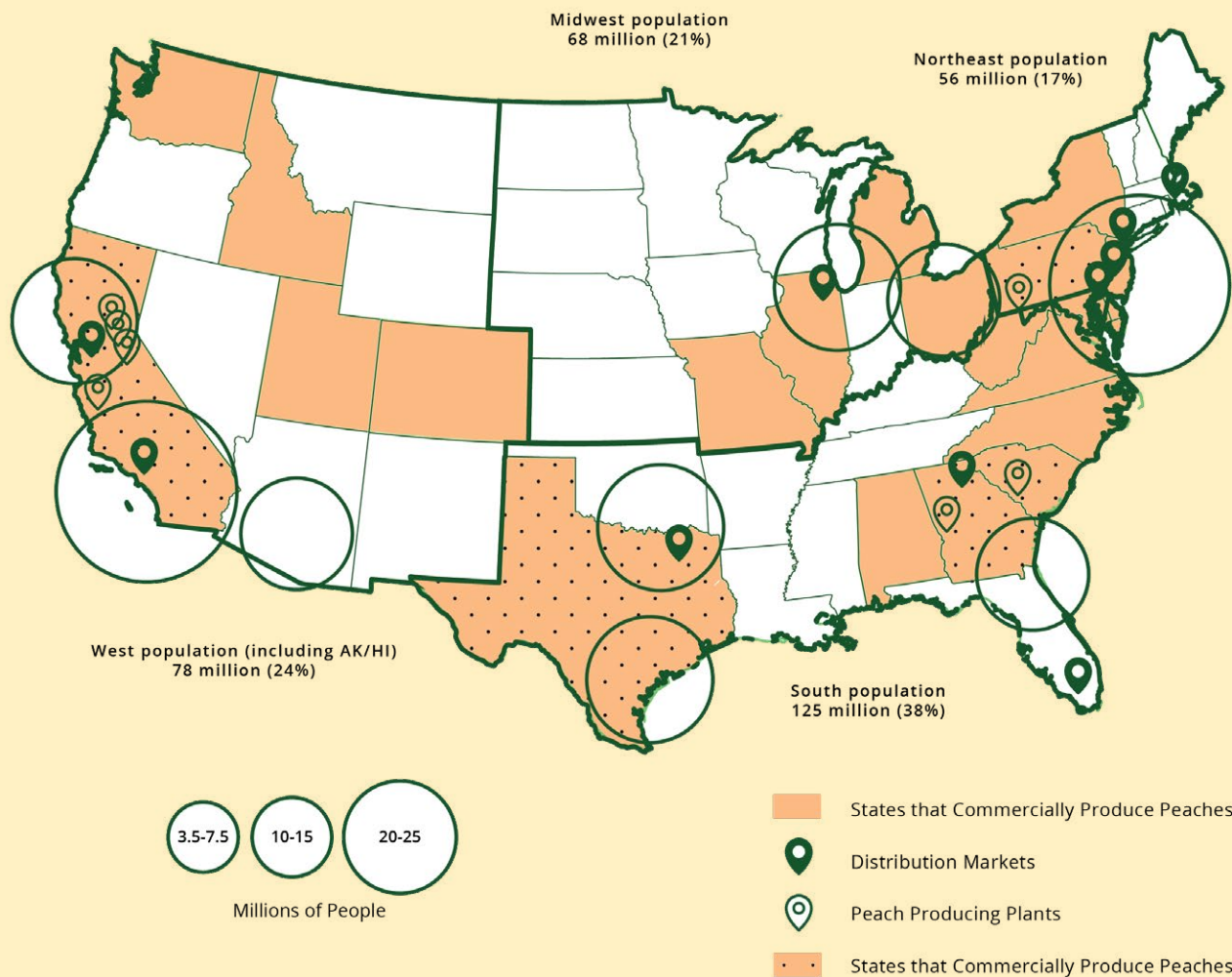
- Non-agrarian people are often considered a liability
- Building a community is important but not through picking on-farm
- Timing, coordination, and commitment are hurdles for growers
- This sounds similar to the current gleaning model, which growers have food safety concerns with, and it faces many challenges in scaling for larger farm operations

BOX 2 DOES VALUE-ADDED PROCESSING PENCIL OUT?

