

# Farmworker COVID-19 Community Assessments

Fresno County, California

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NCFH

National Center for Farmworker Health, Inc.

HCAi

Department of Health Care  
Access and Information



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# 1. INTRODUCTION

California's farmworkers play a significant role in the food supply for California and nationwide. In 2021, there were approximately 407,500 agricultural workers in California alone.

(1) However, the farmworker population continues to face health equity disparities along with economic and social disadvantages. During the COVID-19 health barriers for the farmworker communities were heightened due to many farmworkers being uninsured or underinsured. (2)

This report provides a profile of farmworkers and their experiences during the COVID-19 pandemic in Fresno County, California. The National Center for Farmworker Health (NCFH) facilitated and implemented the farmworker health assessment among farmworkers in Fresno County. The purpose of the Farmworker Health Assessment Project is to 1) Understand public health needs of farmworker populations in California in the context of the COVID-19 pandemic, and 2) Determine trusted sources of health information among farmworkers as well as other emerging or urgent issues based on pandemic trends and local needs.

This assessment aims to develop and implement data collection methodologies that could promptly be executed during a public health emergency, such as the COVID-19 pandemic. The rapid assessment provides local health jurisdictions, key stakeholders, and others with actionable findings about farmworkers' experiences and recommendations on how to best meet their needs arising from the COVID-19 pandemic. This report is one in a series of community assessments conducted with farmworkers in diverse rural communities. Fresno County was selected as part of the assessment project due to the high number of farmworkers in the region, including a high number of migratory farmworkers and H-2A guest workers that arrive for the summer. H-2A guest workers are foreign nationals who receive a temporary visa to work in agriculture and do not bring their spouse or children with them to the U.S. (3)



## 2. BACKGROUND: FRESNO COUNTY

Fresno County, California, has a population of approximately 1 million people and is gradually increasing. In California, Fresno County was one of the leading counties in agricultural employment in 2021. (4) Nearly 27% of the Fresno County population worked in the farm or service industry in 2021. (5)

Figure 2.1: Fresno County



Table 2.1: Key Agricultural Data for Fresno County, California

County Population	Number of Farms	Acres of Farm Land	Ave Farm Size	Top Crops by Sales	% of Farms that Hire labor
1.014 million	4,774	1,646,540	345	Grapes, Pistachios, Milk, Oranges, Peaches, Cattle, Garlic, Tomatoes, Nectarines	53%

Sources: U.S. Census of Agriculture 2017, U.S. Census Bureau (1,2,3)

NCFH estimates that there are approximately 71,981 farmworkers in Fresno County and 114,450 dependents county wide in 2022. (6) Nearly 27% of the Fresno County population works in the farm or service industry. (6) Additionally, Fresno County has the most H-2A farm workers between April through October which is representative of the months that have the greatest amounts of the farmworker population. (6)

Figure 2.2: Guest Workers Present per Month, Fresno County 2022

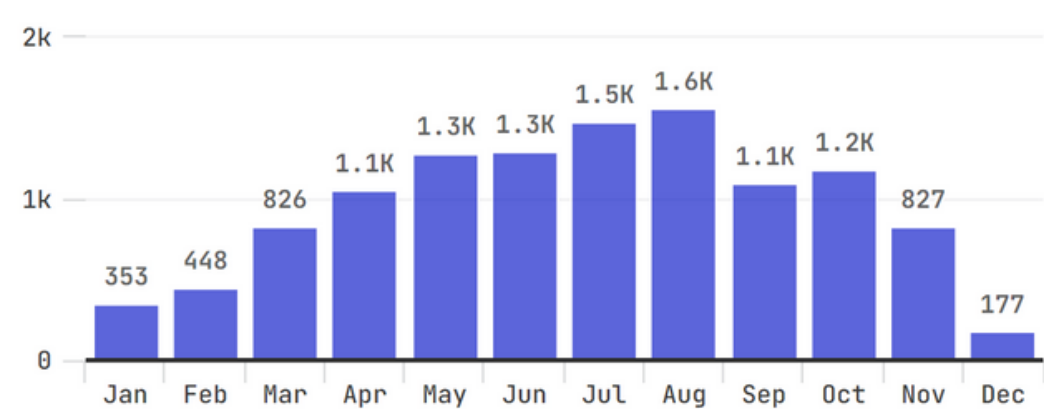


Image: NCFH Farm Labor Data Dashboard (4)



## COVID-19 IMPACT IN THE FRESNO POPULATION

In Fresno County incidence proportion-based on race/ethnicity was highest amongst the Latino population. (7) Selma was one of the counties in Fresno with the highest incidence proportion. (7) From March 2020 to July 2023, there has been a total of 299,234 COVID-19 cases reported and 3,031 reported deaths as a result of COVID-19 in Fresno County. (7)

## COVID-19 IMPACT ON FARMWORKER POPULATION IN FRESNO COUNTY

Farmworkers are a particularly vulnerable population due to their travel, working, and living conditions. During the COVID-19 pandemic, farmworkers were faced with an even greater risk of losing work. Federal labor laws do not require farmworkers to receive paid sick leave resulting in many workers having to make the difficult decision to either keep working or to potentially lose wages and/or their work safety net. (8) Additionally, farmworkers are faced with limited access to housing and oftentimes sharing housing with others increasing the risk of contracting and spreading the COVID-19 virus. (8) As a result, low wages, food insecurity, and high-density housing has created a greater burden on the livelihood of farmworkers and their families. The reduction of wages during COVID-19 to farmworkers has also created a heavy burden on the farmworker population as many have had to 'reduce expenses' due to the wage loss and or partial hour reduction. (9) Farmworkers are not the only individuals affected by the increased COVID-19 burden. Their families also experience higher COVID-19 risk, and those running the home are often responsible for knowing how the family should cope with the impact of COVID-19. (10)

Epidemiological studies showed that farmworkers in the U.S. were at an increased risk of COVID-19 infection during the COVID-19 pandemic. (1,2,3) COVID-19 infection rates were higher among farmworkers compared to other occupational groups, such as those in the public and retail sectors. (1) Large COVID-19 outbreaks occurred in meat and poultry processing facilities, (4) and there were high rates of COVID-19 infections among field crop workers (6), suggesting that the agricultural workplace may have been a significant site of exposure to the novel coronavirus. (3,7)





# 3. METHODOLOGY

The Farmworker COVID-19 Community Assessment methodology included both a quantitative and a qualitative component and was based on the Centers for Disease Control and Prevention (CDC)'s rapid community assessment methodology. (12) To determine community sites and best practices for recruitment, NCFH relied on information shared from key stakeholders such as Migrant Health Centers, Community Health Centers, and other Health Departments in Fresno, California. This assessment received a non-research exemption by the CDC; therefore, IRB approval was not needed. This report summarizes quantitative data from survey respondents and qualitative data from interview respondents and community stakeholder meetings.

