FarmerEx Platform
User Research Document

By: Olivia Kiklica, Clark Mahaffey, Ashley Kelly, & Bobby Bloomquist

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Introduction

The primary focus of our application is to connect local fruit and vegetable producers to consumers who live in food insecure areas. Therefore, we have two distinct user groups for our application: producers and consumers. Each of the two groups will utilize the application differently; while the consumer side requires the FarmerEx platform to address the various socioeconomic barriers that manifest as food-insecurity, the producer side is a question of fitting our application around the habits of a population with varying levels of investment in farming.

Key Questions

Consumers

Food-insecurity is an issue of both access and means, and thus highly correlated with income. Our approach to the consumer-side of the platform must therefore be informed of the myriad challenges consequential of lower income. As we aim to develop a mobile app for the general consumer, we must first pinpoint the prevalence of smartphones in the community, and the operating systems of those phones. In more formal words:

> *What type of technology and internet access do the residents of our focus area have?*

Second, we must understand, more intimately, what barriers residents face when seeking out nutritious meals. On a national level food-insecurity is understood to be the result of one or more compounding factors: lower-income residents are less likely to own a car, making grocery store trips expensive in time and/or money; they are more likely to work in shifts, outside of the 'regular' 9 to 5, meaning they may not be able to shop for groceries during store hours; they may care for a dependent unable to be left alone. When it comes to our focus area, we will try to tailor our app to be convenient in a way traditional food sources are not. To best understand our specified user group, we must ask:

> *What barriers to access do the residents of our focus area face when shopping for food?*

Our third and fourth questions are somewhat entwined. A portion of the definition of food insecurity is not only *access* to healthy options, but the resulting diet of less nutritious foods (which can chronically impact health in the long term). This leads us to:

> *What are the current grocery and dietary habits of the residents in our focus area? Is there a demand for healthier foods?*

Finally, if it so happens that residents do not regularly eat fresh foods and respond that they do not have a desire to – why not? Is it a personal preference, or a signal of a deeper issue regarding information access? To rehash:

> *Is fresh food preparation an informational barrier in our focus area?*

For Producers

When designing the producer side of the application, our most important question is simply: who are the people behind the farms? Are they corporations, or individuals? Corporations are more likely to have stricter distribution guidelines and practices in place, and may not even sell directly to the consumer the way independent farmers might at events such as farmers' markets. More succinctly:

What is the independent vs. corporate makeup of local farms?

Our second question for producers will determine how integral farming is to our users' livelihoods. Is it their primary source of income, or a side job meant to earn extra money in lieu of other trades or gig economy contracts? To an extent this question also addresses the potential fruit and vegetable output of farms, as full-time farmers will have more time to cultivate larger tracts of land. To put it simply:

How many local producers consider themselves full-time farmers? How many own the land they farm on?

And our final question is relatively simple, yet integral to our platform:

Do producers have consistent internet access?

Rationale for Chosen Research Methodologies

Our client, the Atlanta Mobile Market, works extensively in the lower income, food-insecure neighborhoods on Atlanta's West Side. To best accommodate our client, we focused our consumer research in the 30314 ZIP Code, which includes Bankhead and Vine City. Producer research encompasses all of Fulton County.

Our research consists of an original survey, as well as data from the 2019 American Community Survey's 5-Year Estimates in our target ZIP Code, and the 2017 United States Department of Agriculture's Census of Agriculture report on the City of Atlanta's parent county, Fulton.

Our choosing of these methods was largely (though not singularly) influenced by the ongoing COVID-19 pandemic. While our *preferred* methods of research would have been one-on-one interviews and physical survey distributions in community centers, current CDC guidelines discourage in-person interaction. As a result, we instead chose to distribute our survey digitally, via a text and email list from a Church contact of our client, based in our focus area.

Our survey is designed to be comprehensive on matters of grocery and dietary habits, while remaining short and easy to read. The necessity of brevity is threefold: first, because people are more likely to finish shorter surveys; second, because we anticipated our subjects responding from mobile devices, the smaller screens of which can exaggerate the length of text; and third, because we must assume that the literacy levels of our subjects vary widely. For this same reason no question is marked mandatory.

For the more objective aspects of our user research, we consulted the 2019 American Community Survey (ACS) statistics for our focus area: when it comes to collecting and processing hard data (especially in the population-spanning areas of economics and transportation) the Bureau of the Census has far more resources than our small team.

