

Regeneración Survey Report: Pajaro Valley Climate Action

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Introduction

Climate change and other environmental problems have larger effects on the livelihoods of marginalized and lower-income communities compared with wealthier neighborhoods (NAACP 2018). Pajaro Valley is a large agricultural region in central California, north of Monterey. Because Pajaro Valley contains a large portion of agricultural communities, the demographics of the region are primarily marginalized, composed of Hispanic, Latinx, Chicanx, Mexican, and Mexican-American ethnic groups who work in the fields. Regeneración is a non-profit organization determined to study and combat the effects of climate change and environmental issues in this region by working with community partners and hopes to ultimately empower the local communities. The organization created a survey that seeks to better understand what environmental challenges community members are experiencing, learn about their ideas or interests in solutions, and investigate courses of action in implementing community-specific climate solutions. After extensive research and consultation, Regeneración participated in community-based qualitative research by designing a survey *with* the community to influence actions *for* the community. This type of research shares the results with the community while incorporates input from community members on setting the next steps in the research process; it is transformative research that works *with* and *for* the community to connect what is happening in the local community to larger societal conditions (Johnson 2017). Regeneración's ultimate goal is to eliminate the oppressions that divide the community of Pajaro Valley and unite the local people in finding solutions to climate change together.

Methods

The initial survey had four main types of questions involved in the survey: personal identification, experiences, behavior, and action. Personal identification questions were asked first to ensure that the participant was a member of the Pajaro Valley community and to help provide useful data on what types of social groups compose the community such as occupation, ethnicity, age, and housing situation. Questions pertaining to experiences that community members share or face were asked to help the researchers understand what environmental impacts there are, if any, and if so, what are of the greatest concern to the community. Behavior and action questions were asked later in the survey in case participants did not experience any environmental impacts or stated there were none. See Appendix for a complete version of the survey issued by Regeneración.

Regeneración held meetings over a total of nine months to develop the survey along with potential climate solutions, including two community roundtables to spark community input. The survey was influenced by Got Green's climate justice survey they launched in South Seattle, Washington. Protocol for administering the survey was outlined by Dr. Shishir Mathur, Associate Dean of Research, College of Social Sciences at San Jose State University. A total of 324 community members participated in the survey-community members defined as any person who lives *or* works in the Pajaro Valley region. Surveys were administered both online and in person by volunteers from within the community. The majority of volunteers were native Spanish speakers from Aptos high school, Cabrillo College, Revolunas women's collective, educators, and even some general community members. Overall, 138 usable surveys were recorded online and 186 were usable in-person surveys. Surveys were deemed unusable were from participants who did not live or work in Pajaro Valley but participated in the personal identification questions of the survey. These surveys were discarded by Regeneración since community-based research was the motive, so no data analysis was performed.

Dr. Shishir Mathur performed the initial analysis of the survey results and California State University, Monterey Bay's (CSUMB) Research Methods class, led by Dr. Victoria Derr, assessed the data further, specifically paying special attention to agricultural and demographic constructs. CSUMB's Research Methods class cleaned and coded the raw data recorded by Regeneración in an Excel sheet. Survey responses were cleaned by removing nonresponses to ensure cohesiveness before assigning numerical codes in Excel. Each response was coded with a specific number that allowed CSUMB's Research Methods class to quantitatively analyze qualitative data according to methods outlined by Earl Babbie. A codebook was created on a separate tab in Excel that included lists and descriptions of codes.

Construct analysis was the primary method used to analyze the data by Dr. Victoria Derr and CSUMB's Research Methods class. The class analyzed the data according to specific constructs-latent variables that cannot be measured directly but rather by an assemblage of indicators. Regeneración was interested in attitudes/actions regarding agricultural workers compared with those of non-agricultural workers, and attitudes and attitudes/actions of Latinx, Chicanx, Mexican, and Mexican-American groups compared with other groups. CSUMB's Research Methods students chose various alternative constructs to analyze in individual reports to include for survey results. This report individually analyzes a variety of subpopulations within the survey population that answered they, their family, or neighbors were affected by pesticides in the local region. For each construct assessment, a new tab with the cleaned and coded is created in Excel and then each is sorted by whatever construct is being used to analyze. All of the data

was analyzed by counts or totals of each subpopulation and then percentages, and mean scores were used for any Likert scale questions.