Quantitative survey respondents were eligible to participate if they were a farmworker, defined as individuals who had been employed in an industry under the North American Industry Classification System codes 111, 112, 1111, or 1112, which includes both crop and animal production and support activities for those industries. They were eligible to participate if they had worked in agriculture one day or more since March 15, 2020. The quantitative data was collected using an in-person survey. The survey examined farmworkers' knowledge, attitudes and practices related to the COVID-19 emergency with a focus on vaccination coverage, as well as structural factors that CDC and other federal, state, and local agencies and organizations could address, such as barriers to safety, healthcare access, testing and vaccination. Respondents were recruited by NCFH staff at a variety of locations, including randomly selected job and housing sites, and non-randomly selected check cashing houses, stores, laundromats, and restaurants. Before participating in the survey, all respondents were provided with a verbal informed consent that emphasized that all data collected would be anonymous, no individual data would be shared publicly, and that they could stop participating in the survey at any time and that they did not have to answer all the questions if they did not want to.

The survey took between 15 and 30 minutes to complete, and survey respondents received a \$30 gift card to Walmart for their participation. The surveys were conducted as an in-person interview in English or Spanish, with ad-hoc interpretation for Mesoamerican language speakers when needed. Descriptive statistics for the survey data are provided in the key findings section below. All survey data are unweighted.

Qualitative interviews were conducted with three different groups: 1) farmworkers and 2) key informants/farmworker experts including farmworker organization representatives, and 3) farmworker advocates. Interviews were conducted in-person or over the phone in English or Spanish. Farmworkers were recruited from survey participants or word of mouth from local outreach workers. Key Informants were recruited from stakeholders in the region and/or from referral of other key informants. **No employers were interviewed for this assessment due to issues in recruitment (additional information found in the limitations section).**





## 4. KEY FINDINGS

A total of 335 surveys were completed in-person in Fresno County, California by NCFH staff with help from local outreach workers from BIDS and the community. Data collection took place mostly on the weekdays from May 18th to May 21st, 2023. One qualitative interview was conducted and one quantitative interview with a group of farmworker participants. The qualitative interview included a in-depth interview with a public health physician, a key informant. All surveys and interviews were conducted in English or Spanish.

### DEMOGRAPHICS

In surveying the farmworker population, it was important to include questions regarding basic demographics such as: age, sex, and ethnicity; however, in attempting to gain an understanding of the population, questions regarding the type of work the farmworkers perform were also included. The majority of respondents surveyed were male (57%), between the ages of 18-25 years old (121%), and identified as Hispanic/Latinx (93%). Three out of four respondents were born in Mexico (82%), and 11% were born in the United States. Approximately half of respondents were undocumented (53%), with only few had H-2A visas (4%), and nearly one-quarter were either permanent residents (23%) or U.S Citizens (16%). However, nearly half of the participants marked that they have a work permit or are authorized to work (47%).

While the survey sample included farmworkers from Mexico, Haiti, Puerto Rico, and other Latin American countries, Key stakeholders also described the diversity of the farmworker community to include workers from different regions of the world. Key stakeholders also confirmed the presence of a large farmworker population that does not have documentation (49%) and the importance of outreach to support their access to health care or getting a driver's license. The majority of respondents spoke Spanish (88%), and 20% spoke English.



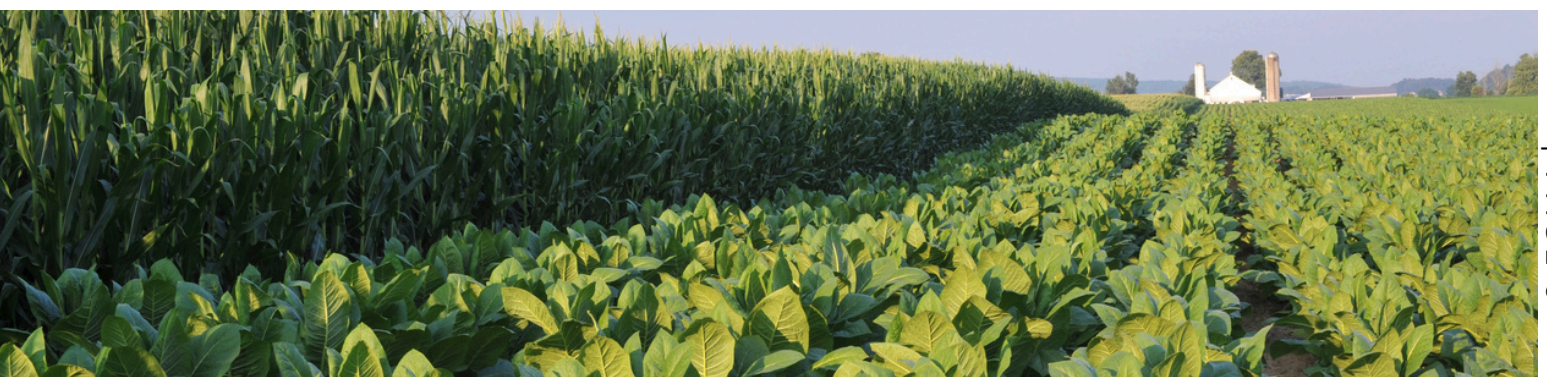


## MESOAMERICAN INDIGENOUS WORKERS

While there is no official definition for who are considered indigenous populations, it is recognized that indigenous populations continue to practice social and cultural traditions that pre-date colonial societies. (11) Latin America's indigenous populations are diverse in their culture, language, food, and religious & spiritual practices. Historically and currently, indigenous populations have experienced higher levels of discrimination and violence, facing attacks on their cultural practices including language, lifestyle and food. (12) This is evident by the ongoing violence experienced by these populations since the beginning of colonization and the continued marginalization of indigenous peoples in social and governmental systems. (13,14) Starting in the 1960s, the first documented en masse migration of Mesoamerican indigenous populations to the U.S. happened through the Bracero program. Currently the number of Mesoamerican indigenous populations in the U.S. keeps growing due to social and economic push-pull factors and due to displacement from violence and environmental reasons, such as climate change. (12, 14)

The racial and ethnicity categories traditionally used for U.S. census purposes may not fully encapsulate indigenous identity of Mesoamerican indigenous individuals or be recognized by this population. Due to the discrimination experienced, they may not want to be identified as being racially indigenous. In this survey following the National Agricultural Workers Survey (NAWS) convention, NCFH created a composite metric to identify indigenous respondents, utilizing a combination of responses from language spoken as a child and currently as an adult, or racially identifying as indigenous. (15)

In this sample, 99 respondents were identified under the indigenous metric, compromising 30% of all respondents. This is two times higher than that of the national percentage (10%) of farmworkers that identify as indigenous based on the NAWS. (16) There were 10 indigenous languages captured in this sample: Mixtec, Zapotec, Nahuatl, Triqui, Tenek, Amuzgo, Navajo, Q'eqchi, Zoque, and Samoan. The most common indigenous languages spoken by respondents were Mixtec and Zapotec. Mixtec has more than 35 variants that vary by state and geographic region and is the most widely spoken indigenous language in Mexico. (17) The Mexican states with the largest Mixtec speaking populations are Guerrero, Oaxaca, and Puebla. Zapotec is a language family with 62 variants and is primarily spoken in the states of Oaxaca and Veracruz. (18)





