Harvesting Hope: Securing Farmworker Futures in the Age of AI

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INTRODUCTION

California farmworkers are responsible for harvesting over three quarters of our country's fruits and nuts (CDFA, 2024). Decades ago, my grandparents migrated to Salinas for the availability of work in the fields, picking strawberries. In 2025, there are ninety thousand farmworkers living in Monterey County alone; bending over each day, rapidly picking fruits, vegetables, and nuts to make their living. But despite the essential roles these workers play in our agricultural landscape, the rise of AI automation on farms could pose a significant threat to their livelihoods. In this paper, I discuss how rising AI automation threatens farmworkers' employment in California and suggest potential policy solutions to support these workers. Describing the current landscape of California farmworkers and their roles in our country's agriculture, I consider the hardships AI automotive technologies present for the farmworker population, given their educational and housing barriers to alternative work. Even with efforts from state and federal governments, nonprofit organizations, and community college efforts to support California farmworkers, many gaps remain. I argue that the State of California should establish Public Private Partnerships with dedicated farmworker-based nonprofits, enabling them to expand their services and ultimately support our state's farmworkers and their children. In addition to the challenges posed by AI-driven automation, farmworkers in California are also facing uncertainty due to shifting immigration policies. Recent legislative debates surrounding farm labor have highlighted concerns over the legal status of undocumented workers, as the Trump administration has intensified crackdowns and reconsidered the structure of temporary agricultural visas (Fonseca, 2025; Plevin, 2025). These policies add another layer of precarity to a workforce already struggling with economic instability and displacement.

CALIFORNIA FARMWORKERS

California is home to an estimated 900,000 farmworkers, representing half of the total farm labor force in the United States (California EDD, 2024). These workers play a critical role in the agricultural sector, harvesting one-third of the nation's vegetables and 90 percent of its strawberries (CA Department of Agriculture, 2021). Farmworkers form the backbone of California's agricultural industry, which led all U.S. states in 2022 with $58 billion in cash receipts for agricultural commodities (USDA, 2022).

The demographics of California's farmworkers reflect both stability and challenges within this vital workforce. Between 2016 and 2019, males accounted for

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69 percent of the hired crop labor force, with workers averaging 40 years of age (JBS International, 2019). Most workers have over a decade of U.S. farm work experience (Figure 1), underscoring their expertise and long-term contributions to the agricultural sector. Despite their commitment, many face challenges, including limited access to well-paying, secure jobs. Beyond economic hardship, immigration status remains as a central issue affecting the farm labor force. At least half of California's estimated 255,700 farmworkers are undocumented immigrants, many of whom have worked in the country for over a decade (Plevin, 2025). The Trump administration's recent immigration enforcement measures, including mass raids and proposed changes to the H-2A visa program, have increased fears of deportation and workforce instability. Farmworker advocacy groups are now pushing for legislation that would either provide pathways to residency for long-term laborers or expand the existing guest worker program to ensure a stable workforce.

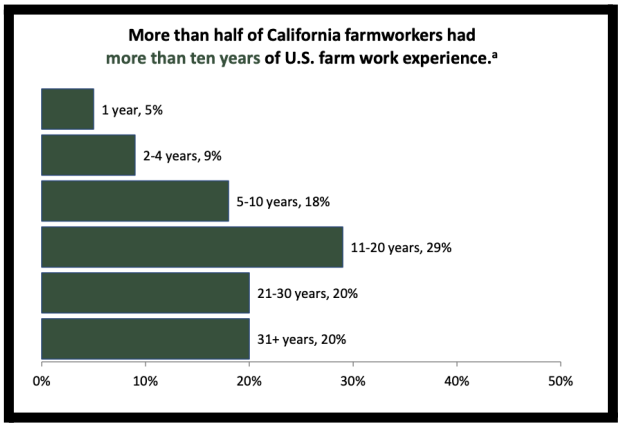

Figure 1: Years U.S. Farm Work Experience, 2015-2019 (JBS International, 2019).

Sixty-three percent of farmworkers are married, and 58 percent are parents. Among those with minor children in their households, the average family size is two children. However, 32 percent of workers live apart from all members of their nuclear family, highlighting the sacrifices they make to support their livelihoods.