For similar reasons, we chose to consult the 2017 Census of Agriculture (the most recent census of its kind) from the United States Department of Agriculture (USDA) on the producer-side, where our current development focus relies mostly on economic data.

Summary of Findings

Consumers

When it comes to technology access, we found that 79.5% of households in our focus area own a computing device of some sort, and that the most prevalent devices are smartphones – in fact, if a household owns only one type of computing device, it is most likely to be a smartphone (Appendix C). This fares well for developing a mobile app as the primary means of platform access for consumers. The results of our original survey (Appendix B) show that our respondents are about equally as likely to have either an Android (11 respondents) or iPhone (10 respondents), meaning that even if we start development with one operating system (likely Android), it is essential in the long term to make our platform available on both app stores.

To understand barriers to access, we first looked at income levels and benefit recipients in our focus area. As seen in Appendix D: Figure B, most households make $50,000 a year or less, with the mode income range being $15,000 to $25,000 dollars a year – made by nearly 20% of households. Compared to the entire city of Atlanta, the income range of our focus area is disproportionately skewed towards the lower income range, with the aforementioned mode income range of the area being twice as prevalent in our focus area than in the City of Atlanta as a whole. Additionally, about 35% of households in the area receive SNAP benefits, with about the same figure receiving Social Security Income (Appendix D: Figure C).

Out of the labor force, 57.2% of people drive their own vehicle or carpool to work, with 30.7% of people either walking or riding public transit (Appendix D: Figure A). All data taken together, we must consider that our platform must somehow craft a solution whereby food is easily accessible in a walkable distance in the community (as public transit incurs additional costs that riders may not be able to spend outside of commuting to work). We believe this will be the greatest challenge of our platform, and will require leverage from within the community to make it possible. Additionally, it would be ideal to source producers who accept SNAP benefits and other government assistance programs, and for us to likewise accept this payment method within the app.

In our survey, the most frequent barrier reported by respondents was "…[not feeling] safe going shopping during the COVID-19 pandemic," with six respondents listing their safety concerns as an issue (Appendix B). Two respondents cited the grocery store as being too far away (making it the second largest barrier), and with one person responding that it is expensive to travel to the grocery store and back (Appendix B). Despite these barriers, 90% of respondents reported that they regularly shop at a grocery store, indicating that they make an extra effort to do so (Appendix B). The FarmerEx platform will hopefully alleviate the stress of making arduous grocery store trips and risking residents' health; we must consider that wherever purchased goods are picked up by residents, the location should not only be convenient, but preferably uncrowded.

When asked if they regularly eat fresh fruits and vegetables, 13 respondents said "Yes" with 6 saying "Sometimes" or "No" (Appendix B). However, 100% of survey respondents said they would eat more

fresh fruits and vegetables if they could obtain them from an affordable location in their community (Appendix B). One respondent commented that there is not "enough stores in my community to get food that we want and need so we buy what's in our community. We need more fresh food options" (Appendix B). Hearteningly, the demand for access to fresh food obviously exists, so our platform will fulfill a niche in the community.

Finally, the respondents of our survey generally indicated that they are willing to learn new recipes, meaning that there is less of an informational gap in learning to prepare fresh produce in different ways (increasing demand). As seen in Appendix B, 52% of respondents said they use a search engine to find new recipes, with 38% using YouTube, and another 48% sourcing new recipe ideas from family and friends (Appendix B). Only 28% of respondents said that they do not seek out new recipes. We believe to help inspire the use of fresh produce in meals, our app should also direct consumers to recipes (from other internet sources) containing the types of fresh fruits and vegetables they are looking to purchase.

Producers

In our producer research, we found that only 18.97% of farms in Fulton County are operated by a corporation, and a slightly higher percentage are run by partnerships: over half of all farms are owned and operated by families and individuals (Appendix E, Figure A). Additionally, over three quarters of these farms are operated by full-owners, while less than 10% of farms are operated by part-owners. Interestingly, while full-owners *do* operate the majority of land on farms compared to part-owners and tenants, proportional to the percentage of full-owners, they operate less land, while part-owners operate more (Appendix E, Figure B). Finally, only 40% of producers reported farming as their primary occupation (Appendix E, Figure C). The majority (60%) of producers report a primary occupation other than farming (Appendix E, Figure C).