Results

Previous results from Dr. ShiShir Mathur show that environmental changes are observed and experienced in Pajaro Valley by community members, issues affect groups differently and disproportionately, and there is strong desire to take personal and collective action. Litter, pesticides, and car exhaust were the most commonly cited types of pollution that are affecting the community. The top climate change impacts experienced by survey participants were more days with extreme heat, heat waves in late autumn and winter, and more frequent drought. The most favored initiative to reduce local pollution and environmental impacts was to increase access to organic agriculture. The survey also shows that twice as many agricultural workers (or their families and/or neighbors) are affected by extreme heat conditions at work compared with non-agricultural workers. All initiatives listed on the survey to mitigate the environmental impacts and climate change received strong support; all recieved a mean score of 3.8 or higher on a Likert scale of 1-5.

An agricultural versus non-agricultural comparison was made by CSUMB’s Research Methods Class since Pajaro Valley is known as a large agricultural community (Tables 1-8). Although there were a lot of nonresponses, a large portion of the population work in the fields or in an agricultural occupation; in fact, nearly one-third of the 324 respondents do (Table 1). Of these agricultural workers, the majority—three-fourths—rent for their current housing situation (Table 2). Both agricultural and non-agricultural largely use cars for their main mode of transportation (Table 3), but it should be noted there is no data provided on the availability of public transportation in this community and whether these results are due to lack of public transit or personal choice. Litter, pesticides, and car exhaust/smog/air quality were the most noted environmental impacts by both agricultural and nonagricultural workers (Table 4) and increased temperatures, heat waves in late fall/winter, and more frequent drought were the highest to be experienced by the agricultural population (Table 5). Additionally, agriculture workers recorded they were most affected by high temperature at work as well (Table 6). Even though all mean scores for who is responsible and how the community should take action were relatively high (Tables 7 and 8), agricultural workers had the highest scores for increasing access to organics as their most favored mitigation method.

Table 1. Primary area of work for total population.

	Number of Responses	Percent of Total Population	Percent of Agricultural v. Non-agricultural Population

	water	extreme heat at work	in the length of the growing season at my workplace	for food	affect work	affect home	flooded	flooded or badly damaged from storms	
Non-agricultural	32%	40%	15%	7%	7%	11%	8%	35%	11%
Agricultural worker	38%	74%	46%	13%	14%	14%	12%	22%	4%

Table 7. Mean scores for types of solutions on Likert (1-5) scale.

	Modern rail	Employer-sponsored carpools	Job retraining to green jobs	Encourage use of clean energy over fossil fuels	Increase access to organic foods	Neighborhood fairs	More sidewalks	More protected bike lanes
Non-agricultural	4.00	4.20	4.12	4.44	4.55	4.17	4.35	4.45
Agricultural worker	3.82	4.06	4.19	4.28	4.53	4.37	4.51	4.44

Table 8. Mean scores for who should be responsible for the environmental impacts on Likert (1-5) scale.

	Businesses and corporations should pay proportionately	Local government should provide solar panels	Employers should provide alternative transportation	It is my responsibility	I would plant trees	I would eat more plants	I would go to a resource fair	I would train in green jobs	I would make my own business more green
Non-agricultural	4.60	4.59	4.22	4.52	4.10	4.14	3.92	3.81	4.40
Agricultural worker	4.54	4.60	4.27	4.37	3.93	4.25	4.29	4.30	4.43

An ethnicity comparison was made by CSUMB's Research Methods Class since Pajaro Valley is a largely marginalized community composed of many Hispanic ethnic groups and immigrants from

Mexico (Tables 9-16). The number of respondents who classified as Hispanic, Chicanx, Latinx, Mexican-American, or Mexican is astounding; nearly 85% of the population who responded identified with this major ethnic group (Table 9). For Hispanic and Mexican, Table 10 shows that the majority rent, but a large portion of Hispanic community members stay with family or friends, too. Similar to agricultural and nonagricultural workers, all three categories for this construct (Hispanic, Mexican, and Other) all use cars as their primary mode of transportation (Table 11). Litter and pesticides are the most concerning type of pollution noted by respondents for all three categories (Hispanic, Mexican, and Other) and increased temperatures and heat waves in late fall/winter were noted the most by the entire population as well (Tables 12 and 13); furthermore, Table 14 shows unanimously that symptoms from extreme temperatures at workplaces are the most concerning to these subpopulations. All initiatives listed on the survey to mitigate the environmental impacts and climate change received overall strong support with a mean score higher than 3.75, but it should be noted that Hispanics and Mexicans favored more sidewalks and increased access to local organic agriculture the most (Table 15). And both Hispanic and Mexican ethnic groups agreed that local government should provide solar panels to help mitigate environmental issues and climate change (Table 16).