<b>Table 4.1 - Demographics</b>	
<b>Characteristics</b>	<b>Frequencies (Percentages)</b>
<b>Sex</b>	
Female	141 (42%)
Male	192 (57%)
No answer	2 (1%)
<b>Age Group</b>	
18-25	41 (12%)
26-54	216 (64%)
55+	45 (13%)
I don't know	11 (3%)
No Answer	22 (7%)
<b>Marital Status</b>	
Single	91 (27%)
Married	174 (52%)
Widowed	8 (2%)
Divorced	16 (5%)
Civil/Domestic	38 (11%)
I don't know	1 (<1%)
No answer	6 (2%)
<b>Race</b>	
Black/African American	2 (1%)
Indigenous	58 (17%)
White	43 (13%)
Asian	1 (<1%)
Native Hawaiian or Pacific Islander	1 (<1%)
Other:	
Hispanic/Latinx	146 (43%)
Indigenous Mexican	15 (5%)
Other Indigenous	7 (2%)
I don't know	52 (16%)
No answer	16 (5%)
<b>Racially or Linguistically Indigenous</b>	
	99 (30%)
<b>Ethnicity</b>	
Hispanic/Latinx	311 (93%)
No Hispanic/Latinx	13 (4%)
I don't know	8 (2%)
No answer	3 (1%)

1. Percentages are rounded and may not sum to exactly 100%.

2. Following the National Agricultural Workers Survey (NAWS) convention, NCFH created a composite metric to identify indigenous respondents,

utilizing a combination of responses from language spoken as a child and currently as an adult, or racially identifying as indigenous. (13)

3. Migration was defined as working in agriculture in a place different than the interview location for one week or more in the past 12 months.

All H-2A guest workers were automatically classified as migratory.



## DEMOGRAPHICS CONTINUED: COUNTRY OF ORIGIN AND IMMIGRATION STATUS

Immigration plays an important role for the individuals who participated in this survey. With over half of the participants marking **undocumented status (53%)**, it is crucial to provide them with resources and information on the ways they can stay healthy, obtain medical care when needed, and provide vaccinations for preventative measures. The remaining of the participants were either U.S. Citizens (16%) or Permanent Residents (23%), with **13 participants having H-2A visa**, which is a temporary agricultural employment for foreign workers. Among those who migrated to Fresno County, the majority were born in **Mexico (82%)** and when asked why they moved from their home country, a large amount responded lack of **work opportunities (62%)**.

"THEY MENTIONED LIKE LARGE PERCENTAGE OF UNDOCUMENTED AND WE SAW THOSE EXPERIENCES DURING THE.. WITH OUR COVID VACCINE ROLLOUT WHERE WE HAD TO TEACH OUR MEDICAL PROVIDERS, HEY, DON'T ASK FOR SOCIAL SECURITY. YOU DON'T NEED TO HAVE I.D.. JUST TO GAIN THE TRUST, I WOULD SAY."

KEY INFORMANT

**Table 4.2 - Immigration Status and Country of Birth**

Characteristics	Frequencies (Percentages)
<b>Immigration Status</b>	
Temporary Protected Status	1 (<1%)
Legal Residency (Green Card)	76 (23%)
Asylum or Refugee	1 (<1%)
H-2A (Bracero)	13 (4%)
Tourist	0 (0%)
Border Crossing Card	1 (<1%)
DACA	0 (0%)
US citizen	53 (16%)
Undocumented	176 (53%)
Other	6 (2%)
No answer	8 (2%)
<b>Country of Birth</b>	
Mexico	276 (82%)
United States	36 (11%)
El Salvador	6 (2%)
Guatemala	3 (1%)
Other	3 (1%)

1. Countries that had one responded were classified as 'Other' for country of birth, this includes Peru, Nicaragua, and Panama.





RESPONDENTS WHO MIGRATED FOR WORK

Migration is a fundamental aspect of human history, in which individuals may seek for better opportunities, safety, and fulfillment. In fact, migrants have played an important role in the agriculture industry, especially in Fresno, California. Their hard work, resilience, and agricultural expertise have been a key factor in sustaining Fresno's agricultural prosperity. From the respondents, **72 (20%) individuals** either moved or migrated at least once for work in the past year of 2020. Among those respondents, 27 individuals moved from outside of the United States, with **Mexico (53%)** being the most common country. The month of arrival to destination is during the **spring (50%)** time, between March and May. From the respondents, nearly 80% have not moved for work in the past year. This may signify that many individuals and families have established this region as their permanent home. Which suggest a form of stability within the community. Thus, efforts should be made in providing support and resources, such as improved health access and addressing COVID-19 challenges that may affect their well-being.

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Table 4.3 - Migration	
Characteristics	Frequencies (Percentages)
Amount of times moved or migrated for work in the past year*	
0 times	261 (78%)
1 time	65 (19%)
2 times	7 (2%)
State Moved From (n=72)	
Outside of the US	27 (38%)
California	31 (44%)
Colorado	2 (3%)
Oregon or Washington State	9 (12%)
Other	2 (3%)
Month of Arrival to Destination (n=72)	
Winter (December-February)	7 (10%)
Spring (March-May)	36 (50%)
Summer (June-August)	11 (16%)
Fall (September-November)	18 (25%)

1. Migrated for a length of stay greater than week





## HOUSING, HOUSEHOLD CHARACTERISTICS, AND TRANSPORTATION

Housing and transportation are social determinants of health that influence the risk of COVID-19 among farmworkers.<sup>(16)</sup> Shared transportation with individuals from different households and overcrowded living conditions are both factors that increase infectious disease transmission, such as COVID-19. The majority of the workers lived in either a **house (41%)** or an **apartment (47%)**. Workers living in employer-provided housing frequently experience overcrowding and share housing with non-family members. However, only few respondents lived in employer-providing housing (**9%**), which may be at risk for overcrowding, increasing their risk of COVID-19 transmission.

A portion of all respondents drove their own or a borrowed car (**40%**). With 75 of the participants riding with a relative, co-worker, friend, and/or shared (22%). Other common transportation used to get to work was 'raiteros' (**32%**) and labor buses (4%). Respondents were closely similar as to whether they traveled with farmworkers from other households, with **42% reporting yes** and 58% reporting they did not. Respondents expressed concern of traveling with people from outside of their household due to a risk of transmission of infectious respiratory diseases.