These results are promising, as it means that the majority of producers are local individuals, more likely to spend their earnings locally and further strengthen Atlanta's economy. Individual producers are also less likely to have existing computer frameworks to manage farming that would pose an issue with integrating into our platform. As a result, combined with the fact that most producers only farm part-time, means that we need to tailor our product for the individual, who does *not* invest all their time in farming. The tone of the producer side of the platform needs to be more casual than it would be if our main focus group were corporations or full-time farmers.

Appendix A: Consumer Food Habit Survey Questions

Link:

████████████████████████████

████████████████████

1) What type of phone do you have?
   a) An iPhone
   b) An Android (Samsung, Lenovo, Motorola, or other)
   c) I have a phone, but it is not a smart phone.
   d) I do not have a phone.
2) Select an answer (Yes, Sometimes, or No) for each statement below.
   a) I regularly shop at the grocery store.
   b) I regularly shop at the corner or convenience store.
   c) It is easy for me to find fresh (not canned) fruits and vegetables.
   d) I regularly eat fresh (not canned) fruits and vegetables.
   e) I regularly eat canned food.
   f) I regularly eat dried food (like dried beans and rice).
   g) I regularly eat frozen food.
3) What issues do you face when trying to make time to shop for food? Select every answer you agree with.
   a) The grocery store is too far.
   b) It is expensive for me to travel to the grocery store and back.
   c) The grocery store is usually not open by the time I am free to go there.
   d) I am the primary caretaker of someone who can't be left alone, and I can't bring them with me to the store.
   e) I do not feel safe going shopping during the COVID-19 pandemic.
4) Would you eat more fresh fruits and vegetables if you could obtain them from an affordable location in your community?
   a) Yes
   b) No
5) If you answered 'No' to number 4, why? Select every answer you agree with.
   a) I do not like fruits or vegetables.
   b) I do not know how to prepare fruits and vegetables in a meal.
   c) I do not have the time to prepare fruits and vegetables in a meal.
   d) I have a limited food budget and would prefer to spend it elsewhere.
6) Do you obtain fresh fruits and vegetables from any of the following sources? Select all that apply.
   a) Personal Garden
   b) Community Garden
   c) Food Banks
   d) Mobile Farmers Markets
   e) Directly from a Farm
   f) None of the above

7) How would you describe your approach to preparing meals? Select every answer you agree with.

   a) I do not seek out new recipes. I remake the same meals on a regular basis.
   b) I search for video recipes on YouTube.
   c) I search for recipes on Google (or another search engine).
   d) I ask friends and family members for recipes.
   e) I use a cookbook.
   f) I seek out food-related magazines.
   g) I taught myself to cook.
   h) A friend or family member taught me how to cook.

8) If you have any comments about food in your community (such as what you think would make it easier to buy fresh fruits and vegetables), please type them in the box below.

Appendix B: Consumer Food Habit Survey Responses (n = 21)

Question	Response	Answer Count
What type of phone do you have?	An Android (Samsung, Lenovo, Motorola, or other)	11
	An iPhone	10
	I have a phone, but it is not a smart phone.	0
	I do not have a phone.	0
What issues do you face when trying to make time to shop for food? Select every answer you agree with.	The grocery store is too far.	2
	It is expensive for me to travel to the grocery store and back.	1
	The grocery store is usually not open by the time I am free to go there.	1
	I am the primary caretaker of someone who can't be left alone, and I can't bring them with me to the store.	0
	I do not feel safe going shopping during the COVID-19 pandemic.	6
Would you eat more fresh fruits and vegetables if you could obtain them from an affordable location in your community?	Yes	21
	No	0
If you answered 'No' to number 4, why? Select every answer you agree with.	I do not like fruits or vegetables.	0
	I do not know how to prepare fruits and vegetables in a meal.	0
	I do not have the time to prepare fruits and vegetables in a meal.	0
	I have a limited food budget and would prefer to spend it elsewhere.	1
Do you obtain fresh fruits and vegetables from any of the following sources? Select all that apply.	Personal Garden	1
	Community Garden	1
	Food Banks	0
	Mobile Farmers Markets	0
	Directly from a Farm	1
	None of the above	18
How would you describe your approach to preparing meals?	I do not seek out new recipes. I remake the same meals on a regular basis.	6