Table 9. Ethnic groups within total population.

Ethnicity	Number of Responses	Percent of Population
Hispanic, Chicanx, Latinx, or Mexican-American	122	39.74%
Mexican	137	44.63%
Other	48	15.64%

Table 10. Current housing situations for major ethnic groups.

	Rent	Own	Family/friends	Houseless
Hispanic, Chicanx, Latinx, or Mexican-American	54.10%	15.57%	24.59%	1.64%
Mexican	60.58%	19.71%	13.87%	2.92%
Other	39.58%	47.92%	8.33%	4.17%

Table 11. Primary transportation for major ethnic groups.

			workplace						
Hispanic, Chicax, Latinx, or Mexican-American	27.05%	39.34%	22.13%	5.74%	5.74%	8.20%	5.74%	18.85%	13.93%
Mexican	33.58%	59.85%	29.20%	9.49%	13.87%	15.33%	10.22%	27.01%	4.38%
Other	29.17%	41.67%	8.33%	12.50%	0.00%	14.58%	12.50%	41.67%	6.25%

Table 15. Mean scores for types of solutions on Likert (1-5) scale.

	Modern rail	Employer-sponsored carpools	Job retraining to green jobs	Encourage use of clean energy over fossil fuels	Increase access to organic foods	Neighborhood fairs	More sidewalks	More protected bike lanes
Hispanic, Chicax, Latinx, or Mexican-American	3.77	4.10	4.19	4.25	4.46	4.33	4.46	4.54
Mexican	3.78	4.29	4.24	4.35	4.59	4.41	4.52	4.48
Other	4.11	4.08	3.95	4.43	4.46	3.76	4.13	4.38

Table 16. Mean scores for who should be responsible for the environmental impacts on Likert (1-5) scale.

	Businesses and corporations should pay proportionately	Local government should provide solar panels	Employers should provide alternative transportation	It is my responsibility	I would plant trees	I would eat more plants	I would go to a resource fair	I would train in green jobs	I would make my own business more green
Hispanic, Chicax, Latinx, or Mexican-American	4.44	4.48	4.17	4.32	4.11	3.93	4.15	3.87	4.25
Mexican	4.52	4.69	4.41	4.35	4.11	4.24	4.26	4.19	4.38

Other	4.74	4.59	4.13	4.63	4.05	4.24	3.33	3.81	4.33
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Table 17. Major ethnic groups that have noted being impacted by pesticides.

	Number of Responses	Percent of Total Population	Percent within each ethnic group population
Hispanic, Chicax, Latinx, or Mexican-American	48	14.81%	45.28%
Mexican	92	28.40%	63.01%
Other	103	31.79%	60.23%

Since Pajaro Valley is a major agricultural community the use of pesticides and other fumigants is prominent. This report individually analyzes those who responded being affected by pesticides (or their families and/or neighbors) by a variety of variables to note how pesticides are affecting the community as a whole. Figure 1 shows a pie chart of the Hispanic ethnic groups versus others and nonresponses who noted they were affected by pesticides in the local community of Pajaro Valley. Almost half of the respondents were of some type of Hispanic ethnicity. Figure 2 is another pie chart that shows the same criteria being analyzed but by agricultural workers versus non-agricultural jobs and nonresponses. It should be noted that there is a large portion of respondents who chose not to answer this survey question. Of those who responded being affected by pesticides, they noted becoming sick more frequently and having to buy clean drinking water as some of the impacts made by pesticide use (Figure 3). Figures 4 and 5 show that residents/workers from the City of Watsonville were largely represented in this survey and that inductively they are the most concerned with pesticide use in their region out of the entire population.

Figure 1. Major ethnic groups that have noted being impacted by pesticides within total population.