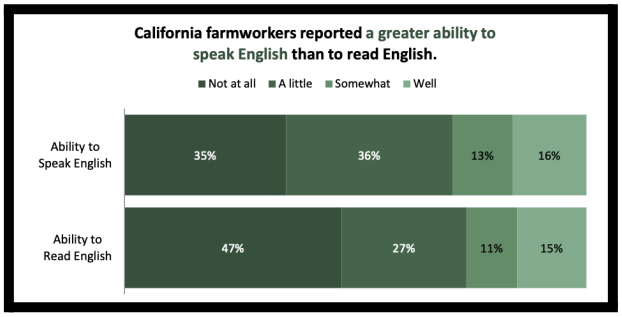

Figure 2: Farmworkers' Self-reported English Speaking and Reading Ability, 2015-2019 (JBS International).

Language barriers further complicate their experiences. In 2018-2019, 85 percent of California farmworkers reported that Spanish, or a mix of Spanish and English, was the language they felt most comfortable speaking. Additionally, 35 percent reported being unable to speak English "at all," and 47 percent could not read English (Figure 2). These demographic and linguistic realities are essential considerations for crafting policies that effectively support California's farmworkers and their families.

HOW AI MACHINES WILL INTERVENE

The increasing adoption of AI agricultural automation in California poses significant challenges to the jobs, culture, and livelihoods of farmworkers in the state. An estimated fifty companies, including major agricultural technology corporations like John Deere, are already producing autonomous farm machinery that works with the efficiency of dozens of farmworkers at once, and with sales expected to grow exponentially in coming years (Rolfsen, 2023; NBC News, 2023). These machines exhibit a range of functions, including harvesting vegetables, killing weeds with precise lasers, seeding and

planting, fertilizing, and collecting data insight on growing patterns for farmers' future use.

As just one example, harvesting robots use sensors, cameras, robotic arms, and other tools to collect optimal fruits and vegetables. These are most commonly six-axis robots, which have a flexible arm with several joints that allow them to move precisely and in multiple directions (Bernier, 2023). For example, the Agrobot, a large metallic harvester Driscoll's berry farming corporation has deployed since 2015, moves automatically through strawberry fields. It harnesses twenty four six-axis mechanical arms, precise razor sharp blades, and AI data collection to detect and pick optimal strawberries (Figure 3) (Zitter, 2019). Another example is a weed-killing AI machine that harnesses data-collecting technologies and lasers to do the work of thirty people, twenty four hours a day (NBC News, 2023). Meanwhile, university students and faculty are increasingly developing and improving the efficiency of these agricultural technologies (Noyes, 2023; NBC News, 2023). These machines operate continuously and at speeds and efficiencies unattainable by human workers. While these innovations hold great promise for revolutionizing agriculture, they also raise concerns about the displacement of workers and the need for equitable integration of AI into farming practices. Embracing AI farming technologies can significantly enhance efficiency and reduce labor-intensive tasks, but only if accompanied by policies that protect workers' livelihoods and ensure they receive proper training to operate and maintain these advanced systems.

The rapid adoption of AI in agriculture reflects broader trends across industries, where automation is increasingly replacing human labor. The impact of these technologies extends far beyond farming, with a 2022 national survey revealing that 14% of workers in the U.S. claimed to have lost a job due to "robots" (Dahlin, 2022). A 2020 report by MIT and Boston University professors projected that AI could replace as many as two million manufacturing workers by 2025, while a Goldman Sachs report estimated that 300 million full-jobs across the U.S. and Europe could be vulnerable to automation (Dizikes, 2020; Goldman Sachs, 2023).

Figure 3: The Agrobot in action.

Despite millions in upfront costs, more California farmers are moving to adopt these technologies to compensate for low labor supply and to ultimately save labor costs. Multiple U.S. Senators, both Democrats and Republicans, advocate for increasing AI automation in the fields, with many proposing Farm Bill provisions for farmers to purchase AI automation (Ferguson, 2023). As the U.S. Department of Labor has been monitoring the job risks, and a spokesperson reported in March 2024 that the department would "send President Biden a list of recommendations for an aid program that could help farm workers who have been displaced by AI" the following month (Malkoff et al., 2024). Even so, little to no discussions are raised regarding how to support farmworkers *long-term* amid the impact of automation.