Select every answer you agree with.	I search for video recipes on YouTube.	8
	I search for recipes on Google (or another search engine).	11
	I ask friends and family members for recipes.	10
	I use a cookbook.	2
	I seek out food-related magazines.	3
	I taught myself to cook.	4
	A friend or family member taught me how to cook.	9

Instruction	Statement	Selection	Answer Count
Select an answer for each statement below.	I regularly shop at the grocery store.	Yes	19
		Sometimes	1
		No	1
	I regularly shop at the corner or convenience store.	Yes	3
		Sometimes	7
		No	9
	It is easy for me to find fresh (not canned) fruits and vegetables.	Yes	12
		Sometimes	5
		No	2
	I regularly eat fresh (not canned) fruits and vegetables.	Yes	13
		Sometimes	5
		No	1
	I regularly eat canned food.	Yes	1
		Sometimes	8
		No	10
	I regularly eat dried food (like dried beans and rice).	Yes	6
		Sometimes	10
		No	3
	I regularly eat frozen food.	Yes	8
		Sometimes	7
		No	3

If you have any comments about food in your community (such as what you think would make it easier to buy fresh fruits and vegetables), please type them in the box below.

- "It's not enough stores in my community to get food that we want and need so we buy what's in our community. We need more fresh food options"
- "I'm convinced that more locally grown is what's needed for our health. The food preservatives are Killing people!"
- "Were I live we use to have someone to come out to my apartment building every week to bring us some fresh fruits and vegetables that we could purchase at a low price but when the virus came they stopped coming because of the virus so now I have to go to the grocery store to get my fruits and vegetables"
- "We need a store like Sprouts."

Appendix C: American Community Survey 5 Year Estimates for Zip Code 30314

Link:
https://data.census.gov/cedsci/table?q=Telephone,%20Computer,%20and%20Internet%20Acces
s&g=8600000US30314&tid=ACSST5Y2019.S2801&hidePreview=true

Label	ZCTA5 30314			
	Total		Percent	
	Estimate	Margin of Error	Estimate	Margin of Error
Total households	7,590	±296	(X)	(X)
TYPES OF COMPUTER				
Has one or more types of computing devices:	6,032	±332	79.5%	±3.0
Desktop or laptop	4,366	±303	57.5%	±3.8
Desktop or laptop with no other type of computing device	474	±142	6.2%	±1.8
Smartphone	5,273	±301	69.5%	±3.1
Smartphone with no other type of computing device	989	±195	13.0%	±2.4
Tablet or other portable wireless computer	3,397	±232	44.8%	±2.9
Tablet or other portable wireless computer with no other type of computing device	122	±60	1.6%	±0.8
Other computer	194	±97	2.6%	±1.3
Other computer with no other type of computing device	0	±25	0.0%	±0.5
No computer	1,558	±236	20.5%	±3.0

Appendix D: 2019 ACS 5-Year Estimates Profiles in Zip Code 30314

Link:
https://data.census.gov/cedsci/table?q=benefits&g=8600000US30314&tid=ACSDP5Y2019.DP03&hidePreview=true