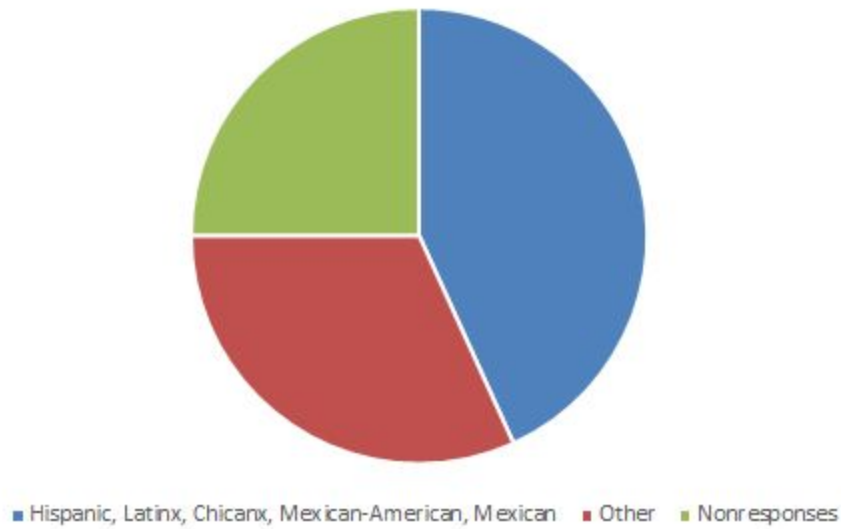


Table 18. Ag v. non-ag that have noted being impacted by pesticides.

	Number of Responses	Percent of Total Population	Percent within each ag or non-ag population
Non-agricultural	94	29.01%	62.25%
Agricultural worker	46	14.20%	66.67%

Figure 2. Occupational groups that have noted being impacted by pesticides within total population.

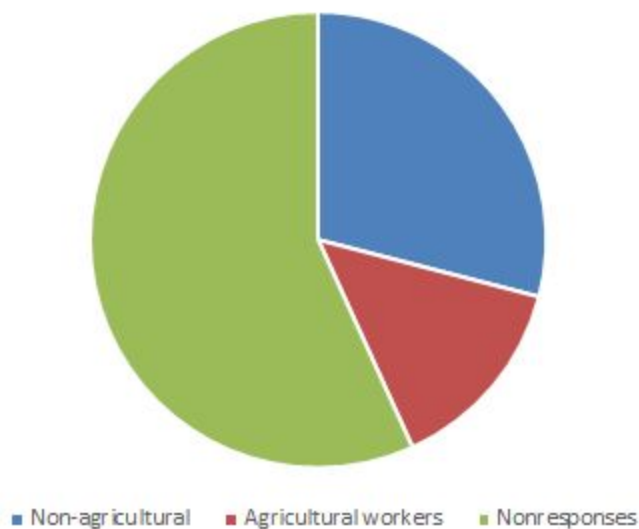


Table 19. Effects of pesticides on you, your family, or neighbors.

	Number of Responses	Percent of Total Population	Percent within each
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			subpopulation (categorical answer)
Getting sick more often	98	30.25%	78.40%
Need to buy drinking water	94	29.01%	81.74%
Cannot let children play outside	46	14.20%	74.19%
Reduced walking, bicycling, spending time outside, etc.	44	13.58%	77.19%
Other	21	6.48%	60.00%

Figure 3. Number of residents that have been impacted by pesticides in various ways.