In addition to using the food recovery network as a market for surplus, there are examples of using surplus in value-added processing to create sliced, diced, cubed, or pureed products. WWF commissioned the Global Cold Chain Alliance (GCCA) to look at the business case for value-added processing of New Jersey peaches, building off of research they performed for [No Food Left Behind, Part I](#). New Jersey, the third largest peach producing state, has limited capacity for value-added processing as large processing plants in the US have become increasingly consolidated and limited. Growers in the region have three options: (1) leave culls in the field, (2) send them out of state for processing, or (3) invest in on-farm or regional processing capacity.

GCCA performed an initial feasibility assessment to determine which of these options held the most promise, while also maximizing surplus value and minimizing the amount left in-field. The research showed it was not economically viable to ship the peaches to the closest processing plant in southern Pennsylvania, due to the price per pound they were willing to pay, nor to the facility located in South Carolina, due to prohibitively high transport costs. Further, the upfront costs to own or lease equipment for sliced, diced, or cubed processing are too high for New Jersey peach growers who don't move enough product per day to make it cost effective. The one option that proved feasible, though very low value, was on-location value-added processing into a puree. This feasibility assessment proved that processing culls is cost prohibitive in markets that do not have the scale of California or other primary production states. This further supports the need to look at more local opportunities in the food recovery space via efforts such as Second Helping.

MAP OF EXISTING PEACH PROCESSING FACILITIES MAPPED TO PRODUCING STATES AND POPULATION CENTERS.





SECOND HELPING

WHAT IS SECOND HELPING?

The final output from the iterative design thinking journey was a single, synthesized prototype that encapsulates the learnings from the earlier, sketch-level concepts in **BOX 1**. Two primary challenges emerged throughout the journey that the final concept looked to address: (1) surplus product is not top of mind for growers; they need a reason to focus on it, and (2) to avoid creating a new waste stream beyond the farmgate, surplus should go to those in need. As early concepts were socialized with stakeholders in the field, qualitative learnings informed the development of Second Helping. Some of these opportunities included a more highly coordinated system between growers and food banks that links surplus supply with demand and a platform by which growers could share best practices between each other.

Second Helping is a virtual platform that matches a grower's surplus product with a food bank's demand. The three primary users include food banks, growers and workers, and the interaction of these users is outlined in **FIGURE 1**. It provides two options for maximizing surplus:

- (1) Farmers can use their existing labor force to pick and pack out (PPO) surplus, food banks incur the PPO costs, and food banks provide transport of the packaged product, which is largely how food banks and domestic agriculture interact today or
- (2) Second Helping sources an independent, part-time, temporary labor crew to harvest a food bank's order. Food banks pay workers with the funds they would have otherwise used to purchase the product, and the transaction is made via the Second Helping platform. Farmers are provided with the paperwork needed to claim the tax credit for their donated produce. This model differs from voluntary gleaning in that it pays workers, trained onsite or prior to arrival, to harvest the remaining produces versus using volunteer (free) labor.



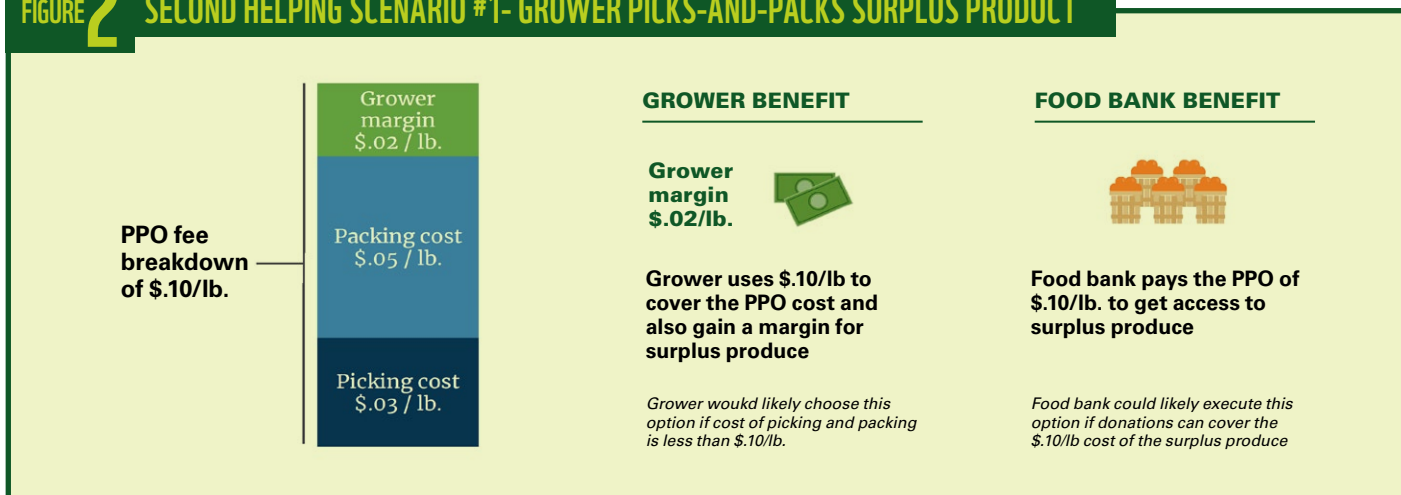
Several states and food banks have gleaning programs, but they are not at the scale needed to recover all produce that is lost, and farmers have reservations about using volunteers in their fields, a finding confirmed by UC Davis's research. In addition to the matchmaking provided by Second Helping, it has the secondary benefit of generating data on surplus quantities after primary harvests for growers, which would provide them with an annual record of their overproduction. That data has the potential to highlight additional opportunities for post-harvest reduction in the future, such as improved seasonal planning for growers, buyers and suppliers.