Table 4.4 - Housing Type and Transportation	
Characteristics	Frequencies (Percentages)
<b>Housing Type</b>	
House	137 (41%)
Apartment	157 (47%)
"Trailer"/Mobile Home/Trailer House/Manufactured	25 (7%)
Garage/Outbuilding/Shed	1 (<1%)
Hotels	4 (1%)
Dormitorios/Barracks/Shelters	7 (2%)
Others	2 (1%)
<b>Transportation to Work</b>	
Drive a car (own or borrowed)	133 (40%)
Ride with relative, co-worker, friend/share	75 (22%)
With a raitero	108 (32%)
Walk or ride bike	6 (2%)
Labor bus: bus/truck/supervisor van	12 (4%)
Others	1 (<1%)
<b>Housing and Transportation Risk Factors</b>	
Lives in employer-provided housing	30 (9%)
Travels to work with persons outside of household	140 (42%)



## GENERAL HEALTH CARE ACCESS & SOURCES OF HEALTH INFORMATION

60% of respondents reported needing medical care. Of those 202 respondents, 53% received care when they needed it (see Table 4.5). In the interviews, key informants discussed various ways to improve farmworkers and essential workers access to health care and a method to keep track of those fully vaccinated. It has not been necessary to track, but it is a recommendation to implement for the future. Additionally, key informants noted that farmworkers have barriers to healthcare especially those farmworkers that are new to the U.S. Lastly, one key informant interviewee mentioned “We saw in the data that Latinos are disproportionately affected by COVID-19. When you look at why, I think it goes back to the core issues we’re talking about, such as healthcare access and maybe even fear of the health care system.”

Survey respondents were asked how much they trusted health information from various sources (see Table 4.3). Doctors and nurses were the most trusted messenger, with nearly half of respondents reporting they “always” trusted health information from doctors and nurses (45%). Employers and Community Health Workers (CHWs) were also trusted by respondents, with 39% reporting they always trusted health information from employers and 37% always trusting CHWs. When asked about US government health agency, 39% responded always trusting health information.

Table 4.5 - Health Care Utilization and Trusted Sources of Health Information	
Characteristics	Frequencies (Percentages)
<b>Health Insurance in the U.S.</b>	
Has health insurance	153 (46%)
Doesn't have health insurance	176 (53%)
I don't know	6 (2%)
<b>Needed medical care in the past 12 months (n=202)</b>	
Received medical care when needed	178 (53%)
Needed medical care, but didn't receive it	24 (7%)
<b>Source of trusted information for health issues</b>	
Doctor/Nurse	152 (45%)
Relatives/Friends	93 (28%)
Community Health Workers	124 (37%)
Staff of a US government health agency	131 (39%)
Employer	132 (39%)

1. Respondents could choose more than one answer. Of the 202 respondents who received medical care when they needed, only 178 respondents reported receiving that care in the U.S.

2. Respondents could choose more than one answer. Frequency and percentages reflect responses for “Always” trust health information from selected source.





## HEALTH COMMUNICATION AND ACCESS

Over the years, social media platforms have facilitated the spread of health information; however, not all information promoted may be accurate. The danger of misinformation related to COVID-19 can take on various forms, such as false claims about vaccination and effectiveness of treatments. Fortunately, only 3% of participants uses social media as a platform for health information while one third participants use television. Television can be a valuable source of health information especially for public health campaigns, but it is still subjected to misinformation. Figure 4.1 presents the breakdown of TV versus Internet use for health information by age group. Lastly, when participants were asked about which type of social media in general do they use on a daily basis, 53% said Facebook.

Table 4.6 - Trusted Sources of Health Information	
Characteristics	Frequencies (Percentages)
Receiving health information via	
TV	110 (33%)
Radio	31 (9%)
Newspaper	3 (1%)
Internet	101 (30%)
Social Media	10 (3%)
Other	65 (19%)
No answer	14 (4%)

1. Respondents could choose more than one answer.

Figure 4.1: Percentage of TV and Internet Use for Health Information by Age

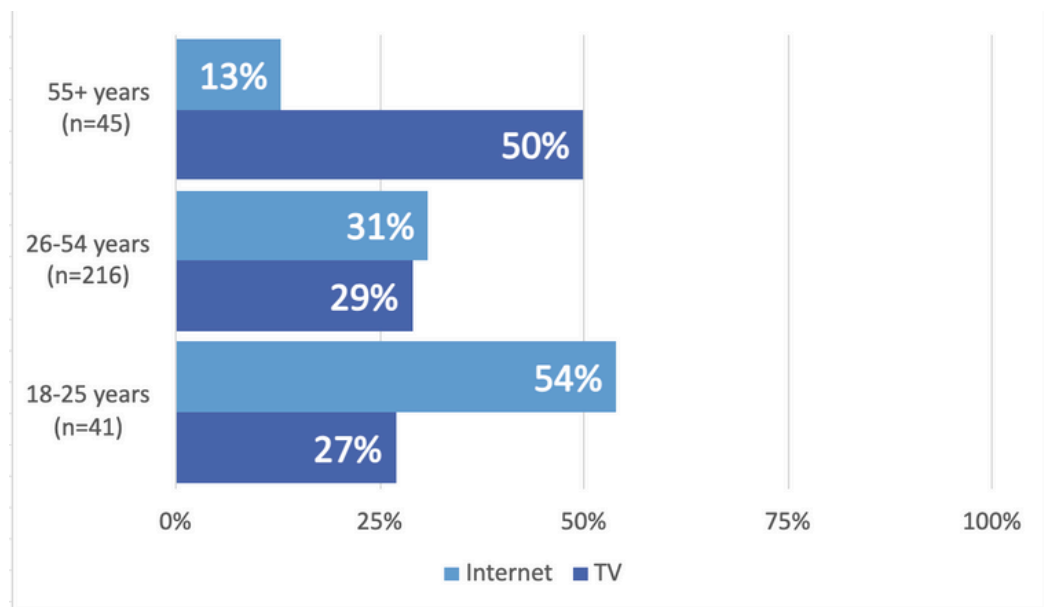


Table 4.7 - Social Media Platform Daily Use	
Characteristics	Frequencies (Percentages)
Applications or Social Media Platforms used daily	
Facebook	177 (53%)
Instagram/Snapchat/Tiktok/Twitter	38 (11%)
WhatsApp	31 (9%)
Youtube	22 (7%)
Doesn't use social media	53 (16%)
Other	4 (1%)
No answer	9 (3%)

1. Respondents could choose more than one answer.

## COVID-19 ILLNESS

A key informant explains, “Farmworkers don't have as much access to health care (...) especially in our county, very rural parts, and that's where a lot of our farm workers live and work. Challenges like having to drive, like in our region, public transportation, the rural area, very difficult. So if you don't have a car, it's going to be hard to make it to your doctor's appointment.”

Respondents were asked what actions they took once they knew or thought they had contracted COVID-19. Of those that knew or thought they had contracted COVID-19 and/or received a positive COVID-19 test (n=50), 93% reported getting tested due to appearing symptoms and 7% reported being tested due to knowing that they got exposed. Among those who tested positive (n=50), 28% continued working, 59% received medical care, and 22% had symptoms lasting over 4 weeks.

The ability to isolate and the quarantine options available to farmworkers were not brought up during interviews. However, one key informant discussed the barriers that undocumented people faced when it came to utilizing quarantine housing such as traveling long distances and a general fear and distrust of people they do not know. Additionally, farmworkers in Fresno, California, live in a very rural area where transportation to a clinic may be a difficult barrier. Which may explain some lower testing numbers for COVID-19.