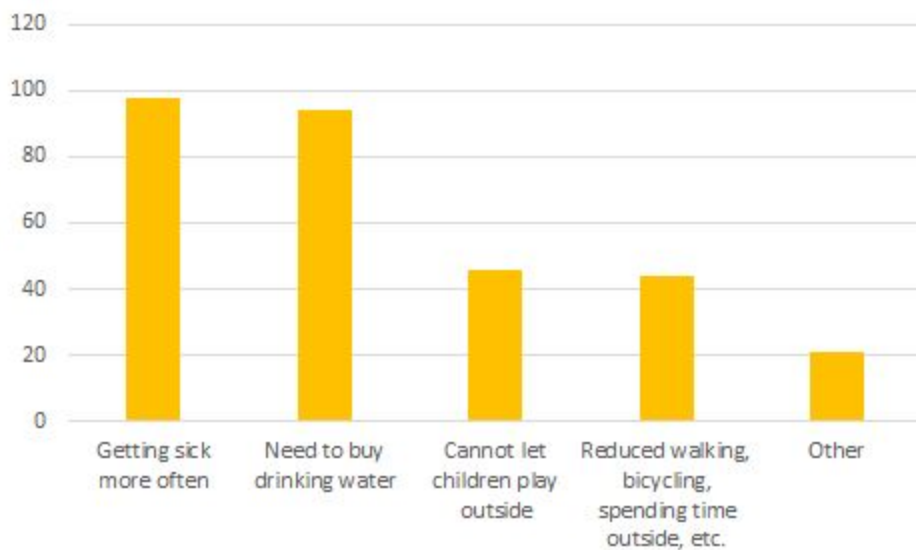


Table 20. Residential communities within Pajaro Valley of those who noted being affected by pesticides.

	Number of Responses	Percent of Total Population	Percent within each subpopulation (community)
Pajaro	17	5.25%	60.71%
Las Lomas	9	2.78%	47.37%
City of Watsonville	108	33.33%	55.10%
Freedom	9	2.78%	45.00%
Interlaken (including Pinto Lake)	12	3.70%	57.14%
West of Highway 1	1	0.31%	50.00%

Other	5	1.54%	62.50%
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Figure 4. Number of residents within residential communities that have been impacted by pesticides.

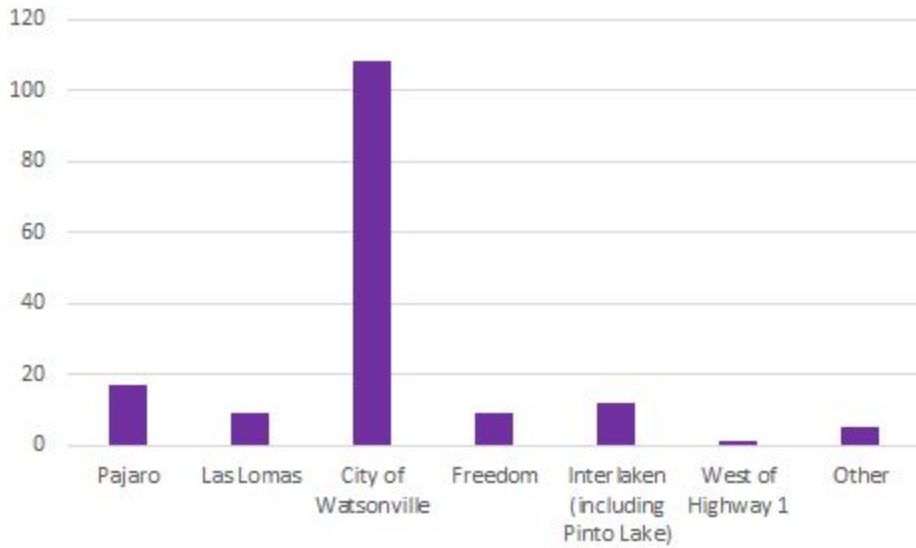
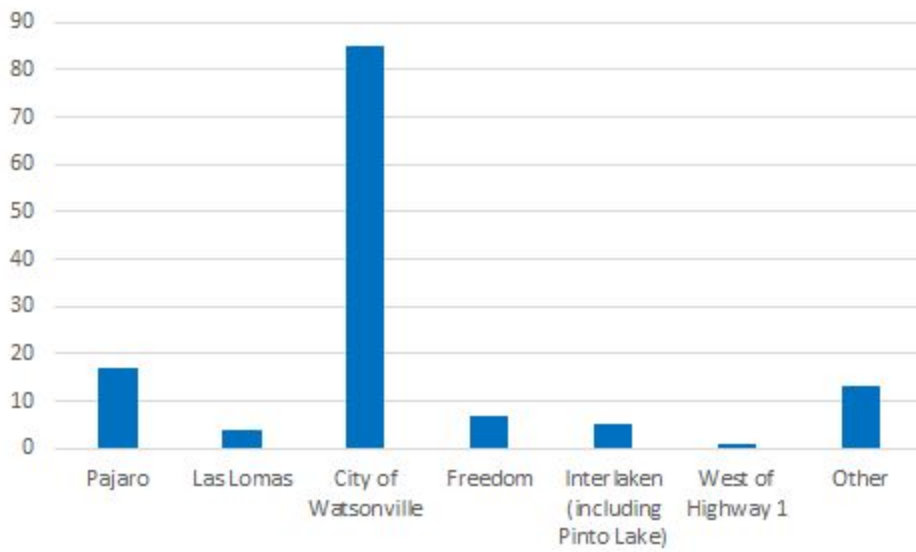


Table 21. Occupational communities within Pajaro Valley of those who notes being affected by pesticides.