To illustrate how the application works, including the financial benefits and transactions that occur between users, the following two examples use prices per pound that both growers and food bank staff provided. If the grower chooses to use their own labor (option 1), the grower is paid \$0.10 per pound for produce already picked. Of the \$0.10 per pound, \$0.08 is paid to cover PPO, and \$0.02 per pound is left for the grower's margin. If we consider a 1,600 acre farm yielding 60 tons of product per acre, with a 15% surplus, harvesting the surplus for PPO can boost overall harvest revenue by ~8% (varying based on market prices) while food banks benefit by getting the food they need **FIGURE 2**. A farmer would likely choose this option if the PPO is equal to or less than \$0.08 per pound.

FIGURE 1 SECOND HELPING USER JOURNEY



FIGURE 2 SECOND HELPING SCENARIO #1- GROWER PICKS-AND-PACKS SURPLUS PRODUCT



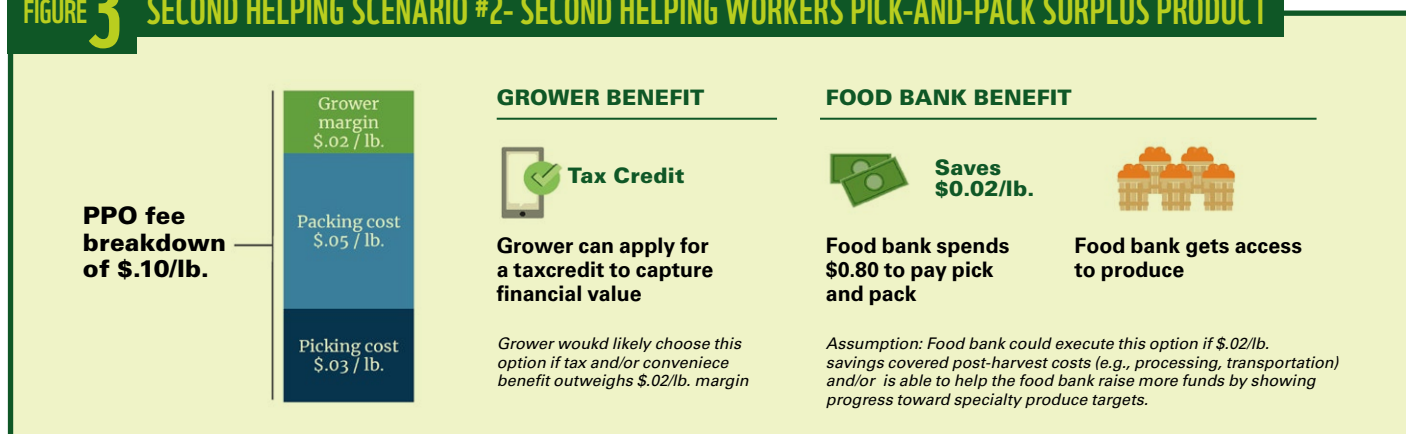
If the grower would like Second Helping to source the labor, the farmer receives a donation receipt to file for a tax credit instead of a PPO payment. The \$0.10 per pound paid by the food bank is reduced to \$0.08 per pound (since they no longer cover the grower's margin) and goes directly to Second Helping to cover the cost of the labor. A grower may choose this option if the combined state and federal tax benefit and the convenience of not sourcing labor outweighs the \$0.02 margin. In California, growers can claim a 15% state tax credit on donated inventory value, so at \$0.10 per pound the tax credit would amount to \$.015 per pound, which is equivalent to a \$0.015 per pound increase in revenue. Using the same volumes as the previous example, this nets out to a 6% increase in revenue from the tax benefits **FIGURE 3**.