Addressing this gap requires policies to protect jobs that also leverage AI's benefits, which has its potential to create safer and more sustainable working conditions for farmworkers. For instance, machines towing pesticide sprayers can reduce workers' exposure to toxic chemicals, and weed-zappers reduce workers' strenuous labor and exposure to extreme weather

conditions (Rolfsen, 2023). In light of a rapidly changing climate and shrinking harvest windows, AI could work through rainstorms and throughout the night to produce more output when needed. When designed with conservation principles, AI farm technologies could also significantly increase energy efficiency and generate a lower carbon footprint than standard farming methods and equipment (Noyes, 2023).

Thus, widespread deployment of AI machines must include mitigation mechanisms to avoid mass job displacement for farmworkers and instead offer viable pathways with the machinery or options to re-enter the workforce elsewhere. Marco Cesar Lizarraga, executive director of La Cooperativa Campesina de California, a statewide training program for farmworkers, said, “As we know it, the farmworker is no longer going to exist in another 10, 15 years,” Lizarraga said. “It’s going to be a farmworker that’s much more savvy and much more of an operator of robotic equipment” (Plevin, 2024). Since our state’s farmworkers already face significant financial and health inequities, the introduction of AI must plan to address these challenges as well.

DEEP-ROOTED CHALLENGES

Release of AI agricultural automation without such substantial worker support in place would only exacerbate California farmworkers’ existing financial challenges. An estimated 75 percent of California farmworkers are currently undocumented, which poses several additional barriers in their access to existing social and economic support programs (UC Merced, 2022). For instance, most farmworkers in our state are excluded from Covered California and full Medi-Cal benefits due to their immigration status (Insure the Uninsured Project, 2023). Consequently, approximately half of California farmworkers remain without health insurance, and are over three times less likely to have health insurance than the general California population. Facing potential displacement from AI automation, 59% fail to qualify for unemployment insurance benefits and lack accessible pathways to re-enter the workforce (UC Davis, 2022).

Further, since undocumented farmworkers remain excluded from retirement benefits, thousands of workers over 55 years of age continue to work for wages, often exacerbating long-term arthritis and back strain (Romero, 2023). For example, Esperanza Sanchez continues working at 72 years old, pruning and harvesting leafy greens in Coachella Valley eight hours a day, six days a week despite her dizziness and arthritic pain (Jordan, 2023). The physical toll on aging farmworkers highlights the urgent need for comprehensive policies that address their health, financial stability, and retirement options. These policies should consider age-related challenges alongside the systemic inequities that undocumented workers face, particularly their lack of access to retirement benefits or healthcare services.

Some might argue that instead of directing programs to support undocumented workers, the state should prioritize displaced workers in general. This is a valid concern, as displaced workers across various industries face significant challenges in adapting to automation and job loss. However, undocumented workers face additional barriers that set them apart from other displaced workers. While such support is crucial for all, undocumented farmworkers face additional hardships due to their exclusion from government assistance programs, such as unemployment benefits and healthcare. Thus, upon losing their daily source of income, many would not be able to afford basic necessities like food, water, and shelter as well as supplies for their children’s education. As of January 2022, 62 percent of surveyed California farmworkers reported difficulty paying for food or bills since the pandemic (UC Merced, 2022). Undocumented farmworkers in California

between 18 and 54 years old are also excluded from CalFresh, the state's food assistance program, making it even more difficult to put food on the table (California Department of Social Services, 2024).

Addressing food insecurity is just one part of a broader strategy needed to improve the livelihoods of farmworkers. Equally important is creating opportunities for economic mobility through education and employment. For decades, many children of farmworkers have dropped out of school to help their families make a living, largely resulting in an estimated 74% of the state's current farmworkers lacking a high school diploma or equivalent (Cha & Collins, 2022). My great-grandfather was forced to drop out of second grade in order to help his father on the farm and earn more income for the family.