Figure A: Commuting to Work
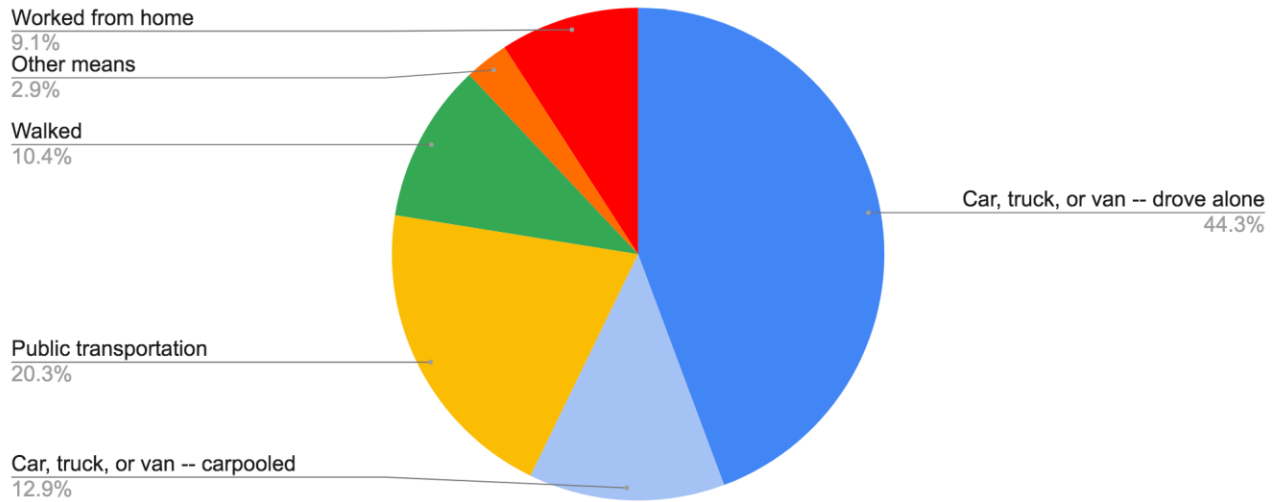

Commuting to Work in Zip Code 30314

Worked from home 9.1%
Other means 2.9%
Walked 10.4%
Public transportation 20.3%
Car, truck, or van -- carpooled 12.9%
Car, truck, or van -- drove alone 44.3%

Figure B: Household Income

Household Income as a Percentage of Population:
Zip Code 30314 & the City of Atlanta

Figure C: Households Receiving Benefits
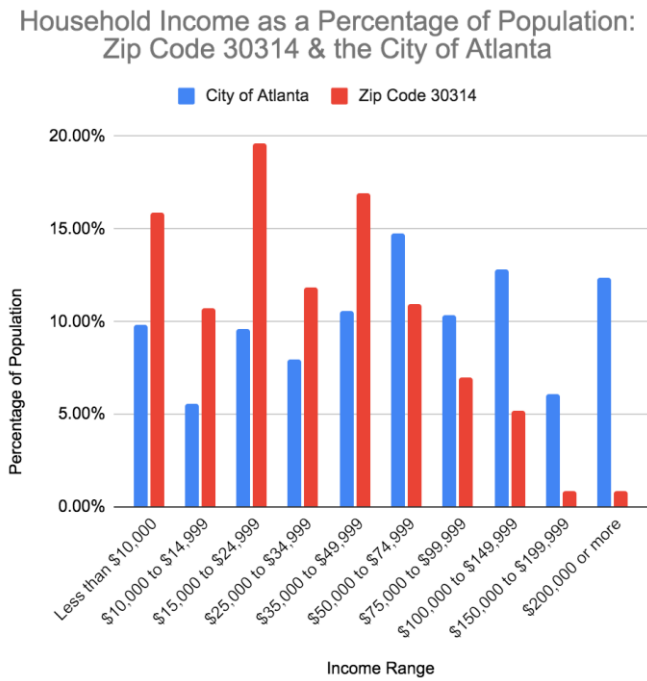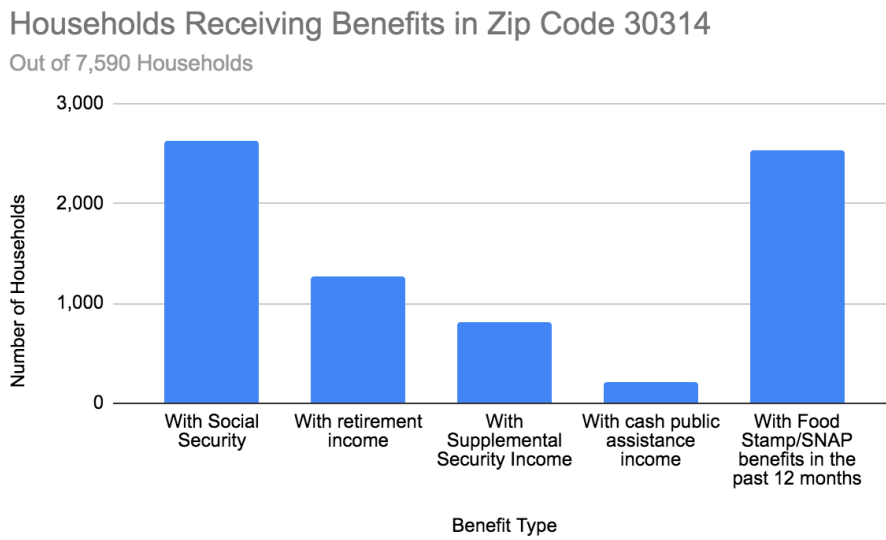