There is the possibility that creating a new profitable channel for surplus could result in the perverse incentive of farmers choosing to plant more acres. This would result in more conversion of land, an increase in resource consumption, and more surplus going to waste. To avoid this situation, Second Helping focused on the recovery channel, which is assumed to be low profitability and less likely to affect the market supply and demand dynamics, but the authors recognize that this is an area to be tested further in future studies.

Some food banks, such as CAFB, offer similar programs that link farmers' surplus to food banks though some features of Second Helping could help to strength these, such as: scalability to a larger grower community by offering a digitized platform with requests occurring in real-time, data storage, a "dashboard" where growers can see other growers utilizing the application, likely increasing the rate of adoption, and potential to replicate to other areas of the country.

WWF took Second Helping into the field of a partner farm to test its viability with growers and potential workers. One goal of the prototyping test was to understand if there is an untapped, ready, and willing labor force that would pick produce on farms. WWF sought to ground-truth these assumptions by testing an independent, part-time, temporary employment service, herein referred to as "gig economy," i.e., the worker is paid by the gig rather than a salary or hourly wage. The following section describes the quantitative and qualitative results from our prototype exercise, examines some of the assumptions around farm labor that were or were not validated, and outlines additional research questions that need to be answered to fully understand Second Helping's potential.

FIGURE 3 SECOND HELPING SCENARIO #2- SECOND HELPING WORKERS PICK-AND-PACK SURPLUS PRODUCT



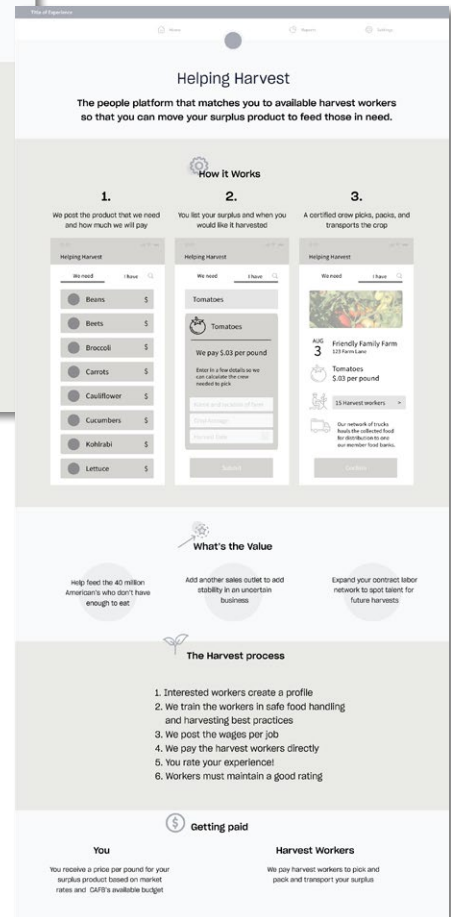
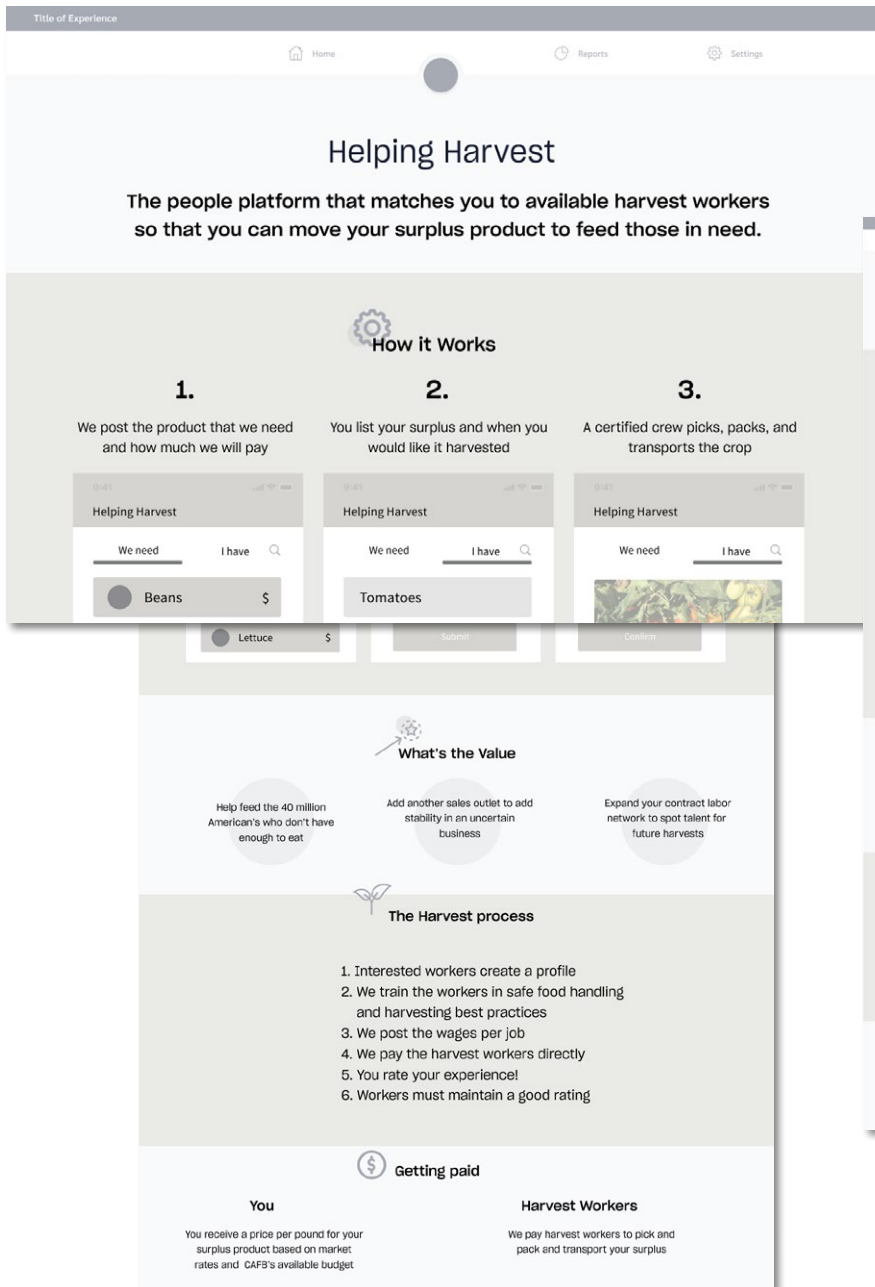
Helping Harvest