Table 4.8 - COVID-19 Illness and Testing	
Characteristics	Frequencies (Percentages)
Self-reported COVID-19 Illness*	69 (21%)
Taken a COVID-19 test at least once	173 (52%)
Tested for COVID-19 due to (n=173)	
Had symptoms	39 (32%)
Was exposed	21 (17%)
Visa/entry requirement	5 (4%)
Tested upon arrival to work	14 (11%)
Routine testing/required at work	25 (20%)
Other	19 (15%)
COVID-19 Test Result (n=173)	
Tested positive	50 (29%)
Tested negative	123 (71%)
Reason for Testing for Those Who Received Positive Test (n=50)	
Had symptoms	46 (93%)
Was exposed	4 (7%)
Actions taken among farmworkers who reported they had COVID-19 or tested positive for COVID-19 (n=69)	
Sought medical care	43 (59%)
Continued working	21 (28%)

Respondents include those that thought they had contracted COVID-19 and those that received a positive COVID-19 test.

\*For actions taken, few did not respond.



## COVID-19 VACCINATIONS

Majority of respondents were fully vaccinated against COVID-19 with an FDA-or WHO approved vaccines (63%). However, only a quarter of respondents had received a **booster (24%)** at the time of the survey (see Table 4.5). Overall, **44% of the participants** were fully vaccinated and had at least one booster shot.

A small proportion of respondents (5%) were partially vaccinated, having received only one-dose of a two-dose vaccine. Approximately one quarter of respondents (26%) were not vaccinated at all. Of those unvaccinated, 81% they said no for receiving the vaccine if offered and 16% said maybe they will. Only 10 of the respondents said yes for getting the vaccine. Respondents who were undecided or did not want to receive the booster were asked about their hesitancy. Fear of side effects (n=16) and booster shot is necessary (n=34) were the most common responses.

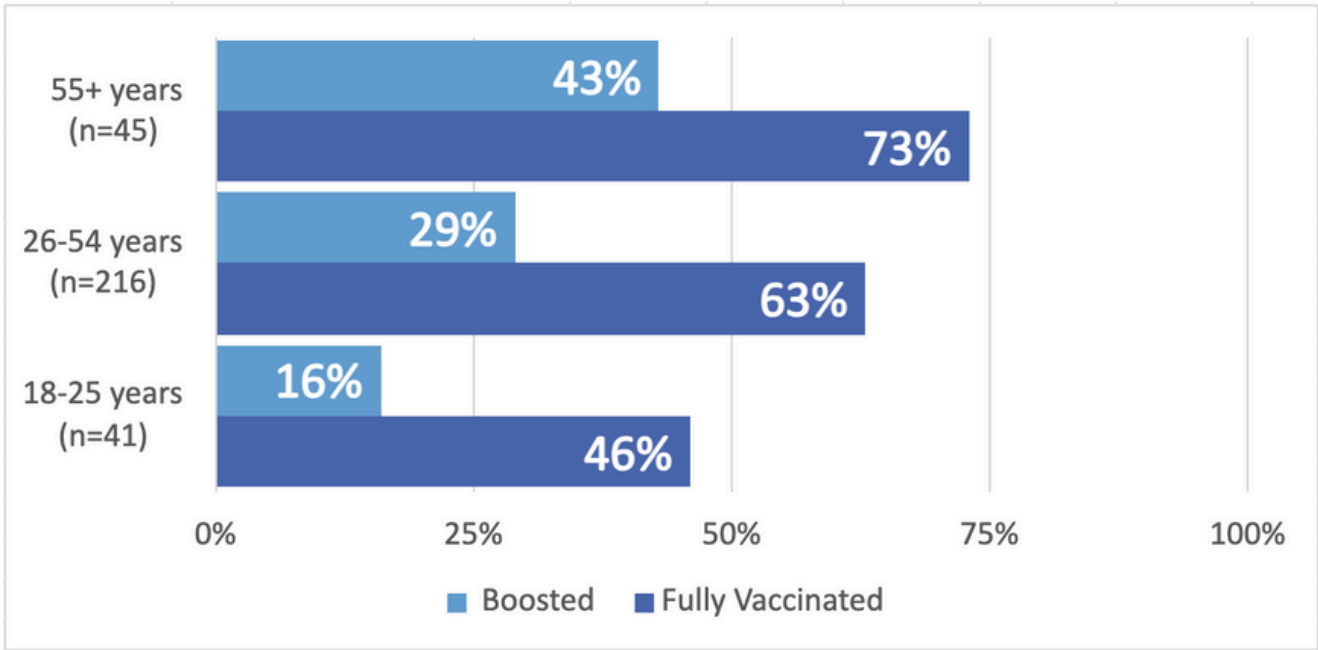
In in-depth interviews, farmworker participants noted how misinformation spreading through social media as well as questions around the effectiveness of the vaccines impacted their communities and decisions around getting the vaccines. Among all farmworkers interviewed, there were mixed sentiments surrounding the vaccine. Some participants were grateful for the vaccine and spoke about how they played an active role in encouraging others in their community to get vaccinated. Other farmworkers explained they felt they had to get vaccinated to travel and work in the U.S. Additionally, some farmworkers interviewed expressed hesitancy around receiving a booster or future doses of the COVID-19 vaccine despite receiving the initial series. One key informant explains, "One of our efforts is the education. So that's a big part for like as a health department, it's our role to educate the public (...) Why should you get your booster if you already got the other series. Then the next part besides health literacy is actually making a bridge and increasing health access." Two major themes that emerged were bringing vaccines directly to farmworkers and having outreach workers directly from the community or with similar backgrounds to farmworkers promote the vaccine and provide education about it.

Table 4.9 - COVID-19 Vaccinations and Booster Shot	
Characteristics	Frequencies (Percentages)
<b>COVID-19 Vaccinations</b>	
Fully Vaccinated	212 (63%)
Partially Vaccinated	17 (5%)
Unknown Vaccination Status	19 (6%)
Unvaccinated	86 (26%)
<b>Fully Vaccinated and Received at least one Booster Shot</b>	94 (44%)
<b>Most common reasons for vaccine hesitancy among un-boostered farmworkers (n= 241)</b>	
the booster shot is unnecessary	34 (33%)
worried about side effects	16 (16%)
don't know enough about shot	20 (6%)

1. If Unknown is <5%, responses are not included in the table.
2. Fully vaccinated includes respondents who received one dose of the Janssen/Johnson and Johnson vaccine or two doses of any COVID-19 vaccine approved by the U.S. Food and Drug Administration or the World Health Organization.
3. Respondents could choose more than one answer. Includes most common responses from respondents who reported they were unvaccinated and replied no, perhaps, don't know, or no answer to wanting to receive the vaccine.