Households Receiving Benefits in Zip Code 30314
Out of 7,590 Households

Appendix E: 2017 Census of Agriculture, Fulton County Statistics

Source:
https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/Census_Data_Query_Tool/

Figure A: Farm Statistics

Statistic	Percentage
Percent of Farms Operated by Corporation: 2017	18.97
Percent of Farms Operated by Family or Individual: 2017	58.97
Percent of Farms Operated by Partnership: 2017	19.49
Percent of Farms with Internet Access: 2017	91.79

Figure B: Farm Ownership
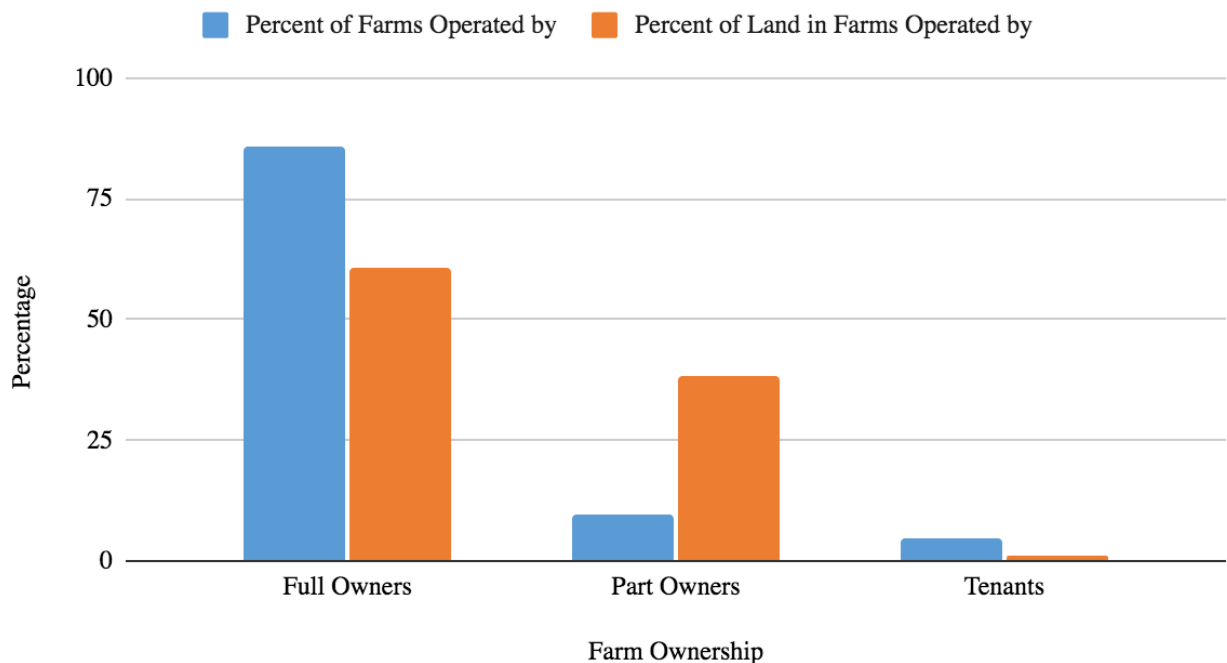

Farm Ownership Compared to Operation of Land on Farms

Figure C: Producer Statistics

Statistic	Percentage
Percent of Producers Reporting Primary Occupation as Farming: 2017	39.35
Percent of Producers Reporting Primary Occupation as Other Than Farming: 2017	60.65

| Percent of Producers Working Off Their Farms 100 Days or More: 2017 | 44.08 |

Citations

U.S. Census Bureau; American Community Survey, 2019 American Community Survey 5-Year Estimates, Table DP03, ZIP 30314. Retrieved from https://data.census.gov/cedsci/table?q=benefits&g=8600000US30314&tid=ACSDP5Y2019.DP03&hidePreview=true .

U.S. Census Bureau; American Community Survey, 2019 American Community Survey 5-Year Estimates, Table S2801. ZIP 30314. Retrieved from https://data.census.gov/cedsci/table?q=Telephone,%20Computer,%20and%20Internet%20Access&g=8600000US30314&tid=ACSST5Y2019.S2801&hidePreview=true .

USDA NASS (2019). 2017 Census of Agriculture, Census Data Query Tool (CDQT). Available at: https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/Census_Data_Query_Tool/ .