Helping Harvest was an iteration of the prototyping exercise and pressure-tested with food bank staff and farmers, the primary users of the technology platform. Using the interface seen below, the research team tested the following questions:

- 1) Is labor truly a limiting reagent to harvesting surplus?
- 2) To what extent are growers aware of the opportunity to be paid by food banks for their surplus?
- 3) How much are food banks willing to pay for surplus produce?

The results of these interviews led to the final prototype, Second Helping.

HELPING HARVEST



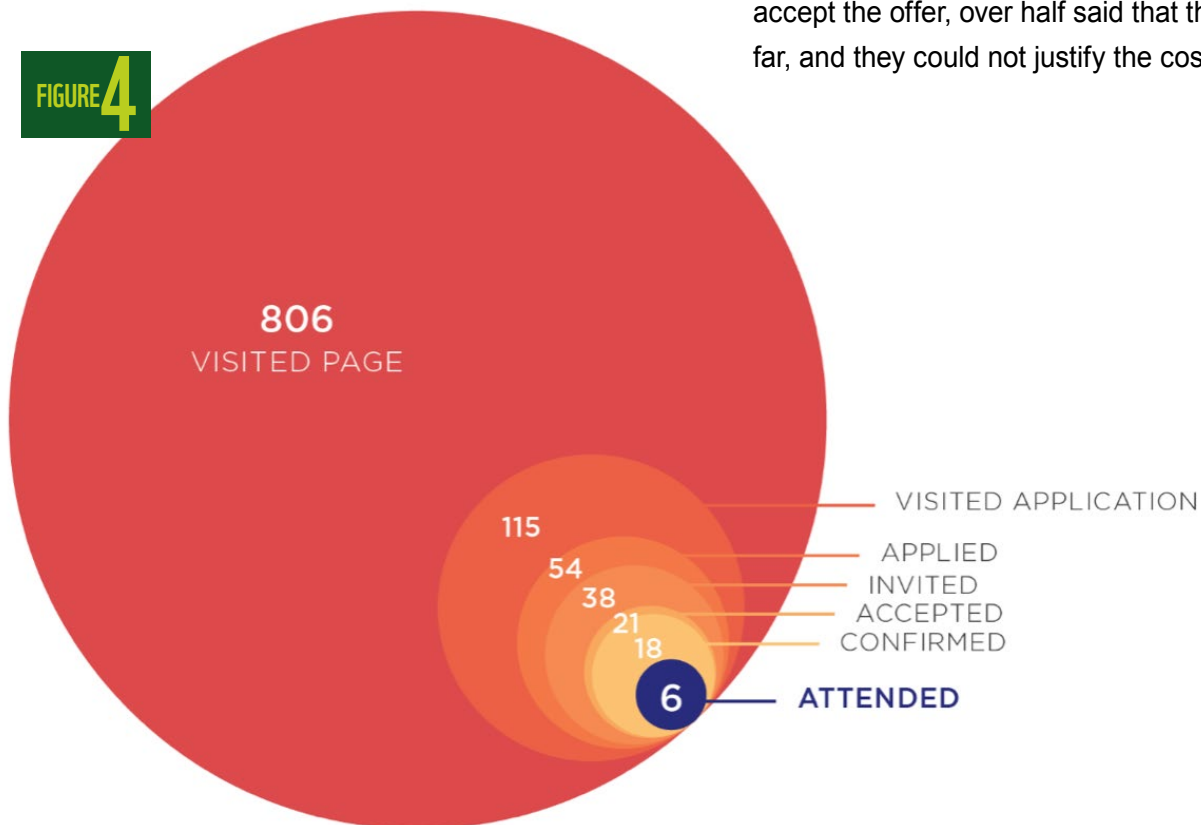
PROTOTYPE METHODOLOGY AND RESULTS

Second Helping was in part designed to source temporary or part-time—gig oriented—workers to assist farmers with harvesting product passed over in initial harvests that could be put into the food recovery stream. In late 2019, WWF tested this component of Second Helping on a fresh tomato farm in the central valley of California to understand whether there was interest in picking food as a temporary job from the general public. Without potential workers, this model would not be viable, so WWF prioritized a worker recruitment pilot before diving into other aspects of Second Helping, such as food bank and farmer/worker transactions, and worker training. Over a six-week recruiting period, WWF used a variety of online platforms and local community organizations to recruit potential applicants in Merced County—the surrounding county of our test farm in Los Banos.

For this phase recruitment was handled via a temporary online platform, but it would eventually be integrated into the Second Helping app. Applicants found the job posting via Craigslist, Indeed, Merced Sun newspaper, Facebook, Merced College, UC Merced Food Pantry, and from flyers posted in town. The digital recruitment platform had 806 visitors. Of that, 115 people visited the application, and 54 applied (47% conversion rate). Of the 54 applicants, WWF extended an invitation to 38 applicants. WWF screened applicants for those with lower levels of experience, sent communications to secure the crew, and provided final logistics for the one-day pilot.

Twenty-one invitees accepted (55% rate of acceptance), but last-minute declines from three invitees resulted in 18 prototype participants (47% acceptance with last minute declines). Of the 18 confirmed, six attended in person to participate (28% of accepted) **FIGURE 4**. Of those who accepted the job offer but did not show up, or who did not accept the offer, over half said that the farm was too far, and they could not justify the cost of gas.

FIGURE 4



When participants arrived at the farm, they signed a liability waiver and received a brief safety and picking training performed by the farm's Technical Integration and Compliance Specialist and the Executive Vice President. After training and completion of intake surveys, participants picked tomatoes in-field for two hours, completing their time by filling out exit surveys.⁴

Contract labor picked in an adjacent field to help provide a control. Pilot participants, with minimal picking experience and a brief training, picked at a rate roughly half as fast as the contract workers. Over the course of two hours, participants learned how to maneuver the plants and increase their rate of picking. Participants picked between 11 and 17 buckets that averaged 25 pounds when full. The eight contracted laborers harvested 5,480 pounds of tomatoes in two hours (340 lb/person/hr) compared to the pilot participants who picked 2,280 pounds over one and a half to two hours (190 lb/person/hr).