This pattern worsened during the COVID-19 shutdowns, as financial pressure forced many young farmworkers to prioritize immediate family needs over their education. For example, when their family's financial challenges worsened, sisters 19-year-old Maria and 16-year-old Jennifer Salvador decided to work at an Oxnard strawberry farm to support their family's income, earning $3 for each 20-pound box of strawberries they collected (Figure 4) (Aguilera, 2020). With no time for them to attend their online classes, they would instead cram their homework into late hours of the night, missing out on live instruction and being set back drastically in their academics. "It's difficult to know how to do the work that the teachers send. You can't ask
questions," Jennifer said. "It's like being all alone." Maria remarked, "It's very hard to work in the fields. I want a better future." Maria and Jennifer are just two out of hundreds of thousands of farmworkers' children who must constantly decide between academic pursuits and financial support

Figure 4: Maria (19, left) and Jennifer Salvador (16, right).

for their families. Such financial pressure perpetuates a cycle of poverty, since the lack of a high school diploma makes it much more difficult for people to enter higher-paying fields of work. This cycle of poverty is further exacerbated by the harsh economic realities farmworkers face.

Due to low wages, farmworkers often feel compelled to work even when sick, injured, or cautious of unsafe environmental conditions because they receive no compensation and depend on every day's paycheck (Jordan, 2022). Juana who migrated with her family from Oaxaca to the Santa Maria Valley and chose to keep her last name disclosed. Having worked in the strawberry fields for fifteen years, she explained, "I have permanent pain in my lower back…and when it rains it gets very intense. Still, I get up every morning at 4, make lunch for my family, and go to work. It's a sacrifice, but it's the only job I can get," (Bacon, 2024). On June 7, 2024, six farmworkers in Dixon, CA, were fired after going home early due to feeling ill after working nearly three triple-digit days in the fields. 40-year-old Maria Paredes reported "I started to feel like vomiting" while working during the heat wave, so she and five coworkers obtained their forewoman's permission to return home early, but were fired the next day nonetheless (Kuang, 2024). 32-year-old Erika Barros "was shaking, had stopped sweating and said she

thought she might fall over" but later said "If I had known they were going to fire me…I would have stayed. I would have held on" (Kuang, 2024). The following days, she had to find a couple other jobs in the fields, but since she no longer had a stable job, the work would run out in days. Many people working in the fields depend so heavily on their daily jobs for steady income that they are willing to put their health at extreme risks to keep them. Dependence on daily wages drives workers to risk their health and leaves them struggling to meet basic needs.

Farmworkers in California typically allocate their earnings toward essentials such as food, rent, transportation, and educational expenses for their children. However, the high cost of living exacerbates their financial challenges, contributing to disproportionately high rates of poverty,, overcrowding, and low-quality housing (California HCD, 2024). In fact, a 2022 UC Merced/California Department of Public Health survey found that over 25 percent of all California farmworkers sleep in a room with three or more people (UC Merced, 2022). The Diaz family, Mixtec immigrants and strawberry workers from Oaxaca live and sleep in a single room home in a residence with other migrant families (Figure 5) (Bacon, 2024).

Figure 5: The Diaz family.

This precarity makes clear to need for a better farmworker safety net so they may care of themselves and their families. By consistently strengthening programs to support all farmworkers' vocational opportunities, the state can better support people who have, despite daily hardship and strenuous working conditions, significantly contributed to our state.

WHAT'S BEING DONE?

AgTEC, a workforce initiative within Fresno, relied on surveys of over 10,000 farmworkers and found that most respondents had a middle school education or less (Figure 6), preferred online courses from home or after work hours, and wanted to travel 10 miles or less for an in-person class (Aceves, 2023). As of now, the state and national governments have taken on a few approaches to address farmworkers' employment challenges. For instance, California's WIOA Title I Dislocated Workers program has succeeded in substantially advancing the employment and job earnings of participants (Rothstein et al., 2022). However, workers are only eligible for this program if they have access to several identification documents, which most undocumented residents lack (Cha & Collins, 2022). Language barriers and discrimination would also hinder future employment opportunities without targeted help. Furthermore, the National Farmworker Jobs Program (NFJP) has proven critical in connecting farmworkers with job opportunities and training (California EDD, 2024). As part of the program, in September 2024, the U.S. Department of Labor awarded $90 million in grants to 51 organizations across the country to provide training and vocational services for migrant or seasonal farmworkers to enter careers in agriculture or non-agriculture sectors (U.S. Department of Labor, 2024). These developments help ensure farmworkers are equipped with necessary skills and knowledge for an evolving job landscape. However, since they do not expand beyond migrant and seasonal farmworkers and their dependents, the measures exclude over two thirds of CA

farmworkers, who, along with their families, still need support (JBS International, 2019). Moreover, workforce programs designed to assist farmworkers may be undermined by shifts in immigration policy. Many California farm groups have pushed for the passage of the Farm Workforce Modernization Act, a bipartisan bill that would provide legal residency pathways for long-term farmworkers, while also reforming the H-2A visa program. The bill, which previously passed the House but stalled in the Senate, faces renewed debate as the Trump administration's stricter immigration policies put additional pressure on the agricultural labor force (Plevin, 2025). If new legislation does not adequately protect undocumented farmworkers, the benefits of AI retraining programs and workforce development initiatives may remain inaccessible to those most in need.