	Number of Responses	Percent of Total Population	Percent within each subpopulation (community)
Pajaro	17	5.25%	70.83%
Las Lomas	4	1.23%	33.33%
City of Watsonville	85	26.23%	61.59%
Freedom	7	2.16%	63.64%
Interlaken (including Pinto Lake)	5	1.54%	55.56%
West of Highway 1	1	0.31%	50.00%
Other	13	4.01%	56.52%

Figure 5. Number of workers within occupational communities that have been impacted by pesticides.



Discussion

Data analysis shows that Pajaro Valley is an agricultural community and workers are affected by climate change in their daily lives. Data analysis also confirms the fact that Pajaro Valley is composed of Hispanic ethnic groups and may have large Mexican immigrant population; however, this is loosely speculated since there is not differentiation between Mexican and Mexican-American made in the survey. It is also confirmed that a lot of the community members are somehow connected to agriculture and it is concerning to both them and the entire community on the usage of pesticides in that region. Community consensus from the survey showed they would like to increase access to local organic agriculture, which can imply they are aware of the fumigants' effects on theirs, their families', and their neighbors' health. Construct analysis from this individual report shows that community members from the City of Watsonville participated the most in this survey and that initiatives brought forth by the community should first be installed there since it is confirmed there is a large portion of farmland in that specific region.

Limitations for this report include incomplete survey responses, unclear vocabulary that may have altered survey responses, the lack of knowledge questions included in the survey to assess each individual environmental literacy and education, and a missing stakeholder group. About 50 consecutive respondents did not answer Likert scale questions that pertained to behavior and action, so this data is not included and limits accurate analysis of the population as a whole for these sections. Additionally, participants were given the choice to decline to answer and only partial responses were recorded for these individuals. Vocabulary was unclear for certain questions that may have affected responses and therefore results,

specifically the ethnicity construct. For example, participants were asked what race, ethnicity, or country of origin they identify with, but race and ethnicity are different according to the United States Census Bureau and the answer does not list any countries for the respondent to choose. Furthermore, the answers were unclear and no definitions were listed to differentiate a few of them, such as the difference between Mexican and Mexican-American so many respondents chose both. If the survey is readministered, there should be a more clear distinction or the removal of one of them. Otherwise, results do not accurately represent the behavior and attitudes of these ethnic groups if the motive is to understand how the marginalization or problems that immigrants face in relation to other groups. Knowledge questions were intentionally not included in this survey because researchers did not want to intimidate participants. Although the survey was specifically designed in this manner, it would be helpful for further research to know the environmental literacy of each participant who participated. For instance, one participant responded with excessive allergies from nearby when asked about experiences regarding environmental issues and impacts, so one has room to question the aptitude of the community when analyzing this data. Knowledge is also important in determining the reason as to why some may have chosen “Not Applicable” or even if certain marginalization occurs due to illiteracy in understanding environmental issues and their contexts within a community. Another limitation for this study is the missing viewpoints of younger generations since Regeneración was only legally allowed to survey adults. This is important to note since climate change will affect future generations more severely and it is important to know their stake in finding solutions. Longitudinal research by the administering of surveys in the coming years will assist to fill this gap and provide more accurate representation of the entire population.

Recommendations for Regeneración’s future research would be create a finalized survey with more concise, clear vocabulary and to administer this over a longitudinal period of several years to see what changes the community is experiencing. Some additional questions to pose for future research are how the community is getting involved to combat these environmental issues and knowledge questions to assess individual environmental literacy. Regeneración should also request feedback from the community on what additional questions the community would like to add or take away since this is community-based research and community members should be included in the design of future surveys.

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