Pilot participants earned between \$20 to \$40 per hour, based on the price per pound rate offered by the prototype (\$0.15 per pound), more than California's hourly minimum wage (\$12 per hour). While a higher rate than the estimated \$0.08 per pound included in the initial business case, \$.15 per pound was utilized to test the best-case scenario (i.e., the going rate for picking 'first' quality produce). The actual rate that could be offered based on a

food bank's willingness to pay is an area for future study. In this study, if participants had been paid at \$0.08 per pound, they would have made between \$13 and \$23 per hour, still more than minimum wage. Tomatoes were assessed for quality, size, and edibility. Compared to the contract harvest, quality was similar aside from some off-size (too small) tomatoes, which likely would have been accepted by a food bank.⁵

Surveys told us that the majority of participants applied to fill employment gaps. Nearly all participants who applied held other jobs, and actually preferred to have part-time work because of the seasonal and part-time nature of their other jobs. Early morning harvest hours appealed to many as it frees up the rest of the day to work additional jobs or be more involved with family life. Participants had recently migrated from areas of the state being affected by rising costs of living, which is somewhat unique to this location. Participants were excited to see a job opportunity close to their home, avoiding a two to three-hour commute, which means more time with family, and being able to pocket extra money not spent on rising gas prices. A third of the participants were previously incarcerated and mentioned the absence of a background check as a main reason for applying. Participants remarked that they knew of additional people who would have applied for the job had they known there was no background check.

⁴ The grower was compensated for the staff time required to run the Second Helping pilot. If each user of Second Helping had operated in this pilot, Merced County Food Bank would have paid a total of \$189.11 to the 6 workers for picking a total of 2,280 pounds of tomatoes, and a tax receipt would have been provided to the farmer for donating product.

⁵ WWF connected with Merced County Foodbank to test the transaction between the food bank and the grower for the harvested surplus, but a late frost hit resulting in tomatoes that were potentially unfit to put into the food recovery supply chain. Therefore, tomatoes were given to cattle and contract labor crews, who could choose the best ones from those harvested.

DISCUSSION

By prototyping the labor sourcing component of Second Helping, WWF learned that there is a small, potentially untapped labor pool that could harvest seconds in the central valley of CA. However, through the pilot day and additional interviews with labor organizations, we also found that there are many legal and political challenges that would need to be overcome for this model to be successful, not to mention the systemic challenges that exist with farm labor more broadly.

In an ideal world, increasing agricultural wages and increasing awareness of those wages would be the best way to increase the regular labor pool. However, given how the fresh produce market functions (i.e., a highly competitive commodity business, with asymmetric information about demand, and longstanding government subsidies), increasing wages and then passing that along to consumers in the form of higher prices is not a realistic option. There are at least two paths to address this—work with governments to mandate

higher wages or look for innovative alternative solutions. Considering the complexity of getting to a government-influenced solution, WWF has chosen to investigate other avenues while also continuing to examine potential policy levers that could be used to reduce food loss on farm.

The pilot participant group showed there is a pool of people seeking part-time or temporary employment, an alternative schedule or flex hours that can work around other jobs, the option to avoid background checks, and localized employment in particular geographies. Assuming further testing of this alternative labor model validates our initial results, this labor pool could help fill a gap that close to 50% of growers in CA are facing not only for surplus, but for primary crop harvest as well.⁶ Since the demographics of each growing region are very different, the results and conclusions of this prototype are confined to this region in California.



While the prototype pilot showed potential, there are also some obvious challenges that would need to be overcome, such as the risks of high attrition rates (72% for the prototype), workforce skill deficiency, liability concerns from the grower community, and labor rights. Growers are very concerned about injury liability. Since highly trained contract laborers are often covered by a third-party contractor, which removes the burden from the farmer, a similar model would need to be in place for farm owners to be comfortable using untrained, occasional laborers.

As the gig economy has greatly expanded over the past decade or so, so has visibility into some of the on-going concerns for those workers, such as unfair and inconsistent pay structures, lack of benefits and a safety net, poor workers' rights protections, and instability. Some of the benefits include flexibility, ability to work a variety of part-time jobs, jobs requiring less formal education or vocational training, and greater independence. Some other issues, such as perception of the skill level of "farm-worker" and perceptions that picking food is easy, may cause growers frustration, on top of their liability concerns.

However, "gig" jobs and the technology platforms that support them, may be viewed as a natural extension of the many traditional jobs (e.g. temp. and seasonal work, contractors) that Americans have held for decades. These platforms have modernized work, improved coordination, and succeeded in embedding the convenience of their services more ubiquitously in our society.