Some private companies have taken it upon themselves to prepare employees for the coming AI revolution. One of these is Taylor Farms, a prominent salad company sponsoring technology courses for its current employees to hold automated jobs (Jordan, 2018). Maria Guadalupe, who went from packing bagged salads into boxes to setting up and monitoring robots that do it instead, of which she claimed, "This is much better work" (Figure 7). Today, approximately 60 percent of romaine lettuce and around half of all cabbage and celery produced by Taylor Farms are harvested by automated systems, and vocations training programs can help current employees be a part of this technological transformation.

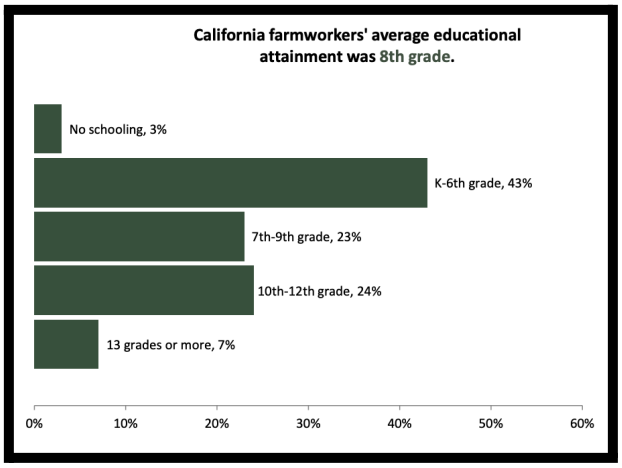

Figure 6: Distribution of Highest Grade Completed by Farmworkers, 2015–2019 (JBS International).

Private programs like these have been truly transformative for participants, showcasing the potential for training programs to make job opportunities more accessible for farmworkers. Even so, only two of the Taylor Farms training centers exist, just one of which is in California. Government, private, and nonprofit efforts must coordinate with each other long-term in order to truly support farmworkers facing job displacement in the years ahead. Amid this technological transition, training must be accessible for workers across the state, among different farms and companies.

Figure 7: Maria Guadalupe after having graduated from the Taylor Farms-sponsored technology course, setting up and monitoring the robots that do her old job (Wilson, 2018).

California Community Colleges (CCCs) have also served as significant sites of vocational training, open to the public and sponsoring 200 programs across the state. These programs involve collaboration with business and industry professionals to offer high quality education, including automation technology courses (California Community Colleges, 2024). While significantly lower in cost than many other vocational training courses, the $46 per unit requirement still renders the program inaccessible to farmworkers struggling to put food on the table. To become more accessible, these training programs must take into account farmworkers' daily financial challenges and time constraints, and be provided accordingly. For example, due to a 2022 grant from the federal Economic Development Administration, several Central Valley community colleges launched a new certificate program in August 2024 aiming to prepare 8,400 workers for "higher-tech, higher-paying jobs in agriculture by the end of 2026" and is free for workers who enroll (Plevin, 2024). Available in Spanish and English and regardless of participants' immigration status, the program is being offered at Merced, Madera, Fresno City, Clovis, Reedley, Lemoore, and Coalinga colleges. Angel Cortez is a 43-year-old Mexican immigrant and father of four who worked in agriculture, landscaping, and restaurants for over 25 years until a severe workplace injury left him seeking less physically-demanding work. Through the program at Merced College, he strengthened his digital literacy and confidence with English and as he continues to pursue the college's agriculture certificate, he can use his new computer skills to work as a DoorDash driver while studying (Plevin, 2024). Free vocational community college programs significantly improve farmworkers' prospects for future jobs. Initiatives like these must be scaled and sustained with funding and outreach support from the government in order to help as many interested farmworkers as possible.