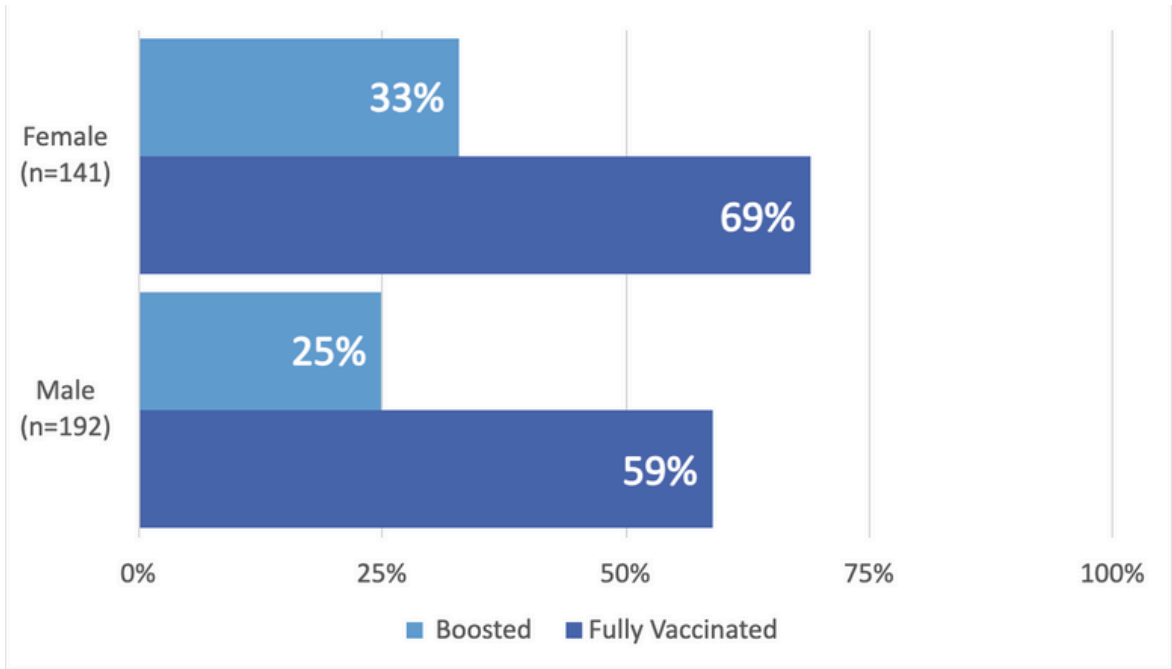
Vaccination status varied by key demographic characteristics. As shown in the figure below, we can see that there is a very different range of vaccination status among the different age groups. With those 55 years old or older being the most vaccinated and boosted (see Figure 4.2). The proportion of respondents that had received the booster decreased as the age of the respondents decreased, from 43% to 16%, respectively. The youngest age group, 18 to 24 years old, have the least number of vaccination and booster status. Respondents between 25 to 54 years old are 63% fully vaccinated and 29% boosted.

Figure 4.2: Percentage of Respondents Fully Vaccinated and Boosted by Age



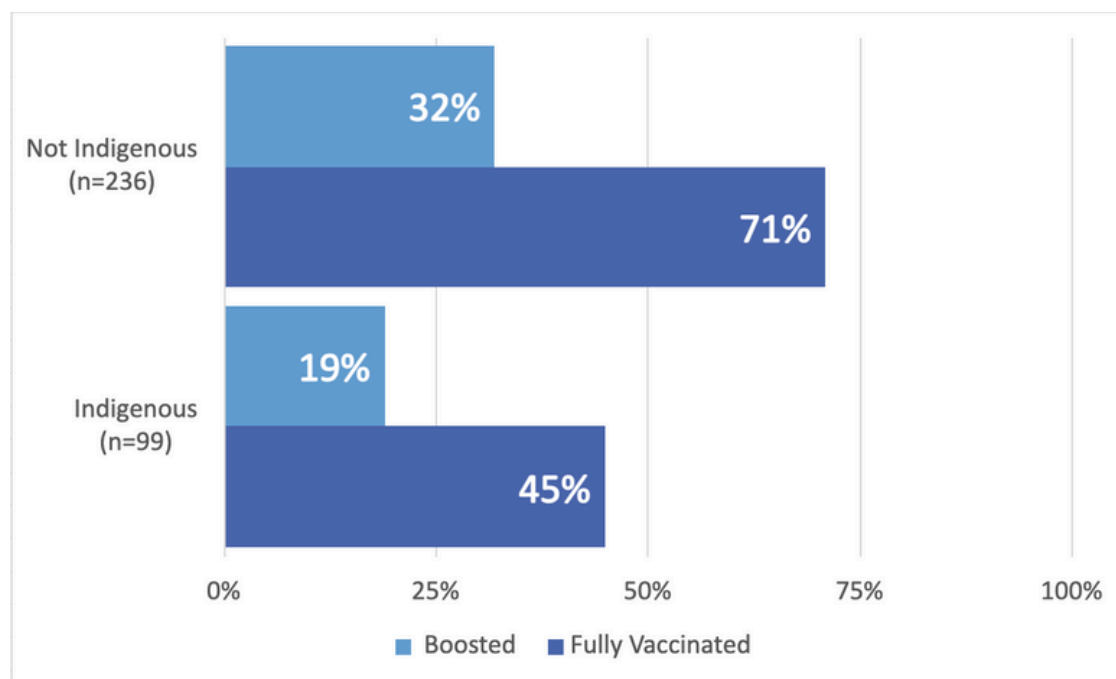
Approximately over half of the male respondents were fully vaccinated (59%), whereas a larger percentage of female respondents reported being fully vaccinated (69%) (see Figure 4.3). However, a similar number of female respondents and male respondents reported being boosted, female 33% and males 25%, respectively. Additionally, a lower proportion of indigenous respondents were fully vaccinated (45%) or received the booster (19%) than Non-indigenous respondents (see Figure 4.4). It is clear that there is a large disparity in this ethnic group and more resources needs to be allocated such as vaccination booths among the indigenous communities.

Figure 4.3. Percentage of Respondents Fully Vaccinated and Boosted by Sex





**Figure 4.4: Percentage of Non-indigenous vs indigenous Respondents who are Fully Vaccinated and Boosted\***



\*Following the National Agricultural Workers Survey (NAWS) convention, NCFH created a composite metric to identify indigenous respondents, utilizing a combination of responses from language spoken as a child and currently as an adult, or racially identifying as indigenous. (13)

There were also vaccination disparities when considering immigration status and country of birth of respondents (see Figures 4.5 and 4.6). Nearly all of the respondents with H-2A visas (n=13) reported being fully vaccinated (80%), whereas a little over half of respondents who are undocumented reported being fully vaccinated (52%). Nearly three quarters of respondents (76%) that were either U.S. citizens or permanent residents reported being fully vaccinated. Booster uptake followed similar trends, with the highest proportion of respondents reporting a booster being those with a citizenship or permanent residency (40%) and the lowest proportion being those that are undocumented (18%) and H-2A visa holders (39%). Vaccine uptake also varied by country of birth. Vaccination uptake was higher among respondents born in Mexico, 65% respectively and majority of those from El Salvador (n=6) were fully vaccinated (64%).