The grower who participated in this prototype emphasized many times the importance of not being legally liable for these workers. When he was able to look beyond this challenge, he was very encouraged by the rate the participants picked, their ability to handle the physical demands of the job, and the potential this platform holds for increasing the labor pool. As the gig economy continues to expand—predictions show upwards of 30% growth between 2020 and 2028—it will be important for employers, legislators, and regulators to work collaboratively to manage how it can play a valuable role in the overall workforce.^{7,8}

6 <https://www.cfbf.com/wp-content/uploads/2019/06/LaborScarcity.pdf>

7 <https://www.statista.com/statistics/921593/gig-economy-number-of-freelancers-us>

8 <https://www.nasdaq.com/articles/gig-economy-2020-freelance-workforce-predicted-rise-43-2017-06-14>

CONCLUSION & NEXT STEPS

Farmers are beholden to buyers and market trends, making it unprofitable to send labor into the field to harvest surplus if they cannot recover their costs. Second Helping is one prototype of a concept aimed at leveraging a gig-style workforce to harvest farm surplus and make it available to the food rescue and recovery network, while returning a minimum profit margin to farmers.

While WWF's prototype of Second Helping tested one aspect, other components of Second Helping still warrant further examination such as the viability of an app-enabled marketplace, the logistics of transport between farm and food bank, and the business model for better food surplus information flows from farm-to-business-to-recovery. A training model would need to be explored that could move new workers from low skill to higher skill picking over time with increasing wages corresponding to the difficulty of the task. It is very likely that certain crops that require high degrees of skill and experience would be difficult to employ using this model, although the Second Helping pilot was able to be tested on one of the most difficult crops to harvest as stated by growers. Certain foods naturally require less experience to pick, so it is reasonable to assume new workers could be sorted into a level structure within the app, though geography and what crops are being harvested nearby plays a key role here as well.

The intent of developing Second Helping was not to create a new offer for its own sake, but rather, to nurture a platform that could add labor capacity. If an innovation like Second Helping gained traction in the market, or was adding value, it could potentially be adopted by for profit or non-government entities as an added capability in pursuit of the shared mission of reducing food loss and waste.



While the in-field demonstration did not actually create a software-based “app” connecting farmers and food banks, we learned food banks may be willing to pay to help farmers recover the cost of picking and packing crops that would otherwise not be harvested to provide supply for those facing food insecurity. The Second Helping concept has the potential to better connect the grower and food recovery communities, while also providing a more profitable business model (albeit slim margins) using payments from food banks and tax incentives from donations.

However, there are still additional challenges with the food recovery model, including logistics and transportation, relationship management, and designing for food safety and liability. The latter were both identified as key dimensions of the recovery system through UC Davis’s research, yet not directly tested as a part of this work. Results from UC Davis’s interviews with food recovery organizations showed that successful recovery efforts require strong relationships built on mutual trust and financial benefits for both parties.⁹

The NFLB research initiative began as an effort to gather and analyze primary post-harvest and in-field loss data. Based on our learnings, it has expanded to explore solutions to these challenges. The NFLB platform will continue to explore the viability of Second Helping’s functions, specifically focusing on bridging the gap between food banks and growers, understanding the legal and political challenges with utilizing a gig-based system of hiring for farm labor, and exploring grower decision-making processes.

The decision-making model developed by MIT showed that if surplus produce is already picked and packed (compared to surplus still in the field), and all harvesting costs have already been incurred, a farmer will make the decision to donate. Future modeling efforts by MIT will incorporate more realistic decision-making factors used by farmers, and then validate those factors in order to understand which levers lead to the largest food loss reductions.

WWF will continue to work with partners to advance this research to understand what other solutions should be examined in-field and who could potentially manage a platform like Second Helping. As farm labor is strongly influenced by federal and state policy, WWF will also begin to explore how these learnings could prove beneficial for policy discussions. Plans for 2020 also include testing the marketplace concept – specifically enabling more efficient and trustworthy financial transactions between farmers and food recovery organizations. Second Helping manages a problem that is the result of the way our current food system is structured. To address the root cause of surplus, WWF will continue to research supply chain solutions that transform the way we grow, move, and sell fresh fruits and vegetables.

⁹ Meagher, K., A. Gillman, D. Campbell & E. Spang. (Submitted) “Relational and Logistical Dimensions of Agricultural Food Recovery: Evidence from California Growers and Recovery Organizations.” *Agriculture and Human Values*