There are also several nonprofits in California aiming to uplift and support farmworkers through education and vocational training; namely, La Cooperativa Campesina de California ("La Cooperativa") and the California Farmworker Foundation (CFF). La Cooperativa has successfully extended its network to 80 job development sites across 36 California counties, harnessing about $81 million each year from private donors (La Cooperativa, 2024). The organization has repeatedly been entrusted by the state and federal governments to reach farmworkers, such as last year when La Cooperativa distributed over $8 million in direct payments to the state's farmworkers as part of the USDA's Farm and Food Workers Relief Grant program (Imperial Valley Press, 2023). The organization has successfully helped a multitude of farm workers in developing skills needed for employment. However, La Cooperativa's need-based vocational training programs do not currently include training on automotive technology, skills which are increasingly necessary for a Californian seeking employment, especially when limited in English.

In addition to operating these machines, farmworkers must also be provided access to develop and code them through higher education. Through partnerships with community colleges, the California Farmworker Foundation (CFF) is a nonprofit advancing higher education opportunities for over eleven thousand farmworkers and their children (California Farmworker Foundation, 2024). Even though the state provides financial aid for undocumented students, these often aren't enough to cover expenses such as transportation and school supplies that come with being a student, making these scholarships especially critical for low-income students (Echelman, 2023). Additionally, language, financial, and

networking barriers prevent many of these students from accessing the academic or professional opportunities that other students may. Scholarships provide recognition that students can add to their resumes for future pursuits, as well as a sense of empowerment from the community supporting them. However, with its current funding, the CFF only provides fifty $1k community college scholarships for farmworkers' children each year, and is only accessible to students who have completed one term of community college. The organization also lacks the financial capacity to generate internship opportunities for students. These gaps highlight a critical need for sustained funding and public support.

Thankfully, California is gradually recognizing the need for farmworker employment support and taking significant steps to address it. In January 2024, California pledged to invest approximately $9 million in eleven organizations to strengthen programs for career advancement and technical education for farmworkers (California EDD, 2024). Through its Employment Development Program (EDD), California allocated an additional $7 million of this to La Cooperativa. The organization will use the grant funds to "to address common reemployment barriers and equip participants with the tools, support, and skills they need to secure new jobs in high-demand occupations," especially harnessing Spanish language media and on-the-ground engagement. Such crucial investments will allow these organizations to help equip hundreds, potentially even thousands more farmworkers with the resources they need to solidify their roles in the workforce. /alongside such efforts, the California government's financial support for farmworkers must be sustained and expanded in order for these organizations to develop longevity in their support of farmworkers amid rising AI automation.

WHAT SHOULD BE DONE: PUBLIC PRIVATE PARTNERSHIPS

While gaps still exist, the state's significant funding of such nonprofits signifies the political and financial feasibility of supporting farmworker educational and vocational opportunities even more. I propose Public Private Partnerships (PPPs) between the State of California and La Cooperativa and the California Farmworker Foundation. Rather than establishing an entire separate program to support farmworkers, PPPs with these nonprofits would build upon their established networks, infrastructures, and relationships they have developed with farmworkers across the state.

Public Private Partnerships are "long-term (typically 25+ years) performance-based contracts with public-sector entities in which the private sector takes or shares responsibility and risk for the design-build-finance-operate-maintain (DBFOM) elements of a public infrastructure project" (Bay Area Council Economic Institute, 2018). Used especially for social and water challenges, PPPs have demonstrated success in California, often speeding up project delivery, reducing cost overruns, and providing contractual guarantees of maintaining a project over the long term. For instance, during the 2021 COVID-19 vaccine rollout, the State formed partnerships with organizations such as California Community Foundation, Public Health Institute's (PHI) Together Toward Health (TTH) initiative and Sierra Health Foundation's Vaccine Equity Campaign to "provide direct appointment assistance, at-home vaccinations and transportation services, and targeted community outreach" (Office of Governor Gavin Newsom, 2021). These PPPs ultimately bolstered the funds and outreach efforts of over 700 community-based organizations and expanded safety and vaccine education to 14 million Californians, contributing to the state's lowest COVID-19 transmission rates in the country. Other recent

examples include a PPP with Grantmakers Concerned with Immigrants and Refugees (GCIR), which was made to support migrant, refugee, and asylum-seeking families arriving into California communities. Amid rapid humanitarian evacuations from Afghanistan, this PPP ultimately supported the arrival of thousands of Afghan families. In 2021 alone, the state has pointed to the stark effects of their PPPs, including "430,000 low-income Californians reached to help connect them with critical benefits including cash assistance, food, and healthcare" and "68,000 Californians provided with workforce development training." Given the consistent success of the PPP model in California, there is no doubt that strategic PPPs with farmworker-based organizations would make educational and vocational opportunities more accessible for farmworkers and their children.