**Figure 4.5: Percentage of Respondents Fully Vaccinated and Boosted by Immigration Status**

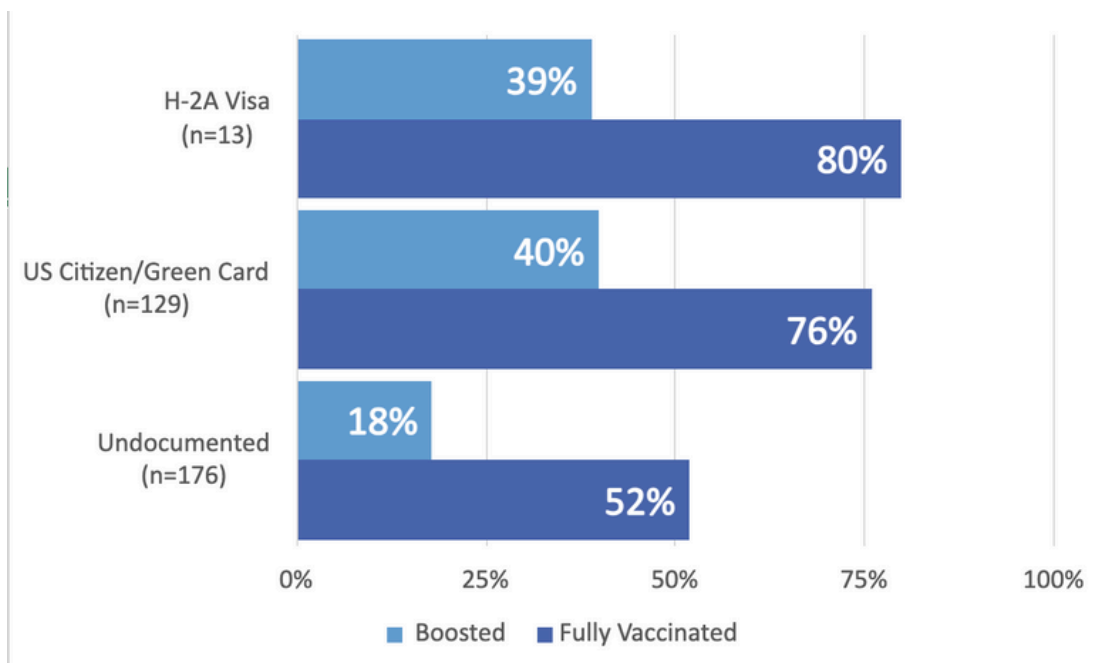
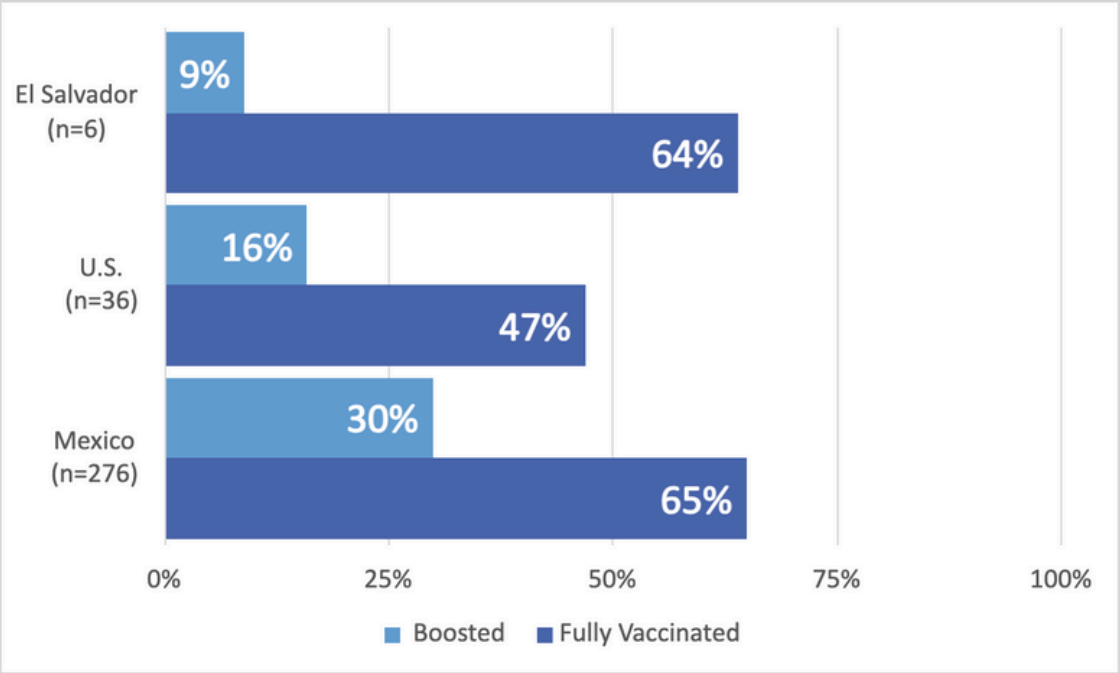


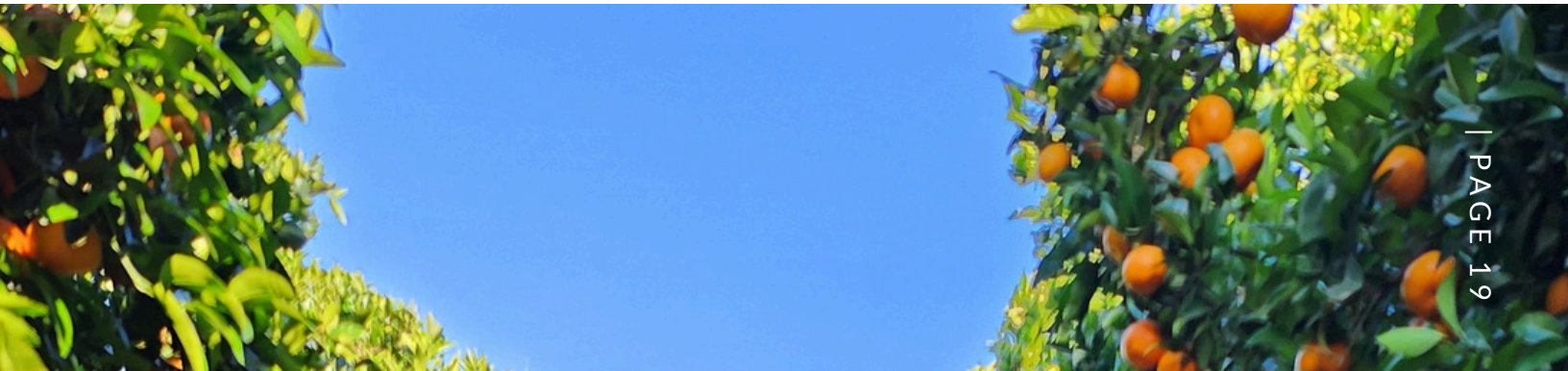
Figure 4.6: Percentage of Respondents Fully Vaccinated and Boosted by Country of Birth



## IMPACT OF COVID-19

Despite being designated “essential workers”, the pandemic had substantial economic and social impacts on farmworkers. However, this survey did not assess the type of impacts that participants may have endured. Due to over half of the participants being undocumented, the majority must have missed the opportunity to receive a stimulus check and other governmental resources in order to support them throughout the quarantine period. This must of exacerbated the health disparity among this community. In addition, the barriers that may exacerbate further, are language barriers. The ability to be able to communicate in the same language may open doors for some; however, not all respondents marked that they prefer to speak English.