Many people might argue that the state doesn't have enough funding to support a public private partnership with La Cooperativa. However, by building upon an organization that already has a presence across 36 counties and an annual budget of $81 million, the state can maximize its financial impact. Strengthening ties between this extensive network of farmers and free vocational courses provided by California Community colleges would facilitate widespread educational opportunities in emerging AI and automotive machinery for farmworkers to take into their future roles. Further, investing in programs to support displaced farmworkers now can help mitigate future inevitable state costs from unemployment and inequality. A PPP would help La Cooperativa to strengthen the economy through a more dynamic workforce while also generating additional CA tax revenue, reducing farmworkers' reliance on the state's welfare programs, and stimulating economic growth in communities with high proportions of farmworkers.

A PPP with the California Farmworker Foundation would significantly enhance access to scholarships and internships for the children of farmworkers. CFF's Nueva Generación scholarship, currently at capacity to provide $1k scholarships to fifty students in community college, could be further funded and expanded to at least one thousand scholarships, supporting multitudes more

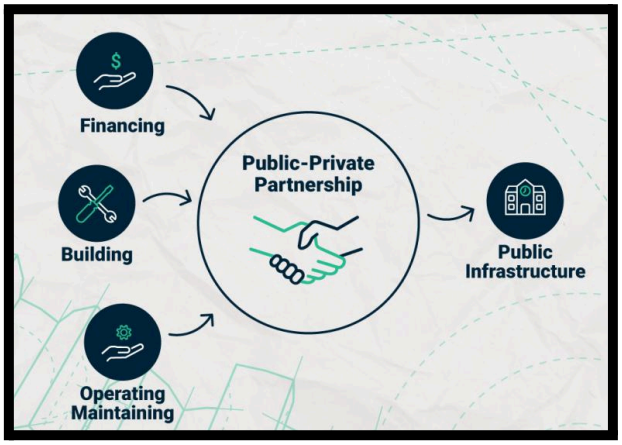

Figure 8: Public Private Partnership (Equans Services).

students in their college pursuits. With their PPP, La Cooperativa could harness its extensive access to farmworkers to educate them about CFF's internship and scholarship opportunities for them and their children. With access to public schools, Nueva Generación scholarships would not only support matriculated community college students, but would allow high schoolers to consider community college with a lowered financial barrier. With the resources and credibility of the PPP, CFF could arrange summer internship programs specifically for farmworkers and their children, expanding their access to valuable professional experiences they can use to further their career and academic goals.

Sustained funding and state data through a PPP would also allow for La Cooperativa to better access diverse populations through California's 58 counties. Over one fifth of the state's farmworkers are migrants from Indigenous communities in Mexico, speaking over twenty three

Indigenous languages and many without Spanish proficiency. Using state data and funding to compensate Indigenous translators, La Cooperativa Campesina could more effectively reach Indigenous farmworkers across the state (No Kid Hungry California, 2022). This outreach would be just the first step, as once Indigenous farmworkers were looped into the programs, they would be granted free access to English and Spanish language-learning services to sharpen their language skills and make them more eligible to reenter different fields of work in the U.S. Additionally, due to the vulnerability and shrinking of agricultural jobs, farmworkers must be provided access to expand both within and outside the agricultural field.

Finally, partnerships between the state, organizations like CFF, and La Cooperativa could provide farmworkers with opportunities to share input on program design and effectiveness, ensuring the initiatives address their specific needs. Accessible, widespread questionnaires and assessments would gauge farmworkers' interest and ideas on how to better tailor the program to their needs. These annual assessments could be conducted amid the already-engaged participants, as well as general outreach to California farmworkers that the two organizations already conduct. Querying through the organizations would make survey outreach both accessible and cost-efficient for the state and organizations. These questionnaires should also have Indigenous language translations of the survey questions accessible depending on the region they are being shared in and should compensate Indigenous translators from the community willing to interpret the survey results from Indigenous workers.

Each sector would play a distinct role in implementation. The state and local governments would oversee the funding of CFF's scholarship distribution and La Cooperativa's workforce development programs, and the two organizations would educate workers about government-provided stipends for worker compensation, transportation, and remote learning technology. CFF would be critical in delivering culturally relevant training programs and scholarships to farmworkers and their children, while La Cooperativa would be key in on-the-ground outreach to the local farms, as well as holistic support and resources for farmworkers and their families navigating a job transition. CFF and La Cooperativa would also work closely with the state and participating farmworkers to ensure that workers' rights are protected and supported throughout the process. Companies in high-demand industries such as renewable energy, manufacturing, and healthcare would be responsible for ensuring worker safety, job placements, and competitive wages for incoming workers. Additionally, based on program satisfaction, farmworkers and their families could become ambassadors in their communities regarding the scholarships and training programs, harnessing word-of-mouth to get more workers and families involved.

A multi-phase strategy would allow for the public private partnership to positively impact as many workers as possible. First, in months 1-6, the State of California could conduct an initial needs assessment in key agricultural regions, including Imperial Valley and the Central Valley. Conducted in coordination with local community colleges, farmworker unions, community organizations, and industry leaders, this assessment would identify skill gaps, potential program participants, participants' job interests, and high-demand jobs locally to ensure the program is tailored to the most needed and desired jobs. For instance, complexities of local and federal legislation could hinder progress, but consultations with legal experts could address hurdles early on to avoid such conflicts. Additionally, community engagement should be established early on through regular public constellations and accessible feedback loops. Meanwhile, the State could officially establish a PPP

agreement with La Cooperativa Campesina, CFF, and private sector partners and employers to commit to state funding and private investment. In months 7-18, as a pilot phase, the program could launch in key agricultural regions in which the needs assessments were conducted. The pilot would aim to equip farmworkers and their children with scholarship opportunities as well as training necessary for safer, higher-paying jobs within and outside the agricultural sector. Participating farmworkers would receive stipends or wage replacement to compensate for their loss of work pay, as well as transportation to training sites, financial stipends, and language services as necessary for workers to participate fully. Throughout the pilot program's implementation, the State should continuously collect data on farmworkers' participation rates, farmworkers who complete the training programs, job placement rates, wage changes, scholarships and amounts awarded to farmworkers and their children, and local GDP. They should also measure qualitative factors such as engagement levels by organization, worker and community satisfaction, and other participant feedback to reach as many farmworkers as would have interest in the program. Finally, based on the success of the pilot, the State could expand the PPP model statewide, adjusting the training curriculum based on regional differences, industry demand, and participant feedback. Meanwhile, the State must establish a mechanism for sustained funding of the program in the years ahead, whether through state budget allocations, private investments, and federal grants.

Throughout implementation, the State may also consider scaling the PPP model to other sectors that could benefit from the framework, such as distributing healthcare information by meeting workers where they are. Based on success levels, the State could also consider expanding the program to include more upskilling opportunities for farmworkers, particularly in expanding industries such as renewable energy or advanced manufacturing.

CONCLUSION: THE ROLES WE PLAY

As the agricultural sector moves rapidly toward automation, California must ensure that farmworkers—who have long been the backbone of the state's agricultural success—are not left behind. While AI-driven farm machinery offers opportunities to increase productivity and reduce physical strain, these advancements also threaten to displace workers who already face systemic barriers to economic stability, healthcare, and education. Addressing these challenges requires comprehensive policies that balance the integration of advanced technologies with the protection and empowerment of farmworkers.

By establishing Public Private Partnerships with organizations like La Cooperativa Campesina de California and the California Farmworker Foundation, the state can create pathways for farmworkers to thrive in a changing agricultural landscape. These partnerships can expand access to vocational training, scholarships, and job opportunities, ensuring that farmworkers and their families have the resources needed to navigate and succeed in the AI revolution. As policymakers, private industry leaders, and community members, we share the responsibility to advocate for the rights, health, and economic futures of farmworkers. Supporting these individuals is both an economic imperative and a moral one. Together, we can honor their contributions by investing in programs that provide stability and opportunity for the generations to come.

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