Table 4.10 - Language	
Characteristics	Frequencies (Percentages)
Preferred Language to speak at Home	
Spanish	268 (80%)
English	20 (6%)
Mixtec	34 (10%)
Zapotec	5 (2%)
Triqui	5 (<1%)
Nahuatl	2 (<1%)
Other	1 (<1%)





FLU VACCINATIONS

The acceptance of flu vaccination have often varied among different communities, with some hesitating to take the annual flu shot due to various fear, misconceptions, or lack of knowledge. The advent of the COVID-19 pandemic has brought different effects on individual’s attitudes. For instance, the pandemic has increased awareness about the important of vaccination, especially as a contagious respiratory virus. Yet, this awareness has prompted for some to hesitate for different reasons. In our Farmworkers Health Assessment in Fresno, California, 50% of our respondents received Flu vaccination in the past 12 months, where as the other 50% has not. Reasons for not receiving flu vaccination (n=161) included difficulty in getting an appointment (32%), not having time (9%), and/or already got the flu (9%). With this information, we can clearly note that there are barriers farmworkers endure, especially within access to care. Nearly one third of the respondents were not able to get an appointment, which signifies the need for increased availability and accessibility.

Table 4.11 - Flu Vaccination and Hesitations	
Characteristics	Frequencies (Percentages)
Received Flu Vaccination in the Past 12 months	
Yes	167 (50%)
No	161 (48%)
I don't know	4 (1%)
No answer	3 (1%)
Reasons For not receiving Flu Vaccine (n=161)	
Afraid of side effects	7 (4%)
Doesn't believe it works	6 (3%)
Do not have time	15 (9%)
Difficulty getting an appointment	51 (32%)
Already got sick with the flu	14 (9%)
Other	17 (11%)
Don't know	15 (9%)

1. Respondents could choose more than one answer.



# 6. CONCLUSION

## LIMITATIONS

This assessment had limitations. Survey respondents were not randomly sampled. Survey respondents should not necessarily be viewed as a representative sample of all farmworkers in the counties, but rather as a diverse non-random sample that captures information from the very different populations of farmworkers in Fresno County. All survey data are self-reported. The data in this assessment is cross-sectional and only represents a brief snapshot in time. While data collection occurred during the peak season of agriculture work in the Fresno County; not every agricultural crop has the same timeline, and workers in those sectors may have been missed. In particular, the timing of this survey was towards the end of spring and start of summer season where the region receives a large influx of migratory workers. The survey is only available in English and Spanish. This may have caused barriers in adequately capturing the responses from Mesoamerican indigenous language speakers. Three qualitative interviews were conducted. Limited qualitative interviews were conducted in this community due to recruitment issues with non-response and loss to follow up.

## DISCUSSION

The results of this assessment demonstrate the necessity of continued support as it relates to housing, vaccinations, and working conditions for farmworkers in Fresno County to support health care access and reduced risk of infectious disease. The farmworker population in this county is a diverse, multinational, and undocumented population making the delivery of services challenging. While the community organizations in the area champion the increased access to health care through mobile units and partnerships during the pandemic, more support is needed to continue providing care to all farmworkers and their families and to reach those specific farmworker groups, such as undocumented farmworkers and indigenous farmworkers.

The proportion of respondents that were fully vaccinated (63%), 44% received at least one booster shot. A third of the population that did not receive a booster because they thought it was unnecessary. The booster shots are designed to provide added protection against the upcoming variants of COVID-19. This is particularly important for essential workers, such as farmworkers, who often face higher exposure risks. Another concern for those hesitant about booster shots are side effects (16%). Booster shots have undergone various testing for safety and efficacy and are usually based on the initial series of vaccines, and side effects are rare. This suggests that the population needs to be provided with education on vaccination and booster shots as it is a crucial aspect of our public health strategy to protect against future infectious diseases.

Although over half of respondents reported receiving the full series of the COVID-19 vaccine, there are substantial disparities within the population. Respondents that were undocumented or indigenous had lower proportions of fully vaccinated respondents (52% and 45%, respectively). Booster uptake among these groups was also lower than other demographic groups. Respondents ages 18-24 also had a lower proportion of respondents that had received the booster than older age groups. This may be due to higher morbidity and mortality rates among the older population. Additional support and specific strategies are needed to reach these demographics of farmworkers in the area.

Survey results show almost a third (30%) of respondents are racially or linguistically indigenous, however key informants suggest it is difficult to identify indigenous farmworkers and provide appropriate services. Considering the low vaccination and booster uptake as well as the variety of Mesoamerican indigenous languages reported in the sample, service providers in the area should consider investing in interpreters, multilingual education materials, and other culturally appropriate strategies to ensure indigenous farmworkers have equitable access to vaccines and other health services.



## DISCUSSION CONTINUED

This assessment found a promising sign of low migration rate in Fresno County. This indicates that many farmworkers who initially relocate or move to the area tend to remain there and establish it as a more permanent home. This stability opens the opportunity to implement interventions that can be revisited and maintained by this population. We can implement long-term strategies for health education, vaccination and healthcare services access. However, a limitation that we continuously encounter is language barrier. Stakeholder and key informants pointed out the community of farmworkers needs to be provided with continuity of care, linguistically appropriate education and services, and timely services considering seasonality. Additionally, the survey found that only 9% of respondents lived in employer-provided housing. If employers are willing to partner with service providers (such as some of the strategies for facilitating COVID-19 vaccines – mobile units and worksite vaccination clinics) this provides additional opportunity to increase access to services and will likely increase uptake of services.

The assessment also identified risks for infectious disease spread (including COVID-19) in the working and living conditions of farmworkers. Respondents live in crowded housing and share transportation, two risk factors for the spread of infectious disease. However, current regulations for employer-provided housing do not protect against overcrowding in the context of reducing infectious disease transmission, therefore employers may be following existing regulations and workers are still in crowded housing. Some local governments provided housing assistance programs during the pandemic to farmworkers and employers to mitigate spread of COVID-19. These programs should be studied and expanded. As allocation of resources for COVID-19 mitigation and prevention declines, there is a substantial need for continued efforts and vigilance to address these working and living conditions, including availability of multilingual education and appropriate support services, to support farmworker health and prevent the spread of infectious disease.

As the regional agricultural industry responds to the long-lasting impact of the pandemic, it is critical that local stakeholders and service providers understand how those shifts impact the farmworker community and their livelihood. Additional focus and support are needed to provide culturally and linguistically appropriate services and education to a very diverse farmworker population that is highly migratory. There should also be resources and information for the undocumented population because of additional barriers they may face. Furthermore, stakeholders need additional funding and resources to continue to strengthen and expand partnerships and strategies that facilitated vaccines for farmworkers to improve access to boosters and general health care in the